

# AstroSat – redbook – proposals

April-2016 to September-2016

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
G05_002	Probing various properties of three X-ray binaries with ASTROSAT	X-ray binaries show a plethora of spectral and timing properties which can be used to study fundamental problems, such as probing the strong gravity and dense matter, and understanding the accretion-ejection mechanism. We propose to observe three X-ray binaries, 4U 1636-536, 2S 0921-630 and GS 1826-238, for a total exposure of 80 ks to study a number of such properties. This proposal relies on the broadband X-ray spectral and fast timing capabilities of ASTROSAT.	2S 0921-630	09 22 35.20	-63 17 38.5	T02	sudip	TIFR	
--	--	--	4U 1636-536	16 40 55.50	-53 45 05.0	T01	sudip	TIFR	
--	--	--	GS 1826-238	18 29 28.20	-23 47 49.0	T03	sudip	TIFR	
G05_009	GCs: UV study of exotic stellar populations, binaries and variables - A pilot study	Globular Clusters (GCs) house exotic stellar populations and are the only sites where the products of direct collision of stars (Blue Straggler stars, BSS) are found. GCs also have accreting binaries, WDs and Horizontal branch stars, which are all bright in the UV. In the UV, all these stars stand out from the swamp of the cooler main-sequence stars and red giants. Our simulations suggest that the colour-magnitude diagrams using UVIT filters create definite diagnostic regions which can be used to detect and identify these systems. Exploiting the resolution and filter system of the UVIT, we plan to derive the multi-wavelength SEDs and estimate the fundamental properties such as mass, temperature and Luminosity. For the first time, we plan to produce a systematic FUV light curves of RR Lyrae stars - expected to have large amplitude pulsations in the UV. We plan to observe NGC 288 and NGC 5466.	NGC 288	0 52 45.240	-26 34 57.400	T02	annapurni	IIA	
--	--	--	NGC 5466	14 5 27.290	28 32 3.998	T01	annapurni	IIA	
G05_021	Study of pulsation and spectral characteristic of Xpulsars in binaries with LAXPC	study of pulsation and spectral characteristic of Xpulsars in binaries: 4U 1626-67, 2A 1822-371, with LAXPC for GT Phase (G05) proposed by Prof P. C. Agrawal and team.	3A 1822-371	18 25 46.8	-37 06 19	T02	parag	TIFR	
--	--	--	4U 1626-67	16 32 16.8	-67 27 43	T01	parag	TIFR	
G05_025	LAXPC Blank Sky-9 for Background	LAXPC Blank Sky for Background Observation in August/september-2016	Sky9_75_50	15 49 28.92937	+47 06 17.6520	T9	dedhia	TIFR	
G05_027	Crab - offset (July-Sept)	Crab with correct OFFSET for calibration.	Crab	5 34 31.94	22 00 52.2	T01	dedhia	TIFR	

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G05_031	Study of Galactic Structure using UVIT star counts	The aim of this proposal is to investigate in detail the observed UV star counts obtained by UVIT-ASTROSAT vis-a-vis the model simulated catalogues produced by the Besancon model of stellar population synthesis in five Galactic directions, and to explore the potential for studying the structure of our Galaxy from images in multiple NUV and FUV filters of the UVIT. UV star counts will be dominated by MS stars, hot white dwarfs (WDs) and blue horizontal branch stars (BHBs) and hence will be very useful to separate out different stellar populations since we have several UV colours, which in turn will help us to estimate the structural parameters of the Galaxy with better precision. The population of WDs and BHBs is also integral to the study of stellar evolution and structure of the Milky Way as they belong to different stellar populations of the Galaxy.	GAC175+60	10 43 21.1	41 56 49.5	T04	dkojha	TIFR	
--	--	--	GC14646	1 57 19.90	13 18 54.6	T02	dkojha	TIFR	
--	--	--	GC15+ 60	14 49 25.4	14 56 41.0	T03	dkojha	TIFR	
--	--	--	GC4743	21 51 2.8	-8 33 36.6	T01	dkojha	TIFR	
--	--	--	SGP	00 51 26.0	-27 07 42.0	T05	dkojha	TIFR	
G05_045	Multi-wavelength observations of AR Uma: A very high field Polar	We propose to observe a polar AR~Uma, one of the highest magnetic field polar with ASTROSAT. Recent optical observations of AR Uma differs from the earlier reported X-ray and Optical period of AR Uma by close to 10% more along with the change in the shape of the lightcurve. We propose a 50 ks observations of multi-wavelength observations of AR~Uma using ASTROSAT to explain these variations. The simultaneous observations from ASTROSAT can help in ruling out or confirming the change in the period.	AR Uma	11 15 44.563	42 58 22.440	T01	girish	ISRO	
--	--	--	AR Uma	11 15 44.563	42 58 22.440	T01	girish	OTHERS	
G05_083	UVIT observations of ongoing star formation in early-type galaxies	Early-type galaxies are passively evolving stellar systems in the local Universe. The recent reports of a class of blue early-type galaxies with ongoing star formation is hypothesized to be normal early-type galaxies with sudden burst of star formation. The narrow band filters and spatial resolution of UVIT can be used to understand the star formation in blue earlytype galaxies. We propose to observe three blue earlytype galaxies over a range in star formation rates with UVIT to understand the triggering mechanism for star formation in these otherwise red and dead stellar systems.	SDSSJ120617.05+633819.0	12 06 17.0	63 38 19.0	T01	koshy	IIA	
--	--	--	SDSSJ143222.70+565108.3	14 32 22.7	56 51 08.4	T02	koshy	IIA	
--	--	--	SDSSJ145323.38+390413.6	14 53 23.4	39 04 13.6	T03	koshy	IIA	

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G05_088	UVIT Imaging of Dense Stellar Systems in the Virgo Cluster	The Virgo cluster is the dominant mass concentration within ~50 Mpc. The cores of its A and B subclusters each contain thousands of globular clusters, dozens of ultra-compact dwarf galaxies and hundreds of dwarf galaxies (many of which contain prominent nuclear star clusters at their photocentres). Although a wealth of high-quality optical and IR data exists for these dense stellar systems, relatively little is known about their UV properties because previous UV facilities have suffered either from small fields (HST) or poor angular resolution (GALEX). We propose a UVIT programme to carry out the definitive UV imaging study of these faint, compact objects. Our approach will be to perform deep imaging in a single field for each of M87 and M49 in the FUVCaF2-1 and NUV-Silica filters. These GT science observations will provide strong new constraints on the stellar populations of dense, lowmass stellar systems.	M49 Field 1	12 29 46.70	+08 00 02.0	T03	pcote_nrc	NRC-Herzberg	
G05_101	Timing and Spectral Studies of the Ultra Compact X-ray Binary Pulsar 4U 1626-67	We request 40 ks observation of an ultra-compact accretion powered X-ray pulsar 4U 1626-67 with ASTROSAT. The primary goal is to perform a very detailed spin-phase resolved spectral study of this pulsar to investigate about the Cyclotron Resonance Scattering Features (CRSF from now) across the pulse phases which will help in mapping the magnetic field geometry and any possible change in accretion geometry/magnetic field configuration during its current spin-up phase. We also wish to carry out time resolved study with flares observed during its spin-up phase. We will also study the evolution of its power density spectrum using all the observations made during spin-up phases along with the ASTROSAT data.	4U 1626-67	16 32 16.79	-67 27 39.3	T01	bpaul	RRI	
G05_102	X-ray timing of LMXB XTE J1710-281: Unusual Orbital Evolution, Dips and Thermonuclear Bursts	The LMXB XTE J1710-281 is located at a distance of ~15 kpc and has an edge on inclination. It is one of the very few LMXBs, where sharp and complete X-ray eclipses have been observed thereby making it easy to monitor with X-ray detectors. Eclipse timing studies have shown an unusual behaviour: The orbital period solution has three distinct epochs of orbital period separated by glitches (Jain et al. 2010). In spite of having several interesting features like thermonuclear X-ray bursts and pre-eclipse dips XTE J1710-281 has been poorly explored. The dips are attributed to occultations of the central X-ray source by structures in the outer regions of the accretion disk as seen in many other high inclination LMXBs. With the proposed observation we plan to carry out a study of the orbital evolution of XTE J1710-281, spectroscopic study of the dips, and timing/spectral studies of the thermonuclear bursts.	XTE J1710-281	17 10 12.30	-28 07 54.0	T01	bpaul	RRI	
G05_103	Observing SWJ2000.6+3210 with ASTROSAT	Most Be XRBs have eccentric orbits and all are expected to show transient X-ray emission near periastron passage. SW J2000.6+3210 is however one X-ray pulsar which, inspite of being a Be X-ray binary does not show flares during it's periastron passage. Hence, it introduces a new class of 'persistent' Be XRBs. This behaviour of SWJ2000.6+3210 is unexplained by the current theories. The X-ray spectrum of this source has a very high blackbody temperature (~ 1.2 keV). This allows to probe into the origin of the soft excess in pulsars very efficiently. An observation time of 50 ks will allow us to perform a detailed timing and spectral study of the source. It would also be interesting to check for the presence of cyclotron line in the spectrum which would provide us direct estimate of the magnetic field.	SWJ2000.6+3210	20 00 21.86	32 11 23.2	T01	bpaul	RRI	

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G05_104	Investigating the Accretion Stream Characteristics of the High Mass X-ray Binary GX 301-2 with Astrosat	From orbital phase resolved spectroscopy of the HMXB GX 301-2 with the X-ray all sky monitor MAXI, we found evidence of accretion on to the neutron star occurring via a high density accretion stream plus stellar wind of the companion (Islam & Paul 2014). The statistical quality of the MAXI-GSC observation was limited, hence we could not carry out detailed investigations of the characteristics of the accretion stream. We propose a 40 kilosec observation of GX 301-2 with the SXT and LAXPC instruments onboard ASTROSAT with the aim of studying the accretion stream characteristic of the X-ray binary system. The observation should be done in the orbital phase range of 0.1-0.3, where we previously found maximum anisotropy in the circumstellar matter distribution, indicating the presence of the accretion stream behind the neutron star. This observation will also be useful to measure the cyclotron line at a lower intensity.	GX 301-2	12 26 37.56	-62 46 13.2	T01	bpaul	RRI	Complete
G05_105	Observing 4U 2206+54 with ASTROSAT	4U 2206+54 is a peculiar pulsar that is an intermediary between sgHMXBs and SFXTs. It shows flares uncorrelated with its periastron passage and has a very long spin period. The flaring could possibly be due to the presence of clumps in the neutron star surroundings or an interplay of magnetic/centrifugal gating mechanisms. We aim to perform a detailed timing and spectral study of 4U 2206+54 with LAXPC and SXT and probe the environs of the neutron. The neutron star has a very high blackbody temperature which would allow us to study the soft X-ray excess in details. We will also investigate a previously reported weak cyclotron line at ~30 keV which would provide an estimate of the magnetic field. The large effective area of LAXPC will also allow us to study the unusually long pulse period of this pulsar with greater accuracy and characterize the spin down of the pulsar.	4U 2206+54	22 07 56.24	+54 31 06.4	T01	bpaul	RRI	Complete
G05_106	Deepest Search for Pulsation and CRSF in the High Mass X-ray Binary 4U 1700-37	We propose a 40 ks observation of the HMXB 4U 1700-37 with the LAXPC instrument onboard ASTROSAT, with the aim of searching for two features of a compact object surface: pulsations and Cyclotron line. It is a persistent eclipsing system; the optical companion is a bright O supergiant and the compact object moves in the dense stellar wind of the companion star (orbital period 3.412 days). Though the nature of the compact object is uncertain, the X-ray spectrum of the compact object is very similar to that of accreting pulsars, which indicates the compact object to be a neutron star. Previous spectral studies of this source with BeppoSAX and Suzaku found a tentative detection of a cyclotron line and found no evidence of pulsations in this source. LAXPC will provide an unique opportunity to confirm the detection of cyclotron line as well as search for pulsations in this source.	4U 1700-37	17 03 56.77	-37 50 38.9	T01	bpaul	RRI	Completed
G05_108	Astrosat observation of the SFXT with shortest orbital period: IGR J16479-4514	IGR J16479-4514 is a Supergiant Fast X-ray Transient source; and is, in many ways, a unique member of this class of stellar objects. It harbours a supergiant companion but unlike the persistent HMXBs, it shows regular flaring activity of variable duration and recurrent outbursts. The nature of the compact object is unknown and there has been no detection of pulsations. It has the shortest orbital period of 3.32 d amongst the SFXTs (Jain, Paul & Dutta, 2009). It is the only SFXT which displays full eclipse which lasts for about 20 % of the orbital period. We propose a 40 ks long observation of IGR J16479-4514 which given	IGR J16479-4514	16 47 58.00	-45 12 06.0	T01	bpaul	RRI	Yet to be Scheduled

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		Astrosat's duty cycle, will cover a large part of the out of eclipse phase of one orbital period. We will search for pulsations and a cyclotron line in the X-ray emission of this SEXT.							
G05_112	Diagnosis of complex spectrottemporal properties of LMXB GX 17+2 with ASTROSAT	We propose to observe LMXB GX 17+2 (Z-source) with SXT, LAXPC and CZTI payloads onboard ASTROSAT. The observation is plan for a total exposure time of 80 ks in order to diagnose the spectral and temporal features at different branches of Z-track. The data obtained from different instruments will be used to detect QPOs (HBO, NBO, pair of kHz QPOs) and their complex evolution along the Z-track. The decomposition of complex broad band energy spectra and its evolution along z-track in order to understand the complex emission mechanisms and accretion processes will be carried out.	GX 17+2	18 16 1.389	-14 2 10.620	T01	vivek	ISRO	
G05_114	Study of the accretion disk corona of the LMXB 4U 1822-37 in hard X-rays with Astrosat (standby/alternate)	4U 1822-37 is one of the only four LMXBs which host a high magnetic field neutron star, exhibits slow pulsations, and has a hard X-ray spectrum with a possible cyclotron line. It is also a partial eclipsing binary, making its orbital inclination well constrained. 4 U 1822-37 is one of the very rare sources with partial eclipse of the X-rays by the companion star, showing clear evidence of the X-ray source being extended, even in hard X-rays. It is believed to be an Accretion Disk Corona (ADC) source. X-ray eclipse measurement provides us an opportunity to study the extent of the X-ray corona. With a 40 ks ASTROSAT observation in X-rays we plan to perform broad-band spectroscopy, confirm and accurately measure the CRSF, and measure energy dependent pulse and orbital intensity profiles, especially in the hard X-rays for the first time, and measure spin and orbital evolution with greater accuracy.	4U 1822-37	18 25 46.81	-37 06 18.6	T01	bpaul	RRI	
G05_115	X-ray Flares and Evolution of Pulse Profiles in the HMXB Pulsar LMC X-4	We propose a 40 ks ASTROSAT observation of an accretion powered pulsar LMC X-4. The primary purpose is to study X-ray pulses and pulsation characteristics during the X-ray flares in a wide energy band. LMC X-4 is one of the very few persistent HMXBs which is known to exhibit superEddington Xray flares. Previous long X-ray observations made with EPIC camera and RXTE-PCA revealed interesting facts about its beaming pattern and change in the accretion geometry associate with the large X-ray flares and during transition from flaring state to the normal state. Therefore, broadband characteristic of the observation will also provide us for the first time, the detail on the energy dependence of the pulse profiles. We also aim to study rapid variability and the detection of mHz QPO during the bright X-ray flares with LAXPC which has the much higher collecting area compared to the previous instruments.	LMC X-4	05 32 49.54	-66 22 13.3	T01	bpaul	RRI	
G05_118	Characterisation of X-ray pulse profile of rotation powered pulsar PSR J0537-6910 with Astrosat	Rotation powered pulsars are detected over a wide range of the electromagnetic spectrum, from mHz to GeV. While the radio and gamma-ray characteristics are known for a very large number of the pulsars, the X-ray emission properties are known for only a few dozen sources and hard X-ray emission have been detected only from a handful of sources. However, various models of high energy emission processes commonly identified	PSR J0537-6910	05 37 46.66	-69 10 17.1	T01	bpaul	RRI	

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		by the regions of emission have characteristics energy dependence of the pulse profile in the soft to hard X-ray band. Therefore, detailed knowledge of energy dependence of the X-ray pulse profile of the young rotation powered pulsars is key to investigate pulsar high energy phenomena. We propose a 60 ks observation of the relatively less studied young X-ray pulsar PSR J0537-6910 with Astrosat to measure its pulse profile over a broad energy band of 3-60 keV.							
G05_127	LAXPC Black Hole Candidate Cyg X-1 [Alternate/Standby]	It has been the subject of study in all wavebands by various observatories, but in particular, was observed extensively by RXTE which has provided rich information on the timing properties of the source. However, these studies have been restricted for several reasons and hence ASTROSAT provides a unique opportunity to understand the spectral/temporal properties of Cygnus X-1. The higher effective area of the LAXPC, especially for energies > 30 keV, as compared to the RXTE PCA, would allow the analysis of the rapid temporal behaviour of the source at high energies. A 20 ksec observation of Cygnus X-1 would provide for the first time: (i) power spectra and frequency dependent time lags at high energies, (ii) hardness intensity plots at high energies, (iii) frequency resolved spectra provided by event mode data and (iv) a truly broad band (0.3 -200 keV) spectra to interpret the results.	Cyg X1	19 58 21.68	+35 12 05.8	T01	dedhia	TIFR	
G05_131	GX 339-4 [Alternate/Standby]	This is X-ray black hole binary with frequent outbursts and transient radio jets. We will study the outburst evolution, various X-ray states, accretion and radio connection, timing, qpo, spin in this source. We will confirm black hole spin parameter. LAXPC data will improve understanding of outburst evolution as well as of high soft state (softer than other BHXBs). We plan simultaneous observation of radio.	GX 339-4	17 2 49.36	-48 47 22.8	T01	dedhia	TIFR	
G05_132	4U 1630-472 [Alternate/Standby]	One of the peculiarities of this source is the presence of regular outbursts with a recurrence period between 600 and 730 d that has been observed since the discovery of the source in 1969. From RXTE and INTEGRAL analysis Capitanio et al. (2015) show that, in spite of having a similar spectral and timing behaviour in the energy range between 3 and 30 keV, these three outbursts show pronounced differences above 30 keV. In fact, the 2010 outburst extends at high energies without any detectable cut-off until 150–200 keV, while the two previous outbursts that occurred in 2006 and 2008 are not detected at all above 30 keV. Thus, in spite of a very similar accretion disc evolution, these three outbursts exhibit totally different characteristics of the Compton electron corona, showing a softening in their evolution rarely observed before in a lowmass X-ray binary hosting a black hole.	4U 1630-472	16 34 0	-47 23 39	T01	dedhia	TIFR	

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G05_134	1E 1740.7-2942 [Alternate/Standby]	The source 1E 1740.7-2942 is believed to be one of the two prototypical microquasars towards the Galactic center region whose X-ray states strongly resemble those of Cygnus X-1. Yet, the bipolar radio jets of 1E 1740.7-2942 are very reminiscent of a radio galaxy. The true nature of the object has thus remained an open question for nearly a quarter of a century. With a 20 ks exposure we would like explore the nature of sustained low hard state in this source and possibly find signature of any connection of disk accretion with the precessing Radio jet.	1E 1740.7-2942	17 43 54.83	-29 44 42.6	T01	dedhia	TIFR	
G05_136	LAXPC Observation of IGR J17091-3624 [Alternate/standby]	It shows different X-ray states namely hard state, soft state and intermediate states. Radio emissions are also observed from this source. It is only other black hole binary which shows various X-ray classes beside GRS 1915+105. So this is important X-ray source to understand the flaring activity. Here we will study various X-ray states, various X-ray classes as seen in GRS 1915+105, QPOs, radio ejection, time lags, PDS spectra etc.	XTE J17091-3624	17 09 08.0	-36 24 24	T01	dedhia	TIFR	
G05_137	LAXPC Background Observation	This is a LAXPC Background Observation	LAXPC_BKG	15 49 28.93	+47 06 17.65	T01	bpaul	RRI	
G05_140	4U 1608-52	A recent study of the neutron star low-mass X-ray binary 4U 1608-52 has also shown significant lags, whose properties hint at a reverberation origin. However, a generic lag model based upon reverberation proposed by Cackett 2016 show that the behavior of lag spectra changes above 8 keV from what is predicted by the reverberation model. This makes the source interesting for study by ASTROSAT. We are proposing 20 ks exposure of this NSXB which is sufficient to determine lag spectra by LAXPC and	4U 1608-52	16 12 43	-52 25 23	T01	dedhia	TIFR	
G05_141	XTE J1701-462	Using many Rossi X-ray Timing Explorer observations of the 2006-2007 outburst of the accreting neutron star XTE J1701-462, during which the source evolves from super-Eddington luminosities to quiescence, the X-ray color evolution is traced by Lin et al. (2009). During evolution, the pattern first resembles the Cyg X-2 subgroup of Z sources, with frequent excursions on the horizontal and normal branches (HB/NB). The source then decays and evolves to the Sco X-1 subgroup, with increasing focus on the flaring branch (FB) and the lower vertex of the 'Z.' Finally, the FB subsides, and the source transforms into an atoll source, with the lower vertex evolving to the atoll soft state.	XTE J1701-462	17 0 58.46	-46 11 8.6	T01	dedhia	TIFR	
G05_142	GX 17+2	GX 17+2 is a bright NSXB that traces 'Z' track in color color diagram. Unlike other Z sources, the hard tail hardens from the horizontal branch, through the normal branch, to the flaring branch in principle and it contributes ~ (20-50) % of the total flux in 20-200 keV. Joint fitting results of the PCA+HEXTE spectra in 3-200 keV show that the portion of Comptonization in the bulk motion Comptonization (BMC) model accounts for the hard X-ray tail, which indicates that the BMC process could be responsible for the detected hard tail. The behavior of the source in hard X-rays can be deeply understood using ASTROSAT/LAXPC and ASTROSAT/CZTI	GX 17+2	18 16 1.38	-14 2 10.62	T01	dedhia	TIFR	

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		spectra.							
G05_144	H 1743-322	It is black hole binary with frequent low level outbursts. We will study its spectrum in low hard and high soft state, qpo, time lag, spin etc. It is a low spin and low orbital time X-ray binary. LAXPC G05 phase observation (Apr - Sep 2016). We will have simultaneous radio observation.	H 1743322	17 46 15.61	-32 14 0.6	T01	dedhia	TIFR	
G05_152	The relation between AGN and Star-burst activity	It is now believed that star formation can occur in the central regions of active galactic nuclei (AGN), however, it is not clear how these two phenomena are related. Imaging observations of few Seyfert 2 galaxies have shown that the UV continuum emission in them is not only dominated by the central ionizing nuclear source, but also comes from star forming regions in their circumnuclear regions. We aim to extrapolate these finding based on limited sources using observations from UVIT. We propose to observe four low luminosity AGN/Seyfert using UVIT. These observations in combination with observations from other wavelengths (SXT from ASTROSAT) and IR wavelengths (from archives) will be used to understand the nature of the link between star-burst and AGN phenomenon in our sample.	NGC 1672	04 45 42.50	-59 14 50.00	T01	stalin	IIA	
--	--	--	ngc 4258	12 18 57.50	47 18 14.40	T03	stalin	IIA	
--	--	--	ngc 4736	12 50 53.06	41 07 13.80	T04	stalin	IIA	
--	--	--	ngc 7582	23 18 47.81	-42 19 43.68	T02	stalin	IIA	
G05_154	GX 1+4	GX 1+4 is accreting pulsar classified as symbiotic X-ray binary. It has period of about 165 seconds and has shown spin reversal in 1987. Quasi-periodic variation is also seen from this source in hard X-ray band. Also there has been indication of 75 keV line. To investigate these aspects further we propose to observe this source for duration of 40 ks with ASTROSAT.  This source is proposed by Prof. Paul and Prof. Manchanda.	GX1+4	17 32 2.160	-24 44 44.200	T01	dedhia	TIFR	
G05_156	LAXPC Blank Sky-9 for Background	LAXPC Blank Sky for Background Observation for a day.	Sky9_75_50	15 49 28.92937	+47 06 17.6520	T9	dedhia	TIFR	



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G05_157	4U 1630-472	One of the peculiarities of this source is the presence of regular outbursts with a recurrence period between 600 and 730 d that has been observed since the discovery of the source in 1969. From RXTE and INTEGRAL analysis Capitanio et al. (2015) show that, in spite of having a similar spectral and timing behaviour in the energy range between 3 and 30 keV, these three outbursts show pronounced differences above 30 keV. In fact, the 2010 outburst extends at high energies without any detectable cut-off until 150–200 keV, while the two previous outbursts that occurred in 2006 and 2008 are not detected at all above 30 keV. Thus, in spite of a very similar accretion disc evolution, these three outbursts exhibit totally different characteristics of the Compton electron corona, showing a softening in their evolution rarely observed before in a lowmass X-ray binary hosting a black hole.	4U 1630-472	16 34 0	-47 23 39	T01	dedhia	TIFR	
G05_158	1E 1740.7-2942	Low hard state spectra associated with strong radio precessing jet ; earlier known to have electron positron emission line at 511 keV. The source 1E 1740.7-2942 is believed to be one of the two prototypical microquasars towards the Galactic center region whose X-ray states strongly resemble those of Cygnus X-1. Yet, the bipolar radio jets of 1E 1740.7-2942 are very reminiscent of a radio galaxy. The true nature of the object has thus remained an open question for nearly a quarter of a century. LAXPC G05 phase observation (Apr - Sep 2016)	1E 1740.7-2942	17 43 54.83	-29 44 42.6	T01	dedhia	TIFR	
G05_161	Pilot Study of Deep UV imaging of Extended Disks of Spiral Galaxies	A pilot sample of extended disk (ring) galaxies is proposed to be imaged in selected NUV and FUV filters to study star formation & stellar populations.	NGC 1291	03 17 18.60	-41 06 29.05	T01	swarna	NCRA	
--	--	--	NGC 7217	22 07 52.36	+31 21 33.32	T02	swarna	NCRA	
G05_167	Broadband X-ray spectral and timing study of Cygnus X-1 and GRS 1915+105	X-ray spectral and timing properties of black hole X-ray binaries (BHXBs) can provide information about black hole spin, strong gravity regime and accretion ejection mechanism. However, this information can be reliable only if actual spectral components can be identified, systematics in relativistic line shape can be reduced and timing properties, especially in hard X-rays, can be connected to spectral properties. We propose eight bi-weekly observations of 10 ks each of Cygnus X-1 and eight observations of GRS 1915+105 during the period of its visibility. The total 160 ks of ASTROSAT observations of these BHXBs with a suite of ASTROSAT X-ray instruments covering 0.3-150 keV, and the uniquely large effective area of the ASTROSAT's fast timing instrument LAXPC above 20 keV, will be important to achieve the above mentioned science goals.	Cyg X1	19 58 21.676	35 12 5.778	T01	dipankar	IUCAA	
--	--	--	GRS1915+105	19 15 11.550	10 56 44.801	T02	dipankar	IUCAA	

PropId	Title	Abstract	SrcName	RA	DEC	Tid	PiId	Institute	Remarks
G05_170	Joint ASTROSAT and IRTF observations of Cygnus X-3	Cygnus X-3 is one the most enigmatic X-ray sources. Also it is among the very few persistent X-ray binaries. It is the brightest radio source among X-ray binaries showing extremely strong radio outbursts and resolved jets. Though it has been extensively studied so far across all wave bands, the nature of the compact object is not yet certain. The binary companion star in Cygnus X-3 is a Wolf-Rayet star with strong IR emission. Here we propose a deep Astrosat observation of 30 ks, simultaneously with deep infra-red observation using IRTF, which will allow us to investigate the correlations between the X-ray properties and the mass loss from the donor. It should be noted that this is a time critical observation, as the infra-red observations with IRTF have already been approved and are scheduled on 21-22 June. Hence the Astrosat observation needs to be scheduled only on these dates.	Cyg X3	20 32 25.780	40 57 27.900	T01	dipankar	IUCAA	
G05_172	Deep UV imaging studies of X-ray and optically bright SNRs II -- VelaD, 1st pointing.	We propose to map X-ray and optically bright SNRs in various UVIT filters, in order to extract the physical conditions in supernovae ejecta interacting with their surrounding environment, and in the resulting shocks. Spanning an age range of $(18000 \pm 9000)$ yr (Vela) to 5000-8000 yr (Cygnus loop) to 1000 yr (Crab), these observations will also provide unique opportunities to study the temporal evolution of SNRs from different classes of SNe, in a varying range of environments, in UV. UVIT filters will be used to map regions of hot ( $10^{4-5}$ K) and intermediate ( $5000-8000$ K) temperatures via emission lines of C IV (1550 Ang.), He II (1640 Ang.), and Mg II lines (2800 A), bridging the gap between x-ray bright ( $10^{6-7}$ K) and cool, optical regions. UVIT-NUV narrow bands will complement Galex NUV imaging of Crab and Cygnus loop by Galex, and provide 1st NUV images of Vela D.	Vela-D	9 00 10.79	-45 30 30.18	T01	fsutaria	IIA	
G05_173	Deep UV imaging studies of X-ray and optically bright SNRs III -- Vela-D, 2nd pointing.	We propose to map X-ray and optically bright SNRs in various UVIT filters, in order to extract the physical conditions in supernovae ejecta interacting with their surrounding environment, and in the resulting shocks. Spanning an age range of $(18000 \pm 9000)$ yr (Vela) to 5000-8000 yr (Cygnus loop) to 1000 yr (Crab), these observations will also provide unique opportunities to study the temporal evolution of SNRs from different classes of SNe, in a varying range of environments, in UV. UVIT filters will be used to map regions of hot ( $10^{4-5}$ K) and intermediate ( $5000-8000$ K) temperatures via emission lines of C IV (1550 Ang.), He II (1640 Ang.), and Mg II lines (2800 A), bridging the gap between x-ray bright ( $10^{6-7}$ K) and cool, optical regions. UVIT-NUV narrow bands will complement Galex NUV imaging of Crab and Cygnus loop by Galex, and provide 1st NUV images of Vela D.	Vela-D	08 59 12.703	-45 59 55	T01	fsutaria	IIA	

PropId	Title	Abstract	SrcName	RA	DEC	Tid	PiId	Institute	Remarks
G05_178	Study and Morphology and Ionization structure of Planetary Nebulae III -- A21	We propose to image several planetary nebulae in UVIT filters that would isolate nebular structure in some of the emission lines like 1550\AA C IV , 2326\AA C II], 2470\AA [O II] to map the ionization structures as well as variations of physical parameters across the nebula. It is also likely various flows and stellar wind from central star could also create shocked regions that might create hot highly ionized regions. The modeling of the nebulae which might contain nuclear processed material from the star would dependent on proper evaluation of the ionization structure. We also would like to obtain grating spectra of the nebula in Nuv and Fuv to help study the emission line morphology. Initial attempt we would propose to observe s planetary nebulae.	A21	07 29 02.7	+13 14 48.4	T01	nkrao	IIA	
G05_182	Study and Morphology and Ionization structure of Planetary Nebulae VII - LoTr5	We propose to image several planetary nebulae in UVIT filters that would isolate nebular structure in some of the emission lines like 1550\AA C IV , 2326\AA C II], 2470\AA [O II] to map the ionization structures as well as variations of physical parameters across the nebula. It is also likely various flows and stellar wind from central star could also create shocked regions that might create hot highly ionized regions. The modeling of the nebulae which might contain nuclear processed material from the star would dependent on proper evaluation of the ionization structure. We also would like to obtain grating spectra of the nebula in Nuv and Fuv to help study the emission line morphology. Initial attempt we would propose to observe s planetary nebulae.	LoTr 5	12 55 33.8	+25 53 30.6	T01	nkrao	IIA	
G05_187	Study and Morphology and Ionization structure of Planetary Nebulae X II-NGC 7293.	We propose to image several planetary nebulae in UVIT filters that would isolate nebular structure in some of the emission lines like 1550\AA C IV , 2326\AA C II], 2470\AA [O II] to map the ionization structures as well as variations of physical parameters across the nebula. It is also likely various flows and stellar wind from central star could also create shocked regions that might create hot highly ionized regions. The modeling of the nebulae which might contain nuclear processed material from the star would dependent on proper evaluation of the ionization structure. We also would like to obtain grating spectra of the nebula in Nuv and Fuv to help study the emission line morphology. Initial attempt we would propose to observe s planetary nebulae.	NGC 7293	22 29 38.5	-20 50 13.6	T01	nkrao	IIA	

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
G05_189	Wideband 'spectro-temporal' studies of enigmatic black hole source GRS 1915+105 with ASTROSAT – Implications on accretion disk dynamics	The bright galactic black hole source GRS 1915+105 exhibits 'complex' X-ray variabilities, which are termed as 'classes'. The 'spectro-temporal' features are very unique for each class. This proposal is aimed to observe the source continuously (~100 ksec) in-order to 'catch' the class transition, to model the wideband (0.5 - 150 keV) energy spectra and finally to constrain the mass of the 'hole'. Modelling of the wideband spectral data of various classes (if observed) will be carried out using the physical model, which is a four parameter solution ( i.e., Keplerian rate, sub-Keplerian rate, mass of the black hole and size of the Compton corona). Hence, long and continuous observation will be useful to study fast 'spectro-temporal' changes during the class transitions. This will help to diagnose the accretion flow behaviour and enhance our understanding of the system.	GRS 1915+105	19 15 11.550	10 56 44.801	T01	anuj	ISRO	
G05_190	4U 1728-34	X-ray binaries show a plethora of spectral and timing properties which can be used to study fundamental problems, such as probing the strong gravity and dense matter, and understanding the accretion-ejection mechanism. We propose to observe a low-mass X-ray binary, 4U 1728–34, for a total exposure of ~20ks (July to Sept) to study a number of such properties . This proposal relies on the broadband X-ray spectral and fast timing capabilities of ASTROSAT.	4U 1728-34	17 31 57.73	-33 50 2.5	T01	dedhia	TIFR	
G05_191	LAXPC Black Hole Candidate Cyg X-1	Cyg X-1 is variable source. Here we will study spectra of hard/soft state, QPOs, radio ejection, time lags, PDS spectra etc We will observe this source for 20 ks. Proposals are given as per available time. Observation time can be adjusted such that spacing of about two months during May- Sept., 2016.	Cyg X1	19 58 21.676	35 12 5.778	T01	dedhia	TIFR	
G05_192	LAXPC Black Hole Candidate Cyg X-3	Cyg X-3 is a persistent source with very strong radio jets. It has frequent radio jet ejection. Here we will study energy spectra, QPOs, X-ray and radio connection, time lags, PDS spectra, spin of black hole in Cyg X-3 etc. We will observe this source for 20 ks two times with spacing of 1-2 months. Proposals are given as per available time.	Cyg X3	20 32 25.780	40 57 27.900	T01	dedhia	TIFR	
G05_194	LAXPC Black Hole Binaries 4U 1957+115	4u 1957+115 is a variable source. Here we will study hard state, high soft state and suzaku obs indicate the most rapidly spinning black hole to be confirmed by SXT and LAXPC. Moreover 25 Hz QPO is detected by RXTE. Need further confirmation by LAXPC	4U 1957+115	19 59 24.210	11 42 32.400	T01	dedhia	TIFR	

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
G05_195	4U 1636-536	4U 1636+53 shows kHz Quasi-periodic Oscillations (QPOs), low frequency (~1 Hz) ones. RXTE has provided a rich literature on the occurrence of these oscillations and empirical relationship between their properties. There is no consensus regarding their origin. This is partly because earlier studies had restricted their study to the dynamical nature of the QPOs rather than on the radiative process that produces them. Recently, using straightforward but powerful tools like energy dependent time lags and r.m.s, and frequency resolved spectroscopy the nature of the active radiative process is being investigated. However, RXTE with its poor energy resolution and effectively narrow band is not well suited for such spectral/temporal analysis. On the other hand, ASTROSAT with its broad band spectral coverage (0.3-200 keV) and especially the much larger effective area of the LAXPC above 30 keV as compared to the PCA, provides the best opportunity for such studies.	4U 1636-536	16 40 55.500	-53 45 5.004	T01	dedhia	TIFR	
G05_201	Observations of Mkn421 with ASTROSAT (old 040)	Mkn421 is HBL (High frequency peaked BL Lac) class Blazar showing emission over entire waveband, from radio to TeV gamma ray energies. This object has shown frequent flaring episodes. Its multiwaveband SED shows two peaks. First peak is at X-ray energies and second in gamma ray band. ASTROSAT X-ray instruments will have good coverage of the first peak. We propose to observe this source in two exposures of 20 ks with ASTROSAT to study various aspects including underlying particle distribution as well as temporal variability. If possible we can have multiwaveband coverage using ground based instruments (Optical-IR, VHE gamma rays) to get further insight into emission regions and mechanisms.	Mkn421	11 4 27.314	38 12 31.799	T01	varsha	TIFR	
G05_203	4U 1728-34 (old 147)	X-ray binaries show a plethora of spectral and timing properties which can be used to study fundamental problems, such as probing the strong gravity and dense matter, and understanding the accretion-ejection mechanism. We propose to observe a low-mass X-ray binary, 4U 1728-34, for a total exposure of 20ks (April to June) to study a number of such properties. This proposal relies on the broadband X-ray spectral and fast timing capabilities of ASTROSAT.	4U 1728-34	17 31 57.73	-33 50 2.5	T01	dedhia	TIFR	
G05_204	Multi-band UV photometry of Ultraluminous X-ray Sources	We propose to observe Holmberg II X-1 once in 14 days for 6 months with 3,000 sec exposure each to detect the variability (total 10 observations). 1-2 days before the UVIT scheduled observation, we will apply to Swift for X-ray observations in parallel. In future, simultaneous observations of highly-variable ULXs with ASTROSAT (FUV/NUV/VIS/SXT/LAXPC) will be useful to test the UV and optical variability correlation with the X-ray variability.	Holmberg II X1	08 19 29.81	70 42 18.2	T01	jmurthy	IIA	

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
G05_206	Deep UV imaging studies of X-ray and optically bright SNRs V - NGC6960, 2nd pointing.	We propose to map X-ray and optically bright SNRs in various UVIT filters, in order to extract the physical conditions in supernovae ejecta interacting with their surrounding environment, and in the resulting shocks. Spanning an age range of $(18000 \pm 9000)$ yr (Vela) to 5000-8000 yr (Cygnus loop) to 1000 yr (Crab), these observations will also provide unique opportunities to study the temporal evolution of SNRs from different classes of SNe, in a varying range of environments, in UV. UVIT filters will be used to map regions of hot ( $10^{4-5}$ K) and intermediate (5000-8000 K) temperatures via emission lines of C IV (1550 Ang.), He II (1640 Ang.), and Mg II lines (2800 A), bridging the gap between x-ray bright ( $10^{6-7}$ K) and cool, optical regions. UVIT-NUV narrow bands will complement Galex NUV imaging of Crab and Cygnus loop by Galex, and provide 1st NUV images of Vela D.	NGC 6960	21 46 22.60	30 21 6.40	T01	fsutaria	IIA	
G05_207	Deep UV imaging studies of X-ray and optically bright SNRs VI - NGC6960, 3rd pointing.	We propose to map X-ray and optically bright SNRs in various UVIT filters, in order to extract the physical conditions in supernovae ejecta interacting with their surrounding environment, and in the resulting shocks. Spanning an age range of $(18000 \pm 9000)$ yr (Vela) to 5000-8000 yr (Cygnus loop) to 1000 yr (Crab), these observations will also provide unique opportunities to study the temporal evolution of SNRs from different classes of SNe, in a varying range of environments, in UV. UVIT filters will be used to map regions of hot ( $10^{4-5}$ K) and intermediate (5000-8000 K) temperatures via emission lines of C IV (1550 Ang.), He II (1640 Ang.), and Mg II lines (2800 A), bridging the gap between x-ray bright ( $10^{6-7}$ K) and cool, optical regions. UVIT-NUV narrow bands will complement Galex NUV imaging of Crab and Cygnus loop by Galex, and provide 1st NUV images of Vela D.	NGC 6960	20 48 20.00	29 56 47.00	T01	fsutaria	IIA	
G05_209	TRACKING UVIT SENSITIVITY ONCE A MONTH	This is actually a monitoring proposal. As there are issues with the monitoring proposal form, this is submitted as a regular proposal - with time constraint. Important Note: - This set of observations need to be performed ONCE A MONTH, to track the sensitivity of UVIT.	NGC 188	00 48 19.2	85 13 26.1	T01	annapurni	IIA	
G05_210	Observations of ON231 with ASTROSAT (old 079)	ON231 is IBL (Intermediate frequency peaked BL Lac) class Blazar showing emission over entire waveband, from radio to TeV gamma ray energies. Its multiwaveband SED shows two peaks, with the origin of the second peak under debate. The X-ray emission lies in the valley between the two peaks. ASTROSAT X-ray instruments can provide the first simultaneous sampling of the tail of the synchrotron and the rising part of the Inverse Compton. Moreover, the broadband X-ray spectrum will be crucial in differentiating between intrinsically curved spectrum, and curvature arising due to soft X-ray absorption. This can be used to investigate the presence of gas clouds in blazar jets. We propose to observe this source in two exposures of 20 ks with ASTROSAT. If possible we can have multiwaveband coverage using ground based instruments (Optical-IR, VHE gamma rays) to get further insight into emission regions and mechanisms.	ON231	12 21 31.691	28 13 58.500	T01	varsha	TIFR	

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
G05_211	ASTROSAT observation of IES1218+304 : (old 090)	Extreme blazars (EHL), with synchrotron peak at hard X-ray energies, are fast emerging as a new sub-class of high energy peaked blazars. These objects also have very hard VHE gamma ray spectral index with no indication of Compton peak. This has posed serious energetic constraints leading to rigorous studies of these objects. The multiwavelength capability of ASTROSAT can effectively study the synchrotron component of these sources and identify the peak frequency accurately. Hence, we request observations of the "extreme" TeV blazar, IES1218+304, using the multiwavelength instruments on-board ASTROSAT. We propose for a total 40 ks observation time with two exposures of 20 ks each. The proposed observation will provide unprecedented spectral coverage of the synchrotron peak and also shed light on origin of optical-UV emission. Also comparison of hard X-ray and TeV observations can provide limits on the intensity of the extragalactic background light.	IES1218+304	12 21 21.943	30 10 37.161	T01	varsha	TIFR	
G05_212	LAXPC Black Hole Binaries LMC X-3 (August - Sep 2016)	LMC X-3 is a persistent source. Here we will study various X-ray states, QPOs, radio ejection, time lags, PDS spectra, time lag etc. The time lag will be study as LAXPC has better capability than RXTE. We will observe this source for 20 ks after june. Proposals are given as per available time.	LMC X-3	05 38 56.21	-64 04 56.1	T01	tilak	TIFR	
G05_213	Torque Reversals and Pulse Profiles of Cen X-3 and GX 1+4 (standby/alternate)	We request 8 observations of 2.5 ks each with LAXPC instrument onboard ASTROSAT of the two persistent accretion powered pulsars, Cen X-3 and GX 1+4 over the period of six months. The main propose will be to investigate the pulse profiles during different eras of spin-up and spin-down seen in these systems. This indeed will help us in understanding the changes associated with the accretion geometry at the instance of torque reversal. In addition to this we also aim to study the correlation between the absorption column density and the iron line equivalent width using the observations made with the SXT and the LAXPC instruments.	Cen X3	11 21 15.78	-60 37 22.7	T01	bpaul	RRI	
--	--	--	GX 1+4	17 32 02.16	-24 44 44.2	T02	bpaul	RRI	
G05_214	GRS 1915+105 observation for LAXPC during April to Sept 2016 with total eight observations	GRS 1915+105 shows fast variability (It could not be observed in PV phase as source was not available). It shows large number of X-ray classes and various types of radio emission. Here we will study flare activities, various X-ray classes, QPOs, SPL state, hard state, plateau state, radio ejection, time lags, PDS spectra etc. We will observe this source for 20 ks every week when available. Proposals are given as per available time. LAXPC will provide great advantage over RXTE/PCA in high energy range and in timing.  We plan to have radio & IR observation during these observation.	GRS 1915+105	19 15 11.550	10 56 44.801	T01	jsyadav	TIFR	

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
G05_215	Deep UV imaging studies of X-ray and optically bright SNRs IV - NGC6960, 1st pointing.	We propose to map X-ray and optically bright SNRs in various UVIT filters, in order to extract the physical conditions in supernovae ejecta interacting with their surrounding environment, and in the resulting shocks. Spanning an age range of $(18000 \pm 9000)$ yr (Vela) to 5000-8000 yr (Cygnus loop) to 1000 yr (Crab), these observations will also provide unique opportunities to study the temporal evolution of SNRs from different classes of SNe, in a varying range of environments, in UV. UVIT filters will be used to map regions of hot ( $10^{4-5}$ K) and intermediate (5000-8000 K) temperatures via emission lines of C IV (1550 Ang.), He II (1640 Ang.), and Mg II lines (2800 A), bridging the gap between x-ray bright ( $10^{6-7}$ K) and cool, optical regions. UVIT-NUV narrow bands will complement Galex NUV imaging of Crab and Cygnus loop by Galex, and provide 1st NUV images of Vela D.	NGC 6960	20 45 41.00	31 06 55.00	T01	fsutaria	IIA	
G05_218	X-ray spectral and Timing characterization of a sample of blazars	The nature of variability in blazars differ from source-to-source and even from flare-to-flare. The patterns, amplitude and timescales of variability are direct manifestations of acceleration, cooling-rates and magnetic field in the emission-region. The X-ray emission in blazars are mostly attributed to synchrotron and/or Synchrotron-Self-Compton(SSC) processes in the jet. The spectral curvature, the hardness, and temporal/spectral variability studies can be used to constrain the processes under action. Specifically, X-ray spectral curvature may provide information about the relative contribution of SSC/synchrotron/EC, turnovers and cooling rate of particles, which eventually can be used to understand the details of the processes. As ASTROSAT is a unique facility to advance such studies, we propose a dedicated longstretch pointing mode observations ( $\sim 45$ -60 ks each) for a sub-sample of bright Fermi-blazars using all the four major instruments, covering a broad range of energies. The proposed observations will certainly improve the understanding of the nature of these objects	AO 0235+16	2 38 38.930	16 36 59.275	T04	KPSingh19	TIFR	
--	--	--	BL Lac	22 2 43.291	42 16 39.980	T03	KPSingh19	TIFR	
--	--	--	S4 0954+65	9 58 47.245	65 33 54.818	T02	KPSingh19	TIFR	
--	--	--	cta 102	22 32 36.408	11 43 50.880	T01	KPSingh19	TIFR	
--	--	--	mrk 501	16 53 52.217	39 45 36.609	T05	KPSingh19	TIFR	
G05_219	Testing the standard disk model with the variable optical/UV/X-ray emission from NGC4593 [Replaces G05_004]	Recent monitoring observations of NGC5548 and NGC4395 have shown that the optical/UV variability is dominated by the reprocessed emission from an accretion disk. However, the sizes inferred from measured time delays are much larger compared to the standard disks. Observations of additional AGN with different Eddington ratio are required before we doubt on the theory of standard disks or we investigate the reason for larger time lags. The bright AGN NGC4593 with BH mass nearly an order of magnitude smaller than NGC5548 is well suited for the purpose as the expected delays are only a fraction of a day. We propose for a long 120ks (duration $\sim 3.5$ days)	NGC4593	12 39 39.492	-5 20 39.160	T01	dipankar	IUCAA	



PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
		Astrosat multi-wavelength observation of NGC4395. In addition to testing the disk model, the long observation will also allow to determine high energy continuum of NGC4395 as it is one of the very bright Seyfert with the 14195 keV flux of $9e-11$ cgs.							
G05_221	Luminosity dependence of phase-resolved cyclotron line features in High Mass X-ray Binary pulsar [resub G05_099] GX 301-2	GX 301-2 is a very bright high mass binary X-ray pulsar with a Cyclotron Resonance Scattering Feature (henceforth CRSF) at $\sim 35$ keV. It shows an extremely stable orbital flux modulation during which the X-ray flux varies by a factor of more than ten in the hard X-ray band. Observation of this source with Suzaku mission have shown a very clear pulse phase dependence of the CRSF feature during the low intensity phase of the binary orbit. We propose 80 ks Astrosat observations at higher intensity phases to investigate the changes in the accretion column/mound structure and resulting changes in the pulse phase dependence of the cyclotron line parameters. The proposed observation will provide us with crucial tests of the models describing structure of the accretion column/mound in X-ray pulsars and the process and geometrical dependence of the cyclotron line formation through a pulse phase resolved study. [CZTI GT proposal]	GX 301-2	12 26 37.561	-62 46 13.160	T01	dipankar	IUCAA	
G05_222	Understanding the recent star formation in nearby star forming galaxies	The star formation in galaxies are governed by a number of processes, such as spiral arms, galactic bars, bubbles and supernovae shocks etc. The dominant process is found to vary from galaxy to galaxy. These signatures can be traced only by the very young population. Tracers like $H\delta_{\alpha}$ are extensively used for 10Myr population. Evolution up to a few 100 Myr is necessary to understand the propagation of star formation. The UV fluxes are one of the best proxies to trace and estimate ages of young population, especially in regions of low metallicity. The resolution of UVIT will immensely help us to resolve star formation knots and estimate their flux. This study takes advantage of both the spatial resolution as well as the filter system of the UVIT. As a pilot study, we plan to observe two galaxies to understand the processes which govern the recent star formation.	WLM	0 1 58.162	-15 27 39.348	T01	annapurni	IIA	
G05_224	Study of Hard X-ray Spectrum of M81 (old 078)	M81 is a nearby galaxy with active nucleus showing X-ray continuum emission extending upto 100 keV. Superimposed on this continuum is 6.7 keV emission line and $\sim 8.6$ keV absorption edge. Also this object has shown periodic modulation of the flux with about 100,000 seconds. We propose to conduct Astrosat observations of this source to study possible discontinuity in hard X-ray spectrum as well as periodic modulation of flux.	M81	9 55 33.173	69 3 55.061	T01	varsha	TIFR	

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
G05_225	Testing thermal Comptonisation & accretion disk reverberation in MCG-5-23-16 with Astrosat/LAXPC (old 077)	We propose Astrosat observations of a Seyfert 1.9 galaxy, MCG-5-23-16, which is one of the brightest Seyfert galaxies in hard X-rays. It has a prominent broad iron and broad reflection hump as detected by XMM/Suzaku. Our aim is to study thermal Comptonisation and measure reverberation lag and lag-energy spectrum. Also there is possibility of studying X-ray eclipse by a cloud using UVIT/SXT data. Manchanda, Gulab and Varsha and other propose 35 ks observations of this source with instruments onboard Astrosat.	MCG-5-23-16	9 47 40.170	-30 56 55.910	T01	varsha	TIFR	
G05_226	Probing the nature of X-ray transient IGR J17451-3022 with ASTROSAT [resub G05_117]	We propose 50 ks observation of the eclipsing transient X-ray source IGR J17451-3022 in order to determine the nature of the compact object. Due to detection of X-ray eclipses and short orbital period ( $\approx 6.3$ hr), this source is believed to be a low mass X-ray binary. We would like to investigate the broad-band spectral and timing properties of this object using ASTROSAT and thereby help determine whether the X-ray source is a black hole or a neutron star. Measurement of the inner radius of the accretion disk in its current quiescent state, variability in colour-colour and hardness-intensity diagram, and constraining the mass function by broadband study of the eclipse will be attempted to address this question. [CZTI GT proposal/S. Naik et al]	IGR J17451-3022	17 45 6.720	-30 22 43.298	T01	dipankar	IUCAA	
G05_227	White Dwarf Binaries i. e. Intermediate Polars (IPs) with LAXPC -V1223Sgr	Broadband X-ray studies of Magnetic White Dwarf Binaries i. e. Intermediate Polars (IPs): V1223 Sagittarii, IGR J17303-0601, with LAXPC for GT Phase (G05) proposed by Prof P. C. Agrawal and team.	V1223 Sgr	18 55 02.24	-31 09 48.5	T01	dedhia	TIFR	
G05_228	3A 0726-260 (for PCA) [Alternate/Standby]	study of pulsation and spectral characteristic of Xpulsars in binaries: 4U 1916-053, 3A 0736-260, with LAXPC for GT Phase (G05) proposed by Prof P. C. Agrawal and team.	3A 0726-260	07 28 53.4	-26 06 28	T02	dedhia	TIFR	
G05_229	Magnetic White Dwarf Binaries Ex Hya (for PCA)	Broadband X-ray studies of Magnetic White Dwarf Binaries i. e. Intermediate Polars (IPs): AE Aquarii and EX Hydrae with LAXPC for GT Phase (G05) proposed by Prof P. C. Agrawal and team.	EX Hya	12 52 24.40	-29 14 56.7	T02	dedhia	TIFR	
G05_230	Multi-wavelength Observations of Magnetic Cataclysmic Variables with ASTROSAT and SALT	We propose to observe six Magnetic Cataclysmic Variables (MCVs) with ASTROSAT and SALT (the South African Large Telescope), nearly simultaneously. Three of these are Polars, one of which has been discovered recently with Integral. The other three are Intermediate Polars (IPs), one of which has been recently discovered with Integral and another has recently been identified to have 1.95 min spin period. These sources have strong optical polarization and can be viewed easily with both ASTROSAT and SALT. These X-ray sources are also strong emitters in NUV and FUV band. The proposed observations will provide a wealth of new information on periods and spectral properties of these sources in all the wavelength bands. We aim to find correlation between the X-ray and optical periods, characterize the X-ray, UV and optical spectra, and find QPOs in X-rays, UV & optical polarization.	AR Sco	16 21 47.280	-22 53 10.298	T06	KPSingh19	TIFR	
--	--	--	BL Hyi	1 41 0.380	-67 53 27.398	T02	KPSingh19	TIFR	
--	--	--	IGR J15094-6649	15 9 26.010	-66 49 23.300	T04	KPSingh19	TIFR	

PropId	Title	Abstract	SrcName	RA	DEC	Tid	PiId	Institute	Remarks
--	--	--	TX Col	5 43 20.170	-41 1 54.300	T05	KPSing h19	TIFR	
G05_233	Imaging the Hubble sequence - a Survey of Nearby Galaxies	The Hubble classification scheme was based on morphology in the visible wavelengths. Galaxy surveys produce catalogs which are classified on this basis. The morphology relates to the mix of stellar populations in the galaxy, the amount of star formation activity, and the presence of gas and dust. Deep surveys turn up larger fractions of 'peculiar' morphology since they sample shorter rest wavelengths and are looking at younger galaxies. An understanding of the UV properties of galaxies in the nearby universe is essential for comparison with distant surveys. We propose imaging using multiple filters in UVIT, which would allow us to determine the slope of the SED in the FUV and NUV as well as sample emission line signatures of star formation. The superior resolution will map star forming knots more effectively compared to GALEX. The images will also showcase UVIT capability.	M 101	14 03 43.64	54 18 26.2	T10	askpati	IIA	
G05_234	Star formation, morphology and evolution in Groups of Galaxies	The morphology of galaxies is seen to be distinctly dependant on star formation activity. From the ellipticals to late type spirals and irregular galaxies, the current star formation rate is seen to be increasing. For isolated galaxies, SF starts off in the cloud from which the galaxy was formed and later epochs see continued SF depending on the amount of matter left over together with enriched material from evolving stars. The internal dynamics of the galaxy determines how much this matter is converted to stars. A considerable fraction of galaxies occur in clusters and groups, where galaxies often have gravitational encounters with mergers and interactions being common. In such scenarios most, if not all, of the star formation is triggered by these interactions. This proposal aims at understanding the SF, to map signs of interactions and to examine the "morphological shaping" of galaxies in such groups.	HCG 56	11 32 39.6	52 56 25.0	T02	askpati	IIA	
G05_235	Investigation of NGC300	This is a galaxy that fits within the UVIT field of view. T]It is a spiral with an extended UV disk. It exhibits wide range of UV colour in GALEX data. UVIT filters will be able to characterise the young stellar populations and groups, and reveal the structure of the diffuse UV light. HST observations will help anchor the UVIT photometry and add detail to some parts of the galaxy.	NGC 300	00 54 53.5	-37 41 04	T01	hutchin gsj	Through IIA	
G05_236	Spectral and Temporal Studies of a Blazar PKS1510-089 (Old G05_041)	Blazars are known to show variability at all energies over all time-scales ranging from few minutes to years. The short time-scale variations may uncover information about physical processes and morphology within the compact emission region, magnetic field, the particle distribution and the nature of the shocks responsible for flaring blazars. The necessity of the simultaneous data with high timecadence observations over a broad energy range, is the most challenging task. ASTROSAT, with its broad energy coverage and superior sensitivity is an ideal instrument for such studies. These studies can be further extended coordinating observations with ground based facilities. We propose to have multiwavelength monitoring of PKS1510-089, known for violent activity in various	PKS15 10- 089	15 12 50.533	-9 5 59.830	T01	varsha	TIFR	

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
		wavebands. We are likely to have quasisimultaneous observations in VHE gamma ray band by HESS and possibly coverage in optical-IR band. We propose a total exposure of 40ks for this source.							
G05_237	Deep observations of Crab and Cygnus X-1 for spectropolarimetry with CZTI	Polarization measurements in X-rays is expected to address to a wealth of astrophysical phenomena which so far remain unexplored despite extensive X-ray spectroscopic and timing observations. CZTI-Imager onboard Astrosat has significant polarization measurement capability at energies beyond 100 keV. Crab, the pulsar nebula and Cygnus X-1, the high mass black hole X-ray binary, being the two most bright sources in the X-ray sky, are the potential targets for CZTI X-ray polarimetry observations. Here we propose for a deep observations of Crab and Cygnus X-1 along with blank sky for polarimetry with CZTI, as significant polarization signature is present in the previous crab observations. Phase-resolved polarimetry of crab will address the X-ray emission mechanism and geometry and the polarization measurements of Cygnus X-1 in different states will help in addressing contribution of relativistic jets to its emission in hard X-rays.[CZTI GT Observation]	Blank Sky	15 49 34.08	70 20 52.80	T02	santosh v	PRL	
--	--	--	Crab	05 34 30.21	22 01 28.71	T01	santosh v	PRL	
--	--	--	Cyg X1	19 58 21.676	35 12 5.778	T03	santosh v	PRL	
G05_238	Probing the soft X-ray excess and accretion disk/corona in Seyferts	We aim to study some outstanding problems: origin of soft X-ray excess and the optical/UV emission and connection between them, nature of accretion disks, connection between optical/UV, reality of short-term X-ray absorption variability, possibility of truncated accretion disks in low luminosity AGN(LINERs) using Astrosat's simultaneous multiwavelength capability. The bright, nearby Seyferts - NGC-3998, RE1034+396, 1H0323+342, NGC4051, Mrk110, and NGC7469 will be observed to study the variability of the soft X-ray excess in relation to optical/UV and hard X-ray emission in narrow-line Seyfert 1 (NLS1) galaxies NGC4051, REJ1034+396, 1H0323+342, Mrk110, optical-to-hard X-ray SED, possibility of truncated accretion disk in the LINER NGC3998, and Disk-jet connection in the NLS1-Blazar 1H0323+342. Time delay study will lead to test the models for both the accretion disk and soft excess. The relationship between optical/UV and absorption-free hard X-ray emission above 10-keV will allow us to test thermal Comptonisation models with seeds as optical/UV disk photons.	NGC 7469	23 3 15.674	8 52 25.280	T01	KPSing h19	TIFR	NGC 7469
--	--	--	Mrk 110	9 25 12.871	52 17 10.495	T05	KPSing h19	TIFR	
--	--	--	NGC 3998	11 57 56.133	55 27 12.922	T04	KPSing h19	TIFR	

PropId	Title	Abstract	SrcName	RA	DEC	Tid	PiId	Institute	Remarks
--	--	--	REJ 1034+396	10 34 38.602	39 38 27.770	T03	KPSingh19	TIFR	
G05_239	Probing the triggered star formation and AGN fueling in Galaxy mergers	Understanding AGN feedback is very important for our understanding the galaxy formation and evolution. In particular understanding the role played by mergers in triggering star formation and AGN activity is important. We have a sample of low-z merging galaxies hosting radio AGNs in the centre. We are using GMRT and SALT to study the cold HI inflow and distribution of H-alpha emission in these systems. Here, as a pilot programme, we wish to observe two of the best cases to look for distribution of star formation in these merging systems using UV imaging observations with UVIT. Our observations will help us understand whether the extended H-alpha emission we detect in these systems is coming from the shock heated gas or merger induced star formation. To achieve our goals we ask for a total of 7200s ASTROSAT/UVIT observations.	J1100+ 10	11 00 52.0	+10 04 25.9	T02	kanak	IUCAA	
G05_240	Deep survey of galaxies in the HST/CDF-South field using UVIT, ASTROSAT	Galaxies grow their stellar mass via two routes: in-situ star formation and major/multiple minor mergers. The frequency of major mergers is known to have gone down by the time our universe became about 6 billion years old ( $z \sim 1$ ) but galaxies continued to grow in size and mass, especially the disk spirals. What remains unclear is the relative contribution due to star formation and minor mergers in the overall stellar mass budget. Quantification of minor merger rate in a galaxy being largely uncertain, we attempt to resolve this issue by directly measuring the ongoing star formation rate (SFR) in galaxies in the HST/CDF-South field with UVIT. With improved source confusion limit of UVIT over GALEX, it will be possible to constrain the shortwavelength regime of SED, UV luminosity function and its evolution since $z \sim 1$ , as well as measure the UV escape fraction required to understand photo-ionization rate of IGM.	CDFS-I	03 32 12.56	-27 53 08.79	T01	kanak	IUCAA	
--	--	--	CDFS-II	03 33 05.46	-27 39 01.68	T02	kanak	IUCAA	
G05_241	Reflection and QPOs in magnetic Cataclysmic Variables	Magnetic Cataclysmic Variables (mCVs) are the class of sources best to showcase the multi-wavelength capability of ASTROSAT as mCVs are strong emitters of UV radiation and the shocks above the white dwarf surface can produce X-rays up to 50 keV. We propose multi-wavelength observations of four mCVs: V1223 Sgr, EF Eri, V2400 Oph and TV Col. The reported shock temperatures of a few tens of keV in these sources makes them perfect candidates to look for reflection emission which falls in the energy range of 10-30 keV. A 40 ks ASTROSAT observation for each target is required to resolve the reflection component with 30% reflectivity. In addition, an unambiguous discovery of QPOs in multiple bands (Optical/UV to X rays) or the absence of QPOs can shed light on the accretion processes under strong magnetic fields. The discovery of X-ray QPOs can put constraints on the accretion processes in mCVs.	EF Eri	3 14 12.900	-22 35 43.008	T04	girish	ISRO	

PropId	Title	Abstract	SrcName	RA	DEC	Tid	PiId	Institute	Remarks
G05_243	FC mode testing : GRS 1915+105 with total eight observations alongwith G05_214	GRS 1915+105 shows fast variability and we will test FC mode at different count rate. So we need such eight observation for one orbit. It can be coupled at the end of each slot of G05_214 monitoring proposal to minimise the mission maneuver.	GRS 1915+105	19 15 11.550	10 56 44.801	T01	jsyadav	TIFR	
G05_245	Broadband spectral and temporal study of Cygnus X-1	We plan to carry out a detail spectral and temporal study of the first black hole source Cygnus X-1 in wide energy band (0.5-200 keV). Such a broad band and long term monitoring of the source with ASTROSAT will provide better understanding of emission mechanism, spectral state transition and timing properties. We will also carry out study of time delay among different energy bands and at different frequency ranges, which will constraint accretion flow geometry and related emission mechanism. Hence with these objectives we propose 50 ks observation of the source with ASTROSAT.	Cygnus X-1	19 58 21.676	35 12 5.778	T01	anuj	ISRO	
G05_246	Variability Monitoring of Active Galaxies	We propose to commence monitoring observations of 4 bright variable AGN and to use the ASTROSAT instrument complement to unravel the complex behaviour of these objects with a view to elucidating the underlying physical conditions and geometry in the regions responsible for their optical to hard X-ray emission	MCG-6-30-15	13 35 54	-34 17 44	T02	Gordon	Leicester through TIFR	
--	--	--	NGC 4051	12 03 09	44 31 52	T04	Gordon	Leicester through TIFR	
--	--	--	PG1415+451	14 17 06	44 56 06	T03	Gordon	Leicester through TIFR	
G05_247	A multiwavelength study of Z-source LMC X-2 with ASTROSAT	We propose to observe extra galactic bright neutron star low-mass X-ray binary LMC X-2 (Z-source) with UVIT, SXT, LAXPC and CZTI payloads onboard ASTROSAT. We plan to observe this source for a total exposure time of 80 ks in order to diagnose the emission mechanisms in wide energy band along with to investigate temporal properties at different position of Z-track. This source has not shown QPO like other Zsources. Hence high quality data from LAXPC will be used to detect any possible QPO in this sources. The decomposition of complex broad band energy spectra from UV to hard X-rays and its evolution along z-track in order to understand the complex emission mechanisms and accretion processes will be carried out.	LMC X-2	5 20 28.040	-71 57 53.302	T01	vivek	ISRO	
G05_250	The atmospheric heating of ultrafast rotating active stars	Investigation of stellar coronae and chromospheric activity is one of the frontier areas of research in X-rays and UV. ASTROSAT's capability to observe such sources simultaneously multi-wavelengths is a powerful tool to understand these activities and their interrelationship. We propose to observe a late type rapidly rotating stars, EY Dra and V405 And, for 80ks each simultaneously with the UVIT, SXT and LAXPC instruments onboard ASTROSAT. Each target will be observed for $\sim 2P_{\text{rot}}$ and provide spectral information over several phases of the rotation period. We intend to study highly time-resolved correlations of coronal, chromospheric and photospheric activity phenomena. The requirement of strictly simultaneous observations results from the short-lived nature of the activity signatures under study. Hence, intensity variations will be studied over a time-scales as short as a few seconds. The proposed observations will yield insight into	EY Dra	18 16 16.776	54 10 21.620	T01	KPSingh19	TIFR	

PropId	Title	Abstract	SrcName	RA	DEC	Tid	PiId	Institute	Remarks
		the nature of the associated.							
--	--	--	V405 And	2 22 25.851	47 29 20.000	T02	KPSing h19	TIFR	
G05_251	Imaging of outlier field of the SMC resubmission	The SMC has been studied in detail in many wavelengths, and complete UV images have been taken with GALEX. The galaxy also contain numerous point X-ray sources. The UVIT field of view will allow a large population of SMC stars to be imaged in one pointing, and the UVIT spatial resolution, several times better than GALEX and with several filters, will provide unique large-scale data. The data will address the age, composition, and extinction of your stars over a wide range of environments, as well as identification of the many bright X-ray sources in them.	SMC Field 2	1 09 52.044	-71 18 20.22	T02	hutchin gsj	Through IIA	
G05_252	Multiband observations of PKS 1510089: a suitable candidate to understand long term variability of blazars	Blazars are a subclass of active galactic nuclei (AGNs) having a small jet to line-of-sight angle and exhibit high variability throughout the electromagnetic spectrum, particularly in gamma-rays and X-rays which are believed to be emitted close to the base of the jet. In order to understand the nature and emission mechanism of jet it is essential to study their multiband spectral energy distribution (SED). Fermi observations of these sources clearly indicate the presence of long term variability (more than year time scale) which is not well studied. PKS 1510-089 exhibits significant variability in high energy and is nearly continuously monitored in gamma-rays, X-rays and optical. Studying the well constructed broad band SED by repeated observations ( sparsely time binned: 4-6 months interval) with all onboard payloads of ASTROSAT over the next few years will provide the important information of jet emission mechanism during its different long term activity states.	PKS 1510-089	15 12 50.533	-9 5 59.830	T01	ramade vi	ISRO	
G05_253	Multiwavelength Observations of Black Hole Binary Systems in Low/Hard State - GX339-4, XTE J1753-223 and H1743-322	Low/Hard spectral state in XRBs is characterised by emission from a hot corona and a disc that is truncated far away from the inner most stable circular orbit (ISCO) as explained by ADAF (\cite{narayan, esin}). While there have been observations of many sources supporting ADAF during low/hard states (\cite{meyer}), there are observations indicating that the disc extends till ISCO even during the Low/Hard state of certain sources (\cite{reis})and hence leading to a different perception of the accretion geometry during this state. Therefore, in order to improve our understanding of accretion physics, many more observations with instruments of more sensitive and broadband capability needs to be carried out.  We intend to study three Black Hole Binary systems: GX339-4, XTE J1753-223 and H1743-322	GX3394	17 2 49.360	-48 47 22.801	T01	ramade vi	ISRO	

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
		in the low/hard state in the broad energy range from soft X-rays to hard X-rays.							
G05_253	Multiwavelength Observations of Black Hole Binary Systems in Low/Hard State - GX339-4, XTE J1753-223 and H1743-322	<p>Low/Hard spectral state in XRBs is characterised by emission from a hot corona and a disc that is truncated far away from the inner most stable circular orbit (ISCO) as explained by ADAF (\cite{narayan, esin}). While there have been observations of many sources supporting ADAF during low/hard states (\cite{meyer}), there are observations indicating that the disc extends till ISCO even during the Low/Hard state of certain sources (\cite{reis}) and hence leading to a different perception of the accretion geometry during this state. Therefore, in order to improve our understanding of accretion physics, many more observations with instruments of more sensitive and broadband capability needs to be carried out.</p> <p>We intend to study three Black Hole Binary systems: GX339-4, XTE J1753-223 and H1743-322 in the low/hard state in the broad energy range from soft X-rays to hard X-rays.</p>	H1743322	17 46 15.608	-32 14 0.600	T03	ramadevi	ISRO	
G05_253	Multiwavelength Observations of Black Hole Binary Systems in Low/Hard State - GX339-4, XTE J1753-223 and H1743-322	<p>Low/Hard spectral state in XRBs is characterised by emission from a hot corona and a disc that is truncated far away from the inner most stable circular orbit (ISCO) as explained by ADAF (\cite{narayan, esin}). While there have been observations of many sources supporting ADAF during low/hard states (\cite{meyer}), there are observations indicating that the disc extends till ISCO even during the Low/Hard state of certain sources (\cite{reis}) and hence leading to a different perception of the accretion geometry during this state. Therefore, in order to improve our understanding of accretion physics, many more observations with instruments of more sensitive and broadband capability needs to be carried out.</p> <p>We intend to study three Black Hole Binary systems: GX339-4, XTE J1753-223 and H1743-322 in the low/hard state in the broad energy range from soft X-rays to hard X-rays.</p>	XTEJ1752-223	17 52 15.095	-22 20 32.782	T02	ramadevi	ISRO	



# astrosat-redbook-proposals-october-2016-March-2017

Total Accepted Proposals are 81

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Obs status
G06_002	Star formation, morphology and evolution in Groups of Galaxies	The morphology of galaxies is seen to be distinctly dependant on star formation activity. From the ellipticals to late type spirals and irregular galaxies, the current star formation rate is seen to be increasing. For isolated galaxies, SF starts off in the cloud from which the galaxy was formed and later epochs see continued SF depending on the amount of matter left over together with enriched material from evolving stars. The internal dynamics of the galaxy determines how much this matter is converted to stars. A considerable fraction of galaxies occur in clusters and groups, where galaxies often have gravitational encounters with mergers and interactions being common. In such scenarios most, if not all, of the star formation is triggered by these interactions. This proposal aims at understanding the SF, to map signs of interactions and to examine the "morphological shaping" of galaxies in such groups.	NGC 7582grp	23 18 23.5	-42 22 14	T01	askpati	IIA	complete
G06_016	UVIT observations of Malin 1: faintest and largest LSB galaxy	The star formation activities in low surface brightness (LSB) galaxies are generally thought to be low. Recent observations show signatures of molecular gas and clumpy star formation in some LSB galaxies, especially the barred ones. HST observation has revealed that Malin 1 is one such barred LSB galaxy which show significant star formation in the outskirts, this is being verified by GALEX observation (showing clumps and knots) as well. But it remains unclear what caused these star formation activity in Malin 1. The aim of this proposal is to investigate the star formation activity in the entire galaxy, morphology of star formation with a factor of two improved resolution (which is an important part to understand clumpy star formation).	Malin1	12 36 59.350	14 19 49.332	T01	kanak	IUCAA	complete
G06_019	Ultraviolet view of ram-pressure stripping in action: The case of Jellyfish galaxies	Jellyfish galaxies are galaxies with tentacles of material that appear to be stripped from the galaxy, and whose morphology is suggestive of ram pressure stripping. These galaxies are found in rich clusters where galaxies are prone for morphological transformations. The optical and H $\alpha$ imaging of these galaxies reveal tidal debris with tails of ionised gas up to 150 Kpc long where new stars are born in knots and end up contributing to the intracluster light. The ongoing star formation in Jellyfish galaxies can be better understand in UV and making use of the spatial resolution of UVIT we plan to study the spatial variation of star formation in these systems. We propose to observe a Jellyfish candidate galaxy in Abell 85 galaxy cluster at redshift 0.045 for which extensive ground based complimentary data exists. This study will shed more light in to the triggered star formation in dense environments.	Abell 85	0 41 50.38	-9 19 37.20	T01	koshy	IIA	complete
G06_023	Detection of Hard X-rays in 1E 2259+586	We propose 40 ks observation of magnetar 1E 2259+586 with the ASTROSAT. Detection of pulsations in hard X-rays and pulse profile evolution study is the main goal of this proposal. We aim to probe into phase shift seen in one of the peaks in pulse profiles of 1E 2259+586 created using NuSTAR data (Vogel et al. 2014). Phase modulation observed is usually interpreted as possible evidence for the precession of neutron star caused by slight deviation from spherical symmetry. With the proposed exposure time we wish to perform phase averaged spectroscopy using combined data from the SXT and the LAXPC instruments onboard ASTROSAT. We also hope to perform pulsed emission spectroscopy of this source.	1E 2259+586	23 01 08.14	58 52 44.50	T01	bpaul	RRI	complete
G06_024	Understanding the recent star formation in nearby star forming galaxies	The star formation in galaxies are governed by a number of processes, such as spiral arms, galactic bars, bubbles and supernovae shocks etc. The dominant process is found to vary from galaxy to galaxy. These signatures can be traced only by the very young population. Tracers like H $\delta$ $\alpha$ are extensively used for 10Myr population. Evolution up to a few 100 Myr is necessary to understand the propagation of star formation. The UV fluxes are one of the best proxies to trace and estimate ages of young population, especially in regions of low metallicity. The resolution of UVIT will immensely help us to resolve star formation knots and estimate their flux. This study takes advantage of both the spatial resolution of the UVIT. As M33 is too bright for UVIT, we plan to observe a similar galaxy at 3.4Mpc, in the Sculptor group, NGC 7793.	NGC 7793	23 57 49.827	-32 35 27.710	T01	annapurni	IIA	complete

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
G06_026	ASTROSAT Observations of Magnetar 1E 1048.1-593	We request 40 ks observation of persistently bright magnetar 1E 1048.1-593 with ASTROSAT. The main purpose will be to investigate the pulse profiles in hard X-rays extending beyond 10 keV. Study of the pulse profile in a very wide band will help us in understanding the physical picture around neutron stars which may be responsible for generation of hard X-rays in this source. In addition to this we also aim to perform phase averaged spectroscopy using combined data from the SXT and the LAXPC instruments onboard ASTROSAT, and phase resolved study of the spectral components.	1E 1048.1-593	10 50 08.93	-59 53 19.9	T01	bpaul	RRI	complete
G06_027	CZTI-GT: Understanding spectral and temporal properties of GRS1915+105 during various variability classes	GRS1915+105 is one of the most enigmatic X-ray sources. It is a black hole X-ray binary well known for variety of variability classes during which it shows large intensity variation over the time scales of few minutes. In some of the variability classes it exhibits spectral state transitions similar to those observed in other black hole X-ray binaries over times scale of few weeks. Whereas during some variability classes, the temporal and spectral characteristics are steady over long periods. Here we propose a 20 ks observation of GRS1915+105 with AstroSat to characterize the broad band X-ray spectrum covering 0.3-150 keV energy range. Due to the visibility constraints, it is available only for a short duration of ~20 days and hence we propose a single long exposure which will provide deep insights into the particular spectral state and variability class prevalent at the time of observation.	GRS1915+105	19 15 11.550	10 56 44.801	T01	santoshv	PRL	complete
G06_028	CZTI-GT: Broadband X-ray spectral and timing study of Cygnus X-1	Black hole X-ray binaries provide best opportunity to probe the predictions of general theory of relativity under strong gravity regime. However, this requires very accurate understanding of the accretion geometry and radiative processes occurring very close to the black hole event horizon. Black hole X-ray binaries are known exhibit different spectral states. It is very important to understand the accretion geometry and radiative processes in different spectral states in order to discern the effects of the strong gravity. Here we propose a regular monitoring observations, each of 10 ks, of the canonical black hole X-ray binary Cygnus X-1. It is known to undergo spectral state transitions over the period of few weeks and hence will provide very valuable data with the suite of AstroSat instruments to understand the accretion mechanism in different spectral states.	Cygnus X-1	19 58 21.676	35 12 5.778	T01	santoshv	PRL	complete
G06_029	CZTI-GT: Deep observation of Crab for phase resolved polarisation study with CZTI and calibration	Polarization measurements in X-rays is expected to address to a wealth of astrophysical phenomena which so far remain unexplored despite extensive X-ray spectroscopic and timing observations. CZTI-Imager onboard AstroSat has significant polarization measurement capability at energies beyond 100 keV. Crab, the pulsar nebula is one of the potential targets for CZTI X-ray polarimetry observations. Here we propose for a deep observation of Crab along with blank sky for CZTI polarimetric observations. We have observed a statistically significant polarization signature for Crab from the available CZTI data (~500ks) when averaged over phase. Estimated polarization is ~20% with polarization angle ~140 degree consistent with previous polarization studies of crab. The new deep observation will be helpful for pulse phase resolved polarimetry of Crab which is essential in understanding X-ray emission mechanism and geometry of Crab. This observation would also be used for calibration of X-ray instruments onboard AstroSat.	Blank sky	12 13 55.2	22 48 0.00	T02	santoshv	PRL	complete
--	--	--	Crab	5 34 31.940	22 0 52.200	T01	santoshv	PRL	complete
G06_032	SXT GT proposal on the X-ray binaries 4U 1543-624 and GX 13+1	We propose to observe the ultracompact X-ray binary 4U 1543-624 and the dipping X-ray binary GX 13+1 with AstroSat, each for 30 ks exposure. AstroSat will be useful to characterize the broadband X-ray spectra of these sources. Moreover, the unique spectral and timing capabilities of AstroSat will be useful to study broad 0.7 keV and 6.6 keV emission features from 4U 1543-624, and energy-dependent dips, thermonuclear bursts, spectral absorption and emission lines and quasi-periodic oscillations from GX 13+1.	4U 1543-624	15 47 54.29	-62 34 11.2	T01	KPSingh19	TIFR	complete
--	--	--	GX 13+1	18 14 31.55	-17 09 26.7	T02	KPSingh19	TIFR	complete

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
G06_033	GRS 1915+105 observation for LAXPC during Oct-16 to March-17 with three slots	GRS 1915+105 shows fast variability and large number of X-ray classes and various types of radio emission. This source is not always available due RAM constrain. Here we will study flare activities, various X-ray classes, QPOs, SPL state, hard state, plateau state, radio ejection, time lags, PDS spectra etc. We will observe this source for 40 ks 27 Oct. (27-28 October, 2016), 13 Nov. (12-13 Nov. 2016) and 29th March (29-30 March 2017). This monitoring proposal is given as per available time. LAXPC will provide great advantage over RXTE/PCA in high energy range and in timing.  We will do simultaneous radio & IR observation of this source to understand disk-jet connection. LAXPC instrument has advantage over RXTE/PCA as it has better detection efficiency for non-thermal X-rays.	GRS 1915+105	19 15 11.550	10 56 44.801	T01	jsyadav	TIFR	complete
G06_034	LAXPC Observation of Black Hole Candidate Cyg X-1 [standby for H1743-322 (alternative)]	Cyg X-1 is variable source. Here we will study spectra of hard/soft state, QPOs, radio ejection, time lags, PDS spectra etc We will observe this source for 20 ks. This is to be observed during last two weeks of March 2017 as this proposal is a standby for alternative proposal on H1743-322 where we expect outbursts during January-March 2017.	Cyg X-1	19 58 21.676	35 12 5.778	T01	jsyadav	TIFR	complete
G06_036	CZTI GT proposal on the X-ray binary 4U 0614+091	We propose to observe the ultracompact X-ray binary candidate 4U 0614+091 with AstroSat for 17 ks exposure, considering SXT to be the primary instrument. AstroSat will be useful to characterize the broadband X-ray spectrum of this source. Moreover, the unique spectral and timing capabilities of AstroSat will be useful to study the broad 0.7 keV emission feature, high-frequency quasi-periodic oscillations and thermonuclear X-ray bursts from this source.	4U 0614+091	6 17 7.301	9 8 12.984	T01	arrao	TIFR	complete
G06_039	Observing a very unique pulsar 4U 0114+65 with ASTROSAT	4U 0114+65 is an HMXB that hosts a pulsar with an extremely long period of ~10,000 s. Earlier observations reported an orbital intensity modulation with the presence of a dip (mis)interpreted as an eclipse. We propose a 40 ks observation at the inferior conjunction of the companion star in between orbital phases of 0.9-1.1 with the X-ray instruments onboard ASTROSAT. This observation will allow us to investigate fully the possible cause of this recurrent periodic dip. The spectral resolution and large effective area of LAXPC would also enable us investigate the presence (or not) of a highly debated cyclotron line at ~22 keV allowing us to understand the origin of this pulsar. The source has even been proposed to be an accreting magnetar. We also propose to carry out a detailed study on the onset of flares for this pulsar.	4U 0114+65	01 18 02.70	65 17 29.9	T01	bpaul	RRI	complete
G06_040	CZTI GT Anticipated ToO proposal on the accretion-powered millisecond pulsars: Part I	Accretion-powered millisecond (ms) pulsars are a class of transient neutron star low-mass X-ray binaries (LMXBs) which show coherent X-ray intensity variation during outbursts. These sources are particularly important to understand the evolution of neutron star LMXBs into ms radio pulsars. In addition, these accreting ms pulsars exhibit a number of X-ray spectral and timing features. AstroSat can meaningfully observe these sources only during outbursts. We submit separate proposals (parts I--V) for each of five (SAX J1808.4-3658, XTE J1807-294, XTE J1814-338, NGC 6440, IGR J17498-2921) sources. However, we propose to observe only the first accreting ms pulsar in outburst (out of these five) for 16 ks, considering SXT as the primary instrument. This proposal (part I) is for SAX J1808.4-3658.	SAX J1808.4-3658	18 8 27.540	-36 58 44.299	T01	arrao	TIFR	Yet to be Scheduled
G06_042	CZTI GT Anticipated ToO proposal on the accretion-powered millisecond pulsars: Part II	Accretion-powered millisecond (ms) pulsars are a class of transient neutron star low-mass X-ray binaries (LMXBs) which show coherent X-ray intensity variation during outbursts. These sources are particularly important to understand the evolution of neutron star LMXBs into ms radio pulsars. In addition, these accreting ms pulsars exhibit a number of X-ray spectral and timing features. AstroSat can meaningfully observe these sources only during outbursts. We submit separate proposals (parts I--V) for each of five (SAX J1808.4-3658, XTE J1807-294, XTE J1814-338, NGC 6440, IGR J17498-2921) sources. However, we propose to observe only the first accreting ms pulsar in outburst (out of these five) for 16 ks, considering SXT as the primary instrument. This proposal (part II) is for XTE J1807-294.	XTE J1807-294	18 6 59.801	-29 24 29.988	T01	arrao	TIFR	Yet to be Scheduled

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
G06_043	CZTI GT Anticipated ToO proposal on the accretion-powered millisecond pulsars: Part III	Accretion-powered millisecond (ms) pulsars are a class of transient neutron star low-mass X-ray binaries (LMXBs) which show coherent X-ray intensity variation during outbursts. These sources are particularly important to understand the evolution of neutron star LMXBs into ms radio pulsars. In addition, these accreting ms pulsars exhibit a number of X-ray spectral and timing features. AstroSat can meaningfully observe these sources only during outbursts. We submit separate proposals (parts I--V) for each of five (SAX J1808.4-3658, XTE J1807-294, XTE J1814-338, NGC 6440, IGR J17498-2921) sources. However, we propose to observe only the first accreting ms pulsar in outburst (out of these five) for 16 ks, considering SXT as the primary instrument. This proposal (part III) is for XTE J1814-338.	XTE J1814-338	18 13 39.030	-33 46 22.300	T01	arrao	TIFR	Yet to be Scheduled
G06_044	CZTI GT Anticipated ToO proposal on the accretion-powered millisecond pulsars: Part IV	Accretion-powered millisecond (ms) pulsars are a class of transient neutron star low-mass X-ray binaries (LMXBs) which show coherent X-ray intensity variation during outbursts. These sources are particularly important to understand the evolution of neutron star LMXBs into ms radio pulsars. In addition, these accreting ms pulsars exhibit a number of X-ray spectral and timing features. AstroSat can meaningfully observe these sources only during outbursts. We submit separate proposals (parts I--V) for each of five (SAX J1808.4-3658, XTE J1807-294, XTE J1814-338, NGC 6440, IGR J17498-2921) sources. However, we propose to observe only the first accreting ms pulsar in outburst (out of these five) for 16 ks, considering SXT as the primary instrument. This proposal (part IV) is for NGC 6440.	NGC 6440	17 48 52.670	-20 21 34.500	T01	arrao	TIFR	Yet to be Scheduled
G06_045	CZTI GT Anticipated ToO proposal on the accretion-powered millisecond pulsars: Part V	Accretion-powered millisecond (ms) pulsars are a class of transient neutron star low-mass X-ray binaries (LMXBs) which show coherent X-ray intensity variation during outbursts. These sources are particularly important to understand the evolution of neutron star LMXBs into ms radio pulsars. In addition, these accreting ms pulsars exhibit a number of X-ray spectral and timing features. AstroSat can meaningfully observe these sources only during outbursts. We submit separate proposals (parts I--V) for each of five (SAX J1808.4-3658, XTE J1807-294, XTE J1814-338, NGC 6440, IGR J17498-2921) sources. However, we propose to observe only the first accreting ms pulsar in outburst (out of these five) for 16 ks, considering SXT as the primary instrument. This proposal (part V) is for IGR J17498-2921.	IGR J17498-2921	17 49 55.350	-29 19 19.600	T01	arrao	TIFR	Yet to be Scheduled
G06_046	CZTI GT Anticipated ToO proposal on the transient black hole X-ray binaries : Part I	Black hole X-ray binaries (BHXBs) show a number of X-ray spectral and timing features, which can be useful to probe strong gravity regime, to measure black hole spin and to study accretion-ejection mechanism. Transient BHXBs are particularly useful to study accreting black holes in varieties source states and a wide range of accretion rate values. AstroSat can meaningfully observe these transient sources only during outbursts. We submit separate proposals (parts I-IV) for each of four (GX 339-4, 4U 1630-47, H 1743-322, XTE J1550-564) sources. However, we propose to observe only the first transient BHXB in outburst (out of these four) for 17 ks, considering SXT as the primary instrument. This proposal (part I) is for GX 339-4.	GX 339-4	17 2 49.360	-48 47 22.801	T01	arrao	TIFR	Yet to be Scheduled
G06_047	CZTI GT Anticipated ToO proposal on the transient black hole X-ray binaries : Part II	Black hole X-ray binaries (BHXBs) show a number of X-ray spectral and timing features, which can be useful to probe strong gravity regime, to measure black hole spin and to study accretion-ejection mechanism. Transient BHXBs are particularly useful to study accreting black holes in varieties source states and a wide range of accretion rate values. AstroSat can meaningfully observe these transient sources only during outbursts. We submit separate proposals (parts I-IV) for each of four (GX 339-4, 4U 1630-47, H 1743-322, XTE J1550-564) sources. However, we propose to observe only the first transient BHXB in outburst (out of these four) for 17 ks, considering SXT as the primary instrument. This proposal (part II) is for 4U 1630-47.	4U 1630-47	16 34 1.610	-47 23 34.800	T01	arrao	TIFR	Yet to be Scheduled

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
G06_048	CZTI GT Anticipated ToO proposal on the transient black hole X-ray binaries : Part III	Black hole X-ray binaries (BHXBs) show a number of X-ray spectral and timing features, which can be useful to probe strong gravity regime, to measure black hole spin and to study accretion-ejection mechanism. Transient BHXBs are particularly useful to study accreting black holes in varieties source states and a wide range of accretion rate values. AstroSat can meaningfully observe these transient sources only during outbursts. We submit separate proposals (parts I-IV) for each of four (GX 339-4, 4U 1630-47, H 1743-322, XTE J1550-564) sources. However, we propose to observe only the first transient BHXB in outburst (out of these four) for 17 ks, considering SXT as the primary instrument. This proposal (part III) is for H 1743-322.	H 1743-322	17 46 15.608	-32 14 0.600	T01	arrao	TIFR	Yet to be Scheduled
G06_049	CZTI GT Anticipated ToO proposal on the transient black hole X-ray binaries : Part IV	Black hole X-ray binaries (BHXBs) show a number of X-ray spectral and timing features, which can be useful to probe strong gravity regime, to measure black hole spin and to study accretion-ejection mechanism. Transient BHXBs are particularly useful to study accreting black holes in varieties source states and a wide range of accretion rate values. AstroSat can meaningfully observe these transient sources only during outbursts. We submit separate proposals (parts I-IV) for each of four (GX 339-4, 4U 1630-47, H 1743-322, XTE J1550-564) sources. However, we propose to observe only the first transient BHXB in outburst (out of these four) for 17 ks, considering SXT as the primary instrument. This proposal (part IV) is for XTE J1550-564.	XTE J1550-564	15 50 58.780	-56 28 35.000	T01	arrao	TIFR	Yet to be Scheduled
G06_051	UVIT Imaging of Dense Stellar Systems in the Virgo Cluster	The Virgo cluster is the dominant mass concentration within ~50 Mpc. The cores of its A and B subclusters each contain thousands of globular clusters, dozens of ultra-compact dwarf galaxies and hundreds of dwarf galaxies (many of which contain prominent nuclear star clusters at their photocentres). Although a wealth of high-quality optical and IR data exists for these dense stellar systems, relatively little is known about their UV properties because previous UV facilities have suffered either from small fields (HST) or poor angular resolution (GALEX). We propose continue our UVIT survey of these faint, compact objects in the Virgo cluster (initiated in GT05). In Cycle 6, we will perform deep imaging in a single M87 field in the FUVBaF2 and NUV-Silica filters. These GT science observations will provide strong new constraints on the stellar populations of dense, low-mass stellar systems.	M87	12 29 25.70	+12 19 13.1	T01	pcote_nrc	NRC-Herzberg	complete
G06_052	Search for an Accretion Powered Pulsar in the High Mass X-ray Binary IGR J00370+6122 with Astrosat	We propose a 40 kilosec observation of the High Mass X-ray binary IGR J00370+6122 with the SXT, LAXPC and CZTI instrument onboard ASTROSAT, with the aim of searching for pulsation and detection of a Cyclotron Resonance Scattering Feature (CRSF), if present, in the putative neutron star. IGR J00370+6122 is a HMXB system having a B type star as a companion in a 15.6 days orbit. Previous observation of this source with RXTE-PCA found a tentative detection of pulsation of 346 secs, which could not be confirmed from a Suzaku observation of the same. LAXPC will provide an unique opportunity to probe the nature of pulsations in this source and the three X-ray instruments combined will give an opportunity to search for CRSF feature in the broadband spectra due to its higher effective area compared to RXTE-PCA and Suzaku.	IGR J00370+6122	00 37 09.64	61 21 36.5	T01	bpaul	RRI	complete
G06_060	Deep UV imaging studies of X-ray and optically bright SNRs VII -- NGC6995.	We propose to map X-ray and optically bright SNRs in various UVIT filters, in order to extract the physical conditions in supernovae ejecta interacting with their surrounding environment, and in the resulting shocks. Spanning an age range of $(18000 \pm 9000)$ yr (Vela) to 5000-8000 yr (Cygnus loop) to 1000 yr (Crab), these observations will also provide unique opportunities to study the temporal evolution of SNRs from different classes of SNe, in a varying range of environments, in UV. UVIT filters will be used to map regions of hot ( $10^{4-5}$ K) and intermediate (5000- 8000 K) temperatures via emission lines of C IV (1550 Ang.), He II (1640 Ang.), and Mg II lines (2800 A), bridging the gap between x-ray bright ( $10^{6-7}$ K) and cool, optical regions. UVIT-NUV narrow bands will complement Galex NUV imaging of Crab and Cygnus loop by Galex, and provide 1st NUV images of Vela D.	NGC 6995	20 56 52.41	31 12 44.48	T01	fsutaria	IIA	complete

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G06_064	A multiwavelength view of atoll source 4U 1705-44 with ASTROSAT	LAXPC and CZTI payloads onboard ASTROSAT. We plan to observe this source for a total exposure time of 100 ks in order to understand emission mechanisms in wide energy band. We will also investigate correlation between spectral and timing properties in order to understand the origin of QPO and mass accretion process. High quality data from LAXPC will be used to detect any possible QPO in this sources and study its variation along atoll track. The decomposition of complex broad band energy spectra from soft X-ray to hard X-rays and its evolution along atoll track will be carried by utilising these data.	4U 1705-44	17 8 54.470	-44 6 7.350	T01	vivek	ISRO	complete
G06_065	Study and Morphology and Ionization structure of Planetary Nebulae I -- NGC 40	We propose to image several planetary nebulae in UVIT filters that would isolate nebular structure in some of the emission lines like 1550\AA C IV , 2326\AA C II], 2470\AA [O II] to map the ionization structures as well as variations of physical parameters across the nebula. It is also likely various flows and stellar wind from central star could also create shocked regions that might create hot highly ionized regions. The modeling of the nebulae which might contain nuclear processed material from the star would dependent on proper evaluation of the ionization structure. We also would like to obtain grating spectra of the nebula in Nuv and Fuv to help study the emission line morphology. Initial attempt we would propose to observe s planetary nebulae.	NGC 40	00 13 01.0	+72 31 19.1	T01	nkrao	IIA	complete
G06_066	Study and Morphology and Ionization structure of Planetary Nebulae II -- NGC 1514	We propose to image several planetary nebulae in UVIT filters that would isolate nebular structure in some of the emission lines like 1550\AA C IV , 2326\AA C II], 2470\AA [O II] to map the ionization structures as well as variations of physical parameters across the nebula. It is also likely various flows and stellar wind from central star could also create shocked regions that might create hot highly ionized regions. The modeling of the nebulae which might contain nuclear processed material from the star would dependent on proper evaluation of the ionization structure. We also would like to obtain grating spectra of the nebula in Nuv and Fuv to help study the emission line morphology. Initial attempt we would propose to observe s planetary nebulae.	NGC 1514	04 09 16.98	+30 46 33.5	T01	nkrao	IIA	complete
G06_067	Study and Morphology and Ionization structure of Planetary Nebulae IV -- JrEr1	We propose to image several planetary nebulae in UVIT filters that would isolate nebular structure in some of the emission lines like 1550\AA C IV , 2326\AA C II], 2470\AA [O II] to map the ionization structures as well as variations of physical parameters across the nebula. It is also likely various flows and stellar wind from central star could also create shocked regions that might create hot highly ionized regions. The modeling of the nebulae which might contain nuclear processed material from the star would dependent on proper evaluation of the ionization structure. We also would like to obtain grating spectra of the nebula in Nuv and Fuv to help study the emission line morphology. Initial attempt we would propose to observe s planetary nebulae.	Jr Er 1	07 57 51.6	53 25 16.9	T01	nkrao	IIA	complete

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
G06_068	Study and Morphology and Ionization structure of Planetary Nebulae V -- A66 30.	We propose to image several planetary nebulae in UVIT filters that would isolate nebular structure in some of the emission lines like 1550\AA C IV , 2326\AA C II], 2470\AA [O II] to map the ionization structures as well as variations of physical parameters across the nebula. It is also likely various flows and stellar wind from central star could also create shocked regions that might create hot highly ionized regions. The modeling of the nebulae which might contain nuclear processed material from the star would dependent on proper evaluation of the ionization structure. We also would like to obtain grating spectra of the nebula in Nuv and Fuv to help study the emission line morphology. Initial attempt we would propose to observe s planetary nebulae.	Abell 30	08 46 53.492	+17 52 46.83	T01	nkrao	IIA	complete
G06_071	Study and Morphology and Ionization structure of Planetary Nebulae IX -- NGC 6302.	We propose to image several planetary nebulae in UVIT filters that would isolate nebular structure in some of the emission lines like 1550\AA C IV , 2326\AA C II], 2470\AA [O II] to map the ionization structures as well as variations of physical parameters across the nebula. It is also likely various flows and stellar wind from central star could also create shocked regions that might create hot highly ionized regions. The modeling of the nebulae which might contain nuclear processed material from the star would dependent on proper evaluation of the ionization structure. We also would like to obtain grating spectra of the nebula in Nuv and Fuv to help study the emission line morphology. Initial attempt we would propose to observe s planetary nebulae.	NGC 6302	17 13 33.37	-36 58 21.5	T01	nkrao	IIA	complete
G06_076	NGC 4945 •- the broadband X-ray spectrum of the brightest Seyfert 2 galaxy	NGC 4945 is one of the brightest radio-quiet Seyfert 2 in hard X-rays, as well as the closest Compton-thick AGN. Yet, it remains one of the least understood of Compton-thick AGN. It shows strong hard X-ray variability, with a characteristic doubling/halving time of only 20 ks, implying a very low covering factor of the standard obscuring/reflecting 'torus'. In addition, no secure high energy cut-off (Ecut) has been detected thus far. ASTROSAT's unprecedented hard X-ray effective area provides the best opportunity to constrain the continuum shape and measure Ecut. Together with SXT, broadband modelling will allow detailed constraints on the torus covering factor, and a self-consistent spectral-timing picture of the source. We propose an on-source exposure of 60 ks for the above purposes. Simultaneous multiwavelength observations with ground based instruments will be coordinated by G. C. Dewangan (IUCAA) and P. Gandhi (Southampton).	NGC49 45	13 5 27.279	-49 28 4.440	T01	jsyadav	TIFR	complete

PropId	Title	Abstract	SrcName	RA	DEC	Tid	PiId	Institute	Remarks
G06_077	Deep X-ray Observations of two Clusters of Galaxies: Coma and Ophiuchus.	Coma and Ophiuchus are among the hottest clusters of galaxies without any cooling flows. The central regions of these clusters have been used for cross-calibrations with almost all the soft x-ray telescopes equipped with CCDs, e.g., XMM, Chandra, Swift and Suzaku, and to map the spatial response. The 50 ks observations are deep enough for the SXT to measure the spectral parameters down to ~5%. Simultaneous observations with LAXPC would be able to measure the presence of controversial hard X-ray non-thermal component. Simultaneous UVIT observations will be deep enough to tell us about the stellar and metal content of the constituent galaxies.	Coma	12 59 48.701	27 58 50.016	T01	KPSingh19	TIFR	complete
--	--	--	Ophiuchus	17 12 24.7	-23 21 01	T02	KPSingh19	TIFR	complete
G06_083	ASTROSAT observation of Cir X-1	Cir X-1 is one of the enigmatic X-ray binaries which eludes proper understanding despite being very well studied by various observatories over a long period of time. The source has persistent X-ray emission with extremely high variability including Type 1 X-ray burst as seen by EXOSAT forty years ago. The peak emission can reach nearly 3 Crab flux. Given the extremely diverse nature of its characteristics, it is essential that this source be studied to great detail by ASTROSAT. In this cycle we are proposing the first such observation of this source, and hope to continue observing this source for a long time to come.	Cir X-1	15 20 40.850	-57 10 0.098	T01	jsyadav	TIFR	complete
G06_084	FO Aquari (= H 2215-086) : X-ray, UV and Optical Study of the Intermediate Polar in Low State	FO Aqr is an Intermediate Polar class of Magnetic Cataclysmic Variable (CV) which is a bright X-ray source. Its intensity shows strong X-ray, UV and Optical pulsations with a period of 1254.4 sec and the light curves show modulation with 4.85 hour orbital period. It has recently made a transition to a very low state most likely due to a drastic reduction in the accretion rate of the magnetic white dwarf. Measurements of its pulsation period and x-ray spectrum in the low state is important to understand the accretion process in this CV. WE propose observations of this object for a period of 40 ks to carry our multi-wavelength study of this source.	FO Aqr	22 17 55.380	-8 21 3.899	T01	jsyadav	TIFR	complete
G06_086	Understanding the spectral and temporal behavior of the violent activities in blazars	The outbursts in the blazars are very common but least understood phenomenon. The flares occur mostly because of the formation of shock in the downstream relativistic jet. The sudden rise in the flux are the direct manifestations of the particle accelerations and the manipulations in the magnetic field topology during the passes of shock. The acceleration processes, particle distributions, and the behavior of magnetic fields in blazars are still poorly understood. Because the synchrotron peak of blazar's SED, lying in the X-ray bands, the HBLs make a good sample to understand these phenomenon. The simultaneous broad-band spectral coverage of ASTROSAT makes an ideal facility for such investigations in a completely different fashion. Here, we propose a long stretch (Total 130 ks) of pointing mode observations for two bright HBLs, 1ES 1959+650 & 1ES 1101-232. The proposed study will certainly improve the understanding of the physical processes during outbursts in blazars	1ES 1101-232	11 03 37.61	-23 29 31.11	T02	KPSingh19	TIFR	complete
--	--	--	1ES 1959+650	19 59 59.85	+65 08 54.65	T01	KPSingh19	TIFR	complete
G06_087	The relation between AGN and Star-burst activity	It is now believed that star formation can occur in the central regions of active galactic nuclei (AGN), however, it is not clear how these two phenomena are related. Imaging observations of few Seyfert 2 galaxies have shown that the UV continuum emission in them is not only dominated by the central ionizing nuclear source, but also comes from star forming regions in their circumnuclear regions. We aim to extrapolate these finding based on limited sources using observations from UVIT. We propose to observe four low luminosity AGN/Seyfert using UVIT. These observations in combination with observations from other wavelengths (SXT from ASTROSAT) and IR wavelengths (from archives) will be used to understand the nature of the link between star-burst and AGN phenomenon in our sample. We thus request for a total observing time of 25 ksec for the four sources.	NGC 1566	04 20 00.4	-54 56 16	T01	stalin	IIA	complete
--	--	--	NGC 5033	13 13 27.4	+36 35 38	T04	stalin	IIA	complete
--	--	--	NGC 5371	13 55 39.9	+40 27 42	T02	stalin	IIA	complete
--	--	--	NGC 7314	22 35 46.2	-26 03 02	T03	stalin	IIA	complete



PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
G06_089	[CZTI-GT] Observation of the Be/X-ray binary pulsar EXO 2030+375 at periastron passage	We propose a ~30 ks observation of EXO 2030+375 with AstroSat at the periastron passage. EXO 2030+375 is a rare Be/X-ray pulsar which shows X-ray outbursts at each periastron passage of the neutron star. Earlier RXTE and Suzaku observations have shown the pulse profile to be complex at high luminosity, and smoother at lower luminosities. Broad-band spectra of EXO 2030+375 during outbursts revealed the presence of several low energy emission lines. A surprising fact is that since early 2015, the strength of these outbursts has significantly reduced and sometimes hardly any outburst is being observed at the periastron passage. In this new phase devoid of X-ray outbursts, it would be interesting to investigate the evolution of the pulse period, pulse profiles and spectral properties of the pulsar during its periastron passage at low luminosity. We propose to carry out these observations using AstroSat.	EXO 2030+375	20 32 15.280	37 38 14.899	T01	dipankar	IUCAA	complete
G06_091	[CZTI-GT] Properties of cyclotron line feature in Cen X-3 at high luminosity state	We propose a ~40 ks observation of Cen X-3 with ASTROSAT to investigate the luminosity dependence of cyclotron absorption line for the first time in this pulsar. The ~28 keV cyclotron absorption feature is well known in Cen X-3 though its orbital or luminosity dependence has not been explored yet. As the pulsar is bright in hard X-rays and shows high intensity variation (as seen in Suzaku observation), time resolved spectroscopy at high luminosity phase with CZTI and LAXPC will provide important information on the change in cyclotron line parameters with the source luminosity. This will help in resolving uncertainties among theoretical models to explain the cyclotron line features in accretion powered X-ray pulsars. Apart from this, time resolved spectroscopy of the pulsar during high intensity phase will also provide information on the stellar wind of the high mass companion in the binary system.	Cen X-3	11 21 15.780	-60 37 22.699	T01	dipankar	IUCAA	complete
G06_102	Observations of Mkn421 with ASTROSAT	We request two observations of Mkn421 of 30 ks each. Mkn421 is a HBL (High frequency peaked BL Lac) class Blazar showing emission over entire waveband, from radio to TeV gamma ray energies. This object has shown frequent flaring episodes. Its multiwaveband SED shows two peaks. First peak is at X-ray energies and second in gamma ray band. Being one of the brightest blazars in the hard X-ray band, this is ideally suited to test the LAXPC capabilities for AGN studies. LAXPC observations of Mkn421 will provide one of the best hard X-ray spectrum of blazars till date. This, combined with simultaneous multiwavelength observations can be used to study various aspects of jet emission mechanisms like the underlying particle distributions, origin of spectral curvatures and relative importance of different emission mechanisms.	Mkn421	11 4 27.314	38 12 31.799	T01	jsyadav	TIFR	complete
G06_103	observation of Cyg X-3 with LAXPC instrument	Cyg X-3 is a persistent source with very strong radio jets. It has frequent radio jet ejection. Here we will study energy spectra, QPOs, X-ray and radio connection, time lags, PDS spectra, spin of black hole in Cyg X-3 etc. We will observe this source for 40 ks given as per available time. The proposed observation is coordinated with other ground based observatories like Liverpool telescope, AMI Radio telescope, and GMRT telescope. According to the visibility estimation of the source, it will not be available for both ground-based observatory no later than 30 November, 2016. Therefore, we request to plan the proposed. AstroSat observation before 30 November, 2016 according to the following preferences. Preferred observation periods are: 1. 01 October, 2016 to 04 October, 2016 2. 21 October, 2016 to 02 November, 2016 3. 19 November, 2016 to 30 November, 2016	Cyg X-3	20 32 25.780	40 57 27.900	T01	jsyadav	TIFR	complete

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
G06_104	LAXPC observatuib of 4U 1636-536 [standby of too (alternative ) proposal of 4U 1630-472]	4U 1636+53 shows kHz Quasi-periodic Oscillations (QPOs) , low frequency (~1 Hz) ones. RXTE has provided a rich literature on the occurrence of these oscillations and empirical relationship between their properties. There is no consensus regarding their origin. RXTE with its poor energy resolution and effectively narrow band is not well suited for such spectral/temporal analysis. On the other hand, ASTROSAT with its broad band spectral coverage (0.3-200 keV) and especially the much larger effective area of the LAXPC above 30 keV as compared to the PCA, provides the best opportunity for such studies. This proposal is standby for Too proposal (alternative) for 4U 1630-472 . Burst oscillations and HFQPOs are important objective of LAXPC instrument.	4U 1636- 536	16 40 55.500	-53 45 5.004	T01	jsyadav	TIFR	complete
G06_113	AstroSat Observations of Black Hole Binary System: IGR 17091-3624	IGR J17091-3624 is a black hole binary system known to show variabilities similar to the well known Black hole binary source GRS 1915+105. This source has shown pronounced outburst and also found to have QPOs. Study of the source at various stages in a wide energy band can give us information about the accretion flow and the geometry of the disk around this object. In addition, studying the variabilities in this source that are observed to be similar to GRS 1915+105 can help understand the similarities between the two sources. We intend to study IGR J17091-3624 in the broad X-ray band and do a correlated study of timing and spectra of this source.	IGR J17091- 3624	17 9 7.001	-36 24 24.984	T01	ramadev i	ISRO	Yet to be Scheduled
G06_114	GX 5-1	GX 5-1 is the second brightest Z source (Bradt et al. 1968), located at a distance of $9.0 \pm 2.7$ kpc (Christian & Swank 1997) with a luminosity in the range of $6.0 - 7.6 \times 10^{-38}$ ergs-1 (1 – 30 keV; Jackson et al. 2009). The detection of radio and infrared emission provides a clue for the existence of a jet (Fender & Hendry 2000 ; Jonker et al. 2000). These features of GX 5-1 have been mostly observed by RXTE/PCA and not confirmed by any other instrument. RXTE/PCA was also limited to ~25keV. AstroSat LAXPC will provide an unique opportunity to observe these features as LAXPC have wide energy coverage from 3.0 – 80.0 keV with large area and high time resolution.	GX 5-1	18 1 8.220	-25 4 42.499	T01	jsyadav	TIFR	complete

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
G06_115	Background (BG-Sky-10) in October	We need Blank sky observation every month for developing LAXPC background model. Every time it should be 40ks. We have to study change in LAXPC background as function of longitude, latitude with time. To study very weak sources it's important to develop background model.	Sky-10	21 24 51.896	-48 41 00.68	T01	jsyadav	TIFR	complete
G06_116	Background (BG-Sky-8) in March 2017	We need Blank sky observation every month for developing LAXPC background model. Every time it should be 40ks. We have to study change in LAXPC background as function of longitude, latitude with time. To study very weak sources it's important to develop background model.	Sky-10	15 49 34.078	+70 20 53.123	T01	jsyadav	TIFR	complete
G06_117	Probing absorption-induced and intrinsic variability in the bright Seyfert 1 galaxy NGC4151	One of the outstanding issues in AGN research is the nature of soft and hard X-ray variability and their connection with the UV. It is likely that the X-ray variability below 10-keV is caused by both the variations in the absorption and the primary continuum while the variability of the hard X-rays, not affected by absorption, must be intrinsic. NGC4151 is a Seyfert 1.5 galaxy with significant absorption below few keV, and strongest hard X-ray Seyfert in the sky. Under the SXT GT programme, we request three monitoring observations of NGC~4151 each with 30ks exposure and SXT as the primary instrument. These monitoring observations will be separated by 15days. We will use these data to disentangle the absorption induced and intrinsic variations. We will also test thermal Comptonisation model by investigating correlations between the variability in the far UV and hard X-ray emission which is not affected by complex absorption.	NGC4151	12 10 32.574	39 24 20.880	T01	KPSingh19	TIFR	complete
G06_124	Exploring the filament in the NGC 5018-5022 system	NGC 5022 is an edge-on disk galaxy classified as SBb peculiar in RC3 (de Vaucouleurs et al. 1991). With a redshift of $3001 \pm 8$ km/s it is at a distance of about 41 Mpc. Within 3 Mpc NED lists 98 objects; the closest, only ~7 arcmin (~90 kpc) away, is NGC 5018 (originally classified as E3: in de Vaucouleurs et al. 1991 or S0/Sa in Sandage & Bedke 1994). These two galaxies form a relatively isolated pair with signs of interaction, either between these two objects or from the disruption of a third body. We will use UVIT data to model the stellar populations in the diffuse bridge allowing us to determine what the source of the material in the bridge is: was it pulled from N5022, or from MCG-3-34-13, or are these stars just formed.	NGC5022	13 13 30.790	-19 32 47.904	T01	jmurthy	IIA	complete
G06_126	Deep UV imaging studies of X-ray and optically bright SNRs VIII - IC1340	We propose to map X-ray and optically bright SNRs in various UVIT filters, in order to extract the physical conditions in supernovae ejecta interacting with their surrounding environment, and in the resulting shocks. Spanning an age range of $(18000 \pm 9000)$ yr (Vela) to 5000-8000 yr (Cygnus loop) to 1000 yr (Crab), these observations will also provide unique opportunities to study the temporal evolution of SNRs from different classes of SNe, in a varying range of environments, in UV. UVIT filters will be used to map regions of hot ( $10^{4-5}$ K) and intermediate (5000- 8000 K) temperatures via emission lines of C IV (1550 Ang.), He II (1640 Ang.), and Mg II lines (2800 A), bridging the gap between x-ray bright ( $10^{6-7}$ K) and cool, optical regions. UVIT-NUV narrow bands will complement Galex NUV imaging of Crab and Cygnus loop by Galex, and provide 1st NUV images of Vela D.	IC 1340	20 56 35.06	30 58 30.17	T01	fsutaria	IIA	Complete

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
G06_129	Deep UV imaging studies of X-ray and optically bright SNRs V -- NGC6960, 2nd pointing.	%latex% We propose to map X-ray and optically bright SNRs in various UVIT filters, in order to extract the physical conditions in supernovae ejecta interacting with their surrounding environment, and in the resulting shocks. Spanning an age range of \$(18000 \pm 9000)\$ yr (Vela) to 5000-8000 yr (Cygnus loop) to 1000 yr (Crab), these observations will also provide unique opportunities to study the temporal evolution of SNRs from different classes of SNe, in varying range of environments, in UV. UVIT filters will be used to map regions of hot (\$10^{4-5}\$ K) and intermediate (5000- 8000 K) temperatures via emission lines of C IV (1550 Ang.), He II (1640 Ang.), and Mg II lines (2800 A), bridging the gap between x-ray bright (\$10^{6-7}\$ K) and cool, optical regions. UVIT-NUV narrow bands will complement Galex NUV imaging of Crab and Cygnus loop by Galex, and provide 1st NUV images of Vela D.	NGC6960 -II	20 46 22.60	30 21 6.40	T01	fsutaria	IIA	complete
G06_130	GCs: UV study of exotic stellar populations, binaries and variables - NGC 362	Globular Clusters (GCs) house exotic stellar populations and are the only sites where the products of direct collision of stars (Blue Straggler stars, BSS) are found. GCs also have accreting binaries, WDs and Horizontal branch stars, which are all bright in the UV. In the UV, all these stars stand out from the swamp of the cooler main-sequence stars and red giants. Our simulations suggest that the colour-magnitude diagrams using UVIT filters create definite diagnostic regions which can be used to detect and identify these systems. Exploiting the resolution and filter system of the UVIT, we plan to derive the multi-wavelength SEDs and estimate the fundamental properties such as mass, temperature and Luminosity. We plan to observe NGC 362, which is a dynamically evolved cluster and expected to have a large number binaries.	NGC 362	1 3 14.260	-70 50 55.601	T01	annapurni	IIA	complete
G06_132	Detection of transit of an exoplanet in the UV and its exosphere: A pilot study	The UV spectral energy distribution of exoplanet host stars has a profound influence on the atmospheres of all type of planets. The stellar EUV radiation drives atmospheric heating, resulting in the dissociation of various molecules and perhaps their escape from the planetary atmosphere, known as the exosphere. Recently, Fossati et al. observed that the near-UV transit light curve of the close-in giant planet WASP-12b shows an early ingress as compared to its optical transit. In this pilot study, we plan to detect the transit of one hot jupiter, WASP-95b, simultaneously in the visible and the NUV. The FUV observations will be used to characterise the host star's energy budget. We plan to monitor the source across THREE transits. Each transit is about 5000sec observation. Hence the total observing required is 3x5ksec.	WASP-95b	22 29 49.730	-48 0 11.002	T01	annapurni	IIA	complete
G06_134	Metallicity Mapping of Galactic Halo-UVIT filter indices and physical parameters of stars.	We propose to map stars in the Galactic Halo, in various UVIT filters, in order to spatially map the halo metallicity. Such a study is important for understanding the formation of the Galactic Halo. We will also be surveying other major stellar constituents of the Halo through this survey. UVIT is uniquely suited for this purpose, not only because the strongest metal lines in late type stars occur in UV but also because UVIT filters are designed to sample these lines. Its wide field and spatial resolution are well suited for this purpose and can sample halo on both sides of the plane by the same set of instruments. The proposal has TWO parts: calibrations and survey of the Galactic Halo. In this proposal we would like to observe stars with a range in metallicity, Teff, log g and establish their relationship with various UVIT filter indices.	HE0057-5959	00 59 54.1	-59 43 30	T03	nkrao	IIA	complete
--	--	--	J1155+65	11 55 20.9	+65 43 11	T11	nkrao	IIA	complete

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
--	--	--	SDSS J014036.22+234458.1	01 40 36.2	+23 44 58	T06	nkrao	IIA	complete
G06_135	Probing Star formation in outer disks of spiral galaxies	The present proposal is a continuation of the study to demonstrate the feasibility of deep imaging of extended galaxies (major axis ~ a few arc-min) in UV using the UVIT / ASTROSAT. Our earlier pilot proposal in the first cycle was allotted time to observe two ring galaxies and the observations are scheduled on 15 August 2016. In the present proposal, our objective is to image three spiral galaxies having extended spiral disks for which reasonably deep UV images are available from the GALEX mission.	NGC 1512	04 03 54.3	-43 20 55.9	T01	swarna	NCRA	Complete
--	--	--	NGC 2541	08 14 40.0	+49 03 41.2	T02	swarna	NCRA	complete
--	--	--	NGC 5474	14 05 01.6	+53 39 43.9	T03	swarna	NCRA	complete
G06_136	UV star counts for intermediate Galactic latitude fields to study the Galactic structural parameter	The aim of this proposal is to investigate in detail the observed UV star counts obtained by UVIT-ASTROSAT vis-a-vis the model simulated catalogues produced by the Besancon model of stellar population synthesis in five Galactic directions, and to explore the potential for studying the structure of our Galaxy from images in multiple NUV and FUV filters of the UVIT. UV star counts will be dominated by MS stars, hot white dwarfs (WDs) and blue horizontal branch stars (BHBs), and hence will be very useful to separate out different stellar populations since we have several UV colours, which in turn will help us to estimate the structural parameters of the Galaxy with better precision. The population of WDs and BHBs is also integral to the study of stellar evolution and structure of the Milky Way as they belong to different stellar populations of the Galaxy.	GAC17 5+60	10 43 21.1	+41 56 49.5	T02	dkojha	TIFR	Complete
--	--	--	GC15+60	14 49 25.4	+14 56 41.0	T01	dkojha	TIFR	Complete
G06_137	UVIT Imaging of the Coma Cluster: The Fossil Record of Star Formation (Fields 3 and 5)	We propose multi-band UVIT imaging of three fields of the Coma cluster — the archetypal massive galaxy cluster in the nearby universe (d = 100 Mpc). Although a wealth of UV, optical and IR imaging, as well as optical spectroscopy, exists for the high- and intermediate-mass galaxies in this dense environment, the origin of their NUV emission remains uncertain (i.e., FUV-upturn leakage vs. residual star formation). Our proposed Astrosat GT06 observations, which require 43,995 sec (12.2 hrs) of open shutter time, will significantly improve upon the existing constraints from GALEX, on the UV emission in these galaxies by sampling the UV SEDs in four distinct wavelength regions — FUV-BaF2 (0.135-0.18μm), NUV-Silica (0.2-0.3μm), NUVB13 (0.23-0.26μm) and NUVB4 (0.25-0.28μm) — and by providing a three-fold improvement in the spatial resolution of the UV emission within individual galaxies.	Coma3	12 57 08.62	27 21 44.7	T01	pcote_nrc	NRC-Herzberg	complete
--	--	--	Coma5	13 00 33.49	27 47 22.7	T02	pcote_nrc	NRC-Herzberg	complete
G06_138	UVIT Imaging of the Coma Cluster: The Fossil Record of Star Formation (Fields 3 and 7)	We propose multi-band UVIT imaging of three fields of the Coma cluster — the archetypal massive galaxy cluster in the nearby universe (d = 100 Mpc). Although a wealth of UV, optical and IR imaging, as well as optical spectroscopy, exists for the high- and intermediate-mass galaxies in this dense environment, the origin of their NUV emission remains uncertain (i.e., FUV-upturn leakage vs. residual star formation). Our proposed Astrosat GT06 observations, which require 43,995 sec (12.2 hrs) of open shutter time, will significantly improve upon the existing constraints from GALEX, on the UV emission in these galaxies by sampling the UV SEDs in four distinct wavelength regions — FUV-BaF2 (0.135-0.18μm), NUV-Silica (0.2-0.3μm), NUVB13 (0.23-0.26μm) and NUVB4 (0.25-0.28μm) — and by providing a three-fold improvement in the spatial resolution of the UV emission within individual galaxies.	Coma3	12 57 08.62	27 21 44.7	T01	pcote_nrc	NRC-Herzberg	complete
--	--	--	Coma7	13 02 05.70	28 17 16.4	T03	pcote_nrc	NRC-Herzberg	complete

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
G06_139	Study of Galactic Structure using UVIT star counts	The aim of this proposal is to investigate in detail the observed UV star counts obtained by UVIT-ASTROSAT vis-a-vis the model simulated catalogues produced by the Besancon model of stellar population synthesis in five Galactic directions, and to explore the potential for studying the structure of our Galaxy from images in multiple NUV and FUV filters of the UVIT. UV star counts will be dominated by MS stars, hot white dwarfs (WDs) and blue horizontal branch stars (BHBs), and hence will be very useful to separate out different stellar populations since we have several UV colours, which in turn will help us to estimate the structural parameters of the Galaxy with better precision. The population of WDs and BHBs is also integral to the study of stellar evolution and structure of the Milky Way as they belong to different stellar populations of the Galaxy.	GC146-46	1 57 50.0	13 00 00.0	T02	dkojha	TIFR	complete
--	--	--	GC47-43	21 51 2.8	-8 33 36.6	T01	dkojha	TIFR	complete
--	--	--	SGP	00 51 26.0	-27 07 42.0	T05	dkojha	TIFR	complete
G06_145	Detecting and monitoring the mineral atmosphere of the hot super-Earth HD 219134 b	Hot, short-period transiting rocky exoplanets are particularly important because they offer the unique potential to probe the chemical composition of their evaporating rocky surfaces. Only 55 Cnc e and HD 219134 b orbit stars bright enough to allow detailed studies. These planets have lost their primary, H-dominated, and secondary, CO 2 -dominated, atmospheres. For HD 219134 b, the target of this proposal, sputtering is the most likely primary source of evaporation. We request ASTROSAT observations to detect and monitor for the first time a mineral atmosphere, measure its size, and probe the presence of Mg in the planetary exosphere. We have advanced 3D modelling, validated by in situ observations of Mercury, to comprehensively study the metal-rich corona surrounding the planet. These pioneering observations and study will open a new branch of exoplanetology by the direct analysis of minerals at the surface of exoplanets.	HD 219134	23 13 16.976	57 10 6.082	T01	girish	ISRO	complete
G06_151	Imaging the Hubble sequence - a Survey of Nearby Galaxies	The Hubble classification scheme was based on morphology in the visible wavelengths. Galaxy surveys produce catalogs which are classified on this basis. The morphology relates to the mix of stellar populations in the galaxy, the amount of star formation activity, and the presence of gas and dust. Deep surveys turn up larger fractions of 'peculiar' morphology since they sample shorter rest wavelengths and are looking at younger galaxies. An understanding of the UV properties of galaxies in the nearby universe is essential for comparison with distant surveys. We propose imaging using multiple filters in UVIT, which would allow us to determine the slope of the SED in the FUV and NUV as well as sample emission line signatures of star formation. The superior resolution will map star forming knots more effectively compared to GALEX. The images will also showcase UVIT capability.	NGC 4228	12 15 32.93	36 17 01	T02	askpati	IIA	complete
--	--	--	NGC 628	01 36 41.78	15 47 0.60	T01	askpati	IIA	complete

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
G06_154	Evolution of galaxies from filaments to clusters: the Coma Supercluster	Galaxies progressively evolve from being blue, disc-dominated systems to red, passively evolving spheroids through interaction and merger, their star formation being turned on and off due to environmental effects. Most galaxies are formed on the cosmic web, in small systems, and most of their star formation episodes occur before they travel down filaments and get assimilated in rich clusters at the crossroads of these inter-cluster filaments of the web. Studies of galaxy formation and evolution, however, have mostly concentrated on rich fields and clusters. Instead, one needs to study the star formation and interaction histories of galaxies on filaments and in the infall regions of clusters to understand the evolution of galaxies.	Abell1367A	11 44 36.5	+19 50 0.0	T03	kanak	IUCAA	complete
--	--	--	Abell1367B	11 44 50.0	+20 15 21.0	T04	kanak	IUCAA	complete
--	--	--	Coma B	12 58 51.0	+27 43 0.0	T01	kanak	IUCAA	complete
--	--	--	Coma C	12 58 0.0	+28 00 0.0	T02	kanak	IUCAA	complete
G06_157	Probing accretion disk and UV/X-ray connection in Seyfert 1 galaxies	Some of the outstanding problems in study of Seyfert type AGN are (i) the origin of soft X-ray excess and the optical/UV emission and the connection between them, (ii) the nature of accretion disks. SXT along with Astrosat's simultaneous multi-wavelength capability provides a unique opportunity to investigate these problems. As a part of the SXT GT, we propose for AstroSat observations of a bright narrow-line Seyfert 1 galaxy Mrk~766 and a bare Seyfert 1 Fairall~9. Mrk~766 is well known for its strong soft X-ray excess and rapid variability. We will study the variability of the soft X-ray excess in relation to optical/UV and hard X-ray emission in Mrk~766. The bare Seyfert 1 galaxy Fairall 9 is a massive AGN with its accretion disk emission falling in the UVIT band. We will use the UVIT and SXT data to characterise the accretion disk emission from Fairall~9.	Fairall 9	1 23 45.748	-58 48 20.648	T01	KPSingh19	TIFR	complete
--	--	--	Mrk766	12 18 26.484	29 48 46.150	T02	KPSingh19	TIFR	complete

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
G06_164	Stellar flares from Star-Planet interaction	Hot Jupiters are gas giants similar to Jupiter but with short orbital periods ( $< 10$ days), small orbital radii ( $< 0.1$ AU) and high surface temperatures. The hot Jupiter - host star systems owing to small separations are interesting test bed to understand the magnetic activity of the host stars and the subsequent energy pumped into the planetary atmospheres due to star-planet interaction. The planet induced magnetic activity of stars can produce stellar flares lasting several minutes doubling flux in UV/X-rays. Here we propose to observe host star of a hot Jupiter HD 68988 with UVIT and SXT on ASTROSAT for four date combinations of perigee and apogee. Our aim is to detect enhanced stellar flares when the star planet distance is at the minimum with a strong statistical significance. We hope to better understand the Star-Planet interaction induced stellar activity and the energy budget released to the planetary atmospheres.	HD 68988	8 18 22.18	61 27 38.52	T01	koshy	IIA	complete
G06_167	H 1743-322 antocipated ToO	It is black hole binary with frequent low level outbursts every year. We will study its spectrum in low hard and high soft state, qpo, time lag, spin etc.  We expect outburst in this source during February-March 2017. We will have simultaneous observation from ground based observatories.	h 1743-322	17 46 15.608	-32 14 0.600	T01	jsyadav	TIFR	Yet to be Scheduled
G06_168	Metallicity Mapping of Galactic Halo-UVIT filter indices and physical parameters of stars.	We propose to map stars in the Galactic Halo, in various UVIT filters, in order to spatially map the halo metallicity. Such a study is important for understanding the formation of the Galactic Halo. We will also be surveying other major stellar constituents of the Halo through this survey. UVIT is uniquely suited for this purpose, not only because the strongest metal lines in late type stars occur in UV but also because UVIT filters are designed to sample these lines. Its wide field and spatial resolution are well suited for this purpose and can sample halo on both sides of the plane by the same set of instruments. The proposal has TWO parts: calibrations and survey of the Galactic Halo. In this proposal we would like to observe stars with a range in metallicity, $T_{\text{eff}}$ , $\log g$ and establish their relationship with various UVIT filter indices.	BS1608 4-160	16 28 50.7	+54 37 03	T22	nkrao	IIA	complete



PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
--	--	--	BS16934-002	13 29 46.4	+16 15 39	T18	nkrao	IIA	Yet to be Schedule
--	--	--	CS29503-0109	00 04 55.4	-24 24 19	T01	nkrao	IIA	complete
--	--	--	G139 -8	17 01 43.9	+16 09 03	T23	nkrao	IIA	complete
--	--	--	HD 218732	23 10 25.4	-13 18 35	T25	nkrao	IIA	complete
--	--	--	HD 3008	00 33 14.3	-10 43 43	T02	nkrao	IIA	complete
--	--	--	HD103723	11 56 36.0	-21 25 10	T12	nkrao	IIA	Yet to be Schedule
--	--	--	HD105004	12 05 24.9	-26 35 44	T14	nkrao	IIA	Yet to be Schedule
--	--	--	HE0107-5240	01 09 29.1	-52 24 34	T04	nkrao	IIA	complete
--	--	--	HE0134-1519	01 37 05.4	-15 04 24	T05	nkrao	IIA	complete
--	--	--	HE0557-48	10 29 15.2	+17 29 28	T10	nkrao	IIA	complete
--	--	--	HE1351-1721	13 53 49.7	17 36 38	T20	nkrao	IIA	complete
--	--	--	HS1236+4754	12 39 05.1	+47 37 51	T15	nkrao	IIA	complete
--	--	--	J1248+61	12 48 27.1	+61 43 59	T16	nkrao	IIA	complete
--	--	--	SDSSJ1204+1201	12 04 41.4	+12 01 11.5	T13	nkrao	IIA	complete
--	--	--	SMSSJ0313-6708	03 13 00.4	-67 08 39	T07	nkrao	IIA	complete
G06_169	Detecting the mineral atmosphere of the hot super-Earth 55 Cnc e	Hot, short-period transiting rocky exoplanets are particularly important because they offer the unique potential to probe the chemical composition of their evaporating rocky surfaces. Only 55 Cnc e and HD 219134 b orbit stars bright enough to allow detailed studies. These planets have lost their primary, H-dominated, and secondary, CO <sub>2</sub> -dominated, atmospheres. The surface of 55 Cnc e, the target of this proposal, is most likely covered by an outgassing magma ocean leading to the formation of a mineral atmosphere. We request ASTROSAT observations to detect the mineral atmosphere of 55 Cnc e, measure and monitor its size, and probe the presence of Mg in the planetary exosphere, and hence surface. We have advanced 3D modelling, validated by in situ observations of Mercury, to comprehensively study the metal-rich corona surrounding the planet.	55 Cnc e	8 52 35.811	28 19 50.947	T01	girish	ISRO	complete

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Total Accepted Proposals are 59

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
A02_005	Longlook Observations of Three Blazars	We propose to observe three blazars, namely, Mrk 421, 1ES 1959+650, and 3C 454.3 continuously for 100 ks each with SXT, and repeat the same observations later in the cycle. Using additional archival light curves, we shall precisely determine the X-ray power spectral density (PSD) at hours to years timescales. While detailed X-ray PSD of several Seyfert galaxies --- where the X-rays are from the accretion disk-corona region --- have been obtained before, that of blazars is much rarer. We shall search for any characteristic timescale (e.g., a break) in the PSD and hence test if such patterns translate from the accretion disk to jet. This work will help put additional constraints on the disk-jet connection in AGN. Correlation of multi-band variability from other instruments will provide clues about the mechanism of short-timescale variability in jets possibly driven by radiation loss and turbulence.	Mrk421	11 4 27.314	38 12 31.788	T01	ritaban	PU	complete
A02_006	X-ray/UV occultations in NGC1365	We request four 25ks AstroSat observations of NGC1365 with UVIT as the primary instrument. NGC1365 is a Seyfert 1.8 galaxy well known for extraordinary variations of X-ray absorption on short and long timescales. NGC1365 frequently exhibits X-ray eclipses, possibly by the broad-line region clouds, on hours timescale. It also shows Compton-thin to Compton-thick transitions on months-to-years timescale. These dramatic X-ray absorption variations have never been studied in conjunction with optical and ultraviolet observations, to search for associated flux and colour variations in these bands. The main aim of this proposal is to study in detail the X-ray absorption variability of this source, and to search for accompanying variations in the optical spectrum and optical/UV colours with coordinated AstroSat/SALT observations. The proposed observations will also probe if there is a connection between the hard X-ray continuum and the low energy X-ray absorption, and thus to separate absorption and intrinsic X-ray variability.	NGC1365	3 33 36.372	-36 8 25.440	T01	gulabd	IUCAA	complete
A02_008	AstroSAT observations of the next transient X-ray binary in the globular cluster Terzan 5	The globular cluster Terzan 5 contains numerous transient low-mass X-ray binaries. At least three of these have undergone X-ray outbursts over the past 15 years, showing a variety of intriguing behaviours. We propose a 40 ks AstroSAT observation of the next bright outburst from Terzan 5, to measure its X-ray energy spectrum, characterize its power spectrum, search for pulsations, and study any X-ray bursts that occur.	Terzan 5	17 48 04.80	-24 46 45	T01	cheinke	OTHERS	Yet to be Scheduled
--	--	--	Terzan 5	17 48 04.80	-24 46 45	T01	cheinke	UAlberta	
A02_024	Distinguishing absorption-induced and intrinsic variability in NGC 4388 with ASTROSAT	We request to observe one bright Seyfert 2 AGN, NGC 4388 for 50 ks with ASTROSAT/SXT, LAXPC and UVIT. The existing RXTE observation of NGC 4388 revealed variability in the absorption column density by a factor of 10 on timescales of 4 hours. As the soft X-ray ( $E < 3$ keV) emission is very sensitive to absorption by the circumnuclear material, the study of the hard X-ray emission above 3 keV is the only way to investigate the central engine of the Seyfert 2 galaxy which is obscured by the surrounding torus. The primary goal of the proposed observation is to investigate the nature of the energy and rms spectra below and above 10 keV in order to distinguish between the variability caused by the direct nuclear emission and absorption due to the BLR clouds and/or molecular torus. This study will allow us to test the universality of the AGN unification scheme.	NGC 4388	12 25 46.747	12 39 43.524	T01	labani	IUCAA	complete
A02_027	ASTROSAT observation of the accretion disk, corona and companion star in Her X-1	Her X-1 is to be intensely observed by UVIT, SXT, LAXPC, and CZTI instruments for one full binary during main high state. The neutron star illuminates the companion star, accretion disk, accretion stream and disk corona. This causes detectable X-rays and UV from these structures which are orbital phase dependent. Modelling of the orbital-phase dependent light curves in multiple energy band will be used to map these structures in the binary system. Time delays between the pulsations in the different energy bands will enable extraction of line-of-sight travel time delays and distances. The expected scientific results are: i) to obtain the geometry of the X-ray heating of HZ Her, the accretion disk, the accretion stream and the corona; and ii) to precisely determine the inclination of the binary. The improved system inclination will allow precise binary parameters and result in a well-determined neutron star mass.	Her X-1	16 57 49.810	35 20 32.399	T01	dleahy	Calgary	complete

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
A02_028	ASTROSAT multi-wavelength imaging survey of M31	M31 is the nearest giant spiral galaxy for which we can study the supernova remnants, X-ray sources, and stellar populations. At a distance of 780 kpc, M31 is far enough away that the brightest stars are safe to observe with UVIT, yet close enough to obtain a good census of the supernova remnants, X-ray sources, and hot stellar populations. The high spatial resolution of UVIT will yield outstanding data on the stellar populations of M31. The spatial resolution of SXT is sufficient to resolve the X-ray source populations which includes measuring the supernova remnant population. The resulting multi-wavelength images of M31 will form a legacy dataset to be used for study of the stellar populations of M31, its star formation history and the structure of the galaxy.	M31 No.1	0 42 50.57	41 15 00.82	T01	dleahy	Calgary	Partially scheduled
--	--	--	M31 No.2	0 44 08.88	41 33 26.45	T03	dleahy	Calgary	complete
A02_029	Monitoring the Terzan 2 neutron star low-mass X-ray binary 4U 1724-30: state transition, broadband spectrum and timing	Study of spectral and timing properties of different source states, and transitions among them, are used to probe the accretion processes and various X-ray emitting/absorbing components of neutron star low-mass X-ray binaries. Such properties and transitions are poorly observed for low accretion rates. 4U 1724-30, being a rare low-luminosity, persistent source, which shows broadband X-ray spectrum covering the entire AstroSat range, varieties of timing features, and state transitions, is one of the best sources to study accretion processes in the low accretion rate regime. Our proposed three AstroSat observations of 4U 1724-30, each of 10 ks, will find this fluctuating source in different states, and will be useful to study their spectral and timing properties and their transitions. This will advance the knowledge of the low accretion rate regime, and will characterize this less studied source. This proposal relies on the unique broadband and timing capabilities of AstroSat.	4U 1724-30	17 27 33.250	-30 48 7.400	T01	sudip	TIFR	Partially scheduled
A02_031	UV investigation of an extremely metal poor Globular Cluster	Globular clusters having a large number of stars can be used to substantiate stellar evolution models. We propose to observe an extremely metal poor globular cluster in our Galaxy that has been observed in the GALEX fields. We propose to observe this globular cluster through UVIT filters to characterise the stellar population, particularly the UV bright stars such as horizontal branch stars.	NGC5053	13 16 27.09	+17 42 00.9	T01	sarita	IIST	complete
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A02_046	Multiwavelength spectral variability in ultra-luminous X-ray source Holmberg II X-1: testing the irradiated disk and the donor star	Despite intensive studies of the ultraluminous X-ray sources (ULXs) both in X-rays and in optical, there is still no strong and obvious evidence to distinguish among two competitive models: whether they contain stellar-mass or intermediate-mass black holes (IMBHs). What we know exactly is that the ULXs are close binary systems with massive donors. We propose to test the components of the ULX binaries. Recent data show that both UV and optical emissions may be reprocessed in strong heating by X-rays, where UV-optical spectral energy distribution hints at two-component spectra. We propose simultaneous observations of the X-ray variable ULX Holmberg II X-1 with ASTROSAT to test the UV and optical responses to the X-ray variability. Our main goal is to study correlations between the X-ray-UV-optical data, and to elucidate the model as either a donor and supercritical accretion disk, or a donor and standard irradiative accretion disk with IMBH.	Holmberg II X-1	08 18 09.7	+70 41 51.5	T01	rita	IIA	complete
A02_055	Spectral and timing studies of radio-loud narrow-line Seyfert 1 galaxies	We propose UV and X-ray observations with instruments UVIT, SXT, LAXPC and CZTI on board AstroSat, of three radio-loud narrow-line Seyfert 1 galaxies (RL-NLS1s) namely B3 1702+457, MRK 766 and 1H 0323+342. These RL-NLS1s exhibit intra-night optical variability and 1H 0323+342 is also detected in gamma-ray with Fermi-LAT. Our aim is to understand the emission mechanisms in RL-NLS1s by studying components characterizing broad-band spectra and multi-band variability. The simultaneous UV to hard X-ray data from AstroSat combined with co-ordinated optical, IR data (from Mt. Abu) and radio data (from GMRT) will allow us to make first attempt to study these RL-NLS1s with simultaneous multiwavelength observations across radio to hard X-rays. In order to obtain spectra with good signal-to-noise ratio we request 80 ks observation for each source, and thus a total observing time of 240 ks (~ 67 hours).	B3 1702+457	17 03 30.4	+45 40 47	T01	veeresh	PRL	complete

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
A02_058	Star-forming S0 galaxies in the nearby universe	<p>Understanding the precise star-formation history of galaxies and its dependence on galaxy mass, morphology and environment is one of the most important outstanding problems in galaxy evolution. UV data, which are the most precise probe of (relatively unobscured) recent star-formation are crucial to resolving degeneracies in the modeling. For nearby galaxies of large angular size, such modeling can be carried out for individual star-forming regions. For this purpose, the unprecedented angular resolution of UVIT is critically required.</p> <p>In this pilot study, we request UVIT observations of 5 nearby S0 galaxies, which show some evidence of recent star-formation. We will combine the UVIT UV data with archival observations in optical, near-IR and mid-IR and stellar population synthesis models to model the resolved star-formation histories of these galaxies.</p>	NGC 1533	4 9 51.852	-56 7 6.390	T03	omkar	NCRA	complete
--	--	--	NGC 4262	12 19 30.582	14 52 39.780	T02	omkar	NCRA	complete
A02_063	Study of the Broadband spectral and temporal variations of a Z Source Cyg X-2 using ASTROSAT	<p>Requested observation: Propose to observe Cyg X-2 using LAXPC for an effective exposure time of 20 ks. Context: Cyg X-2 is a prototype of Z-type sources showing a horizontal, normal and flaring branches in the X-ray colour-colour diagram (CCD) and QPOs in the respective branches. The spectrum is modeled with multi-temperature black body along with a Compton tail in the high intensity state. Objectives and Expected scientific results : We would like to study the correlated spectral and temporal variation of the source as source traverses a Z track in CCD. We propose to study the cross-correlation functions of energy dependent light curves (i.e. 3-5 keV vs 10-20 keV, 20-50 keV). We would like to explore the auto-correlation functions in various energy bands in order to constrain the reprocessing models. The origin of 6 Hz QPO would be explored using the data.</p>	Cyg X-2	21 44 41.150	38 19 17.101	T01	sriramu	O.U.	complete
A02_065	Catching the prototype of transitional millisecond pulsars in its next accretion outburst	<p>The recent discovery of swings between an accretion powered (X-ray) and a rotation powered (radio) pulsar state from the transient IGR J18245-2452 in the globular cluster M28 proved the evolutionary link shared by these two classes of sources, and showed that transitions between these two regimes can take place over timescales as short as a few weeks, depending on the variations of the mass accretion rate. IGR J18245-2452 also showed dramatic variations of the X-ray flux on a shorter timescale, possibly due to propeller centrifugal inhibition of accretion. These properties make it the ideal case to study the disk-magnetosphere interaction around a fast pulsar. We propose an anticipated ToO 60 ks observation of IGR J18245-2452 during the next outburst of the source, to measure the long term spin and orbital evolution of the pulsar, and follow its correlated magnitude-spectral variability over a broad 0.3-80 keV band.</p>	IGR J18245-2452	18 24 32.500	-24 52 7.799	T01	mbagchi	IMSc	Yet to be Scheduled
A02_070	Broadband SED modelling of the Seyfert 1.5 galaxy Mrk 0926	<p>We propose a 15-ks UVIT observation of the Seyfert~1.5 galaxy Mrk~0926, along with SXT and LAXPC for a detailed broadband SED modelling of the source. We have multi-wavelength data from XMM-Newton, SDSS, WISE and UKIDSS/2MASS for a sample of type~1 AGN including Mrk~0926, one among the hardest X-ray sources in the sample. Though EPIC-pn data are available, the energy coverage is limited to 0.2-10-keV. The proposed observation will help us to extend our study by including X-ray data from 0.3-80-keV. The simultaneous multi-wavelength capability of ASTROSAT can better constrain the SED fit with UVIT observations in the optical/UV band, in addition to SDSS data. The modelling will be done using the self-consistent energy-conserving model optxagnf which can accurately determine the bolometric luminosity and well constrain parameters like Eddington-ratio and hard X-ray photon index. These observations will also help to study the short time-scale spectral variability of the source in the UV and X-ray bands.</p>	Mrk 0926	23 4 43.49	-8 41 8.52	T01	savithri	OTHERS	complete

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A02_071	Exploring the iron line - kHz QPO connection	The nature of the ultra-dense matter in neutron stars remains enigmatic and there is still a wide variety of possible internal compositions. Obtaining accurate radii and masses for neutron stars will allow to distinguish between these equations of state. We have suggested a powerful way to constrain both neutron star radii and masses by combining a measure of the inner disk radius from broad iron emission lines and the frequency of kHz quasi-periodic brightness oscillations (QPOs). However, this method only works if both phenomena originate from the same part of the disk. Here, we propose 30 ks observations of each of the neutron star low-mass X-ray binaries GX 349+2 and GX 340+0 to simultaneously obtain an accurate measure of the inner disk radius from broadband spectroscopy and the kHz QPO frequency from timing.	GX 349+2	17 54.490	-36 25 23.099	T01	sudip	TIFR	complete
A02_073	Star formation in galaxies falling into clusters	Defying traditional wisdom, several star-forming galaxies have been discovered in galaxy clusters in the last decade. These galaxies are a rare class of transition objects "caught in the act", and therefore provide essential clues for understanding the evolution of galaxies from being actively star-forming spirals and irregulars in the sparse environments, to passively-evolving spheroids in the core of groups and clusters. We propose to observe 4 such star-forming galaxies falling into clusters identified by their distorted morphology in far ultraviolet images. We intend to image these galaxies with UVIT. Together with the ancillary optical and infrared data, and complimentary 21 cm imaging proposed for the GMRT, we will use the Astrosat data to explore the extent of the tidal tails and the impact of gas loss on the morphology of the infalling galaxies. We will also study star formation efficiency in these galaxies undergoing tidal stress.	PGC 36406	11 43 13.09	+20 00 17.36	T02	smriti	IISER	complete
A02_075	A Pilot Study of the Extended Ultraviolet Disks (XUV) of Spiral Galaxies	We propose to do a pilot study of the UV emission from the low luminosity stellar disks of five spiral galaxies that have extended ultraviolet (XUV) disks. Our targets have all been detected by GALEX. They are all nearby spirals that we have selected based on UV luminosity. XUV galaxies show filamentary or diffuse star formation well beyond their optical disks, in regions where the disk surface density lies below the threshold for star formation. GALEX found that 30% of spiral galaxies have XUV disks. The star formation is thought to be triggered by gas accretion from nearby clouds, galaxies or the intergalactic medium. In this study we will investigate the nature of XUV disk star formation, estimate its rate and morphology. The high sensitivity of UVIT will help isolate the star forming knots, image the UV disks and search for signatures of gas accretion.	NGC2541	8 14 40.116	49 3 42.156	T01	mousumi	IIA	complete
--	--	--	NGC3319	10 39 9.458	41 41 12.048	T02	mousumi	IIA	complete
--	--	--	ugc4393	8 26 4.387	45 58 3.504	T05	mousumi	IIA	complete
A02_077	Study of broadband spectral and temporal characteristics of the microquasar GRS 1758-258 with AstroSat	We propose to study the persistent microquasar GRS 1758-258 for a total exposure of 30 ksec using SXT, LAXPC, CZTI and UVIT on-board AstroSat. SXT will be considered as the primary instrument. The source is a persistent confirmed black hole source, with bipolar radio jets observed from the core. The previous studies suggest that the source has occupied different types of spectral states. We propose to perform a correlated study of the UV and X-ray characteristics. The correlation between spectral state transition and radio emission/jet will also be explored. We will investigate the nature of Quasi-periodic oscillations, energy dependency of fractional variability, time resolved spectroscopy and time lag variation. Finally, we will model the broadband spectra so as to estimate the accretion flow parameters and to put a constrain on the mass of the black hole source.	GRS 1758-258	18 01 12.40	-25 44 36.10	T01	Radhika	DSU	Partially scheduled
A02_080	Study of the Broadband temporal and spectral variations of an IP source IGR J16167-4957 using ASTROSAT	Requested observation: Propose to observe IGR J16167-4957 using SXT for an effective exposure time of 15 ks and LAXPC for 15 ks.  Context: IGR J16167-4957 is considered to be a hard IP source but there has been no detection of spin or orbital periods yet. A QPO was observed at 585 s but vaguely proved. Spectrum is hard along with an iron line.  Objectives and Expected scientific results : Search for spin and orbital periods of this source and constrain any QPOs in this system. Study the temporal and spectral evolution and compare them with other IP sources, thus strengthening its candidature as an IP. Study the cross-correlation function and auto-correlation function to constrain the accretion geometry.	IGR J16167-4957	16 16 37.200	-49 58 47.500	T01	sriramu	O.U.	complete

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A02_081	Investigating the cyclotron resonance scattering feature in HMXB pulsar 4U 2206+54	We propose a 40 ksec observation of 4U 2206+54 with Astrosat for better estimation of spin period and establish the presence/absence of cyclotron line in the pulsar. Though the nature of the compact object was unknown for long, recent detection of 5560 s pulsations confirmed the X-ray source as a neutron star. Investigation of spin period evolution of the pulsar imply the surface magnetic field to be $\sim 10^{14}$ G, comparable to that of magnetars. However, recent observational results are in disagreement with the magnetar nature of the X-ray source. Reports of detection of a cyclotron line at $\sim 30$ keV in the spectrum of 4U 2206+54 remains debatable till date. Using the proposed Astrosat observation, timing and spectral studies of 4U 2206+54 will help in establishing the presence of cyclotron line in the pulsar and estimate the magnetic field and spin period of the pulsar with better accuracy.	4U 2206+54	22 7 56.237	54 31 6.404	T01	asat2016	PRL	complete
A02_082	Characterising the outer atmosphere of ultra-fast rotating active stars	Investigation of stellar coronae and chromospheric activity is one of the frontier areas of research in X-rays and UV. ASTROSAT's capability to observe such sources simultaneously multi-wavelengths is a powerful tool to understand these activities and their inter-relationship. We propose to observe a low mass rapidly rotating highly active stars simultaneously with the UVIT, SXT and LAXPC instruments onboard ASTROSAT. We intend to study highly time-resolved correlations of coronal, chromospheric and photospheric activity phenomena. The requirement of strictly simultaneous observations results from the short-lived nature of the activity signatures under study. Hence, intensity variations will be studied over a time-scales as short as a few seconds. The proposed observations will yield insight into the nature of the associated magnetic dynamos.	GJ 3331	05 06 49.91	-21 35 09.23	T01	lalithasairam	IIA	complete
A02_085	ASTROSAT Observations of extreme blazars: Probing the curvature in the Synchrotron peak	We request observations of the "extreme" TeV blazars, RGB J0710+591, using the multiwavelength instruments on board the ASTROSAT. We propose for 1 pointing of 40 ks. The proposed observation will provide unprecedented spectral resolution of the synchrotron peak and beyond of the so called class of EBLs, which peak in the hard X-rays. Since the origin of the optical emission of these object is under debate, simultaneous UV-Xray observations using ASTROSAT can resolve this uncertainty. Study of the hard X-ray spectrum, along with TeV observations, can give us hitherto unknown clues on the extragalactic background light and also the physical processes responsible for the outbursts in blazars.	RGB J0710+591	7 10 30.078	59 8 20.500	T02	atreyye	TIFR	complete
A02_086	Investigation of wide-band characteristics of 1E 1740.7-2942 using AstroSat	We propose to study the source 1E 1740.7-2942 for a total exposure of 10 ksec using SXT, LAXPC, CZTI and UVIT. SXT will be considered as the primary instrument. The source 1E 1740.7-2942 is a persistent microquasar with double-sided radio jets, and is observed to stay in hard state most of the time. An occasional spectral state transition exists implying presence of soft disk emission as well. We would like to study the broad-band spectral and temporal characteristics of the source. This will focus on correlated X-ray and radio behaviour, variation of radio emission during spectral state transition change in accretion dynamics and correlated UV and X-ray characteristics as well. Excellent timing capabilities of LAXPC will be used to search for low frequency QPOs and study energy dependency of rms variability and time lag. We plan to perform a broad-band X-ray spectral modeling to estimate the mass of the source.	1E 1740.7-2942	17 43 54.830	-29 44 42.601	T01	samir	IIST	complete
A02_090	Probing emission mechanism and geometry in crab pulsar by phase resolved polarimetry with AstroSat CZTI	CZTI-Imager onboard AstroSat has significant polarization measurement capability at energies beyond 100 keV. Crab is a potential candidate for X-ray polarimetry observations with CZTI. Pulse phase resolved polarization measurements of Crab will be helpful in constraining the pulsar emission mechanism models and geometry. We have obtained statistically significant polarization signature for Crab from the available CZTI data ( $\sim 48$ ks) when averaged over all phases. Estimated degree of polarization is $\sim 35\%$ with polarization angle $\sim 140$ degree which are consistent with previous measurements. We also have obtained estimates of polarization of the off-pulse emission which is found to be higher than the average. Significant polarization measurements in all phase bins require further observations of the target. Hence we propose 500ks observation of Crab and 60ks of blank-sky observation for background estimation. We estimate that this observation along with available data would allow to have at least 3-sigma polarization measurements in various phase bins.	Blank Sky	12 13 55.2	22 48 0.0	T02	tanmoy	PRL	complete
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A02_098	AstroSat observation of 4U 1820-30: All kinds of QPOs, Thermonuclear Bursts and Burst Oscillations	We are proposing 23 ks effective exposure of the X-ray burster 4U 1820-30 using SXT, LAXPC and CZTI instruments on-board AstroSat satellite. The source 4U 1820-30 is a low-mass X-ray binary (LMXB). 4U 1820-30 is famous for kilo-hertz QPO, thermonuclear bursts and burst oscillations. These features of 4U 1820-30 have been mostly observed by RXTE/PCA and not confirmed by any other instrument. RXTE/PCA was also limited to ~ 25 keV. AstroSat LAXPC will provide an unique opportunity to observe these features as LAXPC have wide energy coverage from 3.0 – 80.0 keV with large area and high time resolution and thus enable us to do energy dependent timing analysis.	4U 1820-30	18 23 40.570	-30 21 40.601	T01	jayashree	CBS	complete
A02_103	Investigating the origin of the X-ray seed photons and probing rapid X-ray variability from Seyfert 1.5 galaxy NGC 3227	We propose four observations (each three weeks apart) of the rapidly variable Seyfert 1.5 galaxy NGC 3227, each of 40 ks. NGC 3227 has an average accretion rate (0.5% Eddington) similar to that at which Cygnus X-1 changes from harder-when-brighter to softer-when-brighter behaviour. Cyg X-1 has a total spectrum consisting of two powerlaws. The harder powerlaw is driven by synchrotron seed photons from the X-ray emitting corona and the soft by blackbody photons from the accretion disc. However rms spectra show only one, soft, powerlaw. Here, with total and rms spectra from each of the 4 observations at different flux levels, we will test whether NGC 3227 shows the same behaviour. Previous Suzaku observations hinted at similar two powerlaw total spectra but provided no rms spectra. Astrosat has far superior spectral coverage, particularly above 10 keV, allowing far better discrimination between powerlaws and the reflection components which confused earlier work.	NGC 3227	10 23 30.570	19 51 54.299	T01	mayukh 3107	IUCAA	complete
A02_104	Quiescence observations of Be X-ray transient A0535+26	We propose an ASTROSAT observation of the HMXB Be binary 1A 0535+262 in order to probe the quiescence state of this source. This source has shown X-ray luminescence and pulsations during low mass transfer periods in multiple observations despite the fact that at very low accretion rates, spherical accretion is expected to be inhibited due to the propeller effect of the spinning neutron star. Given the presence of pulsations during some of the quiescent phase observations, which in turn indicate accretion onto the polar caps, we expect the presence of cyclotron resonant scattering features (CRSF) too (at ~ 45 keV ) during quiescence, which though have not been seen yet. Probing this with ASTROSAT's higher sensitivity in the CRSF energies, would enable constraining the low mass accretion and magnetic field configurations during quiescence. This will also allow measurement of the hard X-ray pulsations in quiescence for the first time.	1A 0535+26	05 38 54.573	26 18 56.83	T01	nirmal	ISRO	complete
--	--	--	1A 0535+26	05 38 54.573	26 18 56.83	T01	nirmal	RRI	
A02_106	Nearest extragalactic Pulsar in M31	Recent discovery of a 1.2 second modulation in M 31 (Andromeda galaxy) has indicated the presence of a pulsar 3XMM J004301.4+413017 (3X J0043), which hosts a neutron star. This is the first accreting binary system in M 31, for which the spin-period has been identified. We request a 50 ks observation using LAXPC instrument on ASTROSAT. The main objective of this proposal is to detect pulsations and carry out an energy resolved pulse profile analysis. There are ~200 accreting pulsars in our galaxy. Some of the persistent pulsars are very luminous and some transient pulsars can reach very high luminosities like $10^{37} \text{ergs}^{-1}$ . On an average there is more than one bright transient at any instant. We expect the same to be true for M 31. In the proposed observation, we plan to detect pulsations in the already known persistent pulsar 3X J0043 and hopefully, discover some new pulsars with LAXPC.	3XMM J004301.4+413017	0 43 1.46	41 30 17.03	T01	graman	RRI	complete

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A02_108	Deep X-ray observations of the galaxy cluster Abell 3535	Most of the massive merging clusters are host to cluster-scale diffuse radio sources termed as radio halos. Radio halos have been proposed to be generated by (re-)acceleration of fossil relativistic electrons in the ICM by MHD-turbulence injected during cluster mergers. Joint radio and X-ray studies are essential to study the radio halos and their origin. We propose X-ray observations of the galaxy cluster Abell 3535 in the Shapley supercluster which is an unusual "low mass cluster with a candidate radio halo" emission. We have deep radio observations with the MWA, GMRT and the JVLA for the cluster and propose Astrosat X-ray observations. The X-ray observations will be used to find the morphology of the intra-cluster medium and to study its luminosity and temperature. We propose an observation of 50ks with the SXT. Data from LAXPC will be used to find if there is hard X-ray emission associated with this cluster.	Abell3535	12 57 48.0	-28 29 12	T01	ruta	NCRA	complete
A02_111	Observations of Supergiant HMXB Cen X-3 to study cyclotron line variations	Cyclotron line variations with luminosity have been observed in transient Be HMXBs which conform to expected trends of correlation depending on source luminosity (Becker 2012). Apart from a weak correlation between luminosity and cyclotron line energy reported in Fürst (2014), persistent Supergiant HMXB systems (SgHMXBs) have not been studied systematically to note if such variations exist. We propose three observations of 15 kiloseconds each with ASTROSAT of a persistent SgHMXB (Cen X-3) with a large range of flux variations. This study will enable comparisons between wind fed SgHMXBs and disk accreting Be transients in terms of their cyclotron lines and how they are formed in the accretion column above the neutron star. Our proposal is of a monitoring kind to study variabilities with higher requested exposure times at different times and we cannot do the desired science with observations already done by ASTROSAT in GT phase.	Cen X-3	11 21 15.79	-60 37 22.80	T01	nirmal	ISRO	complete
--	--	--	Cen X-3	11 21 15.79	-60 37 22.80	T01	nirmal	RRI	
A02_114	Broadband spectral energy distribution of PKS-0208-512 at its low $\gamma$ -ray activity state	The EGRET and Fermi observations reveal that a number of flat spectrum radio quasars (FSRQ) exhibit long term $\gamma$ -ray variability. PKS-0208-512 is one such source which shows at least an order of magnitude lower $\gamma$ -ray flux level during six years of Fermi operation in comparison to the averaged flux level detected by EGRET. Along with the long term variability, PKS-0208-512 also showed the short term variability (relatively much lower amplitude) in optical and X-ray region in the low $\gamma$ -ray emission state. To understand the radiative process in sources at their low $\gamma$ -ray activity state, observations in UV and soft X-ray band are crucial. Thus, we propose simultaneous observation of PKS-0208-512 with UVIT, SXT along with LAXPC and CZTI detectors on board ASTROSAT satellite which is essential to construct the broadband spectra of the source and to better understand the physical process responsible for such long term low $\gamma$ -ray activity state.	PKS 0208-512	2 10 46.200	-51 1 1.884	T01	debbijoy	MCNS, MU	complete
A02_118	AstroSat proposal for observation of persistent black hole binary LMC X-1	LMC X-1 and LMC X-3 are the two persistent black hole binaries in the Large Magellanic Cloud. LMC X-1 is a high mass X-ray binary accreting from the wind of an O-type star, whereas LMC X-3 is a low mass X-ray binary accreting via Roche-lobe overflow of a B-type companion. Both the sources have unusual spectral behavior as compared to the other black hole binaries. LMC X-1 has never entered the hard state, whereas LMC X-3 has exhibited occasional prolonged excursions to the hard state. Study of both the sources with AstroSat will be helpful in their detailed spectral and timing studies. Therefore, observations of the two sources are proposed here, each with an exposure of 50 ks. AstroSat data will be of particular help in the detection of QPOs and their further detailed study for the black hole binary LMC X-1.	LMC X-1	5 39 38.839	-69 44 35.660	T01	anjali	PRL	complete



PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
A02_124	UVIT view of stellar populations in the Milky Way Ultra faint dwarf satellites: A Pilot study	We propose a pilot study of Milky Way faint dwarf satellites using UVIT. Ultra faint dwarf satellite galaxies around Milky Way are thought to be the first galaxies that were formed in the universe. Recent, large photometric surveys were successful in detecting new faint satellite galaxies around Milky Way and partly alleviating the so called "missing satellite problem". However, very little is known about their formation epoch and star formation history and evolution. UV observations are useful probes of stellar populations that might have had different chemical history, through its additional sensitivity to probe helium abundance and metallicities, compared to optical colours. We propose here UV, visible and X-ray observations of Reticulum-II, one of the faint dwarf satellites and a dark matter dominated system. There were recent claims of gamma ray detection in Ret-II, as a signature of dark matter annihilation, hence any X-ray observations may be interesting.	Reticulum 2	03 35 36	-54 03 00	T01	sivarani	IIA	complete
A02_132	Variability Monitoring of Active Galaxy PDS456	We propose to commence monitoring observations of a bright variable AGN and to use the ASTROSAT instrument complement to unravel the complex behaviour of these objects with a view to elucidating the underlying physical conditions and geometry in the regions responsible for their optical to hard X-ray emission	PDS456	17 28 20	-14 15 52	T01	Gordon	Leicester	complete
A02_134	Spectral and timing study of the dipper and burster 4U 1323-62	We propose to observe 4U1323-62 using SXT, LAXPC and CZTI for 25ks exposure. 4U1323-62 is a LMXB dipper with an orbital period of 2.94 hour which shows 1 Hz QPO and frequent thermonuclear bursts. The angle between the line-of sight and the rotational axis of the accretion disk is approximately 60 degrees. Due to the high inclination this source produces absorption lines which are useful to decipher the chemical, physical and kinematical properties of the accreting structure. Our aim is to observe this source over a wide range of X-ray energy (0.3-150) keV and study the broadband spectrum, timing properties such as QPOs, thermonuclear bursts and later do detail spectroscopic modelling. Such simultaneous broadband and spectral modelling has not done before. The large area and unprecedented time resolution of LAXPC and the soft X-Ray energy range will be our advantage over previous observations to understand the underlying physical processes.	4U1323-62	13 26 36.310	-62 8 9.899	T01	gargi	CEBS	complete
A02_147	Detection and modeling of High-frequency QPOs from X-ray binaries	We plan to obtain X-ray timing data to detect and model High-frequency Quasi-periodic oscillations (HFQPOs) in Black-hole binaries (BHBs). We have developed time series analysis tools like periodogram analysis, Multi-harmonic analysis of Variance, Wavelet analysis for QPO detection from light curves besides the Continuous-time Autoregressive Moving Average (CARMA) model in our analysis kit. Using Fourier expansion of the Doppler g-factor for the general case of a rotating object with geometric effects like Light bending, gravitational red-shift, frame dragging taken into account, we use models to fit light curves and address the 3:2 commensurability of HFQPOs in BHBs. Our targets are BHBs XTEJ1550-564, GROJ1655-40, H1743-322, XTEJ1650-500, 4U1630-47 with LAXPC to detect HFQPOs using this tool kit. Detection of QPOs will be used to validate our theoretical models.	4U1630-47	16 34 1.610	-47 23 34.800	T07	mangalam	IIA	Yet to be Scheduled
--	--	--	GRO J1655-40	16 54 0.137	-39 50 44.900	T03	mangalam	IIA	Yet to be Scheduled
--	--	--	H 1743-322	17 46 15.608	-32 14 0.600	T04	mangalam	IIA	Yet to be Scheduled
--	--	--	XTE J1550-564	15 50 58.780	-56 28 35.000	T02	mangalam	IIA	Yet to be Scheduled
--	--	--	XTE J1650-500	16 50 0.980	-49 57 43.600	T06	mangalam	IIA	Yet to be Scheduled
A02_149	Untangling the Spectral Complexity of Compton Dominated FSRQ using broadband UV-X-ray capabilities of ASTROSAT	We request observations of three distant, but bright flat spectrum radio quasars 3C 454.3 using all the multiwavelength instruments on-board the ASTROSAT. We propose for a single pointing observations of 40 ks for the source. The proposed observations will provide simultaneous spectral measurements in the UV, soft and hard X-ray bands for these highly luminous blazars, which will allow us to study the variations over a few minutes timescales. The X-ray emission process in FSRQs is largely uncertain with models advocating both Synchrotron-Self-Compton(SSC) and External Compton (EC) processes. A simultaneous coverage of spectral and temporal behaviour of broadband X-ray spectrum along with UV can be used to constrain the emission process in action. Specifically, in tandem with gamma-ray observations by Fermi, this can unravel the physics behind "Compton-dominance" by identifying the dominant external photon field in blazar environment.	3c 454.3	22 53 57.748	16 8 53.561	T01	chandra sunil	TIFR	complete

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
A02_150	UVIT OBSERVATIONS OF UV-BRIGHT STARS IN GLOBULAR CLUSTERS.	We propose to survey three high Galactic latitude globular clusters, NGC 7492, NGC 4590 and NGC 5466. The dominant contribution of Ultraviolet (UV) light in these clusters of old stellar population is UV-bright objects such as hot WDs, hot post-AGB stars and blue horizontal branch stars (BHBs). High resolution of UVIT will be very useful in resolving the UV-bright objects and the more number UVIT filters will provide more color options to separate them out. The UV CMDs will enable us to understand the evolutionary stage of these objects and classify them. Measuring the UV colors, using the Kurucz model of stellar atmospheres and adopting the filter responses of UVIT, the effective temperature and metallicity of UV-bright stars can be determined. Knowing the distances of globular clusters, it will also be feasible to derive the absolute UV fluxes which are useful to compare their SEDs with model atmospheres.	NGC 4590	12 39 27.98	-26 44 38.6	T03	ananta	OTHERS	complete
--	--	--	NGC 5466	14 05 27.29	28 32 04.0	T04	ananta	OTHERS	complete
--	--	--	NGC 7492	23 08 26.63	-15 36 41.4	T01	ananta	OTHERS	complete
A02_151	Study of outer atmosphere and related dynamo of an active binary CC Eri	We propose to carry out an in-depth X-ray, FUV and NUV study of a fast rotator CC Eri with rotation period 1.56 days. We intend to study the highly time-resolved correlation of upper chromospheric and coronal activity indicators and to study the rotational modulation of its X-ray, FUV and NUV fluxes. These proposed observations will also allow us to understand the dynamic behavior of the corona, which is found to be strongly related to the fluorescence of the photospheric materials. Furthermore, the proposed observations will yield insight into the nature of the associated magnetic dynamos.	CC Eri	2 34 22.567	-43 47 46.877	T01	subhajeet09	ARIES	complete
A02_152	UV study of exotic stellar populations in NGC 1904 (M79)	Globular Clusters (GCs) house exotic stellar populations and are the only sites where the products of direct collision of stars (Blue Straggler stars, BSS) are found. GCs also have accreting binaries, WDs and Horizontal branch stars, which are all bright in the UV. In the UV, all these stars stand out from the swamp of the cooler main-sequence stars and red giants. Our simulations suggest that the colour-magnitude diagrams using UVIT filters create definite diagnostic regions which can be used to detect and identify these systems. Exploiting the resolution and filter system of the UVIT, we plan to derive the multi-wavelength SEDs and estimate the fundamental properties such as mass, temperature and Luminosity. NGC 1904 is one such cluster with many UV bright stars located in the cluster.	ngc1904	5 23 50.31	-24 22 2.80	T01	snehalata	IIA	complete
A02_155	Variability Monitoring of Active Galaxy MCG-6-30-15	We propose to commence monitoring observations of a bright variable AGN and to use the ASTROSAT instrument complement to unravel the complex behaviour of these objects with a view to elucidating the underlying physical conditions and geometry in the regions responsible for their optical to hard X-ray emission	MCG-6-30-15	13 35 53.707	-34 17 43.944	T01	Gordon	Leicester	complete
A02_158	X-ray analysis of LMXB MXB 1658-298 during its current state of enhanced flux emission	We propose two Astrosat observations of the transient low mass X-ray binary MXB 1658-298 during the last 45 days of the Astrsat cycle AO-2. MXB 1658-298 has an orbital period of 7.1 hr and is one of the very few eclipsing LMXBs that allows a study of its orbital period evolution. From archival observations of this source during the previous two outbursts, we have found it to have unusual orbital evolution. The proposed observations will allow us to extend the baseline for the orbital evolution study and help probe the origin of its unusual character. It is also a source that shows thermonuclear bursts and burst oscillations at ~1.8 ms. We will probe the burst oscillation phenomena in high energies and also carry out thermonuclear burst spectroscopy to measure the radius of the neutron star.	MXB 1658-298	17 2 6.540	-29 56 44.100	T01	cjain	DU	complete
--	--	--	MXB 1658-298	17 2 6.540	-29 56 44.100	T01	cjain	OTHERS	

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
A02_161	Simultaneous ASTROSAT + Multiwavelength Observations of the Prototypical Transient Black Hole X-ray Binary GX 339-4	Black hole X-ray binaries cycle through different accretion states on timescales of days to months, providing a time-resolved view of how matter behaves in a strong gravity environment. Simultaneous observations across the electromagnetic spectrum are the optimal tool that exposes this view. However, strictly simultaneous radio through broad-band X-ray observations have been achieved in only a few X-ray binary outbursts. We request three 20 ks epochs of ASTROSAT (LAXPC/SXT/CZTI) observations of GX~339-4. We will trigger one sequence of 15-day monitoring over three epochs, for which we will coordinate multi-wavelength coverage, to measure the evolving broad-band spectral energy distributions (SEDs) during either the rising-hard and decaying-hard accretion states. We will determine how the evolving accretion properties (derived from X-ray timing and fitting models to X-ray spectra) are connected to the evolving jet properties (derived from broad-band SED fits that constrain, for example, the conditions where the electrons are first accelerated).	GX 339-4: Hard State	17 02 49.36	-48 47 22.801	T01	gsivakoff	UAlberta	Yet to be Scheduled
A02_162	Broadband spectral and timing analysis of IGR J16493-4348 with ASTROSAT	IGR J16493-4348 is a wind-fed eclipsing X-ray binary that hosts a neutron star as the compact object. We propose 40 ks of observation of IGR J16493-4348 in order to achieve the following goals: (i) Broad-band spectroscopy to constrain the continuum parameters, (ii) Study the soft and hard X-ray pulse profiles which has never been reported earlier for this source, (iii) Search for cyclotron line speculated to be at 30 keV from earlier observations of very limited statistics. With an unmatched combination of large effective area, high time resolution, and good spectral resolution of LAXPC, such broad-band spectral as well as their timing properties can be extensively carried out.	IGR J16493-4348	16 49 26.95	-43 49 09.0	T01	pragatipradhan	RRI	complete
--	--	--	IGR J16493-4348	16 49 26.95	-43 49 09.0	T01	pragatipradhan	SJC	
A02_165	UV imaging of dual cores in late stage galaxy mergers	We propose to map the UV emission around dual nuclei in late stage galaxy mergers and interacting systems. Mergers can trigger bursts of star-formation and nuclear activity in galaxies. This can result in dual AGN and AGN+star-forming nuclei in the merging galaxies. Our targets have been observed by GALEX but not with the Hubble Space Telescope (HST) UVIS camera. The higher spatial resolution of UVIT compared to GALEX will help us resolve the dual cores and study the disk star-formation triggered by the merging process. Our targets are all low redshift, UV bright sources. We will confirm the nature of the double cores, map the associated star-formation, estimate star-formation rates and its correlation with the different types of nuclei. Not much is known about the UV emission from dual AGN/starburst nuclei; hence UVIT observations will be an important step for understanding galaxy mergers.	mrk 212	12 28 15.235	44 27 11.304	T03	rubinur	IIA	complete
--	--	--	mrk 306	22 31 51.247	19 41 28.968	T04	rubinur	IIA	complete
--	--	--	mrk 721	10 23 32.616	10 57 34.992	T06	rubinur	IIA	complete
A02_168	Multiwavelength observations of chemically peculiar stars to study the possible symbiotic activity	We propose to carry out simultaneous ultra violet and X-ray observations of a group of chemically peculiar giant stars identified to be in a binary system. These samples have been selected from the Henize samples of S stars which shows peculiarities in their optical spectra. These objects are identified with H a emission and radial velocity variation thus they are expected to show the symbiotic activity. Possible detection of ultraviolet flux and x-ray emission from these binary systems will help to determine the parameters of the companion accurately to have a better idea about the companion and the nature of the accretion process onto the companion star thereby drawing the connection between the symbiotic binaries and extrinsic S stars	Hen 2-147	16 14 1.100	-56 59 28.000	T03	drisya	IIA	Yet to be Scheduled
A02_170	Ultra-Violet Study of stellar populations in two old Galactic Open Star Clusters	The presence of very hot stars having short-lived stages of stellar evolution like white dwarfs and blue straggler stars etc in the old (1 Gyr) galactic open star cluster provides a unique opportunity to probe their formation histories. For this, we propose to observe 2 old open clusters namely Be 67 and King 2 using 2 far UV and 2 near UV filters of UVIT of ASTROSAT payload. A total of 10.9 K seconds observing time is needed. These space based valuable observations along with already available ground based photometric data will be used to construct spectral energy distribution of very hot stars over a long wavelength range from UV to near-IR. Such results along with simultaneous X-ray observations shall provide insight in the formation processes of white dwarfs (WDs), blue stragglers stars (BSS) and compact binaries etc.	Be 67	04 38 06	+50 45 00	T03	rsagar52	IIA	complete

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
--	--	--	King 2	00 51 00	+58 11 00	T02	rsagar52	IIA	complete
A02_173	Search for the missing companions to understand Be phenomenon in Classical Be stars	The mechanism by which disc is formed is classical Be stars, known as 'Be phenomenon', is one of the open puzzles in stellar research (Rivinius et al. 2013). One of the often suggested mechanisms is the role of an 'invisible' companion in the formation of this disc (Porter & Rivinius 2003). By 'invisible' companion we mean the companion whose presence is not easily assessed from continuum emission or spectral features in optical/infrared. They make their presence felt in the far-UV and X-ray region of the electromagnetic spectrum. Our proposal is to search for the elusive Be binary systems with white-dwarf (WD) or subdwarf O-type star (sdO or helium star) being the companion to Be star. However, no Be-WD system is detected till now and only a few (about 4) binaries belonging to Be-sdO category. Observations with UVIT and SXT are proposed to identify the hidden companions associated with Be stars.	BD +56 259	01 23 19.51	+57 38 54.96	T01	shruthibhat	OTHERS	Partially scheduled
--	--	--	HD 241570	05 12 53.95	+21 58 02.15	T04	shruthibhat	OTHERS	Yet to be Scheduled
--	--	--	MWC 709	02 21 59.15	+70 55 53	T03	shruthibhat	OTHERS	complete
A02_174	The connection between the accretion disc and corona in Seyfert galaxies	We propose to observe the spectral energy distribution (SED) of a small sample of bare active galactic nuclei (AGN) for a total of 120ks (4 x 30ks). The simultaneous broadband coverage provided by ASTROSAT and the low level of extinction in these AGN make it possible to study the multicomponent spectrum of the black hole accretion disc system in great detail. We will be able to model the thermal disc component, the primary X-ray source, and the reflected emission simultaneously; thereby testing the nature of the emission processes and origin of the 'soft-excess' (e.g. blurred reflection or Comptonisation). We will take first steps searching for suspected correlations between the X-ray weakness of AGN and the strength of the primary emission reflected off the accretion disc. We will also begin searching for differences between typical broad line Seyfert 1s and so called narrow-line Seyfert 1s that exhibit higher Eddington accretion rates.	Ark 564	22 42 39.309	+29 43 31.55	T01	lgallo	SMU	complete
--	--	--	Mrk 766	12 18 26.484	+29 48 46.15	T04	lgallo	SMU	complete
A02_175	A study of the orbital period and correlated multiwavelength variability in the candidate UCXB 4U 0614+09	We are requesting one 10 ksec exposures of the peculiar candidate ultra-compact X-ray binary (UCXB) 4U 0614+09. The orbital period is likely to be short, but is not accurately known, with tentative claims spanning the range of 15-45 min. However, unlike other UCXBs, type-I hard X-rays bursts and a puzzling optical/X-ray anti-correlation have been observed. With simultaneous AstroSat and South African+Devasthal (optical) telescopes, our primary goal is to measure the orbital period accurately by searching for periodic variations in both photometric and spectroscopic data, and confirm the nature of the source. Additionally we will search for X-ray bursts, carry out broadband X-ray spectro-timing analyses, and also have be able to coordinate with infrared and radio observations to understand the nature of possible non-thermal multi-wavelength emission.	4U 0614+09	6 17 7.301	9 8 12.984	T01	mayukh 3107	IUCAA	complete
A02_176	AstroSat observations of MAXI J1305-704: pinning down the elusive black hole nature.	We propose a 19.5 ks SXT effective exposure of BHC MAXI J1305-704 using LAXPC & SXT instruments on-board the AstroSat satellite. The source is a transient LMXB discovered by MAXI and it continues to be persistent. Variable dips of ~ 1.5 hr, 2.7 hr and two types of variabilities in the timescales of 9.7 hr are observed from this source. During dips significant increase in absorption and spectral hardening are also reported. The broadband spectral studies by Swift, Suzaku, & Chandra observatories indicate the BH nature of the source. But, surprisingly, lack of variability at 50 s timescales disagree with its BH nature. As the source was detected during 2012 April 9, it was not observed by RXTE. LAXPC is an ideal instrument to study energy dependent timing variabilities in 0.3-80 keV energy band, will confirm the BH nature of the source which is unprecedented for MAXI J1305-704.	Maxi J1305-704	13 6 56.440	-70 27 4.910	T01	jayashreeroy	CBS	complete

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
A02_178	Interplay between the accretion disk and hot corona in IC4329A	We request for monitoring observations, 20ks exposure every 15 days throughout the 6-month observing period, of the hard X-ray brightest type 1 Seyfert galaxy IC4329A. This AGN with a black hole mass of $1.2 \times 10^8 M_{\odot}$ is strongly variable on weeks-to-months timescale in the Optical/UV and X-ray bands. The proposed observations will track the changes in the physical properties (i.e., the temperature and optical depth) of the hot corona, for the first time in the history of AGN research. This will help us to determine the nature of the primary X-ray source. We will also determine the seed photons for the Comptonisation by cross-correlating the absorption-free hard X-rays with the soft X-rays and different UVIT bands. We will investigate the connection between the changes in the physical properties of the corona and the UV variations, and also the inter-band UV/X-ray correlations, and study the coupling between the disk and the hot corona.	IC4329A	13 49 19.267	-30 18 33.984	T01	gulabd	IUCAA	complete
A02_180	Observing the rapid X-ray variability of neutron star LMXB XTE J1701-407 with ASTROSAT	XTE J1701-407 is a transient low mass X-ray binary (LMXB) in which kHz QPOs have been detected with very high rms ( $\sim 30\%$ ) and large difference in the frequency of the twin kHz QPOs ( $\Delta \nu \approx 380$ Hz). The source has a luminosity $\sim 0.01 L_{\text{EDD}}$ and its rms-energy relation has not been well constrained nor has the evolution of $\Delta \nu$ with the drift in the frequency of kHz QPOs. We propose to monitor this source with 6 ks observations with AstroSat/LAXPC as the primary instrument during its next outburst to understand better the rms-energy relation and evolution of $\Delta \nu$ with drift in the frequency of the kHz QPO.	XTE J1701-407	17 01 44.30	-40 51 29.9	T01	devraj	OTHERS	Yet to be Scheduled
--	--	--	XTE J1701-407	17 01 44.30	-40 51 29.9	T01	devraj	RRI	
--	--	--	XTE J1701-407	17 01 44.30	-40 51 29.9	T01	devraj	UMumbai	
--	--	--	XTE J1701-407	17 01 44.30	-40 51 29.9	T01	devraj	NULL	
A02_184	Spectral Variability of Fermi Blazars: Radiative Interplay or Different Blazar Zones?	We propose anticipated target of opportunity ASTROSAT observations of the five gamma-ray bright flat spectrum radio quasars (FSRQs) with a goal to monitor and understand the spectral transition, constrain, via the variability, the radiative mechanisms and the size and location of the emission regions. To achieve these objectives, we request ToO monitoring, whenever any of the five FSRQs undergo large magnitude hard gamma-ray flares with photon index $< 2$ and daily binned gamma-ray flux exceeding $5 \times 10^{-6}$ ph/cm <sup>2</sup> /s. By applying a leptonic and lepto-hadronic emission modeling approach, we will be able to constrain the underlying factors causing spectral hardening observed at gamma-rays, with or without a counterpart at optical-UV and X-ray energies.	CTA 102	22 32 36.4	+11 43 51	T02	amit	IIA	Yet to be Scheduled
--	--	--	S5 0836+71	08 41 24.3	+70 53 42	T01	amit	IIA	Yet to be Scheduled
A02_189	ULX Pulsations – Opening up a new frontier with ASTROSAT LAXPC Timing	The nature of Ultraluminous X-ray sources (ULXs) is one of the hottest topics of debate in high energy astrophysics, since they may harbor intermediate mass black holes (with $10^2$ - $5 M_{\odot}$ ), or have super-Eddington accretion. In 2014, NuSTAR reported the detection of pulsations from the ULX M82X–2, supporting a highly accreting neutron star/magnetar origin. But so far, such pulsations have been observed on only one occasion. The brighter ULX in the field, M82X–1 shows 50 millihertz Quasi-periodic oscillations (QPOs) detected by RXTE which indicate that it harbors a $\sim 1000 M_{\odot}$ black hole. Here, we propose a follow-up search for pulsations/QPOs from the central regions of M82 with AstroSat/LAXPC. We aim for an exploratory observation of $\sim 20$ ks, which will allow us to search for signals using the larger effective area of LAXPC as compared to NuSTAR, having the potential for far reaching breakthrough in this field.	M82	09 55 50.4	+69 40 47.00	T01	ranjeev	IUCAA	complete

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
A02_191	Probing narrow-line Seyfert 1 galaxies (NLS1) with and without significant variation	We propose to carry out the X-ray, FUV and NUV astrosat observation of two narrow-line Seyfert 1 galaxies (NLS1) which are also target of SDSS reverberation mapping(RM) campaign. From the analysis of their multi-epoch SDSS spectra suggest, one belong to sub-class with significant variability and another with non-significant variability based on their SDSS spectra of about 30 epoch over 200 days duration. To understand the physical parameter governing this difference in these two possible sub-classes, spectral energy distribution (SED) based on simultaneous multi-waveband observation with astrosat will be very rewarding, as their BH mass are accurately determined from SDSS RM and optical follow-up will be done with ARIES 3.6m Devasthal Optical telescope. Further, any difference if found in the X-ray and UV SED of these two sources will also give important clue about the presence/absence of warm absorber in these two classes for further investigation with larger statistical sample.	J141253+5340014	14 12 53.92	54 00 14.40	T01	vineet	ARIES	complete
--	--	--	J141721+534103	14 17 21.79	53 41 2.61	T02	vineet	ARIES	complete
A02_197	Study the evolutionary parameters of M31 globular cluster	Blue Horizontal Branch (HB) stars observed in globular clusters (GCs) have very high temperature ( $T_{\text{eff}} > 20000$ K), which make them strong UV emitter. These HB stars have lost a substantial amount of mass in the RGB phase, and hence significantly affect the morphology and metallicity of GCs. Study of HB stars will help us to understand the evolution of GCs. HB stars can be identified by combinations of UV and optical color-color and color-magnitude diagrams. GCs in the Milky Way are better studied compared to other galaxies. Earlier attempts have been made to study GCs by a few authors using Galaxy Evolution and Explorer (GALEX) data. But due to poorer spatial resolution of GALEX their sample might not be complete. Hence, we want to perform study of three GCs in the M31 using UVIT on board AstroSat for detailed study of HB stars and understand their evolution.	M31-1	00 40 02.57	+41 11 53.59	T01	tapasb	TIFR	complete
--	--	--	M31-2	00 40 09.40	+41 11 05.21	T02	tapasb	TIFR	complete
--	--	--	M31-3	00 41 17.84	+41 00 23.04	T05	tapasb	TIFR	complete
A02_198	4U 1538-522 : Probing the accretion & magnetic field geometry with ASTROSAT	We propose 40 ks observation of the high mass X-ray binary pulsar 4U 1538-522 with ASTROSAT. The source exhibits variability on short time scales in the form of dips and flares and spectra exhibits two cyclotron lines at ~22 and ~47 keV. With this proposal we plan to achieve the following goals : i) Measure energy and intensity dependent pulse profiles especially in the hard X-rays to study the beaming geometry and map its change with luminosity. ii) Study variation of hydrogen column density as a function of orbital phase and understand wind pattern. iii) Perform broad-band spectroscopy (SXT+LAXPC+CZTI) to constrain continuum parameters and accurately measure the CRSF. iv) Study the pulse phase dependence of the fundamental and first harmonic. v) With the excellent time resolution and broadband capability of LAXPC, this will be good opportunity to compare simultaneously broadband energy and power density spectra at different intensity levels.	4U 1538-52	15 42 23.36	-52 23 09.6	T01	varun	RRI	Yet to be Scheduled
A02_199	Long-term study of HBL 1ES 1959+650 with Astrosat	Blazars are very well-known to exhibit flux and polarization variability from radio to TeV energies. A variable emission over diverse timescales help to understand AGN emission processes, in particular, blazars. The distinctive feature of blazar emission is high and variable polarization in radio and optical bands, which is associated with synchrotron emission originated at much lower energy. A continuous optical PA rotation during active stages are now known to be associated with high energy gamma-ray events, which gives an insight to magnetic field configuration and various emission mechanisms. We aim for a simultaneous multi-wavelength observations ASTROSAT mission, along with quasi-simultaneous ground-based polarimetry to study polarization properties in blazars during low and high flux states at diverse energies. Here, we propose for the monitoring of HBL 1ES 1959+650 at two different epochs of 12ks each during AO-01. The present study will certainly contribute towards general understanding of physical processes responsible in blazars.	1Es 1959+650	19 59 59.852	65 8 54.653	T01	Navpreet	PRL	complete

**Astrosat-Redbook-proposals**  
**April-2017 to September-2017**

**Accepted proposals for G07 cycle : 69**

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
G07_002	Ultraviolet view of ram pressure stripping in action: The case of Jellyfish galaxies	Jellyfish galaxies are galaxies with tentacles of material that appear to be stripped from the galaxy, and whose morphology is suggestive of ram pressure stripping. These galaxies are found in rich clusters where galaxies are prone for morphological transformations. The optical and H $\alpha$ imaging of these galaxies reveal tidal debris with tails of ionised gas up to 150 Kpc long where new stars are born in knots and end up contributing to the intracluster light. The ongoing star formation in Jellyfish galaxies can be better understand in UV and making use of the spatial resolution of UVIT we plan to study the spatial variation of star formation in these systems. We propose to observe four Jellyfish candidate galaxies in two galaxy clusters at redshift 0.045 for which extensive ground based complimentary data exists. This study will shed more light in to the triggered star formation in dense environments.	JO60	14 53 51.567	+18 39 04.79	T01	koshy	IIA	
			JW100	23 36 25.054	+21 09 02.64	T02			
G07_003	Ultraviolet survey of tidal dwarf galaxies in the local Universe	Tidal dwarf galaxies are galaxies that are tidally attached to the host galaxy which is currently undergoing a major merger. The star formation from the tidally stripped gas is intense and the resulting dwarf galaxy is devoid of dark matter. These galaxies are found in field environment where galaxy mergers are common. The optical, H $\alpha$ and HI imaging of these galaxies reveal molecular gas where new stars are born in knots and end up in to dwarf galaxies. The ongoing star formation in tidal dwarf galaxies can be better understand in UV and making use of the spatial resolution of UVIT we plan to study the spatial variation of star formation in these systems. We propose to observe two tidal dwarf galaxies for which extensive ground based complimentary data exists. This study will shed more light in to the triggered star formation in tidal dwarf galaxies in field environments.	NGC 5291	13 47 24.5	-30 24 25	T01	koshy	IIA	
			NGC 7252	22 20 44.7	-24 40 42	T02			
G07_004	Studying the dust halo around NGC 891	NGC 891 is a well known bright edge-on spiral galaxy in the sky at a distance of about 9.6 Mpc with a redshift of 528 km/s. I will use UVIT data to study the vertical extent of dust emission around NGC 891. I will measure the scale height of thick halo around this galaxy. Through modeling I will determine the distribution and properties of the gas, the dust and the stars.	NGC0891	2 22 33.413	42 20 56.940	T01	jmurthy	IIA	
G07_005	Recent star formation in nearby galaxies: Extreme environments of WLM and IC 2754	The star formation in galaxies are governed by a number of processes, such as spiral arms, galactic bars, bubbles and supernovae shocks etc. The dominant process is found to vary from galaxy to galaxy. These signatures can be traced only by the very young population. The resolution of UVIT will immensely help us to resolve star formation knots and estimate their flux. Here we plan to study the star formation in WLM, star formation in a very metal poor environment. We have observed this galaxy in G05, the images are stunning where the star forming complexes are resolved. But we need more exposure to get good signal for flux measurements. Hence we plan to repeat the observations. We also would like to observe IC 2574, which also shows some extreme environment of star formation.	IC 2574	10 28 23.479	68 24 43.704	T02	annapurni	IIA	
			WLM	0 1 58.162	-15 27 39.348	T01			

G07_007	How many Blue stragglers and binaries have WD companion in the open cluster, M67?	The blue straggler stars (BSS) are main-sequence stars, which have evaded stellar evolution by acquiring mass while on the main-sequence. One of the primary mechanisms suggested for BSS formation in open clusters is mass transfer from a binary and merger in binaries. Recently, using UVIT observations, Subramaniam et al. (2017) detected a hot companion to a BSS in NGC 188, identifying it as a newly formed BSS.  Accurate estimation of FUV flux is the main requirement to detect as well as estimate the temperature of hot WDs. In this study, we plan to observe the well known, old and rich open cluster, M67 to identify the fraction of newly formed BSS. We plan to construct spectral energy distribution to estimate the $T_{\text{eff}}$ and $\log(g)$ values of the BSS. The newly formed BSS are ideal targets to study the surface composition which they gain due to the recent mass transfer.	M 67	8	51	11	48	T01	annapurni	IIA	
G07_009	Deep UV imaging studies of X-ray and optically bright SNRs IV -- NGC6960, 1st pointing.	We propose to map X-ray and optically bright SNRs in various UVIT filters, in order to extract the physical conditions in supernovae ejecta interacting with their surrounding environment, and in the resulting shocks. Spanning an age range of $(18000 \pm 9000)$ yr (Vela) to 5000-8000 yr (Cygnus loop) to 1000 yr (Crab), these observations will also provide unique opportunities to study the temporal evolution of SNRs from different classes of SNe, in a varying range of environments, in UV. UVIT filters will be used to map regions of hot ( $10^{4-5}$ K) and intermediate (5000- 8000 K) temperatures via emission lines of C IV (1550 Ang.), He II (1640 Ang.), and Mg II lines (2800 A), bridging the gap between x-ray bright ( $10^{6-7}$ ) K and cool, optical regions. UVIT-NUV narrow bands will complement Galex NUV imaging of Crab and Cygnus loop by Galex, and provide 1st NUV images of Vela D.	NGC 6960	20	45	31	03	T01	fsutaria	IIA	
G07_010	UVIT Imaging of the Coma Cluster: The Fossil Record of Star Formation (Fields 1, 6 and 8)	We propose multi-band UVIT imaging of the next three fields in our survey of the Coma cluster, the archetypal massive galaxy cluster in the nearby universe. Although a wealth of UV, optical and IR imaging, as well as optical spectroscopy, exists for the high- and intermediate-mass galaxies in this dense environment, the origin of their NUV emission remains uncertain (i.e., FUV-upturn leakage vs. residual star formation). Our proposed Astrosat GT07 observations, which require 41,300 sec (11.5 hrs) of open shutter time, will significantly improve upon the existing constraints, from GALEX, on the UV emission in these galaxies by sampling the UV SEDs in four distinct wavelength regions -- FUV-BaF2 (0.135-0.18 $\mu$ m), NUV-Silica (0.2-0.3 $\mu$ m), NUVB13 (0.23-0.26 $\mu$ m) and NUVB4 (0.25-0.28 $\mu$ m) -- and by providing a three-fold improvement in the spatial resolution of the UV emission within individual galaxies.	Coma1	13	00	27	12	T03	pcote_nrc	NRC-Herzberg	
			Coma6	12	57	27	59	T01			
			Coma8	12	57	28	31	T02			
				59.71		45.5					
				11.21		12.1					



G07_011	Imaging the Hubble sequence - a Survey of Nearby Galaxies	The Hubble classification scheme was based on morphology in the visible wavelengths. Galaxy surveys produce catalogs which are classified on this basis. The morphology relates to the mix of stellar populations in the galaxy, the amount of star formation activity, and the presence of gas and dust. Deep surveys turn up larger fractions of 'peculiar' morphology since they sample shorter rest wavelengths and are looking at younger galaxies. An understanding of the UV properties of galaxies in the nearby universe is essential for comparison with distant surveys. We propose imaging using multiple filters in UVIT, which would allow us to determine the slope of the SED in the FUV and NUV as well as sample emission line signatures of star formation. The superior resolution will map star forming knots more effectively compared to GALEX. The images will also showcase UVIT capability.	NGC 055	00 15	-39 13	T01	askpati	IIA	
			13.19	0.8					
			NGC 6822	19 44	-14 47	T03			
			56.2	51.3					
			NGC 7479	23 04	12 19	T04			
			56.67	22.4					
G07_013	Star formation, morphology and evolution in Groups of Galaxies	The morphology of galaxies is seen to be distinctly dependant on star formation activity. From the ellipticals to late type spirals and irregular galaxies, the current star formation rate is seen to be increasing. For isolated galaxies, SF starts off in the cloud from which the galaxy was formed and later epochs see continued SF depending on the amount of matter left over together with enriched material from evolving stars. The internal dynamics of the galaxy determines how much this matter is converted to stars. A considerable fraction of galaxies occur in clusters and groups, where galaxies often have gravitational encounters with mergers and interactions being common. In such scenarios most, if not all, of the star formation is triggered by these interactions. This proposal aims at understanding the SF, to map signs of interactions and to examine the "morphological shaping" of galaxies in such groups.	Holmberg	09 21	64 12 47	T02	askpati	IIA	
			124	11.9					
			NGC6872	20 18	-70 48	T01			
			18.7	45					
G07_014	X-ray Survey of Extremely X-ray Bright and Active Main Sequence Stars	By cross-matching the RASS sources with bright stars in the Tycho-2 catalogue, we found a large number of extremely X-ray bright and active main-sequence stars. Such extreme X-ray activities have not been fully understood yet. In this proposal, we focus on extremely X-ray bright and active sun-like, G-type, main-sequence stars for better understanding of stellar dynamo and their evolution from both observational and theoretical points of view and propose 2 observations with a total exposure time of 30 ks.	1RXSJ015	1 52	-33 14	T02	KPSinghI 9	TIFR	
			243.0-	43.172	24.786				
			331430						
			1RXSJ183	18 32	-48 11	T01			
			227.5-	27.434	49.940				
			481149						

G07_016	Probing the origin of variable, soft X-ray, double comptonization from the persistent Z-type NSXB GX 340+0	While evolving along the 'Z' track, it is not clear why some neutron star X-ray binaries show large range of Comptonizing electron temperature near the boundary layer while the photon index remains stable. The bright, persistent Z-type NSXB GX 340+0 is the best candidate to study such phenomena using AstroSat/LAXPC, SXT and CZTI observations. We are proposing 40 ks effective exposure of GX 340+0 with LAXPC as primary instrument. With this bright source with hard X-ray tail, we will extend spectral analysis above 30 keV to constraint coronal properties at various luminosity and connect it to the possible coordinated Radio observation with GMRT. The connection of the X-ray/Radio association with coronal properties evolution has been hinted previously and we will investigate further with the proposed observation. We will also connect temporal evolution of the source with spectral properties.	GX 340+0	16 45-45 36	47.700 39.996	T01	mayukh3107	IUCAA	
G07_019	Probing the origin of soft excess and its connection with hard X-ray variability in the Galactic micro-quasar XTE J1118+480	We are proposing 30 ks exposure of the Galactic micro-quasar XTE J1118+480 with AstroSat during jet-dominated, variable and bright low hard state with the source flux varying between 20 mCrab and 50 mCrab. During this state, a strong soft excess is observed with Chandra below 1.5 keV, very similar to that observed from Active Galactic Nuclei and its origin is not known. However, its connection with the hard X-ray emission has never been explored. In simultaneous with the XMM-Newton accepted proposal, it would be interesting to study hard X-ray spectro-timing properties of the source with AstroSat/LAXPC and CZTI which may be useful in exploring the link between hard X-ray and soft excess for the first time. The nature of hard X-ray variability in this source and its connection with jet will also be an important aspect which can be probed if simultaneous GMRT observations would be available.	XTE J1118+480	11 18-48 2	10.800 12.599	T01	mayukh3107	IUCAA	

G07_020	Solve a Mysterious Lapse of Eclipsing Events on Low-Mass X-ray Binary GRS 1747-312	During outbursts of the LMXB GRS 1747-312, periodic eclipses were known to occur. During a Suzaku observation in 2009 when GRS 1747-312 was in a low-luminosity state, however, there were no clear signs for the eclipses. After that, Swift observation in 2013 detected an eclipse at the predicted time again. This is the first case to detect such a lapse of the eclipses on LMXBs. The lapse might be explained by thick absorber in the system, or a contaminant source quite close to GRS 1747-312. However, we have no data to investigate these possibility. We propose a 30 ks observation with ASTROSAT to check the reproducibility of the lapse during non-outburst state. If there is another source, eclipse is expected to be seen only during the outburst state.	GRS 1747-312	17 50 46.86	31 16 28.86	T01	KPSingh19	TIFR	
G07_022	Multi-wavelength Observations of Magnetic Cataclysmic Variables with AstroSat and SALT	We propose to observe two Magnetic Cataclysmic Variables (MCVs) with AstroSat and SALT (the South African Large Telescope), nearly simultaneously. Both of these are Polars, one of which has been discovered recently with Integral. These sources have strong optical polarization and can be viewed easily with both AstroSat and SALT. These X-ray sources are also strong emitters in NUV and FUV band. The proposed observations will provide a wealth of new information on periods and spectral properties of these sources in all the wavelength bands. We aim to find correlation between the X-ray and optical periods, characterize the X-ray, UV and optical spectra, and find QPOs in X-rays, UV & optical polarization.	IGR J14536-5522	14 53 41.060	55 21 38.700	T01	KPSingh19	TIFR	
			QS Tel	19 38 35.810	46 12 56.999	T02			
G07_024	The Spectral and Temporal study of Compton Dominated FSRQ QSO B0836+71 using broadband UV - X-ray capabilities of AstroSat	We request observations of a distant, but bright flat spectrum radio quasars (FSRQ) QSO B0836+710 (z~2.17) using all the multi-wavelength instruments onboard AstroSat. We propose for one pointing of 120 ks of this source. The proposed observations will provide simultaneous spectral and temporal measurements in the UV and soft & hard X-ray bands for this blazar. Simultaneous broadband observations will allow us to study intensity variations over minute time-scales. The X-ray emission process in FSRQ is largely uncertain with models advocating both Synchrotron-Self Compton (SSC) and External Compton (EC) processes. A simultaneous coverage of spectral and temporal behaviour of broadband X-ray spectrum along with UV can be used to constrain the high energy emission processes in action. Specifically, in tandem with gamma-ray observations by Fermi, this can unravel the physics behind "Compton-dominance" by identifying the dominant external photon field in blazar environment.	QSO B0836+71	8 41 24.360	70 53 42.360	T01	KPSingh19	TIFR	

G07_027	CZTI-GT: Broadband X-ray spectral and timing study of Cygnus X-1 with AstroSat	Black hole X-ray binaries provide best opportunity to probe the predictions of general theory of relativity under strong gravity regime. However, this requires very accurate understanding of the accretion geometry and radiative processes occurring very close to the black hole event horizon. Black hole X-ray binaries are known exhibit different spectral states. It is very important to understand the accretion geometry and radiative processes in different spectral states in order to discern the effects of the strong gravity. Here we propose a regular monitoring observations, each of 10 ks, of the blackhole X-ray binary Cygnus X-1. This source has been monitored from beginning of AstroSat observations, and has been found to have undergone state transitions. It is known to undergo spectral state transitions over the period of few weeks and hence will provide very valuable data with the suite of AstroSat instruments to understand accretion mechanism in different spectral states.	Cygnus X-1	19 58 35 12	21.676 5.778	T01	santoshv	PRL	
G07_028	CZTI-GT: Understanding spectral and temporal properties of GRS1915+105 by continuous monitoring with AstroSat	GRS 1915+105 is one of the most enigmatic X-ray sources. It is a black hole X-ray binary well known for variety of variability classes during which it shows large intensity variation over the time scales of few minutes. In some of the variability classes it exhibits spectral state transitions similar to those observed in other black hole X-ray binaries over times scale of few weeks. Whereas during some variability classes, the temporal and spectral characteristics are steady over long periods. Here we propose six observations of 10 ks each of GRS 1915+105 with AstroSat to characterize the broad band X-ray spectrum covering 0.3 - 150 keV energy range. These observations will provide deep insights into the particular spectral state and variability class prevalent at the time of observation.	GRS 1915+105	19 15 10 56	11.550 44.801	T01	santoshv	PRL	

G07_029	CZTI-GT: Characterization of polarimetric background in CZTI for Crab and Cygnus X-1	Polarization measurements in X-rays is expected to address to a wealth of astrophysical phenomena which so far remain unexplored despite extensive X-ray spectroscopic and timing observations. CZTI-Imager on-board AstroSat has significant polarization measurement capability at energies beyond 100 keV. Crab, the pulsar nebula and Cygnus X-1, the blackhole binary being the brightest of the hard X-ray sources are the potential targets for CZTI X-ray polarimetry observations. During the first year of AstroSat operation, these sources were observed and significant polarization measurement results are obtained. However the polarization measurement is very sensitive to the measurement of modulation due to background. Observations of blank sky with similar declinations as that of source are required to characterize the background modulation. In this context, we propose observations of blank sky regions (60ks exposure each) whose coordinates are chosen such that they can be used as background for polarization study of Crab and Cygnus X-1.	Blank sky-1	12 13 22 48	T01	santoshv	PRL	
			Blank sky-2	12 00 35 12 00	T02			
G07_030	Deep UV imaging studies of X-ray and optically bright SNRs VIII -- IC1340	We propose to map X-ray and optically bright SNRs in various UVIT filters, in order to extract the physical conditions in supernovae ejecta interacting with their surrounding environment, and in the resulting shocks. Spanning an age range of $(18000 \pm 9000)$ yr (Vela) to 5000-8000 yr (Cygnus loop) to 1000 yr (Crab), these observations will also provide unique opportunities to study the temporal evolution of SNRs from different classes of SNe, in varying range of environments, in UV. UVIT filters will be used to map regions of hot ( $10^{4-5}$ K) and intermediate (5000- 8000 K) temperatures via emission lines of C IV (1550 Ang.), He II (1640 Ang.), and Mg II lines (2800 A), bridging the gap between x-ray bright ( $10^{6-7}$ K) and cool, optical regions. UVIT-NUV narrow bands will complement Galex NUV imaging of Crab and Cygnus loop by Galex, and provide 1st NUV images of Vela D.	IC 1340	20 56 30 58	T01	fsutaria	IIA	
				35.06 30.17				
G07_031	Study and Morphology and Ionization structure of Planetary Nebulae X II--NGC 7293.	We propose to image several planetary nebulae in UVIT filters that would isolate nebular structure in some of the emission lines like 1550\AA C IV , 2326\AA C II], 2470\AA [O II] to map the ionization structures as well as variations of physical parameters across the nebula. It is also likely various flows and stellar wind from central star could also create shocked regions that might create hot highly ionized regions. The modeling of the nebulae which might contain nuclear processed material from the star would dependent on proper evaluation of the ionization structure. We also would like to obtain grating spectra of the nebula in Nuv and Fuv to help study the emission line morphology. Initial attempt we would propose to observe s planetary nebulae.	NGC 7293	22 29 -20 50	T01	nkrao	IIA	
				38.5 13.6				

G07_032	Study and Morphology and Ionization structure of Planetary Nebulae X II-NGC 7293B	We propose to image several planetary nebulae in UVIT filters that would isolate nebular structure in some of the emission lines like 1550\AA C IV , 2326\AA C II], 2470\AA [O II] to map the ionization structures as well as variations of physical parameters across the nebula. It is also likely various flows and stellar wind from central star could also create shocked regions that might create hot highly ionized regions. The modeling of the nebulae which might contain nuclear processed material from the star would dependent on proper evaluation of the ionization structure. We also would like to obtain grating spectra of the nebula in Nuv and Fuv to help study the emission line morphology. Initial attempt we would propose to observe s planetary nebulae.	NGC 7293	22 30 27.60	-20 49 47.5	T01	nkrao	IIA	
G07_033	Study and Morphology and Ionization structure of Planetary Nebulae X II-NGC 3587	We propose to image several planetary nebulae in UVIT filters that would isolate nebular structure in some of the emission lines like 1550\AA C IV , 2326\AA C II], 2470\AA [O II] to map the ionization structures as well as variations of physical parameters across the nebula. It is also likely various flows and stellar wind from central star could also create shocked regions that might create hot highly ionized regions. The modeling of the nebulae which might contain nuclear processed material from the star would dependent on proper evaluation of the ionization structure. We also would like to obtain grating spectra of the nebula in Nuv and Fuv to help study the emission line morphology. Initial attempt we would propose to observe s planetary nebulae.	NGC 3587	11 15 46.71	+55 02 32.61	T01	nkrao	IIA	
G07_034	Study and Morphology and Ionization structure of Planetary Nebulae X II-NGC 2440	We propose to image several planetary nebulae in UVIT filters to isolate nebular structure in some of the emission lines like 1550\AA C IV , 2326\AA C II], 2470\AA [O II], and to map the ionization structures as well as variations of physical parameters across the nebula. It is also likely that various flows and stellar wind from central star could create shocked regions that might create hot, highly, ionized regions. The modelling of the nebulae which might contain nuclear processed material from the star would be dependent on proper evaluation of the ionization structure. Further, grating spectra of the nebula in the NUV and the FUV would also be used study the emission line morphology.	NGC 2440	07 41 54.91	-18 12 29.7	T01	nkrao	IIA	

G07_035	Study and Morphology and Ionization structure of Planetary Nebulae X II-NGC 7094	We propose to image several planetary nebulae in UVIT filters that would isolate nebular structure in some of the emission lines like 1550\AA C IV , 2326\AA C II], 2470\AA [O II], in order to map the ionization structures as well as variations of physical parameters across the nebula. It is also likely various flows and stellar wind from central star could also create shocked regions that might create hot highly ionized regions. The modelling of the nebulae which might contain nuclear processed material from the star would be dependent on proper evaluation of the ionization structure. We also would like to obtain grating spectra of the nebula in NUV and the FUV to help study the emission line morphology.	NGC 7094	21 36 42.96	+12 46 34.30	T01	nkrao	IIA	
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G07_039	H 1743-322 Anticipated ToO [Alternative/Low Priority]	The black hole candidate X-ray binary H 1743-322 was discovered in August 1977 with HEAO-1 (Doxsey et al. 1977) and Ariel 5 (Kaluzienski & Holt 1977). The mass of H 1743-322 is nearly $10\pm 2$ Mo. Distance is nearly $8.5\pm 0.8$ kpc. H 1743-322 is a transient source. The transient H1743 displayed major outbursts in 1977, 2003 and 2008. It is very peculiar black hole X-ray binary with low spin parameter, low orbital period (about a day) and frequent X-ray outbursts. It shows different X-ray states namely hard state, soft state and intermediate states. Radio emissions are also observed from this source. X-ray disk winds are also detected in spectrally soft, diskdominated states from this source. Here we will study various X-ray states, QPOs, Spin, hard state, radio ejection, time lags, PDS spectra etc We will observe this source for 20ks. Simultaneous radio observation will be planned.	H 1743-322	17 46 15.608	32 14 0.600	T01	jsyadav	TIFR	
G07_040	4U 1636-536	4U 1636+53 shows kHz Quasi-periodic Oscillations (QPOs), low frequency (~1 Hz) ones. RXTE has provided a rich literature on the occurrence of these oscillations and empirical relationship between their properties. There is no consensus regarding their origin. RXTE with its poor energy resolution and effectively narrow band is not well suited for such spectral/temporal analysis. On the other hand, ASTROSAT with its broad band spectral coverage (0.3-200 keV) and especially the much larger effective area of the LAXPC above 30 keV as compared to the PCA, provides the best opportunity for such studies. This proposal is standby for Too proposal (alternative) for 4U 1630-472. Burst oscillations and HFQPOs are important objective of LAXPC instrument.	4U 1636-536	16 40 55.500	53 45 5.004	T01	jsyadav	TIFR	
G07_041	4U 1728-34	X-ray binaries show a plethora of spectral and timing properties which can be used to study fundamental problems, such as probing the strong gravity and dense matter, and understanding the accretion-ejection mechanism. We propose to observe a low-mass X-ray binary, 4U 1728+34, study a number of such properties. This proposal relies on the broadband X-ray spectral and fast timing capabilities of ASTROSAT. We would like to study energy dependence of kHz QPO.	4U 1728-34	17 31 57.73	33 50 2.5	T01	jsyadav	TIFR	
G07_042	Cyg X-1 (July- September 2017)	Cyg X-1 is variable source. Here we will study spectra of hard/soft state, QPOs, radio ejection, time lags, PDS spectra etc We will observe this source for 30 ks. We will study energy spectrum simultaneously with swift and Nustar.	Cyg X-1	19 58 21.676	35 12 5.778	T01	jsyadav	TIFR	



G07_043	Cyg X-3 (April - June)	Cyg X-3 is a persistent source with very strong radio jets. It has frequent radio jet ejection. Here we will study energy spectra, QPOs, X-ray and radio connection, time lags, PDS spectra, spin of black hole in Cyg X-3 etc. We will observe this source for 40 ks between April - June 2017. We will like to have cross check for low energy spectrum with Swift and XMM Newton.	Cyg X-3	20 32 25.780	40 57 27.900	T01	jsyadav	TIFR	
G07_044	LAXPC Blank Sky-9 for Background (26th June, 2017)	LAXPC background may change with time and direction and we need to observe BG to study faint sources.	Sky-9_75_50	15 49 28.92937	+47 06 17.6520	T9	jsyadav	TIFR	
G07_045	GX 339-4-Anticipation target	This is X-ray black hole binary with frequent outbursts and transient radio jets. We will study the outburst evolution, various X-ray states, accretion and radio connection, timing, qpo, spin in this source. We will confirm black hole spin parameter. LAXPC data will improve understanding of outburst evolution as well as of high soft state (softer than other BHXBs). We plan simultaneous observation of radio.	GX 339-4	17 2 49.360	-48 47 22.801	T01	jsyadav	TIFR	
G07_046	GRS 1915+105 (Monitoring)	GRS 1915+105 shows fast variability. It shows large number of X-ray classes and various types of radio emission. Here we will study flare activities, various X-ray classes, QPOs, SPL state, hard state, plateau state, radio ejection, time lags, PDS spectra etc. We will observe this source for 20 ks every 15 days when available. Proposals are given as per available time. Our timing study of the SPL state in GRS 1915+105 with LAXPC instrument suggests important advantage over RXTE/PCA above 20 keV. We will study energy spectrum in different classes at different flux simultaneously with other X-ray observatories. We plan to have radio & IR observation during these observation.	GRS 1915+105	19 15 11.550	10 56 44.801	T01	jsyadav	TIFR	
G07_047	4U 1820-30	We are proposing 40 ks effective exposure of the X-ray buster 4U 1820-30 using SXT, LAXPC and CZTI instruments on-board AstroSat satellite. LAXPC is our primary instrument. The source 4U 1820-30 is a low-mass X-ray binary (LMXB). 4U 1820-30 is famous for kilo-hertz QPO, thermonuclear super bursts and burst oscillations. These features of 4U 1820-30 have been mostly observed by RXTE/PCA and not confirmed by any other instrument. RXTE/PCA was also limited to ~ 25 keV. AstroSat LAXPC will provide an unique opportunity to observe these features as LAXPC have wide energy coverage from 3.0 to 80.0 keV with large area and high time resolution and thus enable us to do energy dependent timing analysis.	4U 1820-30	18 23 40.570	-30 21 40.601	T01	jsyadav	TIFR	
G07_048	Cyg X-3 Anticipated ToO [Aletrate/Low Priority] (July - Sept)	Cyg X-3 is a persistent source with very strong radio jets. It has frequent radio jet ejection. Here we will study energy spectra, QPOs, X-ray and radio connection, time lags, PDS spectra, spin of black hole in Cyg X-3 etc. We would like to do this 40ks observation when Cyg X-3 is in radio loud state and transient radio jets are seen.	Cyg X-3	20 32 25.780	40 57 27.900	T01	jsyadav	TIFR	

G07_049	4U 1626+67 (with Background Sky)	Optical companion of the 7.7s X-ray pulsar 4U 1626-67 has been identified with 18th magnitude variable star KZ TrA. There is suggestion that its orbital period is ~42 min based on optical detection of a peak which is interpreted as the beat period between the pulsation period and the orbital period. Our detailed studies of two observations during the PV phase (Jan-16) and in the GT phase (Aug-16), suggests the presence of ~2500 sec periodicity. Due to the patchy nature of the data and limited observing time we are unable to claim the reality of this period. We propose 80ks observations of this source with as small interruptions due to the earth occultation as possible with LAXPC as primary instrument. We also propose to observe a nearby source free region for 20ks to measure the background immediately before or after the source observation with LAXPC as primary instrument.	4U 1626-67 16.79 16 40 0 26	16 32 -67 27 39.3 -70 0 0	T01 T02	dedhia	TIFR	
G07_051	Study of Galactic Structure using UVIT star counts	The aim of this proposal is to investigate in detail the observed UV star counts obtained by UVIT-ASTROSAT vis-a-vis the model simulated catalogues produced by the Besancon model of stellar population synthesis in five Galactic directions, and to explore the potential for studying the structure of our Galaxy from images in multiple NUV and FUV filters of the UVIT. UV star counts will be dominated by MS stars, hot white dwarfs (WDs) and blue horizontal branch stars (BHBs), and hence will be very useful to separate out different stellar populations since we have several UV colours, which in turn will help us to estimate the structural parameters of the Galaxy with better precision. The population of WDs and BHBs is also integral to the study of stellar evolution and structure of the Milky Way as they belong to different stellar populations of the Galaxy.	GAC129-43 GC47-42 21 46 42.4	1 11 13.4 32.8 -8 36 39.5	T02 T01	dkojha	TIFR	
G07_052	4U 1957+115 monitoring	We are proposing two 10 ksec effective exposure (with a gap of one month) of the only Galactic persistent black hole X-ray binary 4U 1957+115. Puzzlingly this source remain stable at unadulterated, spectrally soft state and anticipated to host the most rapidly spinning black hole at the centre. A nearly persistent, high frequency quasi-periodic oscillation (QPO) at ~25 Hz is also reported from this source having an unusual association with soft, disk-dominated state. This source show optical/X-ray long term correlated variability. With the simultaneous SXT, LAXPC, CZTI and UVIT/VIS1 observation, we will be able to constrain the power-law component and measure disk properties accurately. We will attempt to estimate the spin of the compact object. To gain understanding of accretion geometry, we will study X-ray/optical correlated behaviour on short-time scale and investigate the puzzling association of high frequency QPO with soft, disk dominated state.	4U 1957+115 24.210	19 59 11 42 32.400	T01	jsyadav	TIFR	

G07_053	4U 1700-377 monitoring	Although the compact object in this system is thought to be a neutron star, no pulsations or type-I X-ray bursts are confirmed from this source. During bright phase, 67.4sec pulsation and 10mHz quasi-periodic oscillations (QPOs) in the energy range 20-50keV have been reported but never been confirmed. Erratic hard X-ray variability where hard X-ray flux increases by few tens of mCrab in few ksec, have been noticed. With the two 10ks exposures, we would like to probe the origin of rapid hard X-ray variability, possible existence of previously reported X-ray pulsations as well QPOs, nature of hard X-ray emissions and existence of possible high energy cut-off (~21 keV) in the spectra reported previously. Coordinated simultaneous Radio observations are planned. Detections of X-ray pulsations with any other timing signature along with X-ray energy spectral and possible Radio flux variability information would provide strong constraint on the nature of the compact object.	4U 1700-377	17 3-37 50	56.773 38.915	T01	jsyadav	TIFR	
G07_054	CZTI GT Anticipated ToO proposal on the accretion-powered millisecond pulsars: Part I	Accretion-powered millisecond (ms) pulsars are a class of transient neutron star low-mass X-ray binaries (LMXBs) which show coherent X-ray intensity variation during outbursts. These sources are particularly important to understand the evolution of neutron star LMXBs into ms radio pulsars. In addition, these accreting ms pulsars exhibit a number of X-ray spectral and timing features. AstroSat can meaningfully observe these sources only during outbursts. We submit separate proposals (parts I-V) for each of five (SAX J1808.4-3658, XTE J1807-294, XTE J1814-338, NGC 6440, IGR J17498-2921) sources. However, we propose to observe only the first accreting ms pulsar in outburst (out of these five) for 16 ks, considering SXT as the primary instrument. This proposal (part I) is for SAX J1808.4-3658.	SAX J1808.4-3658	18 8-36 58	27.540 44.299	T01	arrao	TIFR	
G07_055	CZTI GT Anticipated ToO proposal on the accretion-powered millisecond pulsars: Part II	Accretion-powered millisecond (ms) pulsars are a class of transient neutron star low-mass X-ray binaries (LMXBs) which show coherent X-ray intensity variation during outbursts. These sources are particularly important to understand the evolution of neutron star LMXBs into ms radio pulsars. In addition, these accreting ms pulsars exhibit a number of X-ray spectral and timing features. AstroSat can meaningfully observe these sources only during outbursts. We submit separate proposals (parts I-V) for each of five (SAX J1808.4-3658, XTE J1807-294, XTE J1814-338, NGC 6440, IGR J17498-2921) sources. However, we propose to observe only the first accreting ms pulsar in outburst (out of these five) for 16 ks, considering SXT as the primary instrument. This proposal (part II) is for XTE J1807-294.	XTE J1807-294	18 6-29 24	59.801 29.988	T01	arrao	TIFR	

G07_056	CZTI GT Anticipated ToO proposal on the accretion-powered millisecond pulsars: Part III	Accretion-powered millisecond (ms) pulsars are a class of transient neutron star low-mass X-ray binaries (LMXBs) which show coherent X-ray intensity variation during outbursts. These sources are particularly important to understand the evolution of neutron star LMXBs into ms radio pulsars. In addition, these accreting ms pulsars exhibit a number of X-ray spectral and timing features. AstroSat can meaningfully observe these sources only during outbursts. We submit separate proposals (parts I-V) for each of five (SAX J1808.4-3658, XTE J1807-294, XTE J1814-338, NGC 6440, IGR J17498-2921) sources. However, we propose to observe only the first accreting ms pulsar in outburst (out of these five) for 16 ks, considering SXT as the primary instrument. This proposal (part III) is for XTE J1814-338.	XTE J1814-338	18 13 39.030	-33 46 22.300	T01	arrao	TIFR	
G07_057	The relation between AGN and Star-burst activity	It is now believed that star formation can occur in the central regions of active galactic nuclei (AGN), however, it is not clear how these two phenomena are related. Imaging observations of few Seyfert 2 galaxies have shown that the UV continuum emission in them is not only dominated by the central ionizing nuclear source, but also comes from star forming regions in their circumnuclear regions. We aim to extrapolate these finding based on limited sources using observations from UVIT. We propose to observe four low luminosity AGN/Seyfert/Luminous IR galaxies using UVIT. These observations in combination with observations from other wavelengths (SXT from ASTROSAT), optical and IR wavelengths (from archives) will be used to understand the nature of the link between star-burst and AGN phenomenon in our sample. We thus request for a total observing time of 36.6 ksec for the four sources.	NGC 0877	02 17 59.64	+14 32 38.6	T01	stalin	IIA	
			NGC 1365	03 33 36.37	-36 08 25.4	T02			
			NGC 1961	05 42 4.65	+69 22 42.4	T03			
			NGC 5135	13 25 44.06	-29 50 01.2	T04			
G07_058	CZTI GT Anticipated ToO proposal on the accretion-powered millisecond pulsars: Part IV	Accretion-powered millisecond (ms) pulsars are a class of transient neutron star low-mass X-ray binaries (LMXBs) which show coherent X-ray intensity variation during outbursts. These sources are particularly important to understand the evolution of neutron star LMXBs into ms radio pulsars. In addition, these accreting ms pulsars exhibit a number of X-ray spectral and timing features. AstroSat can meaningfully observe these sources only during outbursts. We submit separate proposals (parts I-V) for each of five (SAX J1808.4-3658, XTE J1807-294, XTE J1814-338, NGC 6440, IGR J17498-2921) sources. However, we propose to observe only the first accreting ms pulsar in outburst (out of these five) for 16 ks, considering SXT as the primary instrument. This proposal (part IV) is for NGC 6440.	NGC 6440	17 48 52.670	-20 21 34.500	T01	arrao	TIFR	

G07_059	CZTI GT Anticipated ToO proposal on the accretion-powered millisecond pulsars: Part V	Accretion-powered millisecond (ms) pulsars are a class of transient neutron star low-mass X-ray binaries (LMXBs) which show coherent X-ray intensity variation during outbursts. These sources are particularly important to understand the evolution of neutron star LMXBs into ms radio pulsars. In addition, these accreting ms pulsars exhibit a number of X-ray spectral and timing features. AstroSat can meaningfully observe these sources only during outbursts. We submit separate proposals (parts I-V) for each of five (SAX J1808.4-3658, XTE J1807-294, XTE J1814-338, NGC 6440, IGR J17498-2921) sources. However, we propose to observe only the first accreting ms pulsar in outburst (out of these five) for 16 ks, considering SXT as the primary instrument. This proposal (part V) is for IGR J17498-2921.	IGR J17498-2921	17 49-29 19 55.350 19.600	T01	arrao	TIFR	
G07_060	Probing UV/X-ray connection in highly accreting AGN Mrk766	While some AGN with low to moderate accretion rates relative to the Eddington rate show evidence for X-ray reprocessing, the nature of UV/X-ray connection in AGN with high accretion rates is not well explored. SXT along with AstroSat's simultaneous multi-wavelength capability provides a unique opportunity to investigate the connection between the strong soft X-ray excess, hard powerlaw component and the far UV emission. As a part of the SXT GT, we propose for long 120~ks AstroSat observation of Mrk~766, a bright narrow-line Seyfert 1 galaxy well known for its strong soft X-ray excess and rapid X-ray variability. Mrk766 is a low mass ( $M_{\text{BH}} \sim 6.3 \times 10^6 M_{\text{sun}}$ ) AGN that is accreting at close to the Eddington rate. The long observation will allow to study UV/X-ray connection in this highly accreting AGN.	Mrk766	12 18-29 48 26.48 46.1	T01	KPSingh19	TIFR	
G07_062	Characterizing the accretion disc emission in PG-0804+761 with ASTROSAT	Direct probe of accretion disks and the spectral connection between the optical/UV and soft X-ray excess emission in Seyfert type AGN have been possible due to the lack of sensitive measurement of FUV-EUV continuum where the disk emission peaks and is strongly affected by the extinction. With the availability of UVIT and SXT covering the FUV and soft X-ray bands, it is possible to cover significant fraction of disk emission from the AGN with high black hole masses. We request 15~ks AstroSat observation of massive AGN PG-0804+761 ( $z=0.1$ , $M_{\text{BH}} \sim 10^{8.8} M_{\odot}$ ). We plan to derive optical/UV to X-ray broadband spectrum by using all possible UVIT filters, gratings and SXT, and test accretion disk models.	PG0804+761	8 10-76 2 58.669 42.486	T01	KPSingh19	TIFR	

G07_063	Deep UV imaging studies of X-ray and optically bright SNRs VI -- NGC6960, 3rd pointing.	We propose to map X-ray and optically bright SNRs in various UVIT filters, in order to extract the physical conditions in supernovae ejecta interacting with their surrounding environment, and in the resulting shocks. Spanning an age range of $(18000 \pm 9000)$ yr (Vela) to 5000-8000 yr (Cygnus loop) to 1000 yr (Crab), these observations will also provide unique opportunities to study the temporal evolution of SNRs from different classes of SNe, in a varying range of environments, in UV. UVIT filters will be used to map regions of hot ( $10^{4-5}$ K) and intermediate (5000- 8000 K) temperatures via emission lines of C IV (1550 Ang.), He II (1640 Ang.), and Mg II lines (2800 A), bridging the gap between x-ray bright ( $10^{6-7}$ ) K and cool, optical regions. UVIT-NUV narrow bands will complement Galex NUV imaging of Crab and Cygnus loop by Galex, and provide 1st NUV images of Vela D.	NGC 6960	20 47 38.97	+30 03 02.84	T01	fsutaria	IIA	
G07_065	SXT GT proposal on the X-ray binaries 4U 1850-087 and 1A 1246-588	We propose to observe the ultracompact X-ray binaries 4U 1850-087 and 1A 1246-588 with AstroSat, each for 25 ks exposure. AstroSat will be useful to characterize the broadband X-ray spectra of these sources. Moreover, the unique spectral and timing capabilities of AstroSat will be useful to study the broad 0.7 keV emission feature and orbital modulation from 4U 1850-087, very high frequency quasi-periodic oscillations from 1A 1246-588, and thermonuclear bursts from both the sources.	1A 1246-588	12 49 39.364	-59 5 14.680	T02	sudip	TIFR	
			4U 1850-087	18 53 4.890	-8 42 19.699	T01			
G07_066	Probing star formation in barred spiral galaxy NGC 1433 with peculiar morphology	Further study of one spiral galaxy with peculiar (ring) morphology. NGC 1433 is proposed to be imaged in selected NUV and FUV filters to study star formation & stellar populations.	NGC 1433	03 42 01.55	-47 13 19.49	T01	swarna	NCRA	

G07_068	An UVIT view of the interacting galaxy pair NGC1512-1510	Galaxy interactions are common and often such interaction manifest itself in terms of spectacular tidal tails which rest between the two galaxies. Tidal tails are interesting on its own right, as it potentially probes the very outskirts of the host galaxy which is often devoid of any visible stars but perhaps filled with dark matter. Apart from long tidal tail formation, binary galaxy interaction can lead to central star-burst. NGC 1512-1510 is an ideal candidate to study both these events simultaneously.  The companion NGC 1510 is believed to host a pseudobulge which is not related to a bar but shows central star burst. However, this is not well resolved in GALEX. With UVIT's higher resolution, we plan to investigate the central bulge of NGC1510. Also we will investigate the star formation along the long tidal tails, knots which probe the very outer part of the host galaxy.	NGC 1510	04 03	-43 24	T02	kanak	IUCAA	
			NGC1512	04 03	-43 20	T01			
				32.6	00.0				
				54.3	56.0				
G07_069	AstroSat Monitoring of new Cataclysmic Variable IRXS J161935.7+524630	A ROSAT X-ray source IRXS J161935.7+5246 was recently identified as a magnetic cataclysmic variable with a spin period of 100 min. The orbital period of the object is not yet identified and hence the classification of the new mCV into a polar or intermediate polar is yet to be done. In this proposal we are planning to observe the new mCV using SXT and other X-ray payloads along with UVIT onboard AstroSat to determine the nature of the object.	IRXS J161935.7+524630	16 19	52 46	T01	girish	ISRO	
G07_070	Ultraviolet survey of Polar Ring galaxies	Ringed early-type galaxies (R-ETGs) are a rare and important class of objects which can help one investigate a variety of topics ranging from the dark matter contents of galaxies, their haloes, to the mechanism by which Early-type galaxies are rejuvenated. In the cases studied so far, the rings around R-ETGs are generally bluer than the cores and often show active star formation. Here, we propose to carry out a deep UV imaging study of two R-ETGs, where existing GALEX images and data from other wavelengths calls for a deeper imaging experiments to help us understand the ring formation scenarios. For this proposal, our sample consists of two distinct type of R-ETGs, one with a possible companion and another with no nearby galaxies.	ESO566-24	09 53	-19 34	T01	reks	IIA	
			UGC09562	14 51	+35 32	T02			
				33.4	59				
				14.4	32				
G07_072	Study of the accretion disk corona of the LMXB 4U 1822-37 in hard X-rays with Astrosat	4U 1822-37 is one of the only four LMXBs which host a high magnetic field neutron star, exhibits slow pulsations, and has a hard X-ray spectrum with a possible cyclotron line. It is also a partial eclipsing binary, making its orbital inclination well constrained. 4U 1822-37 is one of the very rare sources with partial eclipse of the X-rays by the companion star, showing clear evidence of the X-ray source being extended, even in hard X-rays. It is believed to be an Accretion Disk Corona (ADC) source. X-ray eclipse measurement provides us an opportunity to study the extent of the X-ray corona. With a 40 ks ASTROSAT observation in X-rays we plan to perform broad-band spectroscopy, confirm and accurately measure the CRSF, and measure energy dependent pulse and orbital intensity profiles, especially in the hard X-rays for the first time, and measure spin and orbital evolution with greater accuracy.	4U 1822-37	18 25	-37 06	T01	bpaul	RRI	
				46.81	18.6				

G07_074	Astrosat observation of the SFXT with shortest orbital period: IGR J16479+4514	IGR J16479+4514 is a Supergiant Fast X-ray Transient source; and is, in many ways, a unique member of this class of stellar objects. It harbours a supergiant companion but unlike the persistent HMXBs, it shows regular flaring activity of variable duration and recurrent outbursts. The nature of the compact object is unknown and there has been no detection of pulsations. It has the shortest orbital period of 3.32 d amongst the SFXTs (Jain, Paul & Dutta, 2009). It is the only SFXT which displays full eclipse which lasts for about 20 % of the orbital period. We propose a 40 ks long observation of IGR J16479+4514 which given Astrosat's duty cycle, will cover a large part of the out of eclipse phase of one orbital period. We will search for pulsations and a cyclotron line in the X-ray emission of this SFXT.	IGR J16479-4514	16 47 58.00	-45 12 06.0	T01	bpaul	RRI	
G07_076	Star-formation vs Feedback: Galaxy groups as a test bed	Galaxy groups are where environment plays an important role in deciding a galaxy's evolutionary track. Tidal interaction, harassment, ram pressure stripping are well known physical process that affect the evolution of galaxies. Galaxy-galaxy interaction often leads to central star burst, ignite AGN activity - which causes the host galaxy group shine in X-ray band. The hot gas that fills the intergalactic space in the group can have a negative feedback - quenching the star formation activity --as it cuts off the fresh supply of cold neutral gas along the cosmic filaments. Unless one invokes the fountain process through which hot gas cools and falls back (like rain shower) to the group galaxies again. To date the connection between star-formation and feedback. The proposal aims to address this issue by observing X-faint and bright groups using UVIT.	NGC 1060 NGC 4169 NGC 5903 NGC 6658	02 43 3.68 12 12 32.48 15 18 22.67 18 33 55	+32 26 44.3 +29 10 1.6 -24 02 26.98 +22 53 18.0	T01 T04 T02 T03	kanak	IUCAA	



G07_077	Probing Star-formation and Evolution in Void Galaxies: Bootes Void	Voids are one of the most secluded place in our visible universe to disentangle the ill-understood effect of environment on galaxy formation, its growth and evolution. Voids are basically low density environment typically of size of a few 10s to 100s of Mpc - Bootes void in the Northern hemisphere (one of the largest known) is one such extremely low density region containing about 60 galaxies observed so far [1] but typical estimate shows that there should be about few thousand galaxies. Voids raises several intriguing puzzles - whether these galaxies are born in the void? Or migrated from elsewhere? Do these galaxies grow in size and mass? What is the current star formation activity? What drives the star formation (if any) in such lonely region of space. With UVIT's better resolution and sensitivity, we propose to explore about 2460 sq arcmin area inside Bootes Void to address these issues.	BooVod-I	14 08 27.79	+48 55 56.8	T01	kanak	IUCAA	
			BooVod-II	14 10 44.44	+48 41 37.69	T02			
			BooVod-III	14 09 51.01	+48 26 39.25	T03			
			BooVod-IV	14 45 07.157	+38 45 09.85	T04			
G07_079	X-Persei : Probing the accretion & magnetic field geometry with ASTROSAT	We propose to study the hard X-ray pulsar X-Persei using an ASTROSAT observation. X-Persei is a persistent, low luminosity and slowly spinning Be X-ray pulsar that has several features unusual to this class of sources. The system does not exhibit type I X-ray bursts, as commonly observed in most other Be X-ray binaries, but only variability (dips/flares) observed over short time scales attributed to the long orbital period of the system resulting into quasi-spherical accretion onto the neutron star. The X-ray spectrum is also unusually hard extending over 100 keV with a possible cyclotron resonance scattering feature (CRSF) at ~ 30 keV. With a 40 ks ASTROSAT observation, we plan to i) constrain the continuum spectral parameters and accurately measure the CRSF and their intensity dependence and ii) measure energy and intensity dependent pulse profiles especially in the hard X-rays to study the beaming geometry and map changes with luminosity.	X Persei	03 55 23.08	31 02 45.0	T01	bpaul	RRI	
G07_080	Metallicity Mapping of Galactic Halo-UVIT filter indices and physical parameters of stars SEGUEIA	We propose to map stars in the Galactic Halo, in various UVIT filters, in order to spatially map the halo metallicity. Such a study is important for understanding the formation of the Galactic Halo. We will also be surveying other major stellar constituents of the Halo through this survey. UVIT is uniquely suited for this purpose, not only because the strongest metal lines in late type stars occur in UV but also because UVIT filters are designed to sample these lines. Its wide field and spatial resolution are well suited for this purpose and can sample halo on both sides of the plane by the same set of instruments. The proposal has TWO parts: calibrations and survey of the Galactic Halo. In this proposal we would like to observe stars with a range in metallicity, Teff, log g and establish their relationship with various UVIT filter indices.	SEGUEIA	08 38 28.80	+53 54 36.6	T03	nkrao	IIA	

G07_084	Metallicity Mapping of Galactic Halo-UVIT filter indices and physical parameters of stars SEGUEIB	We propose to map stars in the Galactic Halo, in various UVIT filters, in order to spatially map the halo metallicity. Such a study is important for understanding the formation of the Galactic Halo. We will also be surveying other major stellar constituents of the Halo through this survey. UVIT is uniquely suited for this purpose, not only because the strongest metal lines in late type stars occur in UV but also because UVIT filters are designed to sample these lines. Its wide field and spatial resolution are well suited for this purpose and can sample halo on both sides of the plane by the same set of instruments. The proposal has TWO parts: calibrations and survey of the Galactic Halo. In this proposal we would like to observe stars with a range in metallicity, Teff, log g and establish their relationship with various UVIT filter indices.	SEGUEIB	13 31 47.761	+66 31 33.88	T03	nkrao	IIA	
G07_086	Measuring the accretion rates of T Tauri stars in wide binary systems	We propose to study the accretion rates of T Tauri stars which are members of nearby (< 150 pc) moving groups. They belong to class of old (> 8 Myr), accreting T Tauri stars. The accretion rates of these stars are usually calculated from hydrogen recombination lines like H-alpha, which can be contaminated from chromospheric emission. However, UV excess is considered as primary accretion indicators. Hence, we plan to employ UVIT to estimate the UV excess in the NUV bands. Also, we are interested to assess far-UV emission and to identify the spectral line CIV 1549 \AA, from which accretion rates can be estimated. Our sample of stars belong to wide binary systems, most of whose companions are identified as a weak-line T Tauri stars from X-ray imaging of nearby region. We intend to observe our sources with SXT on board ASTROSAT to identify possible companions with X-ray emission.	TW Hya TWA 30	11 01 51.9	-34 42 17.0	T01	dkojha	TIFR	
				11 32 18.3	-31 19 51.8	T02			

G07_087	Broad band observations of Centaurus A nucleus	Centaurus A is a well studied AGN detected at nearly all wavelengths. Its proximity and existing rich dataset encourages us to exploit ASTROSAT's unique features to obtain the high angular resolution images that can capture the complex morphology of the core and the radio lobe (now also detected at GeV energies) and provide truly simultaneous broadband spectra from visible to hard x-rays. This dataset is expected to enable us to get crucial 'missing' data in the SED at UV energies and also address the thermal versus non-thermal nature of the x-ray continuum. These are expected to be important results that can truly shed light on validating models on the broadband emission from the core and lobe of Cen A.	centauru s A	13 25 27.615	-43 8.805	1 T01	sreekumar	IIA	
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**Astrosat-Redbook-proposals**  
**April-2017 to September-2017**

Accepted proposals for A03 cycle : 60

PropID	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
A03_005	ASTROSAT multi-wavelength observation of one full binary orbit of Her X-1	Her X-1 is to be intensely observed by UVIT, SXT, LAXPC, and CZTI instruments for one full binary during main high state. The neutron star illuminates the companion star, accretion disk, accretion stream and disk corona. This causes detectable X-rays and UV from these structures which are orbital phase dependent. Modelling of the orbital-phase dependent light curves in multiple energy band will be used to map these structures in the binary system. Time delays between the pulsations in the different energy bands will enable extraction of line-of-sight travel time delays and distances. The expected scientific results are: i) to obtain the geometry of the X-ray heating of HZ Her, the accretion disk, the accretion stream and the corona; and ii) to precisely determine the inclination of the binary. The improved system inclination will allow precise binary parameters and result in a well-determined neutron star mass.	Her X-1	16 57 49.810	35 20 32.399	T01	deahy	Calgary	
A03_007	ASTROSAT Observation of the neutron star SAX J1808.4-3658 in Outburst	The neutron star SAX J1808.4-3658 (hereafter J1808) was the first discovered accreting millisecond period X-ray pulsar (AMXP). J1808 is a "Rosetta Stone" system showing the evolutionary role of accretion in spinning neutron stars up to millisecond (ms) spin periods in low mass X-ray binaries (LMXBs) to form ms radio pulsars. The observed X-ray pulsations originate from the neutron star's surface, allowing pulse-shape analyses to determine the star's mass and radius, which could allow the equation of state of ultra-dense nuclear matter to be constrained. The pulsations are only visible when the AMXP is in a bright state (outburst). We propose to observe J1808 for 40ks during its next outburst, allowing us to measure its spectrum and pulse shapes. These will be used to determine the neutron star's mass, radius, and orbital period changes, leading to better understanding of the properties of neutron stars and accretion in LMXBs.	SAX J1808.4-3658	18 8 27.540	-36 58 44.299	T01	deahy	Calgary	
A03_008	Understanding the Formation mechanism of Blue Stragglers in open clusters	The blue straggler stars (BSS) are main-sequence stars, which have evaded stellar evolution by acquiring mass while on the main-sequence. Primary mechanisms suggested for BSS formation in open clusters are (1) mass transfer from a	NGC 6791	19 20 52.992	37 46 18.120	T01	rsagar52	IIA	
			NGC 7789	23 57 24.000	56 42 29.880	T02			
A03_009	Orbit phase resolved study of the highly obscured sgHMXB IGR J16318-4848	IGR J16318-4848 is a Supergiant HMXB (sgHMXB) system with the highest known line of sight absorption column density. This absorption column is mostly local to the source and reprocessing of the source X-rays from this medium causes iron and nickel lines with the highest known equivalent width among X-ray binaries to be seen in its spectrum. The source has shown strong signatures of an ~ 80 day orbital modulation in its hard X-ray intensity (Jain 2009) as well as variations in the line flux and equivalent widths (Ibarra 2007). We propose to monitor the source luminosity and line equivalent width in different phases of its binary orbit with ASTROSAT (8 observations of 6 ks in SXT each). This will allow us to probe the relation between the luminosity changes, line flux variations and orbital phase and possibly help us understand the reason behind the large flux modulations in this source.	IGR J16318-4848	16 31 48.31	-48 49 00.5	T01	nirmal	RRI	
A03_025	Star Formation in the Extended Ultraviolet Disks (XUV) of Spiral Galaxies	We propose to observe the UV emission from the low luminosity stellar disks of eight spiral galaxies that have extended ultraviolet (XUV) disks. Our targets have all been detected by GALEX. They are all nearby spirals that we have selected based on their UV luminosity. XUV galaxies show filamentary or diffuse star formation well beyond their optical disks, in regions where the disk surface density lies below the threshold for star formation. GALEX found that 30% of spiral galaxies have XUV disks. The star formation is thought to be triggered by gas accretion from nearby clouds, galaxies or the intergalactic medium. In this study we will investigate the nature of XUV disk star formation, estimate its rate and morphology. The high sensitivity of UVIT will help isolate the star forming knots, image the UV disks and search for signatures of gas accretion.	NGC4625	12 41 52.721	41 16 26.256	T07	mousumi	IIA	
			UGC9024	14 6 40.538	22 4 12.360	T08			

A03_029	Exploring the iron line - kHz QPO connection	The nature of the ultra-dense matter in neutron stars remains enigmatic and there is still a wide variety of possible internal compositions. Obtaining accurate radii and masses for neutron stars will allow to distinguish between these equations of state. We have suggested a powerful way to constrain both neutron star radii and masses by combining a measure of the inner disk radius from broad iron emission lines and the frequency of kHz quasi-periodic brightness oscillations (QPOs). However, this method only works if both phenomena originate from the same part of the disk. Here, we propose 30 ks observations of each of the neutron star low-mass X-ray binaries GX 349+2 and GX 340+0 to simultaneously obtain an accurate measure of the inner disk radius from broadband spectroscopy and the kHz QPO frequency from timing.	GX 349+2	17 5 44.490	-36 25 23.099	T01	sudip	TIFR	
A03_030	Footprints of AGN Feedback on their Hosts at z=0: A Pilot-study of Nearby AGN with ASTROSAT UVIT and SXT	Our goal is to test the hypothesis that AGN feedback mechanisms that are required to preserve scaling relationships of supermassive black hole across cosmic time, leave their footprints on the ionization structure and star formation in their nuclear environments in the nearby universe. We propose a pilot study of six z=0 active galaxies for imaging with ASTROSAT UVIT and SXT. These galaxies are hand-picked from a large sample of nearby southern AGN which we are currently investigating with an optical integral field unit (WiFeS) and radio interferometry (GMRT and ATCA). We seek to establish (or otherwise) connections between the ionization structure of the nuclear regions, the synchrotron jets, the hot ionized gas driven by the AGN, the distribution of star formation regions and extinction structure in the host, the abundance gradient across the host and the kinematics of the extended narrow-emission-line regions. We request 90 kiloseconds.	NGC 4472	12 29 46.78	+08 00 01.48	T01	pshastrri	IIA	
A03_033	Temporal, Spatial and Spectral Structure of Doppler-beamed AGN: A Multi-wavelength Pilot Study, Monitoring with ASTROSAT, WEBT and Fermi	Our goal is to investigate the physics of relativistic synchrotron jets launched by accreting supermassive black holes (i.e., AGN), within the framework of the Blazar Divide. We propose monitoring the chromaticity of the variability of three prioritized LAX P C -bright, UVIT-safe AGN target fields, mildly time-constrained ( $\sim 30 \pm 10$ day cadence) using the full multi-wavelength capability of ASTROSAT and LAXPC as the primary instrument. We will harness the Whole Earth Blazar Telescope for quasi-simultaneous ground-based observations, covering optical/IR/radio photometry, optical/radio (uGMRT) polarimetry, and optical spectroscopy, and also add co-epochal Fermi data. The AGN span a range of power, the ratio of nuclear-to-host galaxy and inverse-Compton dominance. We request 47ksecs/epoch each ( $\sim 4$ A03 epochs) with LAXPC, SXT, CZTI and UVIT, totaling 188ksecs. We will also examine the CZTI data in order to inform future proposals.	1ES2344+514	23 47 04.83	+51 42 17.88	T01	pshastrri	IIA	
A03_036	Multiwavelength variability studies of Mrk-110 with ASTROSAT	Variability on different timescales throughout the EM spectrum is a key characteristic of AGN. AGN show strong variability in the optical-UV-X-ray wavelengths and these are often inter-connected. Using the simultaneous multiwavelength observational facility of ASTROSAT we plan to carry out a detailed study of Mrk 110, an NLS1 galaxy highly variable in the optical/UV and X-ray bands. We propose for a multiwavelength monitoring observation of Mrk 110 on 4 occasions, each separated by 15 days. We request to observe the source for an individual exposure time of 40 ks with SXT (primary instrument), simultaneously with LAXPC and UVIT. The study will help us to understand the relationship between the optical-UV-X-ray emission mechanisms, and the geometry of the emitting regions. Furthermore, a broadband SED modelling of the source, by including the IR data, can draw possible correlations between different physical parameters like Eddington ratio, luminosities, photon index and torus covering factor.	Mrk 110	9 25 12.871	52 17 10.495	T01	savithri	STCK	

A03_038	The X-ray puzzle of superflares in a nearby active eclipsing binary	We propose Astrosat observations of a nearby active superflaring star star DG CVn to test the intrinsic flare X-ray emission and its relation to the other layers of atmosphere. Astrosat's capability to observe such source in simultaneous multi-wavelengths is a powerful tool to understand these activities and their inter-relationship. Our target is an eclipsing binary found with an orbital period of ~0.28 days. Such binary systems are of tremendous importance for astrophysics at large, since they allow precise determinations of stellar masses and radii, but also for stellar activity research, since such systems probe the upper end of the activity scale. We propose to use Astrosat for a pilot study such a short period low-mass eclipsing binaries to explore their potential for detailed X-ray follow-up studies. The proposed observations will also yield insight into the nature of the associated magnetic dynamos.	DG CVn	13 31 46.61	29 16 36.61	T01	lalithasair am	IIA	
A03_039	AstroSat Observation of an Atoll Source 4U 1735-44	4U 1735-44 is a low mass X-ray binary hosting a neutron star and a low mass companion star and its characteristic behavior in color-color diagram has classified the object as an atoll source. We propose a 50 ks AstroSat observation of the system with LAXPC as a primary instrument. The data will be used to study detailed spectral and timing properties of the system including time lags as a function of energy and frequency, Coherence and flux-resolved spectroscopy.	4U 1735-44	17 38 58.301	-44 27 0.000	T01	anjali	IUCAA	
A03_044	Ultra-violet extinction studies of M31 using UVIT	We propose to study the UV extinction and dust properties in M31 galaxy. In AO3 cycle we plan to observe few hot stars of different E(B-V) values in selected regions across M31 in FUV and NUV filter bands of UVIT in order to study variations of UV extinction. UV extinction properties are very sensitive to various physical parameters of dust and vary even when no changes are present in optical region. We plan to use B15 filter which is devised to measure the strength of the 2200Å band. we also plan to observe previously spectroscopically studied objects in M31 for calibration and later systematically study various regions in M 31 of different environments. Stars with low and high reddening are planned to be studied differentially. M 31 provides an environment to study hot O and B star bright enough not to saturate UVIT detectors.	M31-I	00 37 02.56	+39 58 20.5	T03	bhargavi. sg	PPISR	
			M31-II	00 39 51.64	+40 21 11.3	T04			
A03_046	A detailed high-energy picture of Proxima Centauri - our nearest extrasolar neighbour	We propose 50 ks X-ray observations of Proxima Centauri with Astrosat to measure a high-resolution irradiation spectrum and, thus, to assess the habitability of the orbiting exoplanet. Our upcoming, very deep observations of Proxima Centauri with Chandra grating , HST along with the Astrosat's SXT will provide us a great opportunity to obtain simultaneous coverage at X-ray and UV wavelengths. The LETG is generally used in combination with HRC-S a detector without any energy resolution, hence, the zeroth order LETGS has no energy resolution. The resolution and sensitivity at high energies can be accessed only from Astrosat's SXT, since the resolution of the LETGS at higher energies gets worse. Astrosat would really be a very good complement to Chandra. Our Astrosat, Chandra LETG and HST UV data allows us to reconstruct a high resolution spectral energy distribution including EUV regime and, thus, a reference irradiation spectrum.	Proxima Centauri	14 29 42.94	-62 40 46.16	T01	lalithasair am	IIA	
A03_050	A neutron star X-ray binary accreting at low Eddington rate: optical to hard X-rays	We propose a 50 ks ASTROSAT observation of the neutron star low-mass X-ray binary IGR J17062-6143, which persistently accretes at a very low luminosity of ~0.1% of the Eddington limit. Our main aim is to obtain simultaneous optical to hard X-ray coverage to gain insight into the accretion morphology in this object. This study will further our knowledge about low-level accretion flows in neutron star low-mass X-ray binaries, particularly in a regime that is difficult to capture with transient sources. Furthermore, it allows us to test different ideas for the nature of neutron stars that accrete at very low rates for several years.	IGR J17062-6143	17 06 16.399	-61 42 39.996	T01	devraj	RJC	
A03_051	Continued Monitoring of Variability in the Active Seyfert Galaxy MCG-6-30-15	We propose to continue monitoring observations of this bright variable AGN and to use the ASTROSAT instrument complement to unravel the complex behaviour of these objects with a view to elucidating the underlying physical conditions and geometry in the regions responsible for their optical to har X-ray emission	MCG-6-30-15	13 35 53.707	-34 17 43.944	T01	Gordon	Leicester	

A03_052	Continued Monitoring of the X-ray Bright Variable QSO PDS456	We propose to continue monitoring observations of bright variable AGN and to use the ASTROSAT instrument complement to unravel the complex behaviour of these objects with a view to elucidating the underlying physical conditions and geometry in the regions responsible for their optical to hard X-ray emission	PDS456	17 28 20	-14 15 52	T01	Gordon	Leicester	
A03_053	Multi-wavelength observation of GRS 1758-258 using AstroSat	We propose to study the persistent microquasar GRS 1758-258 for a total exposure of 60 ksec using SXT, LAXPC, CZTI and UVIT on-board AstroSat. SXT will be considered as the primary instrument. We plan to monitor the source during three epochs with continuous exposure of 20 ksec for each of the observations.  Our previous proposal for AstroSat observation in AO2 (ID : AO2-077) for this source was performed during the period when the source had transited to its dim soft state as observed by INTEGRAL and SWIFT observations. During the period of AO3, we expect that the source will exhibit spectral and temporal variabilities, and to do a comparative study with our previous observation from AO2. Finally, we intend to diagnose the multi-wavelength characteristics of the source by means of a monitoring proposal through simultaneous observations in Radio and Optical bands.	GRS 1758-258	18 1 12.400	-25 44 36.100	T01	Radhika	DSU	
A03_057	ASTROSAT observations of SWIFT J1626.6-5156: Study of cyclotron line variations	We are proposing 50 ks effective exposure of the Be/X-ray binary pulsar SWIFT J1626.6-5156 using SXT, LAXPC & CZTI instruments onboard AstroSat satellite. Source is famous for its flux variability on time scale of a few sec, cyclotron line variability & a spin-up rate of $1.3062 \pm 0.0017 \times 10^{-12}$ Hz/s. These features are observed by RXTE/PCA, limited to ~25 keV. LAXPC as primary instrument with its wide energy coverage 3-80 keV will help in confirming ~18 keV cyclotron line feature of the source. High time resolution capabilities of LAXPC will enable more precise estimate of spin period during its spin up state, possible detection of QPOs & energy dependent timing studies during spin up, flaring/non-flaring states. The source may not have SXT pileup issues depending on the spectral state in which the source will be observed. We propose to study pulse phase, orbit & luminosity dependence of cyclotron line variability & its harmonics.	Swift J1626.6-5156	16 26 36.530	-51 56 30.502	T01	jayashree	CBS	
A03_061	Simultaneous ASTROSAT + Multiwavelength Observations of the Prototypical Transient Black Hole X-ray Binary GX 339-4	Black hole X-ray binaries cycle through different accretion states on timescales of days to months, providing a time-resolved view of how matter behaves in a strong gravity environment. Simultaneous observations across the electromagnetic spectrum are the optimal tool that exposes this view. However, strictly simultaneous radio through broad-band X-ray observations have been achieved in only a few X-ray binary outbursts. We request six 20 ks epochs of ASTROSAT (LAXPC/SXT/CZTI) observations of GX-339-4. We will trigger two sequences of 15-day monitoring over three epochs each, for which we will coordinate multi-wavelength coverage, to measure the evolving broad-band spectral energy distributions (SEDs) during the rising-hard and decaying-hard accretion states. We will determine how the evolving accretion properties (derived from X-ray timing and fitting models to X-ray spectra) are connected to the evolving jet properties (derived from broad-band SED fits that constrain, for example, the conditions where the electrons are first accelerated).	GX 339-4: Decaying Hard State	17 02 49.36	-48 47 22.801	T02	gsivakoff	UAlberta	
			GX 339-4: Rising Hard State	17 02 49.36	-48 47 22.801	T01			
A03_062	UVIT OBSERVATIONS OF UV-BRIGHT STARS IN GLOBULAR CLUSTERS.	The major contribution to the ultraviolet (UV) emission in the Galactic globular clusters (GGCs) comes from hottest stellar sources which includes white dwarfs, hot (OB type) post-AGB stars and BHBs. We propose to observe four GGCs, NGC 4147, NGC 1261, NGC 6229 & NGC 5033 with UVIT. These samples will provide varieties of hot UV sources to study their UV photometric properties. The comparison of UV CMDs with the stellar evolutionary tracks of low mass evolved stars will enable us to understand the evolutionary stages and classification of sources. The $T_{\text{eff}}$ , $\log g$ and $[\text{Fe}/\text{H}]$ values of UV bright stars can be derived using model atmosphere grids of such stars. The absolute UV fluxes of the sources will be useful to compare their SEDs with model atmospheres. The observed UVIT star counts will be compared with model simulation to explore the potential for studying the structure of our Galaxy.	NGC 4147	12 10 06.30	18 32 33.5	T01	ananta	NITRKL	
			NGC 5053	13 16 27.09	17 42 00.9	T04			

A03_064	Direct measurement of mass accretion rate in high galactic latitude young stars with UVIT/ASTROSAT	The observed UV continuum excess in young stars provides the most direct estimate of their mass accretion rates. Such direct measurements, however, are rare because of the high line-of-sight extinction toward most young stars. Here we propose UVIT observations of 5 young accreting T Tauri stars associated with the high galactic latitude ( $\sim 34^\circ$ ) cloud MBM 12, the extinction toward which is low. We will observe all of them in regular pointing mode in two FUV filters (BaF2 & Sapphire) and four NUV filters (B4, B13, B15 & N2). We will also obtain low resolution spectra of these sources with the FUV grating-2 (dispersion = 0.6 nm/arcsec) to measure the CIV line luminosity, which is known to scale with accretion luminosity. From these observations we will constrain the temperature of the accretion-shock emission and directly measure accretion rates onto these young stars.	MBM12	02 55 56.8219	+20 07 14.0973	T01	manoj	TIFR	
A03_065	UVIT study of products of stellar collisions in M3	Globular Clusters (GCs) house exotic stellar populations and are the only sites where the products of direct collision of stars (Blue Straggler stars, BSS) are found. GCs also have accreting binaries, WDs and Horizontal branch stars, which are all bright in the UV. In the UV, all these stars stand out from the swamp of the cooler main-sequence stars and red giants. Our simulations suggest that the colour-magnitude diagrams using UVIT filters create definite diagnostic regions which can be used to detect and identify these systems. Exploiting the resolution and filter system of the UVIT, we plan to derive the multi-wavelength SEDs and estimate the fundamental properties such as mass, temperature and Luminosity. NGC 5272 (M3) is one such cluster with many UV bright stars located in the cluster.	M3	13 42 11.227	28 22 31.620	T01	snehalata	IIA	
A03_068	Spectral-Timing analysis of 4U 1957+11 with AstroSat	We propose to study the spectral variations in the black-hole X-ray binary 4U 1957+11 with a 20 ks observation. AstroSat has sensitivity across a broad X-ray bandwidth covered by SXT+LAXPC+CZTI and hence can probe black hole spectra over a large energy range with high time resolution capability. The main objective is to obtain the spin of 4U 1957+11 with spectroscopy, timing analysis and also investigate the variability in the hard X-rays.	4U 1957+11	19 59 24.125	11 42 32.148	T01	devraj	OTHERS	
A03_069	Star-forming S0 galaxies in the nearby universe	Understanding the precise star-formation history of galaxies and its dependence on galaxy mass, morphology and environment is one of the most important outstanding problems in galaxy evolution. UV data, which are the most precise probe of (relatively unobscured) recent star-formation are crucial to resolving degeneracies in the modeling. For nearby galaxies of large angular size, such modeling can be carried out for individual star-forming regions. For this purpose, the unprecedented angular resolution of UVIT is critically required. In this pilot study, we request UVIT observations of 5 nearby S0 galaxies, which show some evidence of recent star-formation. We will combine the UVIT UV data with archival observations in optical, near-IR and mid-IR and stellar population synthesis models to model the resolved star-formation histories of these galaxies.	NGC 1386	03 36 46.2	-35 59 58	T03	omkar	NCRA	
			NGC 5866	15 06 29.5	+55 45 48	T02			
A03_071	Broadband spectral energy distribution of misaligned NGC 1275	$\gamma$ -rays are expected to be originated in AGN jet. As emission from jet falls off rapidly with jet inclination angle, misaligned AGNs (M-AGNs) are expected to be weak $\gamma$ -ray emitter. However, Fermi detected $\sim 20$ MAGNs during its first four years of operation. Due to the large jet inclination angle, emission from M-AGNs is expected to have significant contributions from both accretion disk and AGN jet. Therefore, M-AGNs are the best laboratory to study the accretion disk-jet connection. NGC 1275 is one of the Fermi detected M-AGN which exhibits strong emission in $\gamma$ -rays. To understand the radiative process in these Fermi detected M-AGNs, observations in UV and X-ray band are crucial. We propose simultaneous observation of NGC 1275 with UVIT, SXT along with LAXPC and CZTI detectors on board ASTROSAT which is essential to construct the broadband spectra of the source and to better understand the accretion disk-AGN jet connection.	NGC 1275	3 19 48.161	41 30 42.120	T01	debbijoy	MCNS, MU	



A03_072	Study of the Broadband spectral and temporal variations of a Z Source GX 17+2 using ASTROSAT	Requested observation: Propose to observe GX 17+2 using LAXPC for an exposure time of 40 ks. Context: It is a Z-type neutron star source tracing out a Z track on the HID diagram. Cross-correlation function (CCF) study would be performed on GX 17+2. Since such sources vary in timescales of hours to days they are always in the verge of a state transition and hence form ideal candidates for studying connections between X-Ray state transitions and jets (Migliari et al. 2007). Objectives and Expected scientific results : Study the CCF and autocorrelation functions (ACF) of light curves in higher energy bands especially with 40-80 keV (not possible with RXTE). Study of ACFs would enable us to constrain the accretion geometry model viz. quasi spherical geometry of the corona or the extended corona geometry. We would also constrain the lags and explore the connection between them and the radio jet.	GX 17+2	18 16 1.389	-14 2 10.620	T01	sriramou	O.U.	
A03_073	Study of the Broadband spectral and temporal variations of an Atoll Source 4U 1705-44 using ASTROSAT	Context: 4U 1705-44 is a peculiar atoll source showing large X-ray intensity variation. The power density spectrum shows broad band noise which varies with intensity. RXTE has detected a barely visible KHz QPO at 750 Hz. During the low intensity state it shows type-I bursts and the spectrum is found to be hard. Based on Chandra data, a broad iron line (EW=1.2 keV) was reported. Objectives & Expected scientific results : Study the correlated spectral and temporal variation as it traverses on CCD and compare them with other Z sources. Study the cross-correlation functions of energy dependent light curves (i.e. 3-5 keV, 10-20 keV, 20-50 keV). We would like to explore the auto-correlation functions in various energy bands. Since LAXPC response is better than PCA/RXTE, a systematic search could confirm the presence of 750 Hz QPO .	4U 1705-44	17 8 54.470	-44 6 7.350	T01	sriramou	O.U.	
A03_074	Multi-wavelength variabilities of the unique and faint neutron star low-mass X-ray binary MS 1603.6+2600	MS 1603.6+2600 is an extraordinary eclipsing/dipping persistent neutron star low-mass X-ray binary which is unusually faint in X-rays (< 1 mCrab), and shows four types of optical variabilities, most of which are also seen in X-rays. These variabilities make this source a unique laboratory to probe accretion processes and structures (for example, the tilt, warp and precession of disk). But this probing requires simultaneous X-ray and optical data from this source over many binary orbits. Such detailed data are currently not available. Our proposed 70 ks multi-wavelength observations with AstroSat will significantly fill this lacuna, will characterize this source in an unprecedented manner, and will test the current models of variabilities. This proposal relies on the unique multi-wavelength capabilities of AstroSat.	MS 1603.6+2600	16 5 45.873	25 51 45.170	T01	sudip	TIFR	
A03_077	Investigating the Spectral Breaks and Thermal Emission of High Redshift Flat Spectrum Radio Quasars using ASTROSAT	We propose a multi wavelength observation of two high redshift luminous flat spectrum radio quasars (FSRQ), 3FGL J1656.2-3303 (z=2.4) and S5 0836+710 (z=2.172), by ASTROSAT. Both of these sources were studied using limited observations in UV, hard X-ray and Fermi-LAT. However, the synchrotron parameters could not be well constrained using such observations, as the thermal bump dominates the non-thermal low-energy emission. Combined UVIT-SXT observation can probe the thermal and the synchrotron tail of the broadband spectral energy distribution (SED) which will be useful to obtain the synchrotron/synchrotron self Compton (SSC) emission parameters of the sources. The hard X-ray region, which can be probed by LAXPC/CZTI, in the both sources interestingly shows a curvature that can probably be correlated to the minimum energy of the emitting electron distribution. Broadband observation by ASTROSAT can be combined with Fermi-LAT observation to model the complete SED and constrain the underlying model parameters.	3FGLJ1656.2-3303	16 56 16.85	-33 2 11.08	T01	SHAHZA HIR	Kashmir University.	

A03_078	ASTROSAT Observations of extreme blazars: Probing the curvature in the Synchrotron peak	Continuing with our ongoing campaign of studying "extreme" TeV blazars with ASTROSAT, we request observations of the "extreme" TeV blazar, 1ES 0229+200, using the multiwavelength instruments on board the ASTROSAT. We propose for 1 pointing of 40 ks which will provide unprecedented spectral resolution of the synchrotron peak and beyond of the so called class of EHBs, which peak in the hard X-rays. Since the origin of the optical emission of these object is under debate, simultaneous UV-Xray observations using ASTROSAT can resolve this uncertainty. Study of the hard X-ray spectrum, along with TeV observations, can give us hitherto unknown clues on the extragalactic background light and also the physical processes responsible for the outbursts in blazars.	1ES 0229+200	2 32 48.615	20 17 17.484	T01	atreyye	IUCAA	
A03_079	Search for hot companions to Be stars: Stars with UV excess in NGC 663 and NGC 7510	The mechanism by which disc is formed in classical Be stars is one of the open puzzles in stellar research. One of the often suggested mechanisms is the role of an 'invisible' hot companion in the formation of this disc. They make their presence felt in the UV and X-ray region of the electromagnetic spectrum. Our proposal is to search for the elusive Be binary systems with white-dwarf or subdwarf O-type star being the companion to Be star. Mathew et al.(2008) identified 22 and 3 Be stars in the open clusters NGC 663 and NGC 7510 respectively. The NUV magnitudes from GALEX data shows that most of these Be stars are brighter in the NUV, when compared to Be stars in other clusters which is suggestive of a hot companion. We plan to image this cluster in the FUV and NUV filters to measure, detect and characterize the UV excess.	NGC 663	01 46 09	+61 14 06	T02	shruthibhat	CU	
A03_080	UNVEILING THE MYSTERY OF PARTIAL ECLIPSE IN THE HIGH MASS X-RAY BINARY PULSAR IGR J16393-4643 WITH ASTROSAT	We propose an ASTROSAT observation to study unique partial eclipse in the HMXB IGR J16393-4643 observed with Swift-BAT and Swift-XRT. From orbital intensity profile of IGR J16393-4643 constructed from long term lightcurves of Swift-BAT, we found a low intensity state, which was previously interpreted as eclipse. However, due to dissimilarities of this low intensity state from other eclipsing binaries, we propose a 100 kilosec observation of this source, with SXT, LAXPC and CZTI instrument of ASTROSAT to unveil true nature of this partial eclipse. With this observation, we also aim to carry out pulse phase resolved spectroscopy of this system, to study in detail the complex double peaked pulse profiles observed in a Suzaku observation of this source. The larger effective area of LAXPC at higher energies would also provide an excellent opportunity to study the Cyclotron Resonance Scattering Feature (CRSF) found in spectra with NuSTAR observation, in great detail.	IGR J16393-4643	16 39 6.00	-46 42 24.12	T01	sanhita	IISc	
A03_084	Eclipse timing of the low mass X-ray binary XTE J1710-281	We request 6 X-ray observations of the low mass X-ray binary, XTE J1710-281, each lasting for 12 ks with Astrosat-LAXPC. XTE J1710-281 is an eclipsing binary and has been persistently active since its discovery. The main goal of these observations will be to determine the mid eclipse times of the source and thereby study the orbital evolution in XTE J1710-281. This will enable us to better understand the probable cause for the observed orbital glitches in the source. Along with full eclipses, this source also displays thermonuclear X-ray bursts and pre-eclipse dips. In order to study the X-ray emission mechanism, we will perform the broadband spectroscopy with SXT and LAXPC during non-burst persistent, non-dip phase, as well as during the dips. We will also carry out burst spectroscopy and investigate the burst oscillation phenomena in this source.	XTE J1710-281	17 10 12.300	-28 7 54.012	T01	cjain	DU	
A03_085	Multi-wavelength observations of magnetic CVs to study the accretion characteristics	We request 60 ks and 40 ks ASTROSAT observations of the two magnetic CVs, V2487 Oph and 1RXS J032540.0-081442 respectively to study the accretion flow characteristics on the white dwarf surface. The multi-wavelength observation will provide the information about the accretion flow geometry near the surface, the cooling mechanism of the hot accreted material. The orbital period and the white dwarf mass can also be constrained with better accuracy.	1RXS J032540.0-081442	3 25 40.001	-8 14 42.000	T02	pbera	IUCAA	

A03_086	Probing emission mechanism and geometry in crab pulsar by phase resolved polarimetry with AstroSat CZTI	Crab the pulsar wind nebula is a potential candidate for X-ray polarimetry observations with CZTI. Pulse phase resolved polarization measurements of Crab will be helpful in constraining the pulsar emission mechanism models and geometry. We have obtained statistically significant polarization signature for Crab from the available CZTI data (~550 ks) when averaged over all phases. These observations also have provided very interesting results for polarization of pulsed emission with phase-resolved polarization analysis, which can provide insights to the pulsar emission models. However the statistical significance of these results are rather low and in order to make concrete interpretation of these results it is necessary to have much larger exposure time (~2 Ms). As the requirement of this large exposure time can not be met in a single observation cycle, we expect to achieve this over the mission life time. Hence we propose 200 ks observation of Crab in this cycle.	Crab	5 34 31.940	22 0 52.200	T01	mithunnp s	PRL	
A03_091	The UV Emission from Dual Nuclei in the End State of Galaxy Mergers	We propose to map the UV emission around dual nuclei in late stage galaxy mergers and interacting systems. Mergers can trigger bursts of star-formation and nuclear activity in galaxies. This can result in dual AGN and AGN+star-forming nuclei in the merging galaxies. Our targets have been observed by GALEX but not with the Hubble Space Telescope (HST) UVIS camera. The higher spatial resolution of UVIT compared to GALEX will help us resolve the dual cores and study the disk star-formation triggered by the merging process. Our targets are all low redshift, UV bright sources. We will confirm the nature of the double cores, map the associated star-formation, estimate star-formation rates and its correlation with the different types of nuclei. Not much is known about the UV emission from dual AGN/starburst nuclei; hence UVIT observations will be an important step for understanding galaxy mergers.	ESO 509-IG 066 NED 02	13 34 40.770	-23 26 45.200	T02	rubinur	IIA	
			SDSS J143648.10 +182037.6	14 36 48.084	18 20 37.210	T01			
			mrk 729	11 9 49.270	12 46 17.060	T03			
			mrk 789	13 32 24.240	11 6 22.586	T04			
			ngc 3758	11 36 29.100	21 35 47.004	T05			
			ngc 3773	11 38 12.967	12 6 42.910	T06			
A03_092	Pilot study of cluster outskirts with Astrosat: Metallicity and temperature structure near the virial radius of the Centaurus Cluster	We propose a 100 ks observation of the outskirts of Centaurus cluster to demonstrate the capability of Astrosat for studying the faint, extended X-ray emission at the edges of galaxy clusters. The low earth orbit and small inclination of the orbital plane of Astrosat provide low and stable background, required for cluster outskirts studies. The large field of view provides sufficient grasp, enabling mapping of faint X-ray emission in the outskirts of nearby clusters. The proposed observation will allow us to measure the metallicity of the intra-cluster medium (ICM) in the outskirts of this relatively low mass cluster. Such measurements are paramount for understanding the chemical enrichment of the universe. The observation will also allow us to measure the multi-temperature structure of the gas, providing evidence for clumpy multiphase ICM in cluster outskirts, a direct probe of the ongoing virialization of the freshly accreted material from the surrounding large-scale structure.	Centaurus outskirts	12 46 17.64	-40 19 49.8	T01	KiranLak hchaura	ELTE	
A03_093	Probing the atmosphere of WASP-31b by the NUV/FUV simultaneous transit observation	Revealing the structure and properties of the atmosphere of exoplanets is important to understand the current state of the planets and their formation and evolution processes. The transit observation in NUV gives us information on the atmospheric properties such as composition, clouds, haze and Rayleigh scattering. The transit in FUV gives us constraints on the upper atmospheric structure. Here, we propose a 20 ks ASTROSAT observation for the hot Jupiter, WASP-31b in order to conduct transit observation in NUV and FUV. This planet is known to have a flat transmission spectrum that suggests this planet has cloudy/hazy atmosphere, and we can add new data point in the transmission spectrum of the planet by NUV transit to investigate the strong Rayleigh scattering in the atmosphere. In this proposal, we aim to investigate the transit depths in each wavelength to constrain the structures and properties of both lower and upper atmosphere.	Wasp-31b	11 17 45.35	-19 03 17.3	T01	lalithasair am	IIA	

A03_095	Luminosity - amplitude relation of kHz QPOs detected in faint X-ray binaries	kHz QPOs have been detected in faint low mass X-ray binaries (LMXBs) where luminosity is $\sim 0.01 L_{\text{Edd}}$ . Also it has been observed that the amplitude of kHz QPOs increases as the luminosity goes down. We propose observations of faint LMXBs ( $L_X \sim 0.01 L_{\text{Edd}}$ ) in which kHz QPOs have been detected at $\sim 20\%$ rms. The wideband capabilities and sensitivity of Astrosat will help us understand the origin of the high amplitude oscillations. Additionally since the frequencies of the kHz QPO detected in these sources are among the highest observed, we can also probe the limits on neutron star parameters as the QPO frequency is limited by the ISCO.	XTE J1701-407	17 01 24.00	-40 30 00.0	T03	devraj	RJC	
A03_097	Jet contribution in hard X-rays: A spectro-polarimetric study of Cygnus X-1	Cygnus X-1, the bright black hole binary is one of the potential targets for polarimetry with CZTI. Cygnus X-1 has been extensively studied with spectral and timing observations since the early days of X-ray astronomy. In spite of these vast observations, there remains unanswered questions about the emission mechanisms. In some models hard X-ray emission is attributed solely to Compton scattering in hot corona and other models suggest contribution of Synchrotron emission from jets which are predominant in radio wavelengths. Polarization measurements in hard X-rays during different states along with the broadband spectral measurements with AstroSat will be able to constrain these different models. Cygnus X-1 has been observed by AstroSat at multiple occasions and the results from polarization analysis are promising. However in order to obtain statistically significant results, longer exposures are required. Hence we propose 200ks deep observation of Cygnus X-1.	Cygnus X-1	19 58 21.676	35 12 5.778	T01	aarthy	PRL	
A03_099	Deep spectral and timing study of flares in SFXT IGR J17544-2619 with ASTROSAT	With an unmatched combination of large effective area, high time resolution, and good spectral resolution of LAXPC, studies of stellar winds, flaring mechanism in SFXTs during outbursts and quiescence as well as their timing properties can be extensively carried out. We propose 80 ks of observation of IGR J17544-2619 during its brightest state in order to investigate the hard X-ray spectral properties of the source. We intend to search for pulsations, column density and spectral index variations to test the applicability of various competing models put forward for explaining SFXT behaviour. Through hardness-resolved spectral analysis in very short time-scales, we also propose to carry out deeper study of the flare triggering mechanisms.	IGR J17544-2619	17 54 25.27	-26 19 52.6	T01	pragatipr adhan	SJC	
A03_102	UVIT observations of Ursa Major-II - a dark matter dominated Milkyway dwarf satellite	We propose deep UVIT observations of Ursa Major-II, most dark matter dominated, ultra faint dwarf satellite galaxy of Milkyway and one of the closest objects (33kpc). It has an astrophysical J-factor higher than Reticulum-II. Reticulum-II had claims of gamma ray detections, possibly from DM annihilation. Reticulum-II was observed during A02 and the data is not available yet. Uma-II, inspite of sharing similar properties and higher J-factor, does not show evidence of DM detection. The main differences between Reticulum-II and other UDFs is the large enhancement in r-process elements. Theoretical simulations suggest that NS-NS mergers, are promising candidates for r-process production. The objective is to study stellar populations, binary fraction, metallicity distribution and morphology based on photometric metallicities, which only possible with UVIT narrow band filters, or require spectroscopy of future 30m telescopes. Search for possible diffuse UV emission as a sign of DM signature and compare with Ret-II.	Uma-II	08 51 30.00	+63 07 48.00	T01	sivarani	IIA	
A03_103	UV Characterisation of Multiple Populations in Globular Clusters	Globular Clusters have largely been used to substantiate the stellar evolution models. Lately, it has been observed that globular clusters comprise multiple stellar populations that are believed to have formed in multiple star bursts spaced a several Myr apart. This is in contrast to the accepted norm where the stellar population formed in a single burst from the proto-galactic interstellar medium. We propose to observe a globular cluster in our Galaxy that has been observed in the GALEX fields and is believed to host at least 5 distinct stellar populations. We are interested in deep imaging of this globular cluster through UVIT filters to characterise the multiple stellar populations in UV.	NGC 2808	09 12 03.07	-64 50 18.3	T01	sarita	IIST	

A03_105	Broadband Spectral and Variability study of 4U 1907+09 with ASTROSAT	4U 1907+09 is a highly variable source that undergoes periodic flares and aperiodic dips. We propose 80 ks of observation for 4U 1907+09 with SXT, LAXPC and CZTI onboard ASTROSAT to carry out the variability study with detailed spectral analysis. The clumpy wind around 4U 1907+09 can also be characterized from such analysis. In addition, study of the variation of cyclotron line energy with spin phase can help us understand the CRSF formation region while its variation with luminosity will help us understand different accretion regimes that come into play with varying luminosity. With an unmatched timing capability, we also intend to make detection of QPOs (speculated to be of $\sim 18$ s for 4U 1907+09) that will give us an insight into the formation of accretion disk scenario. Detailed pulse profile studies will also be carried, especially in hard X-rays to investigate X-ray beaming pattern.	4U 1909+09	19 09 37	09 49 49	T01	varun	RRI	
A03_106	Observations of LMC X-3 to study accretion flow geometry by ASTROSAT monitoring	We propose two observations of 30 kiloseconds of LMC X-3 separated by 50 - 70 days in order to study intensity variations in the source across different spectral bands from UV to X-rays. The source displays large variations in intensity with change of state in these variations. The variations are seen over a large wave band from infrared to X-rays with time lags present in between different bands. However, there has been no systematic study of these lags across the UV, X-ray waveband. With this proposal, we intend to study the wide-band spectrum of the binary in different states and monitor the lags in the intensity variations across the UV, X-ray wavebands using the excellent timing and spectral coverage of ASTROSAT. With this information, we hope to model the accretion geometry (wind/disk based) as a function of the precisely determined orbit of this source.	LMC X-3	05 38 56.299	-64 05 03.00	T01	nirmal	RRI	
A03_107	Broadband Spectral Study of an Ultra-Compact X-ray Binary 4U 1820-30: To Unveil Accretion Disk-Jet Coupling	We propose three 20 ks ASTROSAT observations, each separated by 60 days of an ultra-compact neutron star X-ray binary, 4U-1820-30. It exhibits $\sim 176$ days accretion cycle. We aim at studying broadband spectrum using data from the SXT and LAXPC instruments aboard ASTROSAT during different spectral states. This study will help us in detailed comparison of the spectral components observed during different spectral states of this source, helping in understanding the disk-jet coupling mechanism. In neutron star-(NS) low mass X-ray binaries, quasi-periodic oscillations (QPO) components observed in the frequency range of 0.01-100 Hz all correlate with one another and with that of the kilohertz QPOs. 4U 1820-30 is the first non-pulsating source which shows a frequency offset in the correlations mentioned before. LAXPC observations with much larger collecting area compared to previous X-ray mission, RXTE will be very useful to perform Rapid X-ray time Variability Study of 4U 1820-30.	4U 1820-30	18 23 40.5	-30 21 40.6	T01	graman	RRI	
A03_110	Probing the nature of Soft Gamma-ray Repeater SGR 1806-20 with ASTROSAT	AXPs and SGRs have been explained as neutron star sources with high magnetic fields (magnetars). Measurement of the magnetic fields using cyclotron line features is attempted in a very few of these sources, with the nature of the lines (ion or electron) themselves not known. The broadband and high sensitivity coverage of ASTROSAT enables a proper search for cyclotron lines in these sources. To do this, we propose an anticipated TOO observation of 5 kiloseconds of an outburst of SGR 1806-20. This source is one of the few SGRs with signatures of cyclotron lines observed during an outburst. It has the highest spin-down magnetic field and was observed in the brightest flare known among all known members of the SGR/AXP class. Thus measurement of the cyclotron parameters in this source will help understand the nature of this line and also probe the nature of the source.	SGR 1806-20	18 08 39.32	-20 24 40.10	T01	nirmal	RRI	

A03_112	Exploring origins of hydrogen deficient stars and extreme helium stars in globular clusters.	The origin and evolution of hydrogen deficient stars is yet a mystery. They are presently thought to be a result of mergers of white dwarfs. In optical region the extreme helium stars (hot hydrogen deficient stars) (EHe) show very similar spectral energy distributions as normal O and B stars. Thus it is not easy to distinguish them except through high resolution spectroscopy. This limitation severely restricted the number of stars known as well as searches for them in older stellar aggregates which are very important consideration for estimating their life times and evolutionary considerations. Atmospheric models of EHe stars show that even though the optical colours are the same as normal stars the UVIT band colours are clearly different. We propose to use these indices as criteria to discover new EHes and Hydrogen deficient stars in clusters. We seek observations of two globular clusters: NGC1261 and NGC5986, in UVIT bands.	NGC 1261	03 12 16.21	-55 12 58.4	T01	pandey	IIA	
A03_114	Investigating the cyclotron absorption line in high mass X-ray binary pulsar 4U 1909+07	More than the 40 years after discovery, X-ray pulsar 4U-1909+07 has not yet been much explored till today. Several interesting aspects of the pulsar needed careful investigation with the instruments onboard (Iti Astrosat). We propose a $\sim 60$ -ks observation of 4U-1909+07 with LAXPC, CZTI, and SXT to confirm the cyclotron feature in the pulsar along with studying stellar wind dynamics of the companion. A cyclotron line at $\sim 44$ keV has been tentatively detected in this pulsar which can be confirmed by using the (Iti Astrosat) observation. The magnetic field geometry is also expected to be probed for the first time through phase-resolved spectroscopy. Using this observation, we will study pulse period fluctuation that indirectly constrain the magnetic field of the neutron star based on the accretion torque theory. The properties of accreting stellar wind and surrounding environment will also be investigated by using this observation.	4U 1909+07	19 10 48.210	7 35 51.601	T01	gaurava	PRL	
A03_116	Understanding the nature of 1E1743.1-2843	We request 50 ks observation of the persistent X-ray binary source 1E1743.1-2843 to probe the nature of the compact star. The source has been observed for over four decades using many X-ray instruments. Although the high source luminosity indicates an accretion-driven binary, neither the nature of the compact object nor of its companion, is known. A weak soft excess and the lack of counterpart favor a neutron star in a LMXB in the low-hard state, while a hard power-law index and large $n_H$ , points towards a HMXB. With LAXPC we wish to perform a timing study and look for coherent pulsations, break frequency and thermonuclear bursts. We also wish to study the energy spectra in the 0.3-80 keV spectral band to look for cyclotron resonant scattering signatures, if any, that would help constrain the magnetic field and subsequently help resolve the ambiguity associated with the nature of this peculiar source.	1E 1743.1-2843	17 46 21.09	-28 43 42.3	T01	graman	RRI	
A03_117	Observation of some persistent stellar mass black holes to constrain accretion flow dynamics across spectral states and its timing properties	We propose to observe four persistent BHCs, such as, GRS-1915+105, Cyg-X-1, LMC-X-3, 4U-1957+115 during their X-ray active phase. It would be exciting to have detailed accretion flow properties of these sources from ASTROSAT data due to its vastly enhanced capabilities as compared to the earlier instruments. Our recent study of a few BHCs from spectral fits with the two-component advective flow (TCAF) model, gave some preliminary idea about the dynamics of the mass accretion processes around a BHC. We therefore propose that we study four persistent sources to obtain their masses independently from the spectrum and timing properties as well as the variation of their mass accretion rates and other flow parameters. The origin of QPOs and their dynamic evolutions will also be studied. In order to understand variability class transitions, we propose to observe GRS-1915+105 continuously for at least two days.	4U 1957+115	19 59 24.210	11 42 32.400	T06	dipak	ICSP	

A03_118	A Broadband Study of Obscured HMXB IGR J16320-4751 with ASTROSAT	We Propose for a 65 ks ASTROSAT observation of IGR J16320-4751. Source is fairly bright in X-ray ( $2.33 \times 10^{-10}$ erg cm <sup>-2</sup> s <sup>-1</sup> in 2-100 keV band). It is a heavily obscured source With NH value of $2 \times 10^{23}$ cm <sup>-2</sup> found on many occasions and once rose to even higher value $5 \times 10^{23}$ cm <sup>-2</sup> . Recent studies with hydrogen column density and iron K $\alpha$ tracers suggest that it might be on the boundary between SG HMXB and SFXT. With this observation we want to achieve following goals : 1) Broadband spectroscopy. 2) Study of variation of hydrogen column density. 3) Intensity and energy resolved pulse profiles. 4) Detection of cyclotron line. With ASTROSAT's timing and spectral capabilities we will be able to detect cyclotron lines and study spectral parameter variations.	IGR J16320-4751	16 32 01.87	-47 52 28.3	T01	varun	RRI	
A03_119	ASTROSAT Study of Persistent But Steady Black Hole Binaries	The black hole binary sources at steady low and moderate accretion rate should provide the best test case for the standard SS-disc models with accretion rate less than ten percent to few tens of percent of the Eddington limit. Nevertheless, these sources remain least studied because they show relatively less variability and are hence less spectacular in their behaviour. The purpose of this proposal is to kick start the study of these sources by observing two such black holes binary system to establish the feasibility of the study of such sources. Henceforth, more source will be added to this programme with the aim of creating a data base of canonical SS-disc model parameters observed in the Galaxy and beyond. This study will fill the void in the literature where a comparative study of the phenomenological models of fitting the data is concerned for low accretion rate, especially for hard X-rays.	LMC X-1 V1408 Aql	5 39 38.839 19 59 24.210	-69 44 35.660 11 42 32.400	T02 T01	manojen du	CBS	
A03_120	Joint AstroSat/XMM-Newton reverberation mapping of NGC-5273: Testing the accretion disk theory	We propose to measure time-lag, as a function of wavelength, between the optical/UV and X-rays and verify if the NGC5273 hosts standard disks. AstroSat's capability of simultaneous observations in multiple optical/UV bands and X-rays is uniquely suited for this technique. Recent Swift monitoring of five AGN have resulted in the best ever measurement of AGN X-ray/UV/optical inter-band lags, showing that optical/UV short timescale variability is mostly due to reprocessing of X-rays by an accretion disc. However the lags are ~3 times longer than expected from a standard disc. There seems to be some issue with our understanding of accretion discs. To further investigate, it is important to measure the lag-wavelength relation in AGN with different properties. NGC5273, with mass 8 times less than NGC5548 and approved XMM-Newton observation is well suited for multi-wavelength observations. Hence, we request 30 ks AstroSat observation, with UVIT as the primary instrument, of NGC-5273.	NGC5273	13 42 8.386	35 39 15.260	T01	gulabd	IUCAA	
A03_124	Probing accretion mode changes in EXO 2030+375 before and after the quiescence	After exhibiting successive Type-I outbursts over a period of 27 years, the Be X-ray binary EXO 2030+375 went through a quiescent period spanning about 4-5 orbital cycles. It has very recently returned to its previous 'normal' state when it exhibit outbursts. With the proposed observation we would like to probe if the accretion mode is same as before by studying (i) the pulse profile over a wide energy band (ii) the broad band X-ray spectrum before and after the period of predicted outburst. To achieve this, we propose two 40 ks of observation of EXO 2030+375 during and after the peak of the outburst, the timing of which is predictable. We will investigate if the accretion and/or emission characteristics of the source has changed during the renewed activity after the quiescence of several orbital cycles Broad-band spectral as well as timing properties will be studied with LAXPC, SXT and CZTI.	EXO 2030+375	20 32 15.28	37 38 14.9	T01	pragatipr adhan	SJC	
A03_126	X-ray observations of two nearby galaxy clusters: A3223 and A761	MWA (Murchison Wide Field Array) radio observations at 200 MHz reveal diffuse radio emission from relics situated at the edge of A3223 and A761 clusters. In low resolution X-ray images, the two clusters seem to be elongated and non-relaxed. Presently, no high quality X-ray data is available to study their morphologies and X-ray properties in detail. Here we are proposing 50 ks observation of each cluster with Astrosat SXT. The observations will allow us to study spatial variations of spectral properties of these clusters. Simultaneous observations with LAXPC will be used to detect any hard X-ray non-thermal emission associated with merger shocks.	A3223	4 8 34.500	-30 49 8.004	T01	Viral	RRI	

A03_127	Accretion and Mass-loss Properties of Magellanic Cloud Supersoft Sources	Supersoft X-ray sources (SSS) are highly luminous low-kT X-ray sources, interpreted as a accreting white dwarf at a very high rate, leading to Eddington-limited, steady H-burning on the WD surface at T~15-80 eV. Reprocessing of this emission in the disc and companion leads to high optical/UV fluxes. Maintaining the high $\dot{M}$ requires either a high mass donor (for $P_{\text{orb}} > 6$ hrs) or extreme irradiation of a low-mass donor to drive a wind ( $P < 6$ hrs). There are two eclipsing SSS in the Magellanic Clouds: 1E0035.4-7230, also known as 2E0035.4-7229 (SMC, $P=4.1$ h), CAL87 (LMC, $P=10.6$ h) for which ASTROSAT is ideal for obtaining simultaneous full-cycle orbital light-curves in the UV/soft X-rays for the first time, so as to model the disc, disc-wind and SSS components. This has the potential to resolve the controversy over whether the mass-ratio is inverted (high-mass donors) or similar to CVs (low-mass donors), and is important given their candidacy as SNIa progenitors.	CAL87	5 46 46.540	-71 8 53.902	T02	gulabd	IUCAA	
A03_133	Unveiling the nature of compact object in high mass X-ray binary 4U 1700-37	We propose a 60 ks observation of the high mass X-ray binary 4U~1700-37 with <i>Astrosat</i> during late orbit and eclipse phases of the binary. The nature of compact object is still unclear in the system, although the source is identified as a neutron star based on the spectral shape and tentative detection of the cyclotron absorption line at $\sim 39$ keV. The presence/ absence of cyclotron line can be tested with high sensitivity instruments onboard <i>Astrosat</i> . Furthermore, the causes of rapid spectral variability or flares like episodes on long and short time scales will be explored in detail. It would be interesting to investigate the pulsation in the iron line as well as exploring the source properties at different orbital phases. A signature of accretion wake is also expected to trace at late orbital phases predicated from optical observations.	4U 1700-37	17 03 56.77	-37 50 38.9	T01	gaurava	PRL	
A03_134	Orbital Phase-Resolved Multi-wavelength observations of Wolf-Rayet Binary system WR 133	The massive binary systems with strong stellar winds play a crucial role in the stellar evolution as well as the galactic evolution. The existence of strong winds and the interaction of the winds from both the massive stars are considered to be the primary reason of the high energy emission (from X-rays to gamma-rays) from this class of objects. But physical mechanisms of the generation of high energy emission from such systems are still under debate, as the nature of the high energy emission from massive binaries is not clear. The X-ray spectra for massive binaries are usually dominated by the thermal emission within energy range 0.2 - 12.0 keV. The nature of the hard X-ray is unknown. The binary phase resolved observation is necessary to determine the physical connection between the X-ray and gamma-ray emissions along with the emission in optical and radio range.	WR 133	20 5 57.325	35 47 18.145	T01	subirbhat tacharya	BARC	
A03_135	Nature of the accretion disk in a Seyfert 1 galaxy NGC-4748	We request 80 ks <i>AstroSat</i> observations of NGC-4748, a narrow line Seyfert 1 galaxy and one of the lowest black hole mass active galactic nucleus. This AGN exhibits strong and rapid variations in the UV/optical and X-ray bands. These variations have never been studied in detail to date in this AGN. The available observation shows dips and declining trend present in the UV and the X-ray bands. These features in the UV bands appear to be delayed on lightcrossing timescale with respect to the X-ray bands. Due to the lack of long UV/optical and X-ray observation, we propose long observation to study these variations using unprecedented multi-wavelength capability UVIT, SXT, LAXPC and CZTI instruments onboard <i>AstroSat</i> . The main aim of this proposal is to study the correlation between the UV/optical and the X-ray bands, and to derive the lag spectrum to study the nature of accretion disk.	NGC 4748	12 52 12.461	-13 24 52.992	T01	mainpal	IUCAA	



# AstroSat – Redbook – proposals

October-2017 to September-2018

Accepted proposals for G08 cycle : 63

**Green** – observation completed till Dec '17

**Yellow** – observation partially completed till Dec '17

PropID	Title	Abstract	SrcNAME	RA	DEC	Tid	Piid	Institute	Remarks
G08_002	Ultraviolet view of ram-pressure stripping in action: The case of Jellyfish galaxies	Jellyfish galaxies are galaxies with tentacles of material that appear to be stripped from the galaxy, and whose morphology is suggestive of ram pressure stripping. These galaxies are found in rich clusters where galaxies are prone for morphological transformations. The optical and Halpha imaging of these galaxies reveal tidal debris with tails of ionised gas up to 150 Kpc long where new stars are born in knots and end up contributing to the intracluster light. The ongoing star formation in Jellyfish galaxies can be better understood in UV and making use of the spatial resolution of UVIT we plan to study the spatial variation of star formation in these systems. We propose to observe seven Jellyfish candidate galaxies in a galaxy cluster at redshift 0.0634 for which extensive ground based complimentary data exists. This study will shed more light in to the triggered star formation in dense environments.	Abell1668	13 04 06.345	+19 17 12.80	T01	koshy	IIA	
G08_006	Ourskirts of the SMC: - Understanding recent star formation in the tidal tails	We investigate the outer region of the SMC, where GALEX detected isolated recent star formation. The eastern area has a clumping in HI, presence of CO emission and HI shells have been traced. All these point to recent star forming activities, which is in-situ formation in the tidally stripped HI gas from the SMC. A few authors have suggested that there might be a TDG in the formation in the eastern part of the SMC, which is one of the tidal tails from the SMC. The South-west of the SMC is suspected to have the counter-tail originating from the SMC, suggested by simulations. These are not detected and studied so far, but recent observations suggest the presence of young stellar population. We plan to use the UVIT data to characterise the stellar population in 4 selected regions in this study.	SMC1	00 24 36.8	-74 28 37.3	T01	annapurni	IIA	
			SMC2	01 45 10.5	-74 40 54.8	T02	annapurni	IIA	
			SMC3	02 06 56.7	-74 41 44.12	T03	annapurni	IIA	
			SMC4	00 24 46	-72 47 42.5	T04	annapurni	IIA	
G08_009	UVIT observation of Abell 2399	We propose to observe Abell 2399, a rich massive galaxy cluster at $z \sim 0.058$ using UVIT onboard ASTROSAT. We have integral field unit observations of the cluster galaxies using which complimentary data on spatially resolved line ratios and velocity fields are already obtained as part of the SAMI survey. The high spatial resolution and sensitivity of UVIT are well suited to obtain a ultraviolet view on the galaxies enabling us to study the star formation rate at kpc scales. This is a pilot project to determine the feasibility of a larger UVIT follow-up of SAMI galaxies.	Abell 2399	21 57 20.95	-07 50 46.2	T01	koshy	IIA	
G08_010	Star formation in nearby galaxies	I propose to observe three nearby galaxies NGC 253, NGC 4594 and NGC 2841 with deep UVIT observations. These galaxies are well suited sources for the study of the star formation in local universe using UVIT data. I have requested 25,270 seconds for NGC 253 and NGC 4594 galaxies (priority A) and 6317.5 seconds for NGC 2841 (priority C) in this observation.	ngc 253	0 47 33.12	-25 17 17.592	T01	jmurthy	IIA	
			ngc 2841	9 22 2.655	50 58 55.320	T03	jmurthy	IIA	
			ngc 4594	12 39 59.431	-11 37 22.980	T02	jmurthy	IIA	

G08_012	Star formation and extinction in M33	We propose one UVIT pointing which covers most of this important local group galaxy. The central field includes all the strongest star-formation regions, a few high extinction regions, the two major spiral arms, virtually all of the CO detected in M33. We propose filters to allow us to discern - for the first time and uniquely with UVIT- both the amount of extinction and the type of extinction curve (dust properties may be varying in the vicinity of the hottest stars. Therefore, we should be able to derive an unbiased correction for extinction, hence both an extinction map and an unbiased (free from parameter degeneracy) characterization of the hot stars. X-ray observations will be done which will help anchor sources with Chandra maps. We also have time for a survey of M33 with Hubble, that will complement the larger UVIT field.	M33	01 33 50.8	30 43 36	T01	hutchingsj	IIA	
G08_014	Multi-wavelength view of the atmosphere of BO Mic	We propose to observe a late type rapidly rotating star, BO Mic, for a day (exposure time = 50 ks) simultaneously with the UVIT (using gratings) and the SXT instruments onboard Astrosat. The observation will last over more than two rotation periods and provide spectral information over several phases of the rotation period. We intend to study highly time-resolved correlations of coronal, chromospheric and photospheric activity phenomena. The requirement of strictly simultaneous observations results from the short-lived nature of the activity signatures under study. Hence, intensity variations will be studied over a time-scales as short as a few seconds.	BO Mic	20 47 45.007	-36 35 40.790	T01	KPSingh19	TIFR	
G08_019	Deep UV imaging studies of X-ray and optically bright SNRs -- NGC 6979 and NGC 6974 (FUV BaF2+Si) .	We propose to map X-ray and optically bright SNRs in various UVIT filters, in order to extract the physical conditions in supernovae ejecta interacting with their surrounding environment, and in the resulting shocks. Spanning an age range of \$(18000 \pm 9000)\$ yr (Vela) to 5000-8000 yr (Cygnus loop) to 1000 yr (Crab), these observations will also provide unique opportunities to study the temporal evolution of SNRs from different classes of SNe, in a varying range of environments, in UV. UVIT filters will be used to map regions of hot ( $10^{4-5}$ K) and intermediate (5000- 8000 K) temperatures via emission lines of C IV (1550 Ang.), He II (1640 Ang.), and Mg II lines (2800 A), bridging the gap between x-ray bright ( $10^{6-7}$ ) K and cool, optical regions. UVIT-NUV narrow bands will complement Galex NUV imaging of Crab and Cygnus loop by Galex, and provide 1st NUV images of Vela D.	NGC 6974 / 6979	20 50 46.31	+31 56 38.2	T01	fsutaria	IIA	
G08_020	Deep UV imaging studies of X-ray and optically bright SNRs -- NGC6979 / PT-I	We propose to map X-ray and optically bright SNRs in various UVIT filters, in order to extract the physical conditions in supernovae ejecta interacting with their surrounding environment, and in the resulting shocks. Spanning an age range of \$(18000 \pm 9000)\$ yr (Vela) to 5000-8000 yr (Cygnus loop) to 1000 yr (Crab), these observations will also provide unique opportunities to study the temporal evolution of SNRs from different classes of SNe, in a varying range of environments, in UV. UVIT filters will be used to map regions of hot ( $10^{4-5}$ K) and intermediate (5000- 8000 K) temperatures via emission lines of C IV (1550 Ang.), He II (1640 Ang.), and Mg II lines (2800 A), bridging the gap between x-ray bright ( $10^{6-7}$ ) K and cool, optical regions. UVIT-NUV narrow bands will complement Galex NUV imaging of Crab and Cygnus loop by Galex, and provide 1st NUV images of Vela D.	Pickering's triangle -I	20 48 08.94	+31 51 22.9	T01	fsutaria	IIA	

G08_021	AstroSat SXT GT observation of the Be X-ray binary pulsar GRO J1008-57	GRO J1008-57 is a Be X-ray binary pulsar, which goes into an outburst typically once in every 249 days, although additional stronger outbursts are also observed. This is an ideal source to study X-ray binary properties, disk versus magnetosphere interaction, and the physics near the pulsar magnetic pole. This is because, a cyclotron feature provides the pulsar magnetic field; the outbursts are largely predictable; a number of source properties (e.g., orbital properties, spin-evolution rate) are measured; and the source shows a rich energy-dependent pulse properties over a broad energy range. We propose to observe the source for 30 ks during the next outburst, which will provide an excellent opportunity to study its spectral and timing properties in the 0.3-100 keV range. This exploratory observation will also be useful to plan future observations during subsequent outbursts, uniformly with the same set of broadband instruments for the first time.	GRO J1008-57	10 9 43.99 2	-58 17 42.000	T01	sudip	TIFR	
G08_022	AstroSat SXT GT observation of the X-ray binary GX 340+0	GX 340+0 is a bright neutron star low-mass X-ray binary, which is ideal to study a number of spectral and timing features, including the connection between broad relativistic iron emission lines and high-frequency quasi-periodic brightness oscillations. We propose to observe this source for 40 ks with AstroSat, which will be very useful to achieve these science goals.	GX 340+0	16 45 47.70 0	-45 36 39.996	T01	sudip	TIFR	
G08_023	Broad band observations of Centaurus A - extended region	Centaurus A is a well studied AGN detected at nearly all wavelengths. Its proximity and existing rich dataset, encourages us to exploit ASTROSAT's unique features to obtain the high angular resolution images that can capture the complex morphology of the core and the radio lobe (now also detected at GeV energies) and provide truly simultaneous broadband spectra from visible to hard x-rays. The G07 observations which have been received only a week ago, show many details of the central core morphology, at a level much greater than GALEX observations. The "northern" arm of the jet (seen in radio and x-ray and not seen in FUV images of UVIT) appears to trigger star formation, as seen from GALEX archival data. We now propose to study this zone using the improved angular resolution and multi-filter options of UVIT to clearly address the evidence for star-formation in jet outflows regions of AGNs.	centaurus A	13 26 24.55	-42 50 40.56	T01	sreekumar	IIA	
G08_024	Study of Galactic Structure using UVIT star counts	The aim of this proposal is to investigate in detail the observed UV star counts obtained by UVIT-ASTROSAT vis-a-vis the model simulated catalogues produced by the Besancon model of stellar population synthesis in five Galactic directions, and to explore the potential for studying the structure of our Galaxy from images in multiple NUV and FUV filters of the UVIT. UV star counts will be dominated by MS stars, hot white dwarfs (WDs) and blue horizontal branch stars (BHBs), and hence will be very useful to separate out different stellar populations since we have several UV colours, which in turn will help us to estimate the structural parameters of the Galaxy with better precision. The population of WDs and BHBs is also integral to the study of stellar evolution and structure of the Milky Way as they belong to different stellar populations of the Galaxy.	GAC158+41	09 10 56.46	+58 05 36.69	T01	dkojha	TIFR	
			GAC159+38	08 47 34.00	+57 57 17.19	T03	dkojha	TIFR	
			GC32+40	16 23 19.63	+16 22 46.63	T02	dkojha	TIFR	

G08_025	AstroSat SXT GT observation of the X-ray binary Cyg X-2	Cyg X-2 is a bright neutron star low-mass X-ray binary, which is ideal to study a number of spectral and timing features, including the broad relativistic iron emission line and high-frequency quasi-periodic brightness oscillations. We propose to observe this source for 50 ks with AstroSat, which will be very useful to achieve these science goals.	Cyg X-2	21 44 41.15 0	38 19 17.101	T01	sudip	TIFR	
G08_026	Deep UV imaging studies of X-ray and optically bright SNRs -- NGC6979 / PT-II	We propose to map X-ray and optically bright SNRs in various UVIT filters, in order to extract the physical conditions in supernovae ejecta interacting with their surrounding environment, and in the resulting shocks. Spanning an age range of \$(18000 \pm 9000)\$ yr (Vela) to 5000-8000 yr (Cygnus loop) to 1000 yr (Crab), these observations will also provide unique opportunities to study the temporal evolution of SNRs from different classes of SNe, in a varying range of environments, in UV. UVIT filters will be used to map regions of hot (\$10^{4-5}\$ K) and intermediate (5000- 8000 K) temperatures via emission lines of C IV (1550 Ang.), He II (1640 Ang.), and Mg II lines (2800 A), bridging the gap between x-ray bright (\$10^{6-7}\$ K) and cool, optical regions. UVIT-NUV narrow bands will complement Galex NUV imaging of Crab and Cygnus loop by Galex, and provide 1st NUV images of Vela D.	Pickering's triangle-II	20 48 32.5	+31 09 09	T01	fsutaria	IIA	
G08_027	AstroSat SXT GT ToO proposal on the accretion-powered pulsars	Accretion-powered millisecond (ms) pulsars are a class of transient neutron star low-mass X-ray binaries (LMXBs) which show coherent X-ray intensity variation during outbursts. These sources are particularly important to understand the evolution of neutron star LMXBs into ms radio pulsars. In addition, these accreting ms pulsars exhibit a number of X-ray spectral and timing features. AstroSat can meaningfully observe these sources only during outbursts. Here we propose to observe the first source going into an outburst, from a list of eight accretion-powered ms pulsars and the well-known 11-Hz pulsar.	HETE J1900.1-2455	19 0 8.650	-24 55 13.699	T08	sudip	TIFR	
			IGR J00291+5934	0 29 3.060	59 34 18.998	T07	sudip	TIFR	
			IGR J17480-2466	17 48 5.000	-24 46 48.000	T01	sudip	TIFR	
			IGR J17498-2921	17 49 55.35 0	-29 19 19.600	T05	sudip	TIFR	
			NGC 6440	17 48 52.67 0	-20 21 34.499	T06	sudip	TIFR	
			SAX J1808.4-3658	18 8 27.54 0	-36 58 44.299	T02	sudip	TIFR	
			Swift J1756.9-2508	17 56 57.35 0	-25 6 27.799	T09	sudip	TIFR	
			XTE J1807-294	18 6 59.80 1	-29 24 29.988	T04	sudip	TIFR	
			XTE J1814-338	18 13 39.03 0	-33 46 22.300	T03	sudip	TIFR	
G08_028	GRS 1915+105 (Monitoring)	GRS 1915+105 shows fast variability. It shows large number of X-ray classes and various types of radio emission. Here we will study flare activities, various X-ray classes, QPOs, SPL state, hard state, plateau state, radio ejection, time lags, PDS spectra etc. We will observe this source for 15 ks every 15 days when available. Proposals are given as per available time. Our timing study of the SPL state in GRS 1915+105 with LAXPC instrument suggests important advantage over RXTE/PCA above 20 keV. We will study energy spectrum in different classes at different flux simultaneously with other X-ray observatories.	GRS 1915+105	19 15 11.55 0	10 56 44.801	T01	jsyadav	TIFR	

G08_029	Study and Morphology and Ionization structure of Planetary Nebulae - EGB6	We propose to image planetary nebula EGB6 in UVIT filters that would isolate nebular structure in some of the emission lines like 1550\AA C IV , 2326\AA C II], 2470\AA [O II] to map the ionization structures as well as variations of physical parameters across the nebula. It is also likely various flows and stellar wind from central star could also create shocked regions that might create hot highly ionized regions. The modeling of the nebulae which might contain nuclear processed material from the star would dependent on proper evaluation of the ionization structure. We also would like to obtain grating spectra of the nebula in Nuv and Fuv to help study the emission line morphology. Initial attempt we would propose to observe s planetary nebulae.	EGB6	09 52 58.99	+13 44 34.9	T01	nkrao	IIA	
G08_030	Cyg X-1 (monitoring)	Cyg X-1 is variable source. Here we will study spectra of hard/soft state, QPOs, radio ejection, time lags, PDS spectra etc We will observe this source for 10 ks at three months apart (total 30ks.. We will study energy spectrum simultaneously with SXT, swift and Nustar.	Cyg X-1	19 58 21.67 6	35 12 5.778	T01	jsyadav	TIFR	
G08_031	Imaging the Hubble sequence - a Survey of Nearby Galaxies	The Hubble classification scheme was based on morphology in the visible wavelengths. Galaxy surveys produce catalogs which are classified on this basis. The morphology relates to the mix of stellar populations in the galaxy, the amount of star formation activity, and the presence of gas and dust. Deep surveys turn up larger fractions of "peculiar" morphology since they sample shorter rest wavelengths and are looking at younger galaxies. An understanding of the UV properties of galaxies in the nearby universe is essential for comparison with distant surveys. We propose imaging using multiple filters in UVIT, which would allow us to determine the slope of the SED in the FUV and NUV as well as sample emission line signatures of star formation. The superior resolution will map star forming knots more effectively compared to GALEX. The images will also showcase UVIT capability.	NGC 253	00 47 33	-25 17 18	T01	askpati	IIA	
			NGC 2903	09 32 10.1	21 30 03	T03	askpati	IIA	
			NGC 4236	12 16 42.1	69 27 45	T02	askpati	IIA	
G08_032	Cyg X-3 (monitoring)	Cyg X-3 is a persistent source with very strong radio jets. It has frequent radio jet ejection. Here we will study energy spectra, QPOs, X-ray and radio connection, time lags, PDS spectra, spin of black hole in CYg X-3 etc. We will observe this source for 15 ks three months apart (total 45 ks). We will like to have cross check for low energy spectrum with SXT, Swift and Nustar.	Cyg X-3	20 32 25.78 0	40 57 27.900	T01	jsyadav	TIFR	
G08_033	4U 1636-536 (monitoring)	We are proposing 30 ks three observations (10ks each about 4 months apart) of the X-ray buster 4U 1636-536 using LAXPC, SXT and CZTI instruments on-board AstroSat satellite. LAXPC is our primary instrument. The source 4U 1636-536 is a low-mass X-ray binary (LMXB) with an orbital period of 3.8 hr. 4U 1636-536 is famous for kilo-hertz QPO, thermonuclear bursts and burst oscillations. These features of 4U 1636-536 have been mostly observed by RXTE/PCA and not confirmed by any other instrument. RXTE/PCA was also limited below 25 keV. AstroSat LAXPC has observed first kH QPO in 4U 1728-34 during PV phase and we will like to study kH QPOs in other sources specially at higher energy.	4U 1636-536	16 40 55.50 0	-53 45 5.004	T01	jsyadav	TIFR	
G08_034	Star formation, morphology and evolution in Groups of Galaxies	The morphology of galaxies is seen to be distinctly dependant on star formation activity. From the ellipticals to late type spirals and irregular galaxies, the current star formation rate is seen to be increasing. For isolated galaxies, SF starts off in the cloud from which the galaxy was formed and later epochs see continued SF depending on the amount of matter left over together with enriched material	HCG 68	13 53 40.9	40 19 07	T01	askpati	IIA	
			HCG 92	22 35 57.5	33 57 36	T02	askpati	IIA	

		from evolving stars. The internal dynamics of the galaxy determines how much this matter is converted to stars. A considerable fraction of galaxies occur in clusters and groups, where galaxies often have gravitational encounters with mergers and interactions being common. In such scenarios most, if not all, of the star formation is triggered by these interactions. This proposal aims at understanding the SF, to map signs of interactions and to examine the "morphological shaping" of galaxies in such groups.							
G08_035	4U 1728-34 (monitoring)	We are proposing three observations of 10 ks of effective exposure about four months apart of the Atoll type Neutron Star X-ray Binary (NSXB), 4U 1728-34 using LAXPC, SXT and CZTI instruments on-board AstroSat satellite. LAXPC is our primary instrument. Among many Atoll type Neutron Star X-ray Binaries (NSXBs), 4U 1728-34 is the only bright Atoll source that shows non-thermal hard X-ray tail, the flux of which evolves in different Atoll branches. Not only that this is the only Atoll source detected in Radio and show all type of lower and upper kHz QPOs. These two observations are very common in Z sources. This makes this source unique among other Atoll sources. With this observation we would like to sort out whether it links Atoll and Z sources by performing color and Fourier resolved spectroscopy using LAXPC, SXT and CZTI. We will like to study HF QPOs as higher energy.	4U 1728-34	17 31 57.73 0	-33 50 2.501	T01	jsyadav	TIFR	
G08_036	4U 1820-30 (monitoring)	We are proposing 3 proposal of 10 ks each three months apart with effective exposure of the X-ray buster 4U 1820-30 using LAXPC, SXT and CZTI instruments on-board AstroSat satellite. LAXPC is our primary instrument. The source 4U 1820-30 is a low-mass X-ray binary (LMXB). 4U 1820-30 is famous for kilo-hertz QPO, thermonuclear super bursts and burst oscillations. These features of 4U 1820-30 have been mostly observed by RXTE/PCA and not confirmed by any other instrument. RXTE/PCA was also limited to 25 keV. AstroSat LAXPC will provide an unique opportunity to observe these features as LAXPC have wide energy coverage from 3.0 - 80.0 keV with large area and high time resolution and thus enable us to do energy dependent timing analysis.	4U 1820-30	18 23 40.57 0	-30 21 40.601	T01	jsyadav	TIFR	
G08_037	GX 17+2 (monitoring)	We are proposing 60 ks effective exposure of the X-ray buster 4U 1820-30 using SXT, LAXPC and CZTI instruments on-board AstroSat satellite. The source 4U 1820-30 is a low-mass X-ray binary (LMXB). 4U 1820-30 is famous for kilo-hertz QPO, thermonuclear super bursts and burst oscillations. These features of 4U 1820-30 have been mostly observed by RXTE/PCA and not confirmed by any other instrument. RXTE/PCA was also limited to ~ 25 keV. AstroSat LAXPC will provide an unique opportunity to observe these features as LAXPC have wide energy coverage from 3.0 – 80.0 keV with large area and high time resolution and thus enable us to do energy dependent timing analysis.	GX 17+2	18 16 1.389	-14 2 10.620	T01	jsyadav	TIFR	
G08_038	Revisiting Her X-1 : Is Energy of Cyclotron Line in Her X-1 Changing ?	This is a continuation of previous project in G06 cycle which was approved but not observed. It is proposed to observe well known accreting X-ray binary Her X-1 with LAXPC and other X-ray instruments for 40 ks (and 10 ks of off-source background, near the source) to study in detail the characteristics of ~40 keV cyclotron absorption line. There is strong evidence that the line energy is shifting continuously to lower values. This proposal is aimed at accurate measurement of X-ray	Bkg	17 8 0	36 30 0	T02	jsyadav	TIFR	
			Her X-1	16 57 49.81 0	35 20 32.399	T01	jsyadav	TIFR	

		spectrum of Her X-1 to study in detail the line energy and its profile and try to establish if line energy is indeed changing.							
G08_039	GX 3+1 (monitoring)	The low-mass neutron star binary GX 3+1 ( = 4U 1744-26 ) shows persistent soft spectra with photon power-law index of about 2.0 despite of the source spectral state change from high state to low state. GX 3+1 is the subclass of persistently bright atoll sources, which are always in the banana state. This bright atoll source shows long-term transitions from the fainter phase to its brighter phase in X-rays and vice versa when the corresponding luminosity changes, at least, by factor of 4, while on time scales of hours GX 3+1 demonstrates low flux variabilities as transitions between LB and UB states involve monotonically increasing temperature of Compton electron cloud from 2.3 keV to 4.5 keV. The role of Compensation while transiting from one branch to another can be tested and verified using AstroSat/LAXPC. We will study timing and spectral property of this source.	GX 3+1	17 47 55.99 9	-26 33 48.996	T01	jsyadav	TIFR	
G08_041	4U 1700-377 12-Feb 2018 11:03:50UT	We are proposing one 30 ks effective exposure of a 'less studied' high mass X-ray binary 4U 1700-377 during bright X-ray ares using simultaneous SXT, LAXPC and CZTI on-board AstroSat satellite. During bright phase, a 67.4 sec pulsation and 10 mHz quasi-periodic oscillations (QPOs) in the energy range 20-50 keV have been reported but never been conformed. Erratic hard X-ray variability where hard X-ray flux increases by few tens of mCrab in few ksec, have been noticed. With the one 16 ks exposures, we would like to probe the origin of rapid hard X-ray variability, possible existence of previously reported X-ray pulsations as well QPOs, nature of hard X-ray emissions and existence of possible high energy cut-off (~21 keV) in the spectra reported previously. Coordinated simultaneous Radio observations are planned.	4U 1700-377	17 3 56.77 3	-37 50 38.915	T01	jsyadav	TIFR	
G08_043	Cir X-1 (monitoring)	We are proposing three observations of 20 ks effective exposure three months apart of the X-ray binary Cir X-1 using SXT, LAXPC and CZTI instruments on-board AstroSat satellite. LAXPC is our primaryinstrument. Cir X-1 is one of the enigmatic X-ray binaries which eludes proper understanding despite being very well studied by various observatories over a long period of time. The source has persistent X-rayemission with extremely high variability including Type 1 X-ray burst as seen by EXOSAT forty years ago. The peak emission can reach nearly 3 Crab flux. Given the extremely diverse nature of its characteristics, it is essential that this source be studied thoroughly by AstroSat. In this cycle we are proposing the observation of this source, and hope to continue observing this source for a long time to come.	Cir X-1	15 20 40.85 0	-57 10 0.098	T01	jsyadav	TIFR	



G08_044	4U 1957+115 (monitoring)	We are proposing two 10 ksec effective exposure (with a gap of one month) of the {it only} Galactic persistent black hole X-ray binary 4U 1957+115. Puzzlingly this source remain stable at unadulterated, spectrally soft state and anticipated to host the most rapidly spinning black hole at the centre. A nearly persistent, high frequency quasi-periodic oscillation (QPO) at $\sim 25$ Hz is also reported from this source having an unusual association with soft, disk-dominated state. This source show optical/X-ray long term correlated variability. With the simultaneous SXT, LAXPC, CZTI and UVIT/VIS1 observation, we will be able to constrain the power-law component and measure disk properties accurately. We will attempt to estimate the spin of the compact object. To gain understanding of accretion geometry, we will study X-ray/optical correlated behaviour on short-time scale and investigate the puzzling association of high frequency QPO with soft, disk dominated state.	4U 1957+115	19 59 24.21 0	11 42 32.400	T01	jsyadav	TIFR	
G08_045	1E 1740.7-29 (monitoring)	The LMXB 1E 1740.7-2942 is the source whose X-ray states strongly resemble those of Cygnus X-1 and believed to be one of the two prototypical micro-quasars towards the Galactic center region. The bipolar radio jets of 1E 1740.7-2942 are very reminiscent of a radio galaxy. The true nature of the object has thus remained an open question for nearly a quarter of a century. We propose 30 ks observation of 1E 1740.7-2942 using broad-band energy coverage of AstroSat to study the nature of sustained low hard state in this source and possibly find signature of any connection of disk accretion with the precessing Radio jet. Also using fine time resolution of LAXPC we will study timing properties of the source.	1E 1740.7- 29	17 43 54.83	-29 44 42.6	T01	jsyadav	TIFR	
G08_046	Background Sky-9 (Oct, 2017)	LAXPC background may change with time and direction and we need to observe BG to study faint sources. It is very important observation to analyses data with source strength below 20% of background (AstroSat has 50% such observations).	Sky- 9_75_50	15 49 28.92 937	+47 06 17.6520	T9	jsyadav	TIFR	
G08_047	Background (BG-Sky-3) in April 2018	LAXPC background may change with time and direction and we need to observe BG to study faint sources. It is very important observation to analyses data with source strength below 20% of background (AstroSat has 50% such observations).	Sky-3	8 37 55.23 1	-27 53 22.959	T01	jsyadav	TIFR	
G08_048	Additional UV observations of the "ring" galaxy NGC 1291	As a part of the UV study of a pilot sample of extended disk galaxies, the "ring" galaxy NGC 1291 has already been imaged using a few selected filters in the NUV & FUV channels of UVIT. While interesting information have already been obtained regarding morphology, spatial distribution of star formation rate etc in NGC 1291, imaging in additional new filters as well as somewhat deeper imaging in some filters used already are being proposed now.	NGC 1291	03 17 18.60	-41 06 29.05	T01	swarna	NCRA	
G08_049	Cyg X-3 (Anticipated ToO) (Alternate/low priority)	We are proposing 40 ks effective exposure of the X-ray buster 4U 1820-30 using SXT, LAXPC and CZTI instruments on-board AstroSat satellite. LAXPC is our primary instrument. The source 4U 1820-30 is a low-mass X-ray binary (LMXB). 4U 1820-30 is famous for kilo-hertz QPO, thermonuclear super bursts and burst oscillations. These features of 4U 1820-30 have been mostly observed by RXTE/PCA and not confirmed by any other instrument. RXTE/PCA was also limited to $\sim 25$ keV. AstroSat LAXPC will provide an unique opportunity to observe these features as LAXPC have wide energy coverage from 3.0 – 80.0 keV with large area and high	Cyg X-3	20 32 25.78 0	40 57 27.900	T01	jsyadav	TIFR	
			Cyg X-3	20 32 25.78 0	40 57 27.900	T02	jsyadav	TIFR	



		time resolution and thus enable us to do energy dependent timing analysis.							
G08_050	GRS 1716-249 (Anticipated ToO) (alternative/low Priority)	We propose AstroSat two anticipated ToO observation of GRS 1716-249 for 20 ks each. GRS 1716-249 can go into recurring outburst after its current outburst. GRS 1716-249 is in outburst since last week of December, 2016 after 24 years gap. The only other outburst in this source was observed by SIGMA/GRANAT and BATSE/CGRO during 1993. The 1993 outburst of this source didn't have any timing information and this source never went into outburst during RXTE/PCA era. The current ux observed by Swift BAT/MAXI shows it to be 1993 X-ray (1.2 Crab). Therefore, the unique capability of AstroSat and probable recurring outburst will activity make an opportunity to understand the physics behind the outbursts and constrain the nature of this source.	GRS 1716-249	17 19 36.93 0	-25 1 3.400	T01	jsyadav	TIFR	
			GRS 1716-249	17 19 36.93 0	-25 1 3.400	T02	jsyadav	TIFR	
G08_051	4U 1630-472 (Anticipated ToO) (alternative/low Priority) (likely July-September 2018)	4U 1630-472 is a micro-quasar which shows regular outbursts with recurrence period of 600 and 700 days. This source was in outburst during 28th August 2016. AstroSat have observed this source during 2016 outburst, one when the outburst just started and second during soft state as shown in fig.1. This source shows two type of outburst, one short and other long as observed in 2012 which is 6 months long. This 2016 outburst is observed to be like 2012 outburst as shown in fig. 2. Given the rich phenomenology that can be observed in this source, we propose two 20 ks observations about 15-30 days apart (based on source flux change) in August- September 2018 to study the high-energy component of these rich phenomenology and better constraint the broad band continuum during the hard state states specially in the beginning of the outburst.	4U 1630-472	16 34 1.610	-47 23 34.800	T01	jsyadav	TIFR	
			4U 1630-472	16 34 1.610	-47 23 34.800	T02	jsyadav	TIFR	
G08_052	GX 339-4 (Anticipated ToO) (alternative/low Priority)	GX 339-4 mass is found to be ~10 solar mass and have high spin parameter. In past 18 years, it has exhibited six outburst of varying strength due to its unstable accretion. Although the outburst nature of this source have been observed at all wavelengths. But the evolution of spectral parameters and timing properties were well explained using RXTE/PCA observation. The study of these properties can be improved using LAXPC observation due to its large effective area in comparison with RXTE. During the outburst, they show state transition from hard state to soft state, in between they pass through intermediate states (HIMS, SIMS). At time of outburst, disk winds are found in this source, particularly in soft state. This source can go into outburst sometime in 2017 or 2018. To study the radio ejection of this source, we will plan simultaneous radio observations.	GX 339-4	17 2 49.36 0	-48 47 22.801	T01	jsyadav	TIFR	
			GX 339-4	17 2 49.36 0	-48 47 22.801	T02	jsyadav	TIFR	
G08_053	H 1743-322 (Anticipated ToO) (alternative/low Priority)	The black hole candidate X-ray binary H 1743-322 was discovered in August 1977 with HEAO-1 (Doxsey et al. 1977) and Ariel 5 (Kaluzienski & Holt 1977). The mass of H 1743-322 is nearly 10 $\pm$ 2 Mo. Distance is nearly 8.5 $\pm$ 0.8 kpc. H 1743-322 is a transient source. The transient H1743 displayed major outbursts in 1977, 2003 and 2008. It is very peculiar black hole X-ray binary with low spin parameter, low orbital period and shows frequent X-ray outbursts. It shows different X-ray states namely hard state, soft state and intermediate states. Radio emissions are also observed from this source. X-ray disk winds are also reported in spectrally soft, diskdominated states from this source. This source can go into outburst sometime in 2018. Here we will study various X-ray states, QPOs, Spin, hard state, radio ejection, time lags, PDS spectra etc.	H 1743-322	17 46 15.60 8	-32 14 0.600	T01	jsyadav	TIFR	
			H 1743-322	17 46 15.60 8	-32 14 0.600	T02	jsyadav	TIFR	

G08_055	Cyclotron Lines Measurements from Binary Pulsars MAXI J1409-619 & XTE J1946+274	This proposal is aimed at spectral and timing studies of two High Mass X-ray Binaries (HMXBs) MAXI J1409-619 and XTE J1946+274 to investigate the Cyclotron absorption features reported in these systems and their pulse phase dependence. Measurement of energy dependent characteristics of X-ray pulsations over a broad spectral band from LAXPC and SXT observations, is an additional objective.	MAXI J1409-619	14 8 2.560	-61 59 0.301	T01	jsyadav	TIFR	
			XTE J1946+274	19 45 39.36 0	27 21 55.501	T02	jsyadav	TIFR	
G08_056	XTE J1118+480 (Anticipated ToO) (alternative/low Priority)	The radiative properties of the quiescent state, either in BHXTs or in normal galaxies, remain unclear. The emission of the quiescent states of BHXTs is dominated by the radiation from the compact relativistic jet. We are proposing 30 ks exposure of the Galactic micro-quasar XTE J1118+480 with AstroSat during jet-dominated, variable and bright low hard state with the source flux varying between 20 mCrab and 50 mCrab. During this state, a strong thermal disk emission is found with Chandra below 0.21 keV, very similar to that observed from Active Galactic Nuclei and its origin is not known. However, its relation with the hard X-ray emission has never been explored. In simultaneous with the XMM-Newton data, it would be interesting to study hard X-ray spectro-timing properties of the source with AstroSat/LAXPC and CZTI (when its flux is above 30 mCrab).	XTE J1118+480	11 18 10.80 0	48 2 12.599	T01	jsyadav	TIFR	
			XTE J1118+480	11 18 10.80 0	48 2 12.599	T02	jsyadav	TIFR	
G08_057	Background Sky-9 (alternative/low Priority) (Mid June 2018)	LAXPC background may change with time and direction and we need to observe BG to study faint sources. It is very important observation to analyses data with source strength below 20% of background (AstroSat has 50% such observations).	Sky-9_75_50	15 49 28.92 937	+47 06 17.6520	T9	jsyadav	TIFR	
G08_058	Background Sky-6 (alternative/low Priority) (Satr Dec 2017)	LAXPC background may change with time and direction and we need to observe BG to study faint sources. It is very important observation to analyses data with source strength below 20% of background (AstroSat has 50% such observations).	Sky-6	0 30 34.94 6	12 33 0.928	T9	jsyadav	TIFR	
G08_059	Deep UV imaging studies of X-ray and optically bright SNRs VI -- NGC 6979 and NGC 6974. (FUV-Sap)	We propose to map X-ray and optically bright SNRs in various UVIT filters, in order to extract the physical conditions in supernovae ejecta interacting with their surrounding environment, and in the resulting shocks. Spanning an age range of \$(18000 \pm 9000)\$ yr (Vela) to 5000-8000 yr (Cygnus loop) to 1000 yr (Crab), these observations will also provide unique opportunities to study the temporal evolution of SNRs from different classes of SNe, in a varying range of environments, in UV. UVIT filters will be used to map regions of hot (\$10^{4-5}\$ K) and intermediate (5000- 8000 K) temperatures via emission lines of C IV (1550 Ang.), He II (1640 Ang.), and Mg II lines (2800 A), bridging the gap between x-ray bright (\$10^{6-7}\$ K) and cool, optical regions. UVIT-NUV narrow bands will complement Galex NUV imaging of Crab and Cygnus loop by Galex, and provide 1st NUV images of Vela D.	NGC 6974 / 6979	20 50 46.31	+31 56 38.2	T01	fsutaria	IIA	

G08_060	Understanding star formation in a remarkably undisturbed spiral galaxy NGC 2403	NGC 2403, an SAB(s)c type galaxy, has a pure disk structure to study the evolution and star formation history (SFH) of disk galaxy. Understanding the SFH of any spiral galaxy throughout the disk can give important implications about the evolution of the galaxy. Star formation can be triggered due to spiral density wave, galaxy-galaxy interaction, supernova shock wave etc. People have extensively used H-alpha observation, which can probe up to a few Myr, for knowing recent star forming activities. The evolution up to a few 100 Myr can lead us to understand the propagation of star formation. The FUV and NUV flux can trace and estimate ages of young population. We have demonstrated that, with the UVIT suite of filters, we will be able to delineate stellar population of ages 1-100 Myr. (This is optional - Priority C target)	NGC 2403	7 36 51.39 6	65 36 9.170	T01	annapur ni	IIA	
G08_061	SEARCHING FOR NEBULAE AROUND R CORBOR STARS	We propose to image several R Coronae Borealis (RCB) stars in UVIT filters, in order to detect and isolate any nebular structure present, in some of the emission lines like 1335\AA C II . This would map the ionization structures, as well as variations, of physical parameters across the nebula. It is also likely that the various flows and stellar wind from central star could have created shocked regions of hot, highly ionized plasma. The modeling of the nebulae which might contain nuclear processed material from the star would be dependent on proper evaluation of the ionization structure. If a nebula is detected and characterized by these observations, we may seek time to obtain its grating spectra in the NUV and the FUV to help study the emission line morphology.	R CrB	15 48 34.42	+28 09 24.3	T01	nkrao	IIA	
			SU Tau	05 49 03.73	+19 04 21.87	T02	nkrao	IIA	
			U Aqr	22 03 19.69	-16 37 35.28	T03	nkrao	IIA	
G08_062	CZTI-GT: Spectro-polarimetric monitoring study of Cygnus X-1	Cygnus X-1, the enigmatic black hole binary, has been extensively studied with spectral and timing X-ray observations since the advent of X-ray astronomy. Despite these studies, there are certain aspects of the X-ray emission which are still unanswered. Different models suggest different origin of hard X-ray emission; some models favour Compton scattering in Corona alone and some predict contribution of Synchrotron emission from the jets. Polarization measurements in X-rays is expected to provide some insights into this aspect. For CZTI on-board AstroSat, which is capable of polarization measurements above 100 keV, Cygnus X-1 is a potential target. Polarization measurements along with broad band spectrum in different states of Cygnus X-1 will be able to put better constraints on these models. In this context, we propose monitoring observation of Cygnus X-1 with three pointings of 110 ks each.	Cygnus X-1	19 58 21.67 6	35 12 5.778	T01	santoshv	PRL	

G08_064	Probing absorption-induced and intrinsic variability in the bright Seyfert 1 galaxy NGC4151	One of the outstanding issues in AGN research is the nature of soft and hard X-ray variability and their connection with the UV. It is likely that the X-ray variability below 10-keV is caused by both the variations in the absorption and the primary continuum while the variability of the hard X-rays, not affected by absorption, must be intrinsic. NGC4151 is a Seyfert 1.5 galaxy with significant absorption below few keV, and strongest hard X-ray Seyfert in the sky. Under the SXT GT programme, we request three monitoring observations of NGC~4151 each with 30ks exposure and SXT as the primary instrument. These monitoring observations will be separated by 15days. We will use these data to disentangle the absorption induced and intrinsic variations. We will also test thermal Comptonisation model by investigating correlations between the variability in the far UV and hard X-ray emission which is not affected by complex absorption.	NGC4151	12 10 32.57 4	39 24 20.880	T01	KPSing h19	TIFR	
G08_065	Probing X-ray/UV connection in Mkn110 with coordinated AstroSat/Swift/ground based observations	One of the outstanding problems in AGN research is the nature of accretion disks which have been assumed to be standard Shakura-Sunyaev disk since the last 40~years. We propose to measure time-lag, as a function of wavelength, between the optical/UV and X-ray emission, and investigate the driver of optical/UV emission and verify if the AGN hosts a standard disk. Recent Swift monitoring of a handful of low accretion rate AGN reveal that the lags are about 3 times longer than expected from an SS disk. We propose to measure the lags in a high accretion rate, bright and nearly absorption-free AGN Mkn110. We request 150ks AstroSat observation, with SXT as the primary instrument, of Mkn110 in parallel with our approved Swift and ground-based observations.	Mkn110	9 25 12.87 1	52 17 10.495	T01	KPSing h19	TIFR	
G08_066	Ultraviolet survey of Polar Ring galaxies	Ringed early-type galaxies (R-ETGs) are a rare and important class of objects which can help one investigate a variety of topics ranging from the dark matter contents of galaxies, their haloes, to the mechanism by which Early-type galaxies are rejuvenated. In the cases studied so far, the rings around R-ETGs are generally bluer than the cores and often show active star formation. As a continuation of our ongoing survey of R_ETGs, here, we propose to carry out a deep UV imaging study of three R-ETGs, where existing GALEX images and data from other wavelengths indicate intriguing appearances and demand for deeper imaging observations. For this proposal, our sample consists of an apparently empty R-ETG, a seyfert 1 ring galaxy and an E4 ring galaxy.	AM 2020-504	20 23 54.96	-50 39 06.48	T04	reks	IIA	
			ESO474-40	00 53 59.30	27 08 35.88	T01	reks	IIA	
			NGC 985	02 34 37.87	-08 47 17.16	T02	reks	IIA	
G08_068	GX 5-1 (monitoring)	We are proposing 30 ks effective exposure of the X-ray binary GX 5-1 Neutron star(NS) using SXT, LAXPC and CZTI instruments on-board AstroSat satellite. The measured flux of the neutron star emission increases by a factor of ten becoming super-Eddington. GX 5-1 (4U 1758-25) is thought to be a NS Low Mass X-ray Binaries (LMXB) Galactic Z-track source. The most important feature of the Z-track sources is the detection of radio emission showing jets to be present but only in the upper normal and horizontal branches (Penninx 1989). The prerequisite characteristic of the high-frequency quasi-periodic oscillations (QPO) that are observed in GX 5-1 and related sources when they are in their horizontal branch spectral state is the strict relation of QPO frequency with X-ray intensity. We will study timing, HF QPO and energy spectrum of this source.	GX 5-1	18 1 8.220	25 4 42.499	T01	jsyadav	TIFR	

G08_069	XTE J1701-462	We propose observation of the bright neutron star X-ray binary XTE J1701-462 effective exposure of 40 ksec. Over a time-scale of one year this source show remarkable transition from the Atoll track to Z like track in the hardness intensity and color color diagram. Using RXTE, such transition is monitored but it is limited to 3-30 keV bands. Therefore, below 3 and above 30 keV the nature of such transition is not studied. Simultaneous monitoring using SXT and LAXPC on-board AstroSat in the energy range 0.3-80.0 keV would provide deeper understanding of such transition. Additionally detection of kHz QPOs in XTE J1701-462 is another aspect of the proposed monitoring.	XTE J1701-462	17 0 58.46 0	-46 11 8.599	T01	jsyadav	TIFR	
G08_070	CZTI-GT: Observation of a crowded field in the Galactic center region	CZTI-Imager onboard AstroSat is a wide field of view hard X-ray telescope. This proposal will consist of a single deep observation of the Galactic center region with a total exposure of 82 ks. The main objective of this observation is to verify the limiting imaging performance in a crowded field. These observations will also provide very interesting results on the micro-quasar GRS 1758-258.	GRS1758-58	18 01 12.40	-25 44 36.1	T01	santoshv	PRL	
G08_071	Interplay between the Accretion disk and hot corona in NGC4051 and NGC7469	Some of the outstanding problems in AGN research are (Si) the origin of soft X-ray excess and the optical/UV emission and the connection between them, (Sii) the nature of accretion disks, (Siii) connection between accretion disk and corona. SXT along with Astrosat's simultaneous multiwavelength capability provides a unique opportunity to study all the above problems. As a part of the SXT GT, we propose to observe the Seyfert 1 galaxy NGC~7469 and continue Astrosat observations of the bright NLS1 NGC~4051. We will study (Si) the variability of the soft X-ray excess in relation to optical/UV and hard X-ray emission. (Sii) optical-to-hard X-ray spectral energy distribution. The Seyfert 1 galaxies will allow to measure time delays that will lead to test the models for both the accretion disk and soft excess. Multiple observations of NGC~4051 will probe changes in the disk/corona geometry.	NGC4051	12 3 9.686	44 31 52.540	T01	KPSing h19	TIFR	
			NGC7469	23 3 15.67 1	8 52 25.280	T02	KPSing h19	TIFR	
G08_072	Reflection and QPOs in magnetic Cataclysmic Variables-II	Magnetic Cataclysmic Variables (mCVs) are the best sources to showcase multi-wavelength capabilities of ASTROSAT as CVs are strong emitters in UV and the shocks above the white dwarf surface can produce X-rays up to 50keV. We propose a multi-wavelength observations of two mCVs: V1223~Sgr and TV~Col which were proposed under G05-241, but not observed. The reported shock temperatures of few tens of keV in these sources makes them perfect candidates to look for reflection emission which falls in the energy range of 10-30keV. A 40ks ASTROSAT observations each are required to resolve the reflection component with 30% reflectivity. In addition, un-ambiguous discovery of QPOs in multiple bands (Optical/UV to X-rays) or the absence of QPOs can shed light on the accretion processes under strong magnetic fields. The simultaneous observations in Optical and UV along with X-rays can hence put constraints on the nature of QPOs in this object, if discovered.	TV Col	5 29 25.50 0	32 49 5.016	T03	girish	ISRO	
			V1223 Sgr	18 55 2.350	-31 9 48.960	T01	girish	ISRO	

G08_075	Wide-band spectral and temporal study of Cygnus X-1 with AstroSat	We propose to study persistent, galactic black hole source Cygnus X-1 for a total exposure of 100 ksec using SXT, LAXPC and CZTI onboard AstroSat. LAXPC will be considered as the primary instrument. We aim to carry out a detailed spectral and temporal study of the first black hole source Cygnus X-1 in wide energy band (0.5 – 200 keV). Such a broad band and long term monitoring of the source with AstroSat will provide better understanding of emission mechanism, spectral state transition and timing properties. We also plan to model the wide-band (0.5 - 200 keV) energy spectrum, and finally, to constrain the mass of the 'hole'. We will also carry out the study of time delay among different energy bands and at different frequency ranges, which will constrain the accretion flow geometry and related emission mechanism. Hence, with these objectives, we propose 100 ksec observation of the source.	Cygnus X-1	19 58 21.67 595	+35 12 05.7783	T01	ravibt	ISRO	
G08_076	Star-formation vs Feedback in galaxy groups	Galaxy groups are where environment plays an important role in deciding a galaxy's evolutionary track. Tidal interaction, harrasment, ram pressure stripping are well known physical process that affect the evolution of galaxies. Galaxy-galaxy interaction often leads to central star burst, ignite AGN activity - which causes the host galaxy group shine in X-ray band. Of course, depending on the strength of the AGNs, a galaxy group can manifest itself either as X-ray bright or X-ray poor. The hot gas that fills the inter-galactic space in the group can have a negative feedback - hampering the star formation activity --as it cuts off the fresh supply of cold neutral gas along the cosmic filaments. Unless one invokes the fountain process through which hot has cools and falls back (like rain shower) to the group galaxies again.	NGC 5153	13 27 54.3	-29 37 5.0	T02	kanak	IUCAA	
			NGC 5982	15 38 39.7	+59 21 21.9	T01	kanak	IUCAA	
			NGC0978	02 34 47.6	+32 50 37.0	T03	kanak	IUCAA	
G08_077	AstroSAT-UVIT Deep Imaging Survey of Galaxies in GOODS-North field	Mass assembly history of galaxies is one of the most challenging problem in modern astrophysics. Once a galaxy is formed in the high-redshift universe with clumpy irregular morphology, it evolves over time and become one of the present-day galaxies. Decoding this path of evolution and extracting the physical processes involved is desirable. GOODS-North field is the most data rich (optical to far-infrared); with UVIT observation, we will have complete multi-wavelength data-set to study galaxy-evolution. We plan to address this problem by measuring star-formation rate using FUV and NUV observation by UVIT on-board AstroSAT as well as publicly far-infrared data from GOODS-North field. Having a clear measurement of the star-formation rate (both from UV and far-infrared) is extremely useful in disentangling physical processes responsible for galaxy growth. Using the colors measured by the UVIT's FUV, two NUV filters and optical colors from HST, we will study galaxy evolution in unprecedented detail.	uGOODSN	12 36 51.0	+62 17 38.67	T01	kanak	IUCAA	

G08_078	Wide-band "spectro-temporal" studies of GRS 1915+105 with AstroSat	We propose to study persistent, bright galactic black hole source GRS 1915+105 for a total exposure of 100 ksec using SXT, LAXPC and CZTI onboard AstroSat. LAXPC will be the primary instrument. The source exhibits 'complex' X-ray variabilities, termed as 'classes', each with unique 'spectro-temporal' features. This proposal is aimed to observe the source continuously (~100 ksec) in-order to 'catch' the class transition, and to infer the physical mechanism behind the class transitions. We also plan to model the wide-band (0.5 - 200 keV) energy spectra and finally to constrain the mass of the 'hole'. Modelling of the wide-band spectral data of various classes (if observed) will be carried out using the recently developed physical model (Iyer et al. 2015). Hence, long and continuous observation to study fast 'spectro-temporal' changes during the class transitions will help to diagnose accretion flow behaviour and enhance our understanding of the system.	GRS 1915+105	19 15 11.55 0	10 56 44.801	T01	ravibt	ISRO	
G08_081	Timing and spectral studies of EXO 2030+375 after sudden orbital phase-shift of outburst peak	The Be X-ray binary pulsar EXO 2030+375 showed strikingly peculiar behaviour for the second time on July 20, 2016 after a gap of about 10 years resulting in a sudden orbital phase-shift of outburst peak which occur due to periastron passage of the neutron star. This event causes change in the spectral and temporal properties of the binary system as was seen during earlier occurrence in 1995. We, therefore, propose simultaneous multi-wavelength observations for timing and spectroscopic studies in X-rays and Optical wavebands as a function of spin-period of the pulsar and possibly at different luminosities to investigate possible cause of such event.	EXO 2030+375	20 32 15.28	+37 38 14.9	T01	Kmukerjee	TIFR	
G08_082	Multiwavelength Observations of Seyfert-1 AGN: MCG-6-30-15	MCG-6-30-15 is a Seyfert-1 galaxy and studies of this source has played a very important role in studies of accretion on to Black Hole and has been studied extensively with various missions. Although there has been many studies on the source, still there are open questions to be answered. ASTROSAT, with its multiwavelength and broadband capability of observing from 0.3 keV extending upto 150 keV, along with the unprecedented sensitivity of LAXPC can help better understanding of the accretion physics in this source and help in constraining the physical process of emission. We intend to study this Seyfert-1 AGN, MCG-6-30-15 in the broad energy range from UV to hard X-rays.	MCG-6-30-15	13 35 53.80 0	-34 17 43.780	T01	ramadevi	ISRO	
G08_083	The relation between AGN and Star-burst activity	It is now believed that star formation can occur in the central regions of active galactic nuclei (AGN), however, it is not clear how these two phenomena are related. Imaging observations of few Seyfert 2 galaxies have shown that the UV continuum emission in them is not only dominated by the central ionizing nuclear source, but also comes from star forming regions in their circumnuclear regions. We aim to extrapolate these findings based on limited sources using observations from UVIT. We propose to observe four low luminosity Seyferts using UVIT. These observations in combination with observations from other wavelengths (SXT from ASTROSAT), optical and IR wavelengths (from archives) will be used to understand the nature of the link between star-burst and AGN phenomenon in our sample. We thus request for a total observing time of 36.6 ksec for the four sources.	NGC 1058	02 43 29.9	+37 20 27	T04	stalin	IIA	
			NGC 3486	11 00 23.9	28 58 30	T02	stalin	IIA	
			NGC 3621	11 18 16.5	-32 48 51	T03	stalin	IIA	
			NGC 5457	14 03 12.5	54 20 56.0	T01	stalin	IIA	

G08_084	Timing and Neon emission -line studies of X-ray Pulsar 4U 1626-67	The 4U1626-67 is a X-ray pulsar in a highly compact binary having 7.6 sec pulsar period, showed prominent Neon-emission line complex near 1 keV. The X-ray flux shows strong fluctuations and presence of quasi periodic oscillations. It also showed wide variations in its spectral components, Black body temperature and photon index in soft X-ray energy band in 0.5-20 keV. Motivated with these variability studies, we proposed observation of the source for a exposure of 100 K seconds, to improve on the statistics and resolving multiple emission line complex of the source and their relative variations. These observations would help us to understand and address nature of the source, evolution of its companion star and dynamical properties of the binary system.	4U 1626-67	16 32 16.79	-67 27 39.3	T01	Kmukerjee	TIFR	
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# AstroSat – Redbook – proposals

October-2017 to September-2018

Accepted proposals for A04 cycle : 98

**Green** – observation completed till Dec '17  
**Yellow** – observation partially completed till Dec '17

PropID	Title	Abstract	SrcNAME	RA	DEC	Tid	PiId	Institute	Remarks
A04_010	Fireballs in the local Universe: tracing ram-pressure triggered star-formation in the most extreme environments	We propose to use UVIT on ASTROSAT to obtain far- and near-ultraviolet broad-band photometry for two of the most extreme cases of ram-pressure triggered H $\alpha$ tails at z~0. Both targets are associated to the nearby cluster Abell 1367. What makes these systems unique is that - in combination - they probe the extremes of the intra-cluster medium densities in which ram pressure stripping appears to produce extragalactic tails of stripped gas. The high resolution and sensitivity of ASTROSAT observations will allow us to quantify the amount, location and age of ram-pressure triggered extragalactic star-forming regions in the tails and, once combined with our suite of multiwavelength observations and theoretical simulations, to gain insights into the physics regulating the condensation of stripped gas in the intracluster medium.	Blue Infalling Group	11 44 27.10	19 52 49.00	T02	lcortese	ICRAR /UWA	
			FGC1287	11 39 11.6	19 38 46.000	T01	lcortese	ICRAR /UWA	
A04_011	Globular Cluster UVIT Legacy Survey (GlobULES): Characterising Exotic Stellar Populations	Globular clusters (GCs) were long considered to be simple stellar populations: i.e., composed of stars having nearly identical age and chemical composition. However, a succession of studies carried out during the past decade have established that many clusters deviate from these assumptions. GCs harbour exotic stellar populations and are the only sites where the endproducts of stellar collision can be found. Our observations from a pilot study in NGC1851 have shown that UVIT can resolve such stars and UVIT photometry, in combination with the HST optical photometry, can be a powerful tool. It also showed that the HB morphology in the UV can be used to disentangle multiple populations. We plan to use this unique capability to (1) test stellar evolutionary models in the UV; (2) characterise multiple stellar populations; (3) identify the UV counterparts of exotic stars; and (4) understand the origins of extreme-HB stars.	NGC 5897	15 17 24.400	-21 0 36.400	T07	annapurni	IIA	
			NGC 5986	15 45 38.64	-37 46 45.84	T08	annapurni	IIA	
			NGC 6341	17 17 7.390	43 8 9.398	T09	annapurni	IIA	
A04_012	Searching for star formation in extremely gas-rich and metal-poor dwarf galaxies	We propose to undertake deep ultra-violet (FUV+NUV) imaging (~10ks) of two gas-rich dwarf galaxies recently discovered in the local universe. These systems straddle a star-formation threshold: one is actively forming stars and the other appears to have recently ceased star formation. Both contain significant reservoirs of gas but have surprisingly weak star formation. In addition to our extensive multi-wavelength followup observations, deep high-resolution UV images are essential to complete our understanding of the unusual star formation processes underway in these extremely metal-poor gas-rich dwarf galaxies.	AGC2 29385/ H11232 +20	12 31 37.000	20 28 05.000	T02	sjanowie	ICRAR -UWA	
			Leo P	10 21 45.101	18 05 17.196	T01	sjanowie	ICRAR -UWA	

A04_016	X-ray observations of an episodic dust maker and particle accelerating colliding wind binary: WR 125	The massive binary systems with strong stellar winds play an important role in the stellar as well as the galactic evolution. The interaction of stellar winds from both the massive stars are thought to be responsible for high energy (X-ray to gamma-ray) and radio emission. The physical processes responsible for the multiwavelength emission from massive binaries are still under investigation. We propose to observe WR 125, which is thermal and non-thermal radio, X-ray emitter as well as shows episodic dust formation. The proposed multi epoch observations of this extremely long period binary (>6600 days) would help us to gain a deeper insight into the dynamics of stellar winds. The high quality X-ray data from astrosat would also provide a strong test of the latest theoretical models that aim to explain the emission from massive binaries over the whole electromagnetic spectrum.	WR 125	19 28 15.620	19 33 21.398	T01	bharti	ARIES	
A04_017	An Astrosat view of the ultra-compact X-ray binary 4U 0614+091	We propose a 30 ks observation with Astrosat of the bright neutron-star LMXB 4U 0614+091. Our aims are (1) to detect and follow the properties of kHz QPOs, with particular emphasis on the distribution of frequencies; (2) to study the low-frequency variability (noise and QPO) and compare it with that of other neutron-star and black-hole systems; (3) to search for oscillations during X-ray bursts to confirm the detection of the neutron-star spin period; (4) to study the energy spectrum and its variations, testing competing models for the broad-band spectral distributions. We will make use of the data from the three X-ray instruments and ask for UVIT to be switched off.	4U 0614+091	06 17 07.03	+09 08 13	T01	devraj	OTHE RS	
A04_020	ASTROSAT Observation of the neutron star SAX J1808.4-3658 in Outburst	The neutron star SAX J1808.4-3658 (hereafter J1808) was the first discovered accreting millisecond period X-ray pulsar (AMXP). J1808 is a "Rosetta Stone" system showing the evolutionary role of accretion in spinning neutron stars up to millisecond (ms) spin periods in low mass X-ray binaries (LMXBs) to form ms radio pulsars. The observed X-ray pulsations originate from the neutron star's surface, allowing pulse-shape analyses to determine the star's mass and radius, which could allow the equation of state of ultra-dense nuclear matter to be constrained. The pulsations are only visible when the AMXP is in a bright state (outburst). We propose to observe J1808 for 40ks during its next outburst, allowing us to measure its spectrum and pulse shapes. These will be used to determine the neutron star's mass, radius, and orbital period changes, leading to better understanding of the properties of neutron stars and accretion in LMXBs.	SAX J1808.4-3658	18 8 27.540	-36 58 44.299	T01	dleahy	Calgary	
A04_021	ASTROSAT multi-wavelength imaging survey of M31, central region	M31 is the nearest giant spiral galaxy for which we can study the supernova remnants, X-ray sources, and stellar populations. At a distance of 780 kpc, M31 is far enough away that the brightest stars are safe to observe with UVIT, yet close enough to obtain a good census of the supernova remnants, X-ray sources, and hot stellar populations. The high spatial resolution of UVIT will yield outstanding data on the stellar populations of M31. The spatial resolution of SXT is sufficient to resolve the X-ray source populations which includes measuring the supernova remnant population. The resulting multi-wavelength images of M31 will form a legacy dataset to be used for study of the stellar populations of M31, its star formation history and the structure of the galaxy.	M31 Field No. 3	0 41 23.03	40 57 08.70	T02	dleahy	Calgary	
			M31 Field No. 4	0 40 42.16	41 19 12.47	T03	dleahy	Calgary	
			M31 Field No. 5	0 41 59.45	41 37 31.59	T04	dleahy	Calgary	
			M31 Field No. 6	0 43 24.74	40 51 8.39	T05	dleahy	Calgary	
			M31 Field No. 7	0 44 53.14	41 09 39.98	T06	dleahy	Calgary	

A04_022	ASTROSAT multi-wavelength imaging survey of M31: northwest region	M31 is the nearest giant spiral galaxy for which we can study the supernova remnants, X-ray sources, and stellar populations. At a distance of 780 kpc, M31 is far enough away that the brightest stars are safe to observe with UVIT, yet close enough to obtain a good census of the supernova remnants, X-ray sources, and hot stellar populations. The high spatial resolution of UVIT will yield outstanding data on the stellar populations of M31. The spatial resolution of SXT is sufficient to resolve the X-ray source populations which includes measuring the supernova remnant population. The resulting multi-wavelength images of M31 will form a legacy dataset to be used for study of the stellar populations of M31, its star formation history and the structure of the galaxy. For this proposal we are requesting fields 8 to 13 of the 19 fields required for the full M31 survey.	M31 Field No. 10	0 43 20.03	41 55 59.65	T04	dleahy	Calgary	
			M31 Field No. 11	0 44 44.39	42 15 30.58	T05	dleahy	Calgary	
			M31 Field No. 12	0 47 41.34	41 51 30.53	T06	dleahy	Calgary	
			M31 Field No. 13	0 46 22.88	41 32 09.42	T07	dleahy	Calgary	
			M31 Field No. 8	0 45 27.20	41 52 58.89	T02	dleahy	Calgary	
			M31 Field No. 9	0 46 52.70	42 12 12.40	T03	dleahy	Calgary	
A04_023	Star formation when blown by thermal and non-thermal plasma winds	In our ongoing efforts to understand galaxy evolution by infall merger and AGN feedback, we propose here Astrosat UVIT observation of IC3418 and NGC3801, two best possible targets for high resolution study. IC3418 is the nearest Jellyfish of Fireball galaxy where ram pressure triggers star formation in the stripped gas tail. Our Subaru spectroscopy and stellar population study using GALEX give puzzling results which require higher resolution Astrosat observation. This is a potential Rosetta Stone for star formation study. We wish to apply this on Cosmic leafblower galaxy NGC3801. We found NGC3801 to be a post-merger early-type galaxy where first episode of thermal wind has already blown away the ISM leaving the host optically red and second non-thermal jet is about to hit the outer star forming region in just 10 million years. This AGN-feedback caught-in-the-act is the nearest such case and best opportunity to study positive and negative feedback.	IC3418	12 29 43.919	11 24 16.884	T02	hota	CBS	
			NGC3801	11 40 16.897	17 43 40.480	T01	hota	CBS	
A04_024	Broad band timing and spectral study of transient Be/X-ray binary pulsars with ASTROSAT	We propose to make observation of a transient Be/X-ray pulsar with Astrosat during an outburst. We have chosen eight objects which have shown frequent Type-I and Type-II outbursts. Cyclotron Resonance Scattering Features (CRSFs) are observed as absorption-like lines in the spectra of some of the accreting X-ray pulsars. The detection of CRSFs in the spectra of accreting pulsars is the only direct way for the measurement of the magnetic field strength near to the surface of the neutron star. CRSFs is known in a few of these sources. We will search for QPOs in these sources. The QPOs, if produced due to the inhomogeneity in the inner accretion disk, along with broad band X-ray luminosity, also allows the estimation of the magnetic field. Comparison of the above two will allow us to test applicability of the theory of accretion onto highly magnetized neutron stars.	1A 0535+262	05 38 54.57	26 18 56.8	T03	jincyd evasia	RR1	
			4U 0115+63	01 18 31.80	63 44 33.0	T01	jincyd evasia	RR1	
			AX J1749.1-2639	17 49 09.84	-26 38 13.2	T08	jincyd evasia	RR1	
			GRO J1008-57	10 09 44.0	-58 17 42.6	T04	jincyd evasia	RR1	
			GS 0834-430	08 35 55.0	-43 11 06.0	T06	jincyd evasia	RR1	
			GX 304-1	13 01 17.10	-61 36 06.6	T07	jincyd evasia	RR1	
			SAX J2103.5+4545	21 03 35.71	45 45 05.5	T05	jincyd evasia	RR1	
			V 0332+53	03 34 59.91	53 10 23.3	T02	jincyd evasia	RR1	
			XTE J1946+274	19 45 39.36	27 21 55.5	T09	Jincyd evasia	RR1	
A04_026	Exploring the Symbiotic Nature of AGB Stars through UV Observations	A new class of non-shell burning symbiotic stars have recently been proposed without any emission lines in their optical spectra thereby making their detection difficult. Here we propose UVIT observations of five such potential objects from AGB branch. These objects have shown excess of UV fluxes in the photometry and are promising candidates of potential symbiotic systems. We propose multi band UVIT pointing observations to reconstruct their spectral energy distribution (SED) in UV as well as long duration	AA Cam	07 14 52.06	+68 48 15.37	T04	mudiri	PRL	
			SU Lyn	06 42 55.140	+55 28 27.24	T01	mudiri	PRL	

		observations to record flickering in selective filters. The possible correlation between flickering and expected symbiotic nature would be helpful in establishing flickering as a tool for the search of this class of new symbiotics. Total UVIT integration time of 96 ksecs (17 to 22 ksecs per source) is proposed, optimised for required SNR in different filters. SXT is requested to be secondary instrument for a plausible UV-X-ray correlation studies.							
A04_037	The Buildup of Galaxy Clusters - Star Formation in Fornax Dwarf Ellipticals	In a detailed study of dwarf galaxies in nearby clusters, we have found that most of them show evidence, from a number of sources, for the presence of young stellar populations. Here we propose to characterise this young stellar population in the much more sensitive ultraviolet regime, to study its age, mass and radial extent. This will provide us with crucial information of how dwarf galaxies in clusters are still being built up at present time, and how they were able to retain their gas. We propose to obtain high spectral resolution UVIT images of 3 fields in the nearby Fornax cluster, with different environmental characteristics, for which we have a large amount of complementary data. This study will give information about the effectiveness of galaxies in holding onto some of their interstellar matter and converting it into stars, despite being subject to the intracluster radiation field.	Fornax 1	03 35 36.0	-35 15 00	T01	peletie t	Kapteyn n	
			Fornax 2	03 40 09.2	-35 37 23	T02	peletie t	Kapteyn n	
			Fornax 3	03 23 00	-36 24 00	T03	peletie t	Kapteyn n	
A04_038	UV study of First Generation Globular Clusters	The multiple stellar populations in Globular Clusters, discovered in recent times, is observed to be widespread, and has implications for the formation of the Milky Way. The dearth of globular clusters with single population stars, i.e. only the first generation (FG) stars is attributed to factors such as cluster expansion due to primordial gas expulsion, mass loss of SNII ejecta or accretion history of Milky Way. Through this proposal, we plan to investigate two FG rich globular clusters: E3 and NGC 5024 for their UV characterisation. The former is believed to be comprised of a single stellar population while the latter has significantly large population of FG stars. This study will enhance and diversify our investigation of globular clusters with UVIT as the two globular clusters proposed by us in the previous cycles have multiple populations and are therefore dominated by the second generation stars.	E3	09 20 57.07	-77 16 54.8	T02	sarita	IIST	
A04_042	The first Astrosat/NICER/INTEGRAL monitoring campaign on GRS 1915+1015: a multi wavelength campaign to peer through accretion - ejection mechanisms	We request 10*10ks observations of GRS~1915+105 simultaneously with our Swift-INTEGRAL-NICER observations. GRS~1915+105 is a superb laboratory to study accretion/ejection. It does in short time what other sources do over day/week timescales. It is easy to catch its multi-wavelengths variations and study their origin and (co-)relations with broad band monitorings. We have obtained time with INTEGRAL, Swift, the Sardinian and Medicina radio telescope (radio), and have access to NICER. We aim to -study the origin of the high variability of GRS~1915+105 in the 0.5-40 keV -probe the physics of accretion with 0.5-1000 keV spectroscopic analysis -understand the connections between accretion and ejection processes -constrain physical models of emission processes. All these aspects can be covered by looking into the interplay between the soft and hard X-ray emitters (Astrosat, NICER, Swift/XRT, INTEGRAL), with (quasi-)simultaneous broad band coverages, and above all study of the fast temporal variability (Astrosat, NICER).	GRS 1915+1 05	19 15 11.789	10 56 45.672	T01	rodrigue z	CEA- Saclay	

A04_043	A Study of the Star Formation in the Extended HI Disk of the Isolated Spiral Galaxy NGC6946	We propose to observe the UV emission from the outer stellar disk of the late type spiral galaxy NGC6946 which is one of the few galaxies that shows signatures of HI gas accretion onto its disk. It is an isolated, star forming galaxy located in the nearby Local Void. Star formation has been detected in its outer disk from H $\alpha$ emission. We will use UV observations to investigate the nature of the outer disk star formation, estimate its rate and see if it is related to the gas accretion. The high sensitivity of UVIT will allow us to image the UV disk, isolate the star forming knots and see how it correlates with the H $\alpha$ and HI emission. We will compare star formation in two different environments - the high density inner disk and halo dominated outer disk, as well as determine if gas accretion triggers the star formation.	ngc6946	20 34 52.322	60 9 14.076	T01	mousumi	IIA	
A04_044	Monitoring the nature of complex absorber and the hard X-ray variability in NGC 2110	Due to the presence of Compton thick absorber along the line-of-sight in Seyfert 2 galaxies, the soft X-ray emission and the hard X-ray variability is significantly reduced. However, NGC 2110 is an exception. Despite being an obscured broad line region (BLR) Seyfert galaxy with a moderately thick, multi-component, complex absorber, NGC 2110 show strong hard X-ray variability and soft X-ray emission below 2 keV. Two broadband Suzaku spectra showed the presence of complex absorber with a hint of absorption induced variability. We propose broadband monitoring of NGC 2110 using five 20 ks exposures over a period of one year. Being very bright and variable, such monitoring of NGC 2110 would provide a unique opportunity to probe the nature and timescale of absorption induced variability of the complex absorber, hard X-ray emitting coronal properties and the nature of soft X-ray emission over a year timescale.	NGC 2110	5 52 11.404	-7 27 22.230	T01	mayukh3107	IUCA A	
A04_048	Monitoring of Cen A: Emission Mechanisms in the Low Flux State, and the Structure of Circumnuclear Matter	We request five SXT + LAXPC observations of Cen A, spaced 45--60 days apart. Cen A, the nearest radio-loud AGN, is currently in a historically near-low X-ray flux state; accurate measurements of the photon index during this low state can yield new SED model constraints on the jet emission mechanism. We will also monitor variable line of sight column density to probe the physical structure of the circumnuclear X-ray-absorbing gas, which contains both a clumpy/cloudy component and a mildly-inhomogeneous torus. We will search for new eclipse events due to clouds transiting the line of sight to the central X-ray source; if one occurs, we will request a ToO for more dense monitoring to constrain the cloud's transverse density profile.	Cen A	13 25 27.6	-43 01 08.76	T01	almarkowitz	NCAC	

A04_049	Temporal, Spatial and Spectral Structure of Doppler-beamed AGN: A Multi-wavelength Pilot Study, Monitoring with ASTROSAT, WEBT and Fermi	Our goal is to investigate the physics of relativistic jets launched by accreting supermassive black holes (i.e., AGN) within the framework of the "Blazar Divide". We propose monitoring the chromaticity of the variability of three prioritized LAXPC-bright, UVIT-safe AGN, mildly time-constrained ( $\sim 30 \pm 10$ day cadence) using the full multi-wavelength capability of ASTROSAT. LAXPC is listed as the primary instrument because it drives the requested exposures. Therefore SXT and UVIT detection is guaranteed but a non-detection by the LAXPC does not significantly impact our science. We will harness the Whole Earth Blazar Telescope for quasi-simultaneous ground-based observations, covering optical/IR/radio photometry, optical/radio (uGMRT) polarimetry and optical spectroscopy, and also add co-epochal Fermi data. The AGN span a range of power, nuclear-to-host-galaxy ratio and inverse-Compton dominance. We request 47ksecs/epoch each ( $\sim 4$ AO4 epochs) with LAXPC, SXT, CZTI and UVIT, totalling 188ksecs. We do not expect CZTI detections, but the data will inform our future proposals.	IES23 44+514	23 47 04.83	+51 42 17.88	T01	pshast ri	IIA	
A04_053	UVIT Observations of the Extended Ultraviolet Disks (XUV) of Nearby Spiral Galaxies	We propose to observe the UV emission from the low luminosity stellar disks of seven spiral galaxies that have extended ultraviolet (XUV) disks. Our targets have all been detected by GALEX. They are all nearby spirals that we have selected based on their UV luminosity. XUV galaxies show star formation well beyond their optical disks, in regions where the disk surface density lies below the threshold for star formation. GALEX found that 30% of spiral galaxies have XUV disks. The star formation is thought to be triggered by gas accretion from nearby clouds, galaxies or the intergalactic medium. In this study we will investigate the nature of XUV disk star formation, estimate its rate and morphology. The high sensitivity of UVIT will help isolate the star forming knots, image the UV disks and search for signatures of gas accretion. This is a continuation of a pilot study from earlier cycles.	ESO40 6-042	23 2 14.208	-37 5 1.428	T03	mousu mi	IIA	
			ESO40 7-014	23 17 39.550	-34 47 26.916	T04	mousu mi	IIA	
			NGC5 832	14 57 45.710	71 40 56.388	T05	mousu mi	IIA	
			NGC7 418A	22 56 41.251	-36 46 21.792	T01	mousu mi	IIA	
A04_054	UV extinction in the regions of Galactic dark clouds with UVIT imaging	We propose to study UV extinction and dust properties in different Galactic environments. In A04 cycle we propose to observe hot stars (i) HD 29647 in the Taurus dark cloud, known for anomalous UV extinction (ii) BD+30 540 and BD+30 549 in reflection nebula NGC 1333 inside a dark cloud L1450. (iii) HD12746 in a cloud complex at high Galactic latitude $b > 70^\circ$ . We plan deep imaging in multiple FUV and NUV bands of UVIT to study variation in the UV extinction properties at different environments of Galaxy. NUV-B15 filter will be used to measure the strength of $\lambda 2200$ UV bump.	HD127 46	02 04 37.2	-18 01 07	T02	bharga vi.sg	PPISR	
A04_055	First joint observation of X-ray binaries with AstroSat/LAXPC and NICER: fast X-ray timing study in an unprecedented wide energy range	Fast-timing X-ray features, such as kilohertz quasi-periodic oscillations (kHz QPOs) and thermonuclear burst brightness oscillations, of neutron star low-mass X-ray binaries (LMXBs) are ideal tools to probe the fundamental physics of dense matter and strong gravity. However, so far these features could not be studied in a broad energy band extending below 2 keV. This can now be done with NICER and AstroSat/LAXPC, which together are the largest X-ray instruments ever in the 0.3-80 keV band, and currently the only instruments with fast X-ray timing capability. Therefore, we propose for a total 150 ks of joint observations with NICER and AstroSat of two neutron star LMXBs, 4U 1636-536 and 4U 1820-30. These observations will provide new knowledge about kHz QPOs and burst oscillations, thus making a significant	4U 1636- 536	16 40 55.500	-53 45 5.004	T01	sudip	TIFR	
			4U 1820- 30	18 23 40.570	-30 21 40.601	T02	sudip	TIFR	



		progress in understanding the fundamental physics of neutron stars. Besides, these observations will enable a unique fast-timing cross-calibration between two X-ray instruments.							
A04_058	Distinguishing Starburst Triggers in Local Dwarf Galaxy, IC10, a Galaxy in the Making	Observations: We request 12kilo seconds on UVIT to observe dwarf irregular (dIrr) starburst galaxy, IC 10. Context: IC 10 is a local group dIrr that has an ongoing burst of star formation. It is unclear what triggers starbursts in dIrrs. Recently, two neutral hydrogen (HI) filaments were discovered in IC 10. Two starburst trigger mechanisms could explain the filaments: (1) a merger (2) accretion of intergalactic medium (IGM). Distinguishing between these scenarios will determine IC 10's starburst trigger and which mechanisms are contributing to local galaxy building. IC 10 has the potential to become the first known case of IGM accretion. Objectives/Results: We will map the UV of IC 10. IGM would not be expected to harbor a young stellar population, resulting in no extra UV radiation. Tidal tails would be expected to have UV emission from the stellar population that was ejected from the disk during the tidal interaction.	IC10 T02	00 20 23.57	+59 12 22.66	T02	tashle y	NASA ARC	
			IC10 T01	00 21 29.63	+59 19 54.65	T01	tashle y	NASA ARC	
A04_066	Exploring Star Formation and Dust in the Magellanic Bridge	Requested observation: One pointing in a Magellanic-Bridge GALEX-selected field.Context: Hot massive stars drive the chemical and dynamical evolution of their host galaxies, with feedback from their supersonic winds and supernova explosions, and copious yield of processed elements during their fast evolutionary time-scales. Their red-shifted UV light dominates the luminosity of distant objects. Understanding their evolution, especially at low metallicity, is key to interpret data of resolved and unresolved stellar populations. Current theories suffer from significant uncertainties, due to insufficient observational constraints.Objectives & Expected scientific results: UVIT imaging of a Magellanic-Bridge field, whereGALEX shows abundance of hot stars, will uniquely enable us to derive a conclusive characterization of the young stellar population and dust. The proximity and stellar density of the field are ideal for a detailed mapping with UVIT resolution, complete for earliest-to-intermediate spectral types, and probing hot evolved objects for the first time.	MB field1	02 07 46	-74 32 58	T01	ibianc hi	JHU	
A04_067	THE DEEP UV OBSERVATION OF DUAL NUCLEI GALAXY MRK 212	We propose to do deep UV imaging of the merging galaxy MRK 212. The system shows dual cores and extended emission from tidal-tails at multi-wavelengths. We have observed MRK 212 in UVIT cycle A02 for 1.5 Ks. Our preliminary UVIT image has better resolution compared to GALEX. But the UV emission from outer disk and tidal tails are not detected. Hence we need deeper observations. The galaxy has been observed for ~9 Ks by GALEX. We estimate that a 15 Ks UVIT observation of MRK 212 will enable us to resolve the star-forming regions around the nuclei, the disk and tidal tails. We have studied the nuclei in MRK 212 using archival VLA radio data and found that one core is an active galactic nucleus while the other core could be an AGN or a star-forming region. We have obtained EVLA observing time to confirm the nature of the cores.	MRK 212	12 28 15.280	44 27 10.901	T01	rubinu r	IIA	
A04_070	Hunting for transitional millisecond pulsars with ASTROSAT	The recent discovery of millisecond pulsars that swing between an accretion powered (X-ray) and a rotation powered (radio) pulsar state proved the evolutionary link between low-mass X-ray binaries and millisecond radio pulsars, and showed that transitions between the two regimes can be observed over timescales as short as a few weeks. Observing future X-ray outbursts of transitional millisecond pulsars will tell us whether the transitional phase is realized	PSRJ2 256- 1024	22 56 56.39	-10 24 34.4	T25	mbagc hi	IMSc	
			1FGLJ 0523.5 -2529	05 23 17.18	-25 27 37.4	T40	mbagc hi	IMSc	
			3FGLJ 0212.1 +5320	02 12 10.50	+53 21 38.9	T49	mbagc hi	IMSc	

		possible only for some binaries, and what are the details of the disk-agnetospheric interaction. We propose a 60 ks ASTROSAT ToO observation to detect the transition to an accretion state of a millisecond pulsar, by searching for X-ray coherent pulsations. Candidates were selected among millisecond radio pulsars whose radio signal is irregularly eclipsed. The proposed observation will also measure the long-term spin evolution of the pulsar, and follow its correlated flux-spectral variability over the 0.3-80 keV band.	3FGLJ 0427.9 -6704	04 29 47.10	-67 03 20.0	T50	mbagc hi	IMSc	
			3FGLJ 1417.5 -4402	14 17 30.48	-44 02 33.7	T45	mbagc hi	IMSc	
			3FGLJ 1544.6 -1125	15 44 39.38	-11 28 04.3	T43	mbagc hi	IMSc	
			3FGLJ 2039.6 -5616	20 39 34.90	-56 17 10.0	T51	mbagc hi	IMSc	
			47TUC	00 24 05.36	-72 04 53.2	T01	mbagc hi	IMSc	
			M13	16 41 41.63	+36 27 40.7	T04	mbagc hi	IMSc	
			M22	18 36 23.94	-23 54 17.1	T05	mbagc hi	IMSc	
A04_070	Hunting for transitional millisecond pulsars with ASTROSAT	The recent discovery of millisecond pulsars that swing between an accretion powered (X-ray) and a rotation powered (radio) pulsar state proved the evolutionary link between low-mass X-ray binaries and millisecond radio pulsars, and showed that transitions between the two regimes can be observed over timescales as short as a few weeks. Observing future X-ray outbursts of transitional millisecond pulsars will tell us whether the transitional phase is realized possible only for some binaries, and what are the details of the disk -agnetospheric interaction. We propose a 60 ks ASTROSAT ToO observation to detect the transition to an accretion state of a millisecond pulsar, by searching for X-ray coherent pulsations. Candidates were selected among millisecond radio pulsars whose radio signal is irregularly eclipsed. The proposed observation will also measure the long-term spin evolution of the pulsar, and follow its correlated flux-spectral variability over the 0.3-80 keV band.	M28	18 24 32.89	-24 52 11.4	T06	mbagc hi	IMSc	
			M30	21 40 22.12	-23 10 47.5	T07	mbagc hi	IMSc	
			M62	17 01 12.60	-30 06 44.5	T08	mbagc hi	IMSc	
			M71	19 53 46.49	+18 46 45.1	T09	mbagc hi	IMSc	
			NGC6 397	17 40 42.09	-53 40 27.6	T10	mbagc hi	IMSc	
			NGC6 440	17 48 52.67	-20 21 34.5	T11	mbagc hi	IMSc	
			NGC6 544	18 07 20.64	-24 59 50.4	T12	mbagc hi	IMSc	
			NGC6 624	18 23 40.51	-30 21 39.7	T13	mbagc hi	IMSc	
			PSRB1 957+20	19 59 36.77	+20 48 15.1	T15	mbagc hi	IMSc	
			PSRJ0 023+09 23	00 23 16.89	+09 23 24.2	T22	mbagc hi	IMSc	
			PSRJ0 610-2100	06 10 13.59	-21 00 28.0	T16	mbagc hi	IMSc	
			PSRJ1 048+23 39	10 48 43.40	+23 39 53.5	T48	mbagc hi	IMSc	
			PSRJ1 124-3653	11 23 57.00	-36 53 26.5	T33	mbagc hi	IMSc	
			PSRJ1 301+08 33	13 01 34.00	+08 35 04.0	T32	mbagc hi	IMSc	
			PSRJ1 311-3430	13 11 45.72	-34 30 30.3	T18	mbagc hi	IMSc	
			PSRJ1 431-4715	14 31 44.62	-47 15 27.6	T42	mbagc hi	IMSc	
			PSRJ1 446-4701	14 46 35.71	-47 01 26.8	T24	mbagc hi	IMSc	
			PSRJ1 544+49 37	15 44 04.49	+49 37 55.2	T23	mbagc hi	IMSc	
			PSRJ1 628-3205	16 28 08.20	-32 03 00.0	T35	mbagc hi	IMSc	
			PSRJ1 723-2837	17 23 24.00	-28 38 18.0	T36	mbagc hi	IMSc	
			PSRJ1 731-1847	17 31 17.61	-18 47 32.7	T26	mbagc hi	IMSc	



			PSRJ1 745+10 17	17 45 33.84	+10 17 52.5	T21	mbagc hi	IMSc	
			PSRJ1 810+17 44	18 10 37.28	+17 44 37.4	T27	mbagc hi	IMSc	
			PSRJ1 816+45 10	18 16 35.93	+45 10 33.9	T28	mbagc hi	IMSc	
			PSRJ1 957+25 16	19 57 36.30	+25 15 54.1	T47	mbagc hi	IMSc	
			PSRJ2 047+10 53	20 47 11.28	+10 56 08.0	T34	mbagc hi	IMSc	
			PSRJ2 051- 0827	20 51 07.51	-08 27 37.8	T17	mbagc hi	IMSc	
			PSRJ2 214+30 00	22 14 38.85	+30 00 38.2	T20	mbagc hi	IMSc	
			PSRJ2 215+51 35	22 15 32.68	+51 35 36.4	T30	mbagc hi	IMSc	
			PSRJ2 234+09 44	22 34 46.00	+09 45 08.0	T31	mbagc hi	IMSc	
			PSRJ2 241- 5236	22 41 42.02	-52 36 36.2	T19	mbagc hi	IMSc	
			TERZ AN5	17 48 05.00	-24 46 48.0	T02	mbagc hi	IMSc	
			XSSJ1 2270- 4859	12 27 58.75	-48 53 42.9	T39	mbagc hi	IMSc	
A04_072	Regular thermonuclear bursts from the long-interval transient 4U 0836-429	Very few low-mass X-ray binaries show trains of regular, consistent bursts, but those that do are of high priority to observers, due to their utility in probing thermonuclear processes. We propose a 100-ks target-of-opportunity ASTROSAT observation of the long-interval transient 4U 0836-429, in order to comprehensively measure its observational properties. Our highest priority is to make measurements of frequent, long-duration thermonuclear bursts, to compare against numerical models and hence constrain the fuel composition and neutron star mass and radius. A secondary priority is observations in the "soft" spectral state, where radius-expansion bursts are expected, and from which we can constrain the source distance. At the same time, such bursts more frequently show burst oscillations, which have not been detected before from this source.	4U 0836- 429	8 37 22.992	-42 53 42.000	T01	sudip	TIFR	
A04_075	Understanding the formation mechanism of blue stragglers in open star clusters	The blue straggler stars(BSS) are main-sequence(MS) stars, which have evaded stellar evolution by acquiring mass while on the MS. Primary mechanisms suggested for BSS formation in open clusters are (1) mass transfer from a binary and (2) merger of binaries. Gosnell et al. (2015) found that about 67% of blue stragglers are formed via mass transfer in the old open cluster NGC 188, by detecting WD companions to 7 BSS using the HST FUV observations. Accurate estimation of FUV flux is the main requirement to detect as well as estimate the temperature of WDs, in a BSS+WD binary. In the case of merger remnants, we do not expect to see a binary star or a WD as a companion. We plan to observe four nearby open star clusters older than 700 Myr to identify the fraction of BSS with WD binaries and to understand the properties of relatively massive BSS.	NGC 2420	7 38 22.9	21 34 23.88	T05	rsagar 52	IIA	
			NGC 2477	7 52 1.15	38 28 51.00	T03	rsagar 52	IIA	
			NGC 6940	20 34 58.01	+28 26 13.00	T04	rsagar 52	IIA	
			NGC 7142	21 45 10.01	65 46 18.012	T02	rsagar 52	IIA	
A04_076	The driver of correlated X-ray	In recent, very successful coordinated multiwavelength campaigns on several Galactic	4U163 0-472	16 34 1.610	-47 23 34.800	T05	pgand hi	Southa mpton	

	and optical sub-second variations in binaries	black hole X-ray binaries, we have detected fast sub-second optical and infrared variability and remarkable multiwavelength timing correlations. These rule out a reprocessing origin for the optical fluxes. Instead, the data support a scenario where the rapid optical variations arise at the jet base, thereby allowing fundamental, quantitative constraints on the extensions of relativistic jets in compact objects. But such constraints exist for less than a handful of objects. Here, we propose to extend such constraints with anticipated ToO observations of up to 2 hard state outbursts with AstroSat strictly simultaneous with ground-based optical/infrared timing. We will probe rapid, sub-second photometric variations and search for inter-band time delays to disentangle the jet/disc/coronal components using spectral-timing. We additionally propose to test and calibrate UVIT timing mode.	GRO J1655-40	16 54 0.137	-39 50 44.900	T04	pgand hi	Southa mpton	
			GX 339-4	17 02 49.36	-48 47 22.801	T01	pgand hi	Southa mpton	
			V4641 Sgr	18 19 21.630	-25 24 25.801	T02	pgand hi	Southa mpton	
			XTE J1550-564	15 50 58.780	-56 28 35.000	T03	pgand hi	Southa mpton	
A04_080	Multi-wavelength observations of two new young clusters at high Galactic latitude using Astrosat	We wish to observe two embedded clusters (ECs) (Camargo 438 and Camargo 439) within the high-latitude molecular cloud HRK 81.4~H~R77\$. This is the first detection of star formation in a high latitude molecular cloud, hence making them very interesting targets of study. Our Primary instrument is UVIT - NUV, with UVIT-FUV as the secondary instrument. As these are very young clusters ~2 Myr, we expect UV radiation from the stars. Also young stars are copious emitters of Xrays and hence we also plan observations using from SXT, LAXPC, and CZTI.	C 438	00 19 17	-18 47 55	T01	phasa n	MANU U	
			C 439	00 17 30	-17 49 18	T02	phasa n	MANU U	
			T Phe	00 31 04.29	-46 22 51.3	T03	phasa n	MANU U	
A04_081	AstroSAT observations of the next transient X-ray binary in the globular cluster Terzan 5	The globular cluster Terzan 5 contains numerous transient low-mass X-ray binaries. At least three of these have undergone X-ray outbursts over the past 15 years, showing a variety of intriguing behaviours. We propose a 40 ks AstroSAT observation of the next bright outburst from Terzan 5, to measure its X-ray energy spectrum, characterize its power spectrum, search for pulsations, and study any X-ray bursts that occur.	Terzan 5	17 48 04.80	-24 46 45	T01	cheink e	UAlber ta	
A04_082	Constraining the redshift of PKS0447-439 using multiwavelength observations	We request observations of the TeV blazar, PKS0447-439, using the multiwavelength instruments on board the ASTROSAT. We propose for 1 snapshot of 40 ks for this source. The redshift of this blazar is under debate. The proposed observation will provide unprecedented simultaneous UV/X-ray observations. This will be complemented by observations at optical, GeV and TeV measurements from other space and ground-based satellites. This will give a complete sampling of the SED, and will provide us with hitherto unknown clues on the physical processes responsible for the outbursts in blazars. More importantly, simultaneous X-ray/TeV measurements will be crucial in constraining the redshift of this blazar.	PKS0447-439	4 49 24.689	-43 50 8.916	T01	atreyc e	IUCA A	
A04_085	The UV Emission from Dual Nuclei in the End State of Galaxy Mergers-II	We propose to map the UV emission around dual nuclei in late stage galaxy mergers and interacting systems. Mergers can trigger bursts of star-formation and nuclear activity in galaxies. This can result in dual AGN and AGN+star-forming nuclei in the merging galaxies. Our targets have been observed by GALEX but not with the Hubble Space Telescope (HST) UVIS camera. The higher spatial resolution of UVIT compared to GALEX will help us resolve the dual cores and study the disk star-formation triggered by the merging process. Our targets are all low redshift, UV bright sources. We will confirm the nature of the double cores, map the associated star-formation, estimate star-formation rates and its correlation with the different types of nuclei. Not much is known about the UV emission from	SDSS J10192 0.83+4 90701.2	10 19 20.827	49 7 1.020	T01	rubinu r	IIA	
			SDSS J10270 0.40+1 74901.0	10 27 0.401	17 49 0.900	T02	rubinu r	IIA	

		dual AGN/starburst nuclei; hence UVIT observations will be an important step for understanding galaxy mergers.							
A04_088	Multi-wavelength observations of magnetic cataclysmic variables to probe the accretion flow	Magnetic cataclysmic variables show strong variations in their emitted radiation due to the changes in the flow of accretion matter impacting on the magnetic white dwarfs. The interactions of the ionized accretion matter with the magnetic field and the effective cooling of the hot plasma on the white dwarf surface are the key issues to explain the variability but these are not well understood. Here we propose to study the accretion flow characteristics close to the white dwarf surface. The multi-wavelength observations using ASTROSAT and SAAO/SALT will provide the information about the accretion flow geometry near the surface, the cooling mechanism of the hot accreted material. The orbital period and the white dwarf mass can also be constrained with better accuracy.	AI Tr	2 3 48.497	29 59 24.036	T05	pbera	IUCA A	
			V808 Aur	07 11 26.011	+44 04 05.08	T03	pbera	IUCA A	
A04_089	Study of the current accretion mode in FO Aqr	We request 50~ks ASTROSAT observations of the intermediate polar FO Aqr to study the current accretion state of the source. This previously known steady source has recently gone into the low state in May 2016 and now it is recovering from there. The optical light curve indicates the almost full recovery in January 2017. The multi-wavelength observation will provide the current accretion characteristics i.e. the accretion mode (disc-fed/stream-fed), the accretion flow geometry near the surface, any change in spin and orbital period.	FO Aqr	22 17 55.385	-8 21 3.780	T01	pbera	IUCA A	
A04_094	Investigating the broad band Spectral energy distribution BI Lac blazars using ASTROSAT	We propose a multi wavelength observation of two BI Lac objects, H 1426+428 and PKS 0521-36 using the multiwavelength payloads on board ASTROSAT. We request for single pointing of 30 ks for each source, resulting a total observation of 60 ks. The combined UVIT-SXT observation can be used to probe the synchrotron tail of the broadband spectral energy distribution (SED). The knowledge of the high energy synchrotron spectrum is important for understanding a meaningful radiative model for the source. The hard X-ray region, which can be probed by LAXPC, in the both sources. Further multiwavelength observation by ASTROSAT can be combined with Fermi-LAT observation to study over all emission and model SED. With this we can constrain the underlying model parameters responsible for the emission. Also using the multi-wavelength observation we will constrain the seed photon responsible for the inverse Compton process during the source detection.	H 1426+4 28	14 28 32.62	42 40 21.00	T01	SHAH ZAHIR	Kashm ir Univer sity.	
A04_099	ASTROSAT Study of Enigmatic Black Hole Candidate XTE J1908+094	We propose a 45 ks effective exposure of BHC XTE J1908+094 using LAXPC & SXT instruments on-board the AstroSat satellite. The source is a jet emitting transient LMXB discovered by RXTE/PCA and it continues to be persistent. The broadband tempo-spectral studies by RXTE, BeppoSAX, NuStar, Swift & MAXI observatories indicate the BH nature of the source. We propose to study the quasi-periodicity, its evolution, X-ray states, accretion and radio connection. LAXPC and SXT data will help in confirming black hole spin parameter by studying the relativistic smearing of Fe K $\alpha$ line of XTE J1908+094. Temporal variability of the source is unexplored above 20 keV. LAXPC together with SXT is an ideal instrument to study energy dependent timing variabilities in 0.3-80 keV energy band, which will further confirm the BH nature of the source.	XTE J1908+ 094	19 8 53.077	9 23 4.900	T01	jayash reeroy	CBS	

A04_100	Search for jet-induced star formation in Seyfert galaxies	Observations suggest that active galactic nuclei (AGN) play a central role in the galaxy evolution process via feedback mechanism. The alignment of radio/UV structures in high redshift radio galaxies led to the idea of jet-induced star formation. However, the local universe is mainly populated by radio faint galaxies. Observations of such AGN in this respect are found to be lacking. Hence, we aim to search for jet induced star formation in the low redshift universe using the high resolution capabilities of UVIT. Towards this, we propose to observe three low redshift AGN to identify star-forming regions, derive their physical parameters and investigate if jets indeed play a role in triggering star formation in low redshift AGN. This will be done in conjunction with radio (VLA/GMRT) and X-ray (Chandra) data. We request for a total observing time of 60 ksec for the three sources with UVIT as the prime instrument.	UGC 3374	05 54 53.6	+46 26 22	T01	KshamaSK	IIA	
A04_101	Multiwaveband study of PKS1510-089 using AstroSat	We propose AO observations of the TeV blazar PKS 1510-089 using various instruments along with, UVIT, SXT, LAXPC and CZTI on-board AstroSat. In this proposal, we are requesting for two observations of 30 ks (with SXT as prime instrument) having a total observation time of 60 ks which will give a X-ray spectrum with good statistical significance. We are also planning to organize a multiwaveband campaign using H.E.S.S, MAGIC telescopes, Fermi-LAT and Swift-XRT. Detection of X-ray and TeV variability, along with correlation studies between different energy bands from UV to $\gamma$ -rays will provide unprecedented knowledge about the origin of X-ray and $\gamma$ -ray emission in the source. The broadband SED obtained from simultaneous or quasi-simultaneous MWL observations will give crucial information about the physical properties of the source.	PKS15 10-089	15 12 50.533	-9 5 59.830	T01	sonalpatel	TIFR	
A04_103	Long Duration Monitoring of Variability in the Active Seyfert Galaxy MCG-6-30-15	We propose to make a long duration ( $\sim 10$ days) observation of the active galaxy MCG-6-30-15. The AGN is known to show significant spectral variability on all timescales. We wish to use this variability to constrain the primary emission mechanisms, their location and their relative geometry. We would thus hope to obtain a better understanding of the accretion disk, its corona and the distributions of circum-nuclear matter in these esoteric objects.	MCG-6-30-15	13 35 53.707	-34 17 43.944	T01	Gordon	Leicester	
A04_104	Investigation of $\Gamma_x$ - $L/L_{\text{edd}}$ relation for Seyferts using AstroSat	Study of $\Gamma_x$ - $L/L_{\text{edd}}$ relation in Seyfert galaxies is one way of establishing the connection between basic properties of accreting supermassive black holes and the emergent continuum radiation. Several studies carried out in the past mainly used spectral shape obtained from soft X-ray spectra. AstroSat gives an unique opportunity to study spectral shape over the wider band of 0.3-100 keV, which will enable us to constrain the $\Gamma_x$ - $L/L_{\text{edd}}$ relation. We have identified a sample of hard X-ray (Swift/BAT) selected bright Seyfert galaxies with measured mass and propose 20 ks (each) observations of four bright type 1 Seyferts to augment this sample with a precise measurement of the spectral shape. We also plan to study the short term X-ray variability in these objects.	Mrk 509	20 44 9.768	-10 43 24.445	T03	KISHOR_NBU_A_PDC	NBU	
			NGC 3516	11 6 47.494	72 34 6.700	T02	KISHOR_NBU_A_PDC	NBU	
			NGC 5548	14 17 59.513	25 8 12.450	T04	KISHOR_NBU_A_PDC	NBU	

A04_105	Probing the nature of X-ray transient IGR J17451-3022 with Astrosat	We propose a $\sim 50$ -ks Astrosat observation of the eclipsing X-ray transient IGR~J17451-3022 to investigate the nature of the poorly studied X-ray source in the binary system. Due to the detection of X-ray eclipses in its light curve and short orbital period ( $\sim 6.3$ -hr), IGR~J17451-3022 is believed to be a low-mass X-ray binary. Using the proposed observation, we will investigate the timing and broadband spectral properties of the source in detail which has not been done yet. The Astrosat observation will allow us to constrain the color-color and hardness intensity diagrams that would be crucial for identifying the nature of the compact object. Spectral characteristics with SXT and LAXPC will help us to understand the origin of high energy emission, inner accretion disk size which can provide information on the central source. This observation will also estimate the eclipse parameters with better accuracy as well as constrain the mass ratio.	IGR J17451-3022	17 45 06.72	-30 22 43.3	T01	gaurava	PRL	
A04_107	Astrosat observations of gamma-ray binary pulsar PSR J2032+4127	Recently discovered gamma-ray/Be binary pulsar PSR J2032+4127, with an orbital period of $\sim 50$ years, is known to be approaching the periastron in late 2017/ early 2018. We propose two $\sim 40$ ks Astrosat observations of the pulsar at its periastron passage during November 2017 -- January 2018. Using the proposed two Astrosat observations, we will investigate the mechanism of high energy emission, flares, presence or absence of X-ray pulsation, wind dynamics of the pulsar, stellar wind properties, disk-outflow, and neutron star interaction with Be circumstellar disk. Coordinated continuous optical/ near-infrared monitoring observations of the Be star will also be carried out by using the 2.1-m Mexican and 1.2-m Mt. Abu telescopes, in addition to TeV observations with HAWC. These multiwavelength observations are essential to understanding the evolution, interaction, and dynamics of neutron star with Be-disk in the gamma-ray binary.	PSR J2032+4127	20 32 13.13	+41 27 24.36	T01	gaurava	PRL	
A04_108	ASTROSAT Observations of the first eclipsing accreting millisecond X-ray pulsar SWIFT J1749.4-2807: Neutron Star Properties and Accretion Flows	SWIFT J1749.4-2807 is an eclipsing accreting millisecond X-ray pulsar-(AMXP) having tight constraints on its inclination range ( $\sim 74.4$ - $77.3$ degree). It is a unique AMXP that shows double peaked pulse profiles during its outbursts and most importantly, it shows uncommonly strong harmonic content that, together with the known inclination, suggests that it might be the best source to date to set constraints on neutron star properties including compactness and geometry. To further explore this possibility we propose to observe the next outburst of SWIFT J1749.4--2807 with 40 ksec. We aim at performing pulse profile evolution study and to model these pulse profiles to constrain Equation of State (EOS) models. We will also perform spectral study of this source using X-ray data of the ASTROSAT (SXT+LAXPC). This will be complemented by an extensive Swift monitoring of the new outburst.	Swift J1749.4-2807	17 49 31.781	-28 8 4.200	T01	aruberi	Southampton	
A04_109	Simultaneous ASTROSAT + Multiwavelength Observations of the Prototypical Transient Black Hole X-ray Binary GX 339-4	Black hole X-ray binaries cycle through different accretion states on timescales of days to months, providing a time-resolved view of how matter behaves in a strong gravity environment. Simultaneous observations across the electromagnetic spectrum are the optimal tool that exposes this view. However, strictly simultaneous radio through broad-band X-ray observations have been achieved in only a few X-ray binary outbursts. We request six 20 ks epochs of ASTROSAT (LAXPC/SXT/CZTI) observations of GX~339-4. We will trigger two sequences of 15-day monitoring over three epochs each, for which we will coordinate multi-	GX 339-4: Decaying Hard State	17 02 49.36	-48 47 22.801	T02	gsivakoff	UAlberta	
			GX 339-4: Rising Hard State	17 02 49.36	-48 47 22.801	T01	gsivakoff	UAlberta	

		wavelength coverage, to measure the evolving broad-band spectral energy distributions (SEDs) during the rising-hard and decaying-hard accretion states. We will determine how the evolving accretion properties (derived from X-ray timing and fitting models to X-ray spectra) are connected to the evolving jet properties (derived from broad-band SED fits that constrain, for example, the conditions where the electrons are first accelerated).							
A04_110	%latex%Multiwavelength observations of Seyfert 1 galaxy Mrk-279 by AstroSat	%latex%The typical AGN spectra is complex with having a soft excess which dominates in low energies while at high energies the spectrum is believed to be due to thermal Comptonization. While earlier studies have been typically limited to narrow energy bands, AstroSat provides a unique opportunity to study the complete broad band X-ray spectrum (0.3-80 keV) which covers all the spectral components and hence to understand the relation between them. The simultaneous multi-wavelength capability of AstroSat can better constrain the SED fit with UVIT observations in the optical/UV band. We propose a 40 ksec observation of the well known Seyfert 1 galaxy Mrk 279 with SXT as the primary instrument along with LAXPC and UVIT. These observations will also help to study the possible fast variability in short timescales of the source in both UV and X-ray bands.	Mrk 279	13 53 3.446	69 18 29.556	T04	jeena	PWC	
A04_112	Observations of LMC X-3 to study accretion flow geometry by AstroSat monitoring	We propose a monitoring campaign of LMC X-3 with 4 observations of 15 ks each separated by 15 days with AstroSat using SXT as the primary instrument. This will be a multi-wavelength study of the intensity variations in LMC X-3. The source displays large variations in intensity with associated change of state in these variations in a large waveband from infrared to X-rays. Time lags are present in between different bands. However, there has been no systematic study of these lags across the UV, X-ray waveband. With this proposal, we intend to study the wide-band spectrum of the binary in different states and also monitor the lags in the intensity variations using the excellent timing and spectral coverage of AstroSat. With this information, we will model the accretion geometry (wind/disk based) as a function of the orbit of this source using techniques developed in Iyer et al (2015).	LMC X-3	05 38 56.29	-64 05 03.00	T01	anuj	ISRO	
A04_113	Cold Dust Masses of Star-Forming Galaxies	Requested observation: UVIT imaging of three bright nearby star-forming galaxies for which we have assembled a unique array of panchromatic photometry. Context: A majority of the dust in galaxies is cold, and very difficult to detect. This is unfortunate, because a precise understanding of dust is essential to a correct understanding of galaxies' young stellar content and their far-infrared emission commonly associated with ongoing star formation. Objectives & Expected scientific results : Our proposed UVIT imaging will bracket the Balmer break and thereby measure precisely the ages of the young stellar populations in our sources. This will in turn identify the portion of the thermal far-IR emission associated with young stars, and reveal the hitherto hidden cold dust.	NGC7307	22 33 54.46	-40 55 51.3	T01	m1nas hby	CFA	
			NGC7462	23 02 48.05	-40 50 10.2	T02	m1nas hby	CFA	
			NGC7590	23 18 54.80	-42 14 21.0	T03	m1nas hby	CFA	

A04_115	Multiwaveband study of bright radio galaxies using AstroSat	We request AO observations of the three radio galaxies Cen A, M87 and NGC 1275 using the multiwavelength instruments (SXT, LAXPC, CZTI & UVIT) on board AstroSat. We are asking for two pointings of 30 ks effective exposure for each observation i.e. a total exposure of 60 ks per source with SXT as a primary instrument. The nature of the X-ray flux variability and spectrum will provide very crucial information about the origin of the X-ray and $\gamma$ -ray emission from the source.	M 87	12 30 49.423	12 23 28.044	T02	varsha	TIFR	
A04_116	Study of the stellar atmosphere and related dynamo of an active ultra-fast rotator AB Dor	We propose to carry out an in-depth multi-band study of an active, ultra-fast rotator AB Dor with a rotation period of 0.51 days. The K-type main sequence star, at a distance of 14.9 pc displays very high X-ray flaring frequency of $\sim 2$ flares per rotation, with numerous strong flares on time scales from minutes to weeks, which reaches upto an integrated X-ray fluxes of $\sim 4 \times 10^{-9}$ erg cm <sup>-2</sup> s <sup>-1</sup> . However, a detailed study of AB Dor in hard X-ray band was not been carried out, thus far. We intend to study the highly time-resolved correlation of photospheric, chromospheric and coronal activity indicators and to study the rotational modulation. These proposed observations will allow us to understand the dynamic behavior of the corona, which is found to be strongly related to the fluorescence of the photospheric materials. Furthermore, the proposed observations will yield insight into the nature of the associated magnetic dynamos.	AB Dor	5 28 44.830	-65 26 54.856	T01	subhajeet09	ARIES	
A04_118	ASTROSAT observation of the fastest accreting millisecond pulsar IGR J00291+5934	We propose a 70-ks ASTROSAT observation of the fastest accreting millisecond pulsar IGR J00291+5934 during its next outburst. We aim at measuring the spin and orbital parameters of this interesting source, in order to improve its ephemeris. This is the only accreting millisecond pulsar for which there is a general agreement on the spin-up observed during outbursts. It also shows a long-term spin-down, probably caused by magnetic dipole emission during quiescent periods or gravitational radiation from the fast spinning neutron star. The next outburst will allow us to constrain the still elusive orbital period derivative in this systems, and its long-term orbital evolution, or to give very tight upper limits. The knowledge of accurate and precise ephemeris of the pulsar are of paramount importance for a meaningful search of the radio and gamma-ray counterparts expected to turn on if the source switches to a rotation-powered pulsar state during X-ray quiescence.	IGR J00291+5934	00 29 03.06	59 34 19.0	T01	tdisalvo71	Unipa	
A04_122	Observation of Atoll Source GX 3+1 with AstroSat	A 50 ks observation of the persistent atoll source GX 3+1 with LAXPC as the primary instrument is proposed. The object is one of the brightest atoll sources and switches between bright and faint phases. Since LAXPC can measure the time lags as small as few tens of milli-seconds, the frequency resolved time lags and its energy dependence will help us understand the interplay between the hard and soft photons and the origin of hard X-ray emission which is believed to be originated in the transition layer between accretion disk and the neutron star. Simultaneous coverage with SXT, LAXPC and CZTI will be helpful in the characterization of the spectral models.	GX 3+1	17 47 55.999	-26 33 48.996	T01	anjali	IUCAA	



A04_124	X-ray/UV/Optical/IR variability of the bare AGN UGC-06728	We request a 50 ks {\it AstroSat} observation (with UVIT as primary instrument) of a bare NLS1 UGC-06728. This AGN exhibits strong and rapid variabilities in the UV/optical and X-ray bands. These variations have never been studied in detail till date in this AGN. Existing X-ray/UV/Optical observations of the AGN do not allow us for cross-correlation analysis to investigate the cause of observed variabilities. To carry out such studies in detail, simultaneous multiwavelength observations are very much essential. Considering this, we propose a single long observation with the UVIT, SXT, LAXPC and CZTI instruments of {\it AstroSat}. Simultaneous Optical/IR observations of the AGN will be carried out by using IR observatory of PRL and other ground based observatories in India. The main aim of this proposal is to study the correlation between the UV/optical/IR and X-ray bands, and to derive the lag spectrum to understand the nature of accretion disk.	UGC 06728	11 45 16.022	79 40 53.436	T01	mainp al	IUCA A	
A04_126	Observation of Atoll Source 4U 1735-44 with AstroSat	A 50 ks observation of the persistent atoll source 4U 1735-44 with LAXPC as the primary instrument is proposed. The object is a bright atoll source and switches between various branches in color-color diagram. The object's brightness and LAXPC's capability of measuring time lags as small as few tens of milli-seconds can be harnessed to study frequency resolved time lags and its energy dependence. The analysis of timelags and cross correlation functions will be used to analyse the relation between different energy bands, which in turn will help to understand radiative processes and accretion flow properties. A systematic search will be made to detect kHz QPO which has been detected in RXTE data of the object. Simultaneous coverage with SXT, LAXPC, and CZTI will be helpful in the characterisation of spectral models.	4U 1735- 44	17 38 58.301	-44 27 0.000	T01	anjali	IUCA A	
A04_130	Studying the Temporal Behaviour of Blazars in the Multi-Wavelength Context	As blazars are extremely variable objects emitting radiation along the electromagnetic spectrum, simultaneous multi-wavelength observations are crucial. To fully characterize their behaviour and draw conclusions on the underlying physics, it is important to study the temporal behaviour of the spectral energy distribution. We chose a sample of blazars with different properties which are being monitored at very high energies. We propose to monitor this sample with ASTROSAT with a two week cadence to collect an unprecedented multi-wavelength data sample which will allow us to better describe the spectral energy distribution making use of the multi-wavelength capabilities of ASTROSAT. Combining it with the gamma-ray data, we will be able to study the correlation of the two energy ranges which allows us to constrain theoretical models on the emission mechanisms for the highest energies. For the whole sample of four sources, we propose a total exposure of 140 ks.	1ES 0229+2 00	02 32 48.615	+20 17 17.48	T01	Daniel a	Wuerz burg3	
			Mrk 421	11 04 27.314	+38 12 31.80	T04	Daniel a	Wuerz burg3	
			PKS 2155- 304	21 58 52.065	-30 13 32.12	T03	Daniel a	Wuerz burg3	
A04_137	UV and X-ray variability studies of the NLS1 Mrk 335 with ASTROSAT	The ultraviolet and X-ray emissions in AGN are often inter-connected. We plan to study the UV and X-ray variability of the NLS1 galaxy Mrk 335 using the simultaneous multiwavelength observational facility of ASTROSAT. We propose for a monitoring observation of Mrk 335 on 8 occasions, each separated by minimum 15 days, in both X-ray and UV bands. We request to observe the source for an individual exposure time of 19 ks with UVIT (primary instrument), simultaneously with SXT and LAXPC. The study will be useful to understand the geometry of the innermost regions of the AGN.	Mrk 335	00 06 19.58	20 12 10.44	T01	savithr i	STCK	



A04_141	Broadband spectral energy distribution of nearest Fermi detected FR II radio galaxy Pictor A	$\gamma$ -rays are expected to be originated in jet. As emission from jet falls off rapidly with jet inclination angle, misaligned AGNs (M-AGNs) are expected to be weak $\gamma$ -ray emitter. One of the source, NGC 1275, will be observed under accepted AO3 proposal. Here, we propose to observe the nearest Fermi detected FR II radio galaxy Pictor A, under AO4 observing period. In this source distinct core, jet and hotspot has been observed in radio and optical waveband. High resolution image from UV will be crucial to understand structure and morphology of jet and hotspot in multiband. We propose simultaneous observation of Pictor A with UVIT, SXT along with LAXPC and CZTI detectors on board ASTROSAT which is essential to construct the broadband spectra of the source and to better understand site of origin of $\gamma$ -rays and the accretion disk-AGN jet connection.	Pictor A	5 19 49.721	-45 46 43.788	T01	debbij oy	MCNS , MU	
A04_143	X-ray/UV connection and the nature of accretion disk in a high accretion rate AGN Mrk1044	The origin of optical/UV variations and the nature of accretion disks in AGN have been long standing problems. Recent Swift monitoring of a handful of AGN with low relative accretion rates reveal that the variations in optical/UV emission are caused by reprocessing of X-rays in the disk and the optical/UV lags are about 3 times longer than that expected for standard Shakura-Sunyaev disks. Measurement of optical/UV lags in high accretion rate AGN is lacking. We propose to measure time-lag, as a function of wavelength, between the optical/UV and X-ray emission, in a low mass, high accretion rate, bright and nearly absorption-free narrow-line Seyfert 1 galaxy Mrk1044. We request 150-ks AstroSat observation, with SXT as the primary instrument. We will also perform ground-based optical observations in parallel with our AstroSat observation. We will investigate the driver of optical/UV variations and test if this high accretion rate AGN hosts a standard disk.	Mrk1044	2 30 5.543	-8 59 53.550	T01	gulabd	IUCA A	
A04_144	Probing the Accretion Disk and Corona in the Broad Line Radio Galaxy 3C 111	We propose to observe the broad line radio galaxy 3C 111 for 100 ks continuously. Previous work of the PI showed that at ~days-months timescales X-ray/optical variability in 3C 111 is due directly or indirectly to intrinsic thermal fluctuations in the accretion disk. However, at shorter timescales (~hr) optical-UV variability may be due to intrinsic fluctuation in coronal X-rays and reprocessing of the X-rays at the disk. In that case we expect to observe fluctuation in the optical-UV emission of 3C 111 following that at the X-rays by a few hours. We plan to test this hypothesis with the proposed Astrosat observations and simultaneous ground based optical monitoring. Furthermore, the nature of soft-hard X-ray time lag (if any), and relative variability at X-ray and optical bands may help constrain the size and location of the corona.	3C 111	04 18 21.3	38 01 36.6	T01	ritab a	PU	
A04_145	Search for the missing companions to understand Be phenomenon in Classical Be stars	The mechanism by which disc is formed is classical Be stars, known as 'Be phenomenon', is one of the open puzzles in stellar research (Rivinius et al. 2013). One of the often suggested mechanisms is the role of an 'invisible' companion in the formation of this disc (Porter & Rivinius 2003). By 'invisible' companion we mean the companion whose presence is not easily assessed from continuum emission or spectral features in optical/infrared. They make their presence felt in the far-UV and X-ray region of the electromagnetic spectrum. Our proposal is to search for the elusive Be binary systems with white-dwarf (WD) or subdwarf O-type star (sdO or helium star) being the companion to Be star. However, no Be-WD system is detected till now and only a few (about 4) binaries belonging to Be-sdO category. Observations with UVIT and SXT are proposed to identify the hidden companions associated with Be stars.	BD+56 259	01 23 19.51	+57 38 54.96	T01	shruth ibhat	CU	
			HD 241570	05 12 53.95	+21 58 02.15	T03	shruth ibhat	CU	
			MWC 709	02 21 59.15	+70 55 53	T02	shruth ibhat	CU	

A04_148	Search for hot companions to Be stars: Stars with UV excess in few open clusters	The mechanism by which disc is formed in classical Be stars is one of the open puzzles in stellar research. One of the often suggested mechanisms is the role of an 'invisible' hot companion in the formation of this disc. They make their presence felt in the UV and X-ray region of the electromagnetic spectrum. Our proposal is to search for the elusive Be binary systems with whitedwarf or subdwarf O-type star being the companion to Be star. Mathew et al.(2008) identified few Be stars in the open clusters NGC 7510, NGC 7128 and NGC 581. The NUV magnitudes from GALEX data shows that most of these Be stars are brighter in the NUV, when compared to Be stars in other clusters which is suggestive of a hot companion. We plan to image these clusters in the FUV and NUV filters to measure, detect and characterize the UV excess.	NGC 581	01 33 23	+60 39 00	T03	shruth ibhat	CU	
			NGC 7128	21 43 57	+53 42 54	T02	shruth ibhat	CU	
			NGC 7510	23 11 00	+60 34 00	T01	shruth ibhat	CU	
A04_149	ASTROSAT observation of the perpetually spinning-up low luminosity persistent Be X-ray pulsar IGR J13020–6359	We propose a 40 ks ASTROSAT observation of IGR J13020–6359 that is member of a newly emerging sub-class of Be X-ray Binary (BeXRB) pulsars. Most BeXRBs are transient sources showing rapid spin-up during the outbursts and relatively slow spin down during quiescence. A relatively newly known subclass of BeXRBs show persistent and low luminosity level, perhaps due to persistent accretion from a low density wind, rather than the outflowing disk of the Be Star. Two characteristics that make IGR J13020–6359 unique are its persistent nature yet a strong, steady spin up for the last 20 years. In the standard theory of accretion onto high magnetic field neutron stars, steady spin up should result from either a high X-ray luminosity or a very low magnetic field strength of the neutron star. With the proposed ASTROSAT observation we will make a detailed broad band timing and spectral characterisation of this understudied source.	IGR J13020 -6359	13 01 58.80	-63 58 08.8	T01	jincydevasia	RRI	
A04_152	Exploring the nature of 1 Hz QPO in Dipping X-ray binaries with Astrosat	Dipping X-ray sources show the presence of a low frequency QPO which is called the 1 Hz QPO. The properties of this QPO are different than those of other low frequency oscillations detected in X-ray binaries. This QPO is detected with equal amplitude (rms) during bursts, persistent emission and dips. Unlike other low frequency QPOs it does not show any dependence on the energy, however this was within the sensitivity and energy range of RXTE/PCA. We propose to investigate the rms-energy spectra of 1 Hz QPOs with the wide energy range and higher sensitivity of Astrosat/LAXPC, we request 10 observations during the hard state of the source in this anticipated ToO. This will lead to the understanding of whether 1 Hz QPOs have origins in the Lenz-Thirring precession as proposed.	1A 1744-361	17 48 13.148	-36 07 57.02	T01	devraj	RJC	
			4U 1624-49	16 28 02.825	-49 11 54.61	T02	devraj	RJC	
			XB 1254-690	12 57 37.200	-69 17 20.80	T05	devraj	RJC	

A04_160	ASTROSAT Observations of Swift J045106.8-694803 to unveil the link between thermal excess and the strong magnetic field	Very recently, a new class of Be/X-ray binaries has been discovered that are persistent, exhibit low luminosity ( $L_X \sim 10^{34}$ ergs/s) and have long spin periods (greater than 100-s). Swift-J045106.8-694803 is one of the brightest ( $10^{36}$ ergs/s) among all the sources of this new class. It also exhibits the shortest spin period (~168-s) with a very high spin-up rate of $\sim 5.01 \times 10^{-6}$ s/yr, indicating strong magnetic field. Moreover, this source tends to show large contribution of the blackbody component to the total flux above 4-keV. Thus, Swift J045106.8-694803 is an excellent source to investigate the link between the hot thermal excess and its strong magnetic field strength ( $\sim 10^{14}$ Gauss). We request 80 ks observation of this source with ASTROSAT. The primary goal is to study the characteristics of the power law component (hard X-rays) in the presence of strong soft X-rays and to investigate evolution of spin period in this system.	Swift J045106.8-694803	+4 51 9.600	-69 48 3.600	T01	joydeep evasia	RRJ	
A04_162	A study of the dipping LMXB XB 1254-690 using AstroSat	We propose a 40 ks observation of the dipping neutron star (NS) low-mass X-ray binary (LMXB) XB 1254-690 with AstroSat. The important goals of our observation are spectroscopy of the energy dependent intensity dips and measuring the variation of the continuum with orbital period of 3.88 hrs using the high spectral resolution of Soft X-ray Telescope (SXT) and the high timing capability of Large Area X-ray Proportional Counter (LAXPC). We will further probe the X-ray emitting and absorbing components by correlating the various timing and spectral properties with the source states. These timing properties include low frequency dipper QPOs, kHz QPOs and millisecond period brightness oscillations. These will provide the spin frequency of the neutron star in this high inclination source for the first time. We will look for bursts in the data to confirm the candidate burst oscillations at the frequency 95 Hz found in a burst previously.	XB 1254-690	12 57 37.153	-69 17 18.980	T01	nilam 09m	DSCL	
A04_164	Ultraviolet studies of merger remnant galaxy NGC 1316	We propose 6360 sec of FUV and NUV observations of merger galaxy NGC-1316 with AstroSat/UVIT with an objective to investigate star-formation processes and distribution of massive stars in it. Though NGC-1316 has been observed during GALEX survey, due to its low spatial resolution and ineffective exposure, above topics have not previously been explored in detail. Earlier studies of NGC-1316 showed morphological distribution of hot gas which matches well with that of ionized gas and related optical dust features. Color-index and extinction maps derived for this galaxy reveal an intricate and complex dust morphology at 6-7 kpc. It apparently takes the form of an arc-like pattern extending along north-east direction. The presence of multiphase gas such as dust, warm, cool gas etc. shows active star formation in this galaxy. The proposed NUV and FUV observations with UVIT will provide a unique opportunity to study above properties of this galaxy in detail.	NGC 1316	+3 22 41.719	-37 12 29.628	T01	nilkanth	MUM	
A04_167	Astrosat UVIT Observations of Star Formation History of Most Massive, Rotationally Supported Spiral Disks	ASTROSAT UVIT observations of star formation efficiency and feedback signatures in some of the most massive spiral galaxies with rotation velocities $> 300$ km/sec are proposed. These galaxies clearly depart from stellar-mass and baryonic-mass Tully-Fisher relations, indicating a significant shortfall of "condensed" baryon fraction in them, despite their large mass. The high sensitivity of UVIT and its arcsecond scale resolution will be used to investigate their puzzling nature.	NGC 266	+00 49 47.8	+32 16 40	T04	joydeep	IUCA A	
			NGC 4501	12 31 59.1	+14 25 13	T05	joydeep	IUCA A	
			NGC 5635	14 28 31.7	+27 24 32	T02	joydeep	IUCA A	

A04_171	Investigation of growth rate of Compton thick active galactic nuclei using {\it AstroSat}	We request 60 ks AstroSat observations for each of three obscured and bright AGN NGC~424, NGC~4388 and NGC~4945. All these AGN have well known masses, however, their nature of being Compton thick is still a matter of debate -- whether these AGN have obscuring broad line region or torus like material. The spectroscopy of these AGN show Compton thick absorbers with high covering factors. While the lightcurves exhibit variabilities on minutes to hours timescale indicating less covering factors. These AGN are also known to be very bright though little is known about the values of high energy cutoff. High sensitivity and unprecedented hard X-ray effective area of detectors onboard AstroSat provide the best opportunity to constrain the shape of the continuum and high energy cutoff. Using data from Astrosat, broadband X-ray analysis will allow us to constrain the BLR/torus covering factor and a self consistent spectral-timing picture of these AGN.	NGC 424	1 11 27.626	-38 5 0.492	T01	sachin	PRL	
A04_172	Probing accretion disk and UV/Xray connection in NLS1 galaxy TON S180	We propose a 50 ks observation of a nearby Narrow line Seyfert1 galaxy TON~S180 ( $z \sim 0.0062$ ) to study some of the outstanding problems of AGN phenomenon using Astrosat's simultaneous multiwavelength capability with UVIT as a primary instrument. Some of these problems include the origin of soft X-ray excess and the optical/UV emission and connection between them, nature of accretion disks, connection between optical/UV. We intend to construct the broadband spectral energy distribution to disentangle between various models that fit statistically equally well. The time delay study will lead to test the models for both the accretion disk and soft excess. The relationship between optical/UV and absorption-free hard X-ray emission above 10-keV will allow us to test thermal Comptonisation models with seeds as optical/UV disk photons.	TON S180	0 57 19.944	-22 22 59.088	T01	pramod	SRTM	
A04_174	Probing emission mechanism and geometry in Crab pulsar by phase resolved polarimetry with AstroSat CZTI	This proposal is continuation of efforts to obtain the most significant measurement of hard X-ray polarization as function of pulse-phase for the Crab pulsar with AstroSat:CZTI-Imager. Pulse phase-resolved polarization measurements of Crab will be helpful in constraining the pulsar emission models and geometry. We have obtained statistically significant polarization measurement for Crab from the available CZTI data in the last 1.5 years(exposure~800ks) when averaged over all phases. These observations also have provided very interesting results for the polarization of pulsed emission as function of pulse-phase, which can provide insights to the pulsar emission models. However the statistical significance of these results are rather low and inorder to make concrete interpretation of these results it is necessary to have much larger exposure time (~2-5Ms). As the requirement of this large exposure time can not be met in a single observation cycle, we propose 500 ks observation of Crab in this cycle.	Crab	5 34 31.940	22 0 52.200	T01	mithunnp	PRL	
A04_176	Star formation in the hosts of local active galactic nuclei	Nuclear activity and star formation(SF) in galaxies are observed to exist together across redshifts. Nuclear activity can have an impact on the SF properties of the hosts of active galactic nuclei (AGN) via feedback processes. Observationally there are evidences for positive and negative feedback and it is likely that they co-exist. Systematic investigation of the SF properties of AGN hosts on various physical scales (parsec to kilo-parsec) will allow one to (i) reconcile the two contrasting observations on the feedback processes operating on AGN hosts and (ii) examine the complex interplay between black hole activity and SF in AGN. We therefore propose to carry out a systematic analysis of the SF properties of a sample of AGN on physical	NGC 2685	08 55 34.6	58 44 04	T01	KshamaSK	IIA	
			NGC 4395	12 25 48.8	+33 32 49	T02	KshamaSK	IIA	
			NGC 5194	13 29 52.7	+47 11 43	T04	KshamaSK	IIA	

		scales of hundreds of parsecs down to the lowest physical extent allowable by the resolution of UVIT. We request for a total of 43 ksec to observe four AGN.							
A04_180	GRS 1915+105 multiwavelength fast variability	In recent years, the study of the correlated X-ray/OIR fast variability in black-hole transients (BHTs) is showing more and more promising results. GRS 1915+105 was one of the first BHTs to be studied with a multi-wavelength approach, showing the first strong evidences for a disk-jet connection. As of today, only few X-ray-OIR simultaneous observations have been reported of this source. We therefore propose to participate with ASTROSAT to an already approved multi-wavelength observing campaign to study the X-ray-IR fast variability, together with XMM-Newton and VLT, in order to cover the hard X-ray band. ASTROSAT sensibility in the hard X-rays will be crucial to study the inflow-outflow connection, avoiding the accretion disc contamination.	grs1915+105	19 15 11.550	10 56 44.801	T01	fmvin ce	OAR	
A04_183	Understanding accretion process in old T Tauri stars which belong to wide binary systems	We propose to study the accretion rates of PDS 11 and LDS 5606, which belong to the rare class of nearby, isolated T Tauri stars. These stars belong to wide binary systems with separations greater than 1 kau. PDS 11 and LDS 5606 are the only wide binaries in the Galaxy where both the components host active accretion discs. The age of these classical T Tauri stars are older than 10 Myr. It has been considered that the disc in young stellar objects like PDS11 get disrupted over a period of 6 Myr. Accretion rates estimated from UV excess are considered more precise compared to Ha. We propose to estimate UV excess from observations using UVIT to confirm whether the binary companions of these stars are actively accreting. This will help us to understand the accretion process, and the disc survival in these old T Tauri stars.	LDS 5606	04 48 00.8	+14 39 58	T02	blesso nmath ew	TIFR	
A04_184	A probe of the geometry of Swift J1357.2-0933 using AstroSat multiwavelength observation	We request 35ks observation of the black hole transient Swift J1357.2-0933. We will like that the source be observed with LAXPC, SXT, CZTI and UVIT particularly during outburst. The present proposal is meant to corroborate ongoing attempt to understand the origin of the peculiar behaviour observed in this black hole transient. More so, this source is of particular interest because it is a high galactic latitude source which will enable simultaneous observation with the multi-wavelength capability of AstroSat. We will like to probe the toroidal environment of this source using the multi-wavelength capability of AstroSat. This will provide vital information about the geometry of the regions in the immediate vicinity of the black hole. Until now, it is unclear where the obscuring torus in this system is located and how it affects the observed emission from this black hole candidate both on the disc and in the corona.	Swift J1357.2-0933	13 57 16.82	-09 32 38.55	T01	adego ke	IISc	

A04_186	Constraining the neutron star magnetic field in SAX J2103.5+4545 from Astrosat observations	We propose a 40-ksec observation of SAX-J2103.5+4545 with Astrosat. The X-ray pulsations in this system is detected even at $L_x \sim 10^{33} \text{ erg s}^{-1}$ , the lowest luminosity ever reached by an accreting pulsar with pulsed emission in quiescence. At outburst peaks, the X-ray luminosity reaches $(0.6 - 1.0) \times 10^{37} \text{ erg s}^{-1}$ . In past, the pulsar had shown phases of rapid spin-up/spin-down during outbursts. From the rapid spin-up of the pulsar, an indirect estimation of magnetic field $\sim 10^{12} \text{ G}$ implies a cyclotron line near 10-20 keV. However, such features were not found from previous observations. The broadband coverage of Astrosat would help us in direct estimation of magnetic field in the pulsar for first time with detection of cyclotron lines in the spectra. The X-ray spectral and timing studies of the pulsar would allow us to study the spectral variability and will be useful in estimating spin period of the pulsar in present epoch.	SAX J2103.5+4545	21 3 35.710	45 45 5.508	T01	prahlad	PRL	
A04_190	Probing the particle energy distribution (PED) in blazars	We propose an anticipated ToO to perform the detailed study of a representative sample of three blazars spread across different sub-classes. The proposed study aims to constrain the particle energy distribution (PED) of energizing leptons responsible for the blazars outbursts. We request for 120 ks, 140 ks and 140 ks observations for PKS 2155-304, S5 0716+714 and 3C 454.3, respectively, triggered by increasing Fermi count rates. This shall be part of a multiwavelength campaign including many modern space and ground based facilities covering a large range in frequencies. AstroSat, because of its simultaneous broadband coverage, shall uniquely contribute to constraining spectral curvatures in the multiwavelength SED	3C 454.3	22 53 57.748	16 8 53.561	T03	chandrasunil	TIFR	
			S5 0716+714	7 21 53.448	71 20 36.363	T02	chandrasunil	TIFR	
A04_192	UV Imaging of the Red Rectangle Nebula	We propose to image the biconical Red Rectangle Nebula around HD 44179 in the NUV and FUV with selected UVIT NUV and FUV filters. We also propose to obtain NUV and FUV grating spectra of this target. The science objective is to image the nebular environment around HD~44179 in the ultraviolet for the first time. The Red Rectangle is the strongest known source of Extended Red Emission (ERE); the ERE forms a continuous spectrum from 5500--8500 Å, with sharper features reminiscent of molecular bands superimposed. The FUV spectrum of HD 44179 is dominated by strong absorption from the 4th Positive bands of the CO molecule. HD 44179 is the only known extrasolar source of CO Cameron band emission (2000--2200 Å). We propose to image the Red Rectangle Nebula in the UV to determine whether this CO emission is spatially coincident with the biconical Red Rectangle Nebula in the red.	HD44179	6 19 58.219	-10 38 14.706	T01	pbennett	Dalhousie	
A04_193	Studying the accretion dynamics of SMC X-1 with ASTROSAT	SMC X-1 is a peculiar neutron star HMXB which defy typical behaviour of other HMXBs. At odds with other HMXBs, it shows steady spin-up. It also exhibits Type II bursts, probably caused by the viscous instability of an accretion disk and the soft versus hard X-ray pulse profiles of SMC X-1 are offset, probably because of different origin. It's Suzaku spectrum hint a CRSF at ~ 40 keV during high flux states along with pulsating soft excess which is but not confirmed in Nustar data. We propose 60 ks observation with LAXPC, SXT and CZTI in the high intensity state for indepth timing and deep hardness-ratio resolved analysis of SMC X-1 which will allow us to understand the origin of these flares more closely along with characterizing the broadband X-ray spectrum and probing the possible presence of the CRSF feature.	SMC X-1	1 17 5.146	-73 26 36.030	T01	bikash.c.paul	NBU	

A04_196	The Ultraviolet Attenuation Law from Overlapping Galaxy Pairs	How interstellar dust attenuates starlight with wavelength is critical and fundamental to our understanding of galaxies. In the ultraviolet, the Milky Way dust attenuation shows a bump, while other attenuation relations does not. We ask for ultraviolet observations of 5 overlapping galaxy pairs. Modeling both galaxies, one can estimate the amount of background galaxy flux attenuated by the dust in the foreground disk galaxy. Together with optical and near-infrared data, the dust attenuation as a function of wavelength is directly measured. Two UV filter observations map the bump in the attenuation relation for the first time in other galaxies and ULX observations concurrently, to estimate nuclear source activity for galaxy pairs that are explicitly not interacting. We will fit the dominant attenuation relation and any relations between the attenuation-wavelength relation and the mass, type, position, and star-formation of the foreground disks.	SDSSJ 114503.88+195825.2	11 45 03.88	+19 58 25.2	T01	holwe rda	OTHE RS	
			SDSSJ 120639.90+254508.3	12 06 39.90	+25 45 08.3	T02	holwe rda	OTHE RS	
			SDSSJ 125818.23+290743.6	12 58 18.23	+29 07 43.66	T04	holwe rda	OTHE RS	
			SDSSJ 155929.99+094900.6	15 59 29.99	+09 49 00.6	T05	holwe rda	OTHE RS	
A04_198	Blank sky 5 observation for the LAXPC instrument (On June 2018)	In order to understand the instrument background and to develop the robust background model for the same, we need frequent background observations which cover complete range of latitude and longitude which corresponds to about one day observation. Blank sky (background) observation are essential if we want any meaningful science from AstroSat/LAXPC data with source strength below 50% of the LAXPC background. More than 50% of all AstroSat observations will have signal strength below this level and hence understanding LAXPC background is very important if we want any meaningful science from these observed faint sources.	Blank Sky 5 255 - 50	03 49 28.876 23	-47 06 17.223 8	T01	tilak	TIFR	
A04_199	Broadband X-ray monitoring of OJ 287 to probe the binary SMBBH in OJ287. A collaborative effort with Event Horizon Telescope	BL Lac object OJ287 is the most promising candidate for the existence of a supermassive black holebinary inspiralling under the action of gravitational wave emission. The Event Horizon Telescope (EHT)consortium is trying to image and if possible resolve the binary Black Hole central engine of OJ287 andApril 2017 AstroSat observations were part of EHT''''''''''s new campaign on OJ287. Another EHT campaign isexpected to happen during the spring of 2018. We propose a single AstroSat pointing of 120 ks on OJ287during this campaign. The deep observations by AstroSat will help us in constraining the valley part ofSED of OJ287 and also to explore its central engine. These combined MW observations are expected toclarify the origin of a possible precessing helical jet in OJ287 . This proposal is for an anticipated ToO, tobe triggered by the planned EHT + ALMA observations.	OJ 287	8 54 48.875	20 6 30.641	T01	goputi fr	TIFR	
A04_201	Star foirmation and candidate tidal dwarf galaxies in tidal tails	Long tidal tails and bridges are typically produced in minor mergers or flyby binary galaxy interactions, as major mergers are relatively uncommon in the local universe. These tails and bridges are active sites of star formation - leading to young star-formation complexes (SFC), even tidal dwarf galaxies (TDG). How and when these objects are formed remain to be explored in a systematic fashion. So are their physical nature. We propose to investigate three interacting galaxy system, Arp 305, NGC 2782 and Arp 105 using deep UVIT imaging observation in two NUV and one FUV broadband filters. The resulting colors, in addition to the UV-optical, infrared colors, will be used to characterize the size, mass and physical nature of the SFCs and possible candidate TDGs. With UVIT''''''''s better PSF and sensitivity, we will derive the number statistics, distribution of these SFCs and morphology, age and metallicity of the TDGs.	Arp 105	11 10 59.24	+28 41 16.31	T03	kanak	IUCA A	
			Arp 305	11 58 37	+27 29 27	T01	kanak	IUCA A	

A04_203	Blank sky 6 observation for the LAXPC instrument (On Sept 2018)	In order to understand the instrument background and to develop the robust background model for the same, we need frequent background observations which cover complete range of latitude and longitude which corresponds to about one day observation. Blank sky (background) observation are essential if we want any meaningful science from AstroSat/LAXPC data with source strength below 50% of the LAXPC background. More than 50% of all AstroSat observations will have signal strength below this level and hence understanding LAXPC background is very important if we want any meaningful science from these observed faint sources.	Blank Sky 6 115 - 50	00 30 34.945 93	+12 33 00.927 5	T01	tilak	TIFR	
A04_207	Testing Radiation-Dominated Accretion Models with the Rapid Burster	We request two 20 ksec observations of the Neutron Star Low Mass X-Ray Binary (LMXB) MXB 1730-335 (the 'Rapid Burster') during its next outburst. In previous outbursts, the Rapid Burster has displayed complex 'classes' of variability previously only seen in the Black Hole LMXBs GRS 1915+105 and IGR J17091-3624. Only 2 classes have been observed in the Rapid Burster, compared to 15 and 9 respectively in GRS 1915+105 and IGR J17091-3624. With LAXPC and SXT we aim to observe and perform phaseresolved spectroscopy of additional classes in the lightcurve of the Rapid Burster, and the presence or absence of these classes will allow us to quantify the role of the compact object in GRS 1915-like variability. We also expect to observe ~100 Type I and II X-Ray Bursts, allowing us to further burst population studies performed by previous authors.	Rapid Burster	17 33 24.610	-33 23 19.799	T01	jamiec	Southampton	
A04_208	AstroSat Monitoring of the Next Outburst of IGR J17091-3624	IGR J17091-3624 is an LMXB that displays a complex set of "variability classes" in its X-ray flux over time. Similar behaviour seen in GRS 1915+105 was thought to be driven by near-Eddington-limit accretion. Recent suggestions that IGR J17091-3624 accretes far below Eddington have cast doubt on this interpretation. GRS 1915+105 has been in outburst since discovery; studies of IGR J17091 present us with the only opportunity to study the evolution of outbursts containing GRS 1915-like variability. This helps us to understand how these objects differ from the many LMXBs which do not show this variability. We propose a series of AstroSat observations to study the next outburst of this source, consisting of 10 observations of 10,ksec each over 500 days, to study the GRS 1915-like variability in the context of the wider outburst and to increase the number of observations of variability classes in IGR J17091.	IGR J17091 -3624 (Offset )	17 10 24.00	-36 18 00.00	T01	jamiec	Southampton	
A04_209	NGC 628 : Young Stellar Populations with UVIT and SITELLE	The objective of this project is to characterize with unprecedented accuracy the star-forming regions of one of the best studied nearby spiral galaxies, NGC 628, by combining two highly complementary tools: imaging spectroscopy in the visible of the ionized gas using SITELLE (data in hand) and ultraviolet imagery of the underlying ionizing stellar populations using UVIT. A set of UVIT filters is selected (FUV-F2, FUV-F5, NUV-F2, NUV-F3, NUV-F5, and VIS1) to cover sensitive regions over the SED of young stellar clusters. While SITELLE provides, with a spatial resolution similar to UVIT, a measurement of the gas emission lines, the clusters' parameters will become inputs for a photoionization code used to gather the gas properties. These combined information from the ionized gas and stellar populations will allow us to study the impact of star formation and different mixing mechanisms on the evolution of an isolated spiral galaxy.	NGC6 28	1 36 41.748	15 47 1.176	T01	carovert	UL	



A04_210	Probing accretion in T-Tauri stars using simultaneous FUV and NUV photometry	We propose to observe a small sample of young T Tauri stars in their classical (accreting) and weak line (non-accreting) stages. At early epochs, UV flux from a T Tauri star is accretion-dominated, and as the disk dissipates only the chromospheric contribution remains. Accretion shocks are believed to generate most of the energy in the UV, with a characteristic shock temperature of $\sim 10^4$ K, but this has yet not been firmly established. The evolution of the UV spectrum is moreover unknown, despite the importance of UV in heating the disk gas, influencing gas chemistry and driving photo evaporative winds. From multi-band UVIT observations of young stars with varying mass accretion rates, we will determine the link between the FUV and NUV emission---these observations will form a first step toward characterizing the FUV continuum.	BS Tau	4 58 51.413	28 31 24.170	T02	annap urni	IIA	
			FM Tau	4 14 13.582	28 12 49.240	T04	annap urni	IIA	
			HD 283782	4 44 54.454	27 17 45.230	T03	annap urni	IIA	
			V836 Tau	5 3 6.595	25 23 19.710	T01	annap urni	IIA	
A04_212	Explaining the Bursts of Star Formation in Blue Compact Dwarf Galaxies	Observations: We request 14700 seconds of UV observations of five blue compact dwarf (BCD) galaxies: VII Zw 403, NGC 3738, Haro 36, Mrk 178, and Haro 29. Context: BCDs are undergoing a burst of star formation. It has yet to be observationally confirmed what triggers this burst of star formation for BCDs. Atomic hydrogen studies have revealed several potential starburst triggers in our proposed sample: gas accretion, dwarf-dwarf mergers, and ram- pressure stripping. Objectives/Results: We will use UVIT to look for features that may distinguish different starburst triggers. In galaxy mergers with remnant tidal features, we expect to see young stars that have been expelled from the disk into tidal tails. For ram-pressure stripping, we expect to see young stars in gas that has been stripped from the galaxy. Intergalactic medium being accreted onto a galaxy would be expected to have no measurable emission from new stars.	Haro 36	12 46 56.450	51 36 46.584	T03	tashle y	NASA ARC	
			NGC 3738	11 36 02.99	54 25 37.66	T02	tashle y	NASA ARC	
			VII Zw 403	11 27 59.899	78 59 39.012	T01	tashle y	NASA ARC	
A04_216	Investigating the cause of long duration low intensity phases of Cen-X-3 with AstroSat	We propose a 85~ks observation of Cen-X-3 with Astrosat covering entire binary orbit. Though earlier observations were carried out during eclipse and high intensity phases, there exists only one Suzaku observation covering nearly entire orbit. During this observation, several low intensity phases/dips are seen in light curves of the pulsar. Presence of additional dense matter (clumps) at dip phases has been reported from this observation. Model calculations showed that, dips at late orbital phases appear due to the presence of accretion wake. However lack of observations at late orbital phases did not help in investigating the cause of such dips. Considering this, we propose to observe Cen-X-3 with Astrosat to carry out detailed investigation of the cause of these dips - whether associated with the geometry of the binary, accretion wakes, presence of clumps, properties of the source during high and low intensity phases, cyclotron line features at different luminosities.	Cen X-3	11 21 15.78	-60 37 22.7	T01	shivan gi	PRL	
A04_218	Measuring spectral energy distributions of BAT-selected type 1 AGN with AstroSat	We request multi-wavelength observations of Swift/BAT-selected, hard X-ray bright sample of 12 type 1 active galactic nuclei. Using AstroSat and ground-based optical telescopes, we plan to derive simultaneous multi-wavelength spectral energy distributions, including the far and near UV grating spectra, of AGN for the first time. We will use these data, and (i) derive bolometric luminosity, accretion rate and bolometric correction factor, (ii) probe range of spectral complexity in type 1 AGN, (iii) test accretion disk models, (iv) study connection between the disk emission and the shape of X-ray continua, (v) investigate any connection between the disk reflection and the thermal emission from the disk. The proposed observations will yield unique multi-wavelength SEDs which will be made available for the scientific community to	SWIFT J1349.3-3018	13 49 19.277	-30 18 33.830	T01	gulabd	IUCA A	
			SWIFT J1835.0+3240	18 35 3.390	32 41 46.857	T04	gulabd	IUCA A	
			SWIFT J1921.1-5842	19 21 14.128	-58 40 13.330	T08	gulabd	IUCA A	
			SWIFT J2254.1-1734	22 54 5.896	-17 34 55.100	T03	gulabd	IUCA A	

		use. This is a large programme, and we request a 200ksec exposure with the UVIT for all our 12 targets.							
A04_219	Study of low activity state of Blazar 4C +21.35 using ASTROSAT	Blazars are highly variable astronomical sources having variation time period ranging from few hours, months or even years. One of the Fermi detected blazar 4C +21.35 exhibits strong flare in $\gamma$ -rays both very short term ( $\sim$ week) and as well as extremely longer period (few years). From the analysis of nearly eight years of observations from Fermi satellite we found that the average $\gamma$ -ray flux of the source rises steadily for $\sim 1$ year and then decays for more than a year to low $\gamma$ -ray activity state. To understand the radiative process in this source during high or low $\gamma$ -ray activity state, we propose simultaneous observation of 4C +21.35 with UVIT, SXT along with LAXPC and CZTI detectors on board ASTROSAT satellite to construct the broadband spectra of the source and to better understand the physical process responsible for such variations in the $\gamma$ -ray activity state.	4C 21.35	12 24 54.458	21 22 46.380	T01	subirb hattac haryya	BARC	
A04_222	Ultraviolet imaging of starburst edge-on galaxy M 082	We propose to acquire 2.4 ks Ultra-Violet (UV) imagery of one of the famous near-by starburst superwind galaxy MESSIER 082 (M 82) with the currently available highest spatial resolution UVIT telescope of ASTROSAT. Main objective of the proposed observations is to study the origin of young stellar population, dust and interstellar gas properties and star formation processes independent of the optical band. Also our aim is to understand the evolution of galaxy using UV observations. This starburst galaxy has been detected in nearly all wavelength ranging from radio, optical-to-GeV. This suggest that interstellar medium of M 82 galaxy exists in all the possible phases. Past studies employing optical and X-ray observations have detected Ultra-luminous sources (ULXs) and Supernovae (SNe). Therefore, the proposed NUV and FUV observations with Ultraviolet Imaging Telescope (UVIT) (along with SXT) will provide an unique opportunity to study above properties of this galaxy in detail.	M82	9 55 52.726	69 40 45.768	T01	nilkan th	MUM	
A04_223	Astrosat view of low mass mass X-ray binary buster 4U 1812-12	Low mass neutron star X-ray binaries are known to have soft and hard X-ray spectral states like blackhole binaries. They also show a sudden rise in X-ray intensity (type-I thermonuclear burst) due to the unstable burning of matter accumulated on the neutron star surface. We propose a 50 ks observation of one of the poorly studied neutron star buster 4U 1812-12 with Astrosat. The aim of this proposal is to study the photospheric radius expansion during bursts for constraining the neutron star radii using high sensitivity instruments on-board Astrosat. Study of spectral and timing properties will be essential for understanding the changes in spectral state, spin period, neutron star and accretion disk interaction and origin of high energy emissions from these source. Investigation of these properties mainly relies on the unique broadband and timing capabilities of Astrosat that will advance the knowledge of accretion processes in low accretion rate regime.	4U 1812- 12	18 15 06.15	-12 05 46.7	T01	gaurav a	PRL	
A04_224	Hard X-ray spectra of radio bright HBL	We propose here ASTROSAT observations of 13 blazars, for a total of 235 ksec on source, to complete the broad-band X-rays follow-up of a well-defined radio selected sample of High-Energy peaked BL Lacs, all but one detected by FERMI and important TeV-emitters: out of the 13 proposed targets, 10 have been already observed at TeV energy, with 9 detection and 1 non-detection.	BZBJ1 725+11 52	17 25 04.3	+11 52 15	T05	ballo	ESA/E SAC	
			mrk18 0	11 36 26.5	+70 09 26	T03	ballo	ESA/E SAC	

		The ASTROSAT sensitivity above 10 keV offers us the possibility to firmly constrain the descending part of the synchrotron emission. This spectral feature is critical to determine the maximum energy of the population of electrons responsible for the observed broad-band emission and, therefore, to derive the jet power and to constrain the acceleration mechanisms.							
A04_225	Investigation of the broad band spectrum, relativistic Fe line and the timing properties of 4U 1702-429	The source 4U 1702-429 is a Low Mass X-ray Binary system, whose broadband spectrum is not well studied yet. We propose to observe the source for the first time with AstroSat, for a duration of 60ks. Our primary science goal is to investigate the connection between the relativistic Fe lines and the kHz QPO, both of which are expected to originate near the neutron star. Our secondary goal would be the study of the spectro-temporal features of the thermonuclear bursts and oscillations (if detected). LAXPC will be the primary instrument for observations. However, since our science objectives are well within the capabilities of AstroSat, and is best achieved with a multi-wavelength study, we will also require simultaneous SXT and CZTI observations. This study upon completion, has the potential to bring in significant advancement in this field.	4U 1702-429	17 6 15.314	-43 2 8.690	T01	navins ridhar	IISER B	
A04_227	Soft X-ray excess and X-ray/UV variability in a NLS1 MRK~359	We request 30 ks {\it AstroSat/UVIT} observation of a narrow line Seyfert~1 galaxy MRK~359 exhibiting strong soft X-ray excess. The origin of soft X-ray excess has been one of the extraordinary problem in the field of AGN. Also, this AGN has shown remarkable variability in Optical/UV and X-ray emission on few minutes to month timescales. Due to lack of simultaneous coverage from Optical/UV and X-ray bands from existing missions/observatories, it is difficult for a detailed investigation on the origin of soft X-ray excess and the observed variability in different bands. {\it AstroSat}'s unprecedented multiwavelength capability can play a major role due to its high effective area of LAXPC in hard band and simultaneous UV/Optical observations from UVIT. Along with SXT and CZTI, we will be able to address the origin of soft excess and its connection to soft photons from the accretion disk and hard X-rays from hot X-ray corona.	MRK 359	1 27 32.551	19 10 43.788	T01	mainp al	IUCA A	
A04_229	LMXB 1E 1740.7-2942 observation with AstroSat	A prototypical low mass X-ray binary (LMXB) 1E 1740.7-2942 is located 50 arcmin apart from the Galactic Center, is the hardest X-ray source in this region. The X-ray states of the source are strongly resemble to Cyg X-1. The bipolar radio jets of 1E 1740.7-2942 are very reminiscent of a radio galaxy. The true nature of the object has thus remained an open question for nearly a quarter of a century. We propose 50 ks observation of 1E 1740.7-2942 with AstroSat to study the nature of sustained low hard state in this source and possibly find signature of any connection of disk accretion with the precessing Radio jet. With the excellent timing capability of Large Area X-ray Proportional Counter (LAXPC) we will search for possible quasi-periodic oscillations (QPOs) and study timing properties of the source.	1E 1740.7-2942	17 43 54.830	-29 44 42.601	T01	nilam 09m	DSCL	

A04_230	Studying the long-term variability in cyclotron line energy in Hercules X-1	We request two 40 ks (total 80 ks) ASTROSAT observation (~ 6 months apart) of Her X-1 with LAXPC (prime), SXT and CZTI to study the characteristics of the cyclotron line in its X-ray spectrum. In Her X-1 a long-term decay of cyclotron line energy Ecyc has been found during the period 1995-2004. But recently in August 2016, an upward trend has been noticed. A similar upward jump occurred during 1990-1993, but no observation was done to cover this earlier episode. We are now presented with an excellent opportunity to track this upward trend by continuously monitoring the object using several current satellites. Time has already been granted by NuSTAR for two observations (half a year apart), and the corresponding proposal has been submitted for INTEGRAL. We propose ASTROSAT observations as a part of this multi-mission monitoring programme for the cyclotron line in Her X-1.	Her X-1	16 57 49.810	35 20 32.399	T01	suman bala	IUCA A	
A04_231	Spectral and Timing Properties of GRO J1008-57 Using Astrosat	GRO J1008-57 is a transient HMXRB pulsar with highest magnetic field (1.66 10 <sup>12</sup> G) has shown a long term spin variation. During the outburst, the pulse profile is strongly dependent on energy. The source undergoes into two periodic X-ray outbursts in one orbital phase, during its periastron and aphelion passage. The periodic X-ray outbursts are dependent on both the binary motion and the size of the circumstellar disc. Two peaks appearing in the light curve have two different spectral properties. The hard spectrum is relatively weak and even disappears in the low energies <3 keV whereas the second peak has very soft spectrum and cannot be observed above 5 keV. Soft spectrum needs further studies with soft X-ray Telescope. We are proposing 60 ks exposure with ASTROSAT during its outburst phase.	GRO J1008- 57	10 9 43.992	-58 17 42.000	T01	kalyan i	PTRS U	

PROP_ID	TITLE	ABSTRACT	SRCNAME SRCRA SRCDEC GROUP_NAME PI_ID  AFFILIATION"
A05_002	Tracing star formation and dissipative processes in the Dorado group members with UVIT	Groups contain most of the galaxies in the Local Universe and are the site of profound galaxy morphological and SF transformations. Dorado, a non virialized, HI rich, nearby association, offers the unique opportunity to investigate a way station towards a more relaxed stage. The recession velocity distribution of its members marks three linked clumps where early-types show past interaction signatures and FUV bright rings/arm-like structures. We ask for a UVIT mini-survey imaging 10 fields in the F148W and N242W filters covering the Dorado backbone to perform galaxy surface photometry down to $\mu_{N242W}$ approx\$28.5-29 mag arcsec <sup>-2</sup> unveiling UV galaxy structures. UVIT ground-based optical imaging PSF and its [FoV] diameter will allow the investigation of galactic and extragalactic SF regions, also along HI tails created by interaction. Combined with our deep imaging at ESO-VST covering the entire Dorado group, UVIT will complete our understanding of SF and dissipative processes evolution in groups.	IC 2058 4 17 54.350 -55 55 58.404 T07 rrampazzo INAF - OAPD"
A05_002	Tracing star formation and dissipative processes in the Dorado group members with UVIT	Groups contain most of the galaxies in the Local Universe and are the site of profound galaxy morphological and SF transformations. Dorado, a non virialized, HI rich, nearby association, offers the unique opportunity to investigate a way station towards a more relaxed stage. The recession velocity distribution of its members marks three linked clumps where early-types show past interaction signatures and FUV bright rings/arm-like structures. We ask for a UVIT mini-survey imaging 10 fields in the F148W and N242W filters covering the Dorado backbone to perform galaxy surface photometry down to $\mu_{N242W}$ approx\$28.5-29 mag arcsec <sup>-2</sup> unveiling UV galaxy structures. UVIT ground-based optical imaging PSF and its [FoV] diameter will allow the investigation of galactic and extragalactic SF regions, also along HI tails created by interaction. Combined with our deep imaging at ESO-VST covering the entire Dorado group, UVIT will complete our understanding of SF and dissipative processes evolution in groups.	NGC 1549 4 15 45.130 -55 35 32.100 T09 rrampazzo INAF - OAPD"

A05_002	Tracing star formation and dissipative processes in the Dorado group members with UVIT	<p>Groups contain most of the galaxies in the Local Universe and are the site of profound galaxy morphological and SF transformations. Dorado, a non virialized, HI rich, nearby association, offers the unique opportunity to investigate a way station towards a more relaxed stage. The recession velocity distribution of its members marks three linked clumps where early-types show past interaction signatures and FUV bright rings/arm-like structures. We ask for a UVIT mini-survey imaging 10 fields in the F148W and N242W filters covering the Dorado backbone to perform galaxy surface photometry down to <math>\mu_{N242W}</math> approx\$28.5-29 mag arcsec<sup>-2</sup> unveiling UV galaxy structures. UVIT &amp;#34;ground-based&amp;#34; optical imaging PSF and its 28&amp;#39;&amp;#39; [FoV] diameter will allow the investigation of galactic and extragalactic SF regions, also along HI tails created by interaction. Combined with our deep imaging at ESO-VST covering the entire Dorado group, UVIT will complete our understanding of SF and dissipative processes evolution in groups.</p>	<p>NGC 1553 4 16 10.471 -55 46 48.504 T10 rampazzo INAF - OAPD"</p>
A05_003	ASTROSAT Observation of the neutron star SAX J1808.4-3658 in Outburst	<p>The neutron star SAX J1808.4-3658 (hereafter J1808) was the first discovered accreting millisecond period X-ray pulsar (AMXP). J1808 is a Rosetta Stone system showing the evolutionary role of accretion in spinning neutron stars up to millisecond (ms) spin periods in low mass X-ray binaries (LMXBs) to form ms radio pulsars. The observed X-ray pulsations originate from the neutron star&amp;#39;&amp;#39;s surface, allowing pulse-shape analyses to determine the star&amp;#39;&amp;#39;s mass and radius, which could allow the equation of state of ultra-dense nuclear matter to be constrained. The pulsations are only visible when the AMXP is in a bright state (outburst). We propose to observe J1808 for 40ks during its next outburst, allowing us to measure its spectrum and pulse shapes. These will be used to determine the neutron star&amp;#39;&amp;#39;s mass, radius, and orbital period changes, leading to better understanding of the properties of neutron stars and accretion in LMXBs.</p>	<p>SAX J1808.4-3658 18 8 27.540 -36 58 44.299 T01 dleahy Calgary"</p>
A05_004	ASTROSAT multi-wavelength imaging survey of M31, southwest region	<p>M31 is the nearest giant spiral galaxy for which we can study the supernova remnants, X-ray sources, and stellar populations. At a distance of 780 kpc, M31 is far enough away that the brightest stars are safe to observe with UVIT, yet close enough to obtain a good census of the supernova remnants, X-ray sources, and hot stellar populations. The high spatial resolution of UVIT will yield outstanding data on the stellar populations of M31. The spatial resolution of SXT is sufficient to resolve the X-ray source populations which includes measuring the supernova remnant population. The resulting multi-wavelength images of M31 will form a legacy dataset to be used for study of the stellar populations of M31, its star formation history and the structure of the galaxy.</p>	<p>M31 Field No. 14 0 39 58.55 40 37 43.38 T02 dleahy Calgary"</p>

A05_004	ASTROSAT multi-wavelength imaging survey of M31, southwest region	M31 is the nearest giant spiral galaxy for which we can study the supernova remnants, X-ray sources, and stellar populations. At a distance of 780 kpc, M31 is far enough away that the brightest stars are safe to observe with UVIT, yet close enough to obtain a good census of the supernova remnants, X-ray sources, and hot stellar populations. The high spatial resolution of UVIT will yield outstanding data on the stellar populations of M31. The spatial resolution of SXT is sufficient to resolve the X-ray source populations which includes measuring the supernova remnant population. The resulting multi-wavelength images of M31 will form a legacy dataset to be used for study of the stellar populations of M31, its star formation history and the structure of the galaxy.	M31 Field No. 15 0 39 12.37 40 17 18.12 T03 dleahy Calgary"
A05_004	ASTROSAT multi-wavelength imaging survey of M31, southwest region	M31 is the nearest giant spiral galaxy for which we can study the supernova remnants, X-ray sources, and stellar populations. At a distance of 780 kpc, M31 is far enough away that the brightest stars are safe to observe with UVIT, yet close enough to obtain a good census of the supernova remnants, X-ray sources, and hot stellar populations. The high spatial resolution of UVIT will yield outstanding data on the stellar populations of M31. The spatial resolution of SXT is sufficient to resolve the X-ray source populations which includes measuring the supernova remnant population. The resulting multi-wavelength images of M31 will form a legacy dataset to be used for study of the stellar populations of M31, its star formation history and the structure of the galaxy.	M31 Field No. 16 0 42 02.42 40 33 28.01 T04 dleahy Calgary"
A05_004	ASTROSAT multi-wavelength imaging survey of M31, southwest region	M31 is the nearest giant spiral galaxy for which we can study the supernova remnants, X-ray sources, and stellar populations. At a distance of 780 kpc, M31 is far enough away that the brightest stars are safe to observe with UVIT, yet close enough to obtain a good census of the supernova remnants, X-ray sources, and hot stellar populations. The high spatial resolution of UVIT will yield outstanding data on the stellar populations of M31. The spatial resolution of SXT is sufficient to resolve the X-ray source populations which includes measuring the supernova remnant population. The resulting multi-wavelength images of M31 will form a legacy dataset to be used for study of the stellar populations of M31, its star formation history and the structure of the galaxy.	M31 Field No. 17 0 39 14.02 40 59 12.84 T05 dleahy Calgary"

A05_004	ASTROSAT multi-wavelength imaging survey of M31, southwest region	M31 is the nearest giant spiral galaxy for which we can study the supernova remnants, X-ray sources, and stellar populations. At a distance of 780 kpc, M31 is far enough away that the brightest stars are safe to observe with UVIT, yet close enough to obtain a good census of the supernova remnants, X-ray sources, and hot stellar populations. The high spatial resolution of UVIT will yield outstanding data on the stellar populations of M31. The spatial resolution of SXT is sufficient to resolve the X-ray source populations which includes measuring the supernova remnant population. The resulting multi-wavelength images of M31 will form a legacy dataset to be used for study of the stellar populations of M31, its star formation history and the structure of the galaxy.	M31 Field No. 18 0 37 54.46 40 41 00.55 T06 dleahy Calgary"
A05_004	ASTROSAT multi-wavelength imaging survey of M31, southwest region	M31 is the nearest giant spiral galaxy for which we can study the supernova remnants, X-ray sources, and stellar populations. At a distance of 780 kpc, M31 is far enough away that the brightest stars are safe to observe with UVIT, yet close enough to obtain a good census of the supernova remnants, X-ray sources, and hot stellar populations. The high spatial resolution of UVIT will yield outstanding data on the stellar populations of M31. The spatial resolution of SXT is sufficient to resolve the X-ray source populations which includes measuring the supernova remnant population. The resulting multi-wavelength images of M31 will form a legacy dataset to be used for study of the stellar populations of M31, its star formation history and the structure of the galaxy.	M31 Field No. 19 0 40 46.47 40 15 00.76 T07 dleahy Calgary"
A05_007	Turbulent mixing in high-galactic latitude Draco Cloud: A UV perspective	Draco, an intermediate-velocity, high-galactic latitude cloud located at a distance of $\sim 550$ pc, is suggested to have formed due to the interaction of galactic halo gas entering the Milky Way disk. Previous studies have detected hot gas in the cloud. Turbulent mixing layers initiated by shear flows at the boundary between hot and cold gases are considered as possible mechanism for producing ultraviolet (UV) emission lines. In this proposal we plan to observe three fields towards Draco cloud in far ultraviolet (FUV) and near-ultraviolet (NUV) wavelengths using combinations of F169M, F172M and N245M, N263M filters to detect C IV $\lambda 1550$ doublet (primary objective) and C II $\lambda 2326$ excess emission from the cloud at higher spatial resolution of $2''$ . Combining results from this proposed observations and our ground based narrow-band optical imaging would allow us to characterize the turbulent mixing scenario possibly at work in the Draco cloud.	draco_f1 16 49 17 +59 55 09 T06 ektasharma IIA"



A05_008	Probing accretion disk response to large amplitude X-ray variability in Ark564	<p>The response of the opt/UV continuum to large amplitude X-ray variability can probe the disc structure in AGN. We request a week long AstroSat observation of the NLS1 Ark~564 accreting at near Eddington rate to obtain lightcurves and time-resolved grating spectra with a sampling rate at a fraction of a day. We will measure the wavelength dependent time-lag using the UVIT gratings/filters and the SXT data. We will also study UV continuum spectral variability with grating spectra on short time scales and probe accretion disk heating by X-ray illumination. We will also perform coordinated observations with optical telescopes. The proposed observations will allow us to probe and study the nature of accretion discs in the high accretion rate regime (ie accretion rate close to the Eddington limit), which has not been achieved before.</p>	<p>Akn564 22 42 39.309 29 43 31.550 T02 gulabd IUCAA"</p>
A05_008	Probing accretion disk response to large amplitude X-ray variability in Ark564	<p>The response of the opt/UV continuum to large amplitude X-ray variability can probe the disc structure in AGN. We request a week long AstroSat observation of the NLS1 Ark~564 accreting at near Eddington rate to obtain lightcurves and time-resolved grating spectra with a sampling rate at a fraction of a day. We will measure the wavelength dependent time-lag using the UVIT gratings/filters and the SXT data. We will also study UV continuum spectral variability with grating spectra on short time scales and probe accretion disk heating by X-ray illumination. We will also perform coordinated observations with optical telescopes. The proposed observations will allow us to probe and study the nature of accretion discs in the high accretion rate regime (ie accretion rate close to the Eddington limit), which has not been achieved before.</p>	<p>Ark 564 22 42 39.309 29 43 31.550 T03 gulabd IUCAA"</p>
A05_008	Probing accretion disk response to large amplitude X-ray variability in Ark564	<p>The response of the opt/UV continuum to large amplitude X-ray variability can probe the disc structure in AGN. We request a week long AstroSat observation of the NLS1 Ark~564 accreting at near Eddington rate to obtain lightcurves and time-resolved grating spectra with a sampling rate at a fraction of a day. We will measure the wavelength dependent time-lag using the UVIT gratings/filters and the SXT data. We will also study UV continuum spectral variability with grating spectra on short time scales and probe accretion disk heating by X-ray illumination. We will also perform coordinated observations with optical telescopes. The proposed observations will allow us to probe and study the nature of accretion discs in the high accretion rate regime (ie accretion rate close to the Eddington limit), which has not been achieved before.</p>	<p>Ark564 22 42 39.309 29 43 31.550 T01 gulabd IUCAA"</p>

A05_010	DEVILS-UV: mapping the growth of star-forming galaxies across redshift and environment	<p>We propose to use UVIT/ASTROSAT to perform a deep far- and near-ultraviolet survey of one of the fields targeted by the Deep Extragalactic Visible Legacy Survey (DEVILS). DEVILS is a spectroscopic campaign at the Anglo-Australian Telescope aimed at bridging the near and distant Universe by producing the highest completeness survey of galaxies and groups at intermediate redshifts (<math>0.3 &lt; z &lt; 1.0</math>). DEVILS is targeting the same fields that will be observed by the LSST and MeerKAT/LADUMA projects. The primary goal of this proposal is to take advantage of the high resolution of ASTROSAT to determine how the structure of the star-forming disks has changed across environment in the last five billion years. As a by-product, this project will deliver the highest resolution ultraviolet catalog of the Chandra Deep-Field-South region to the community, thus making sure that ASTROSAT will leave a long-lasting legacy to the field of galaxy evolution.</p>	<p>DEVILS-CDFS2 3 33 00.00 -28 15 28.00 T02 Icortese ICRAR/UWA"</p>
A05_012	The nature of host galaxies in the radio-emitting Narrow line Seyfert 1 galaxies	<p>We propose to investigate the ultraviolet imaging of host galaxies in a small sample of radio-selected Narrow line Seyfert 1 galaxies (NLS1s) for a total of 30~ks (5<math>\times</math>6~ks). With UVIT as the primary instrument, our main objective is to understand the nature of connection of host galaxies harboring the NLS1s with their unique radio properties. Along with imaging studies to reveal the host-galaxy morphology, we will also study these targets in the context of their AGN properties. The simultaneous broadband observations in X-rays and the photometric data obtained in ultraviolet will yield measurements of their spectral energy distribution. We will further probe their radio luminosities and corresponding ultraviolet and X-ray luminosities for suspected correlations. The inferred properties and results from this study will be compared with the known observed properties of typical NLS1s. This will further suggest that how these sources connect themselves within the premises of the Unification Scheme.</p>	<p>Mrk 124 9 48 42.614 50 29 31.128 T02 shruti SMU"</p>

A05_012	The nature of host galaxies in the radio-emitting Narrow line Seyfert 1 galaxies	<p>We propose to investigate the ultraviolet imaging of host galaxies in a small sample of radio-selected Narrow line Seyfert 1 galaxies (NLS1s) for a total of 30~ks (5<math>\times</math>6~ks). With UVIT as the primary instrument, our main objective is to understand the nature of connection of host galaxies harboring the NLS1s with their unique radio properties. Along with imaging studies to reveal the host-galaxy morphology, we will also study these targets in the context of their AGN properties. The simultaneous broadband observations in X-rays and the photometric data obtained in ultraviolet will yield measurements of their spectral energy distribution. We will further probe their radio luminosities and corresponding ultraviolet and X-ray luminosities for suspected correlations. The inferred properties and results from this study will be compared with the known observed properties of typical NLS1s. This will further suggest that how these sources connect themselves within the premises of the Unification Scheme.</p>	<p>Mrk 705 9 26 3.293 12 44 3.624 T01 shruti SMU"</p>
A05_013	Study of the southern middle lobe of Centaurus A	<p>We request a 50000 seconds exposure of Centaurus A to study the star formation rate in the southern inner lobe (SIL) and southern middle lobe (SML). Our preliminary analysis found signatures of FUV emission in the SML and candidate star-forming regions using the existing UVIT and GALEX data. A deep observation of the region is required to bring out the faint underlying star-forming structures. As far as we are aware, there are no studies reporting on the UV emission in the SML region. The primary objective of this proposal is to study the UV counterpart of SIL and its extension in the SML. We will derive directly the star formation rate, constrain the AGN activity-driven SFR, and conduct comparative studies using archival data which encompass many wavelengths.</p>	<p>CenA south middle lobe 13 24 59 -43 07 34 T01 prajwel IIA"</p>
A05_015	AstroSAT/WEBT/FACT Monitoring of Mkn 421: Short-timescale Interband Variability and Jet Microphysics	<p>We request a 7-day uninterrupted AstroSat long look on the HBL Mkn 421, to obtain X-ray variability monitoring, and complemented by contemporaneous WEBT (optical/NIR continuum and optical polarization) and FACT (TeV) monitoring. The campaign should occur during 3-15 Jan. 2019, with 26 Mar.-7 Apr. 2019 as a back-up option. Short-term variability properties of Mkn 421 are not thoroughly studied, and our multi-band campaign will allow us to quantify variability fractions, variability amplitudes, and volume filling factors, probe short-term interband correlations, determine the electron energy distribution from synchrotron emission using a forward-fitting technique, and explore the multiplicity of emitting regions contributing to each waveband.</p>	<p>Mkn 421 11 04 27.3 +38 12 32 T01 almarkowitz NCAC"</p>

A05_019	Disc-Jet Connection in the NLS1-Blazar 1H 0323+342	<p>Radio-loud AGN are associated with strongly collimated jets, the origin of which remains unclear. The RL-NLS1s are a special class of RL-AGN characterized by low black hole mass, high accretion rate, and relativistic jet emission. We aim to study the gamma-ray detected RL-NLS1/NLS1-blazar 1H~0323+342. The highly variable emissions from disc/corona component and relativistic jet make the source ideal to investigate the disc-jet connection. We plan coordinated monitoring observations of the source with AstroSat in the X-ray/UV bands, and VLA &amp; GMRT in the radio band. We request for five multi-wavelength observations of 1H~0323+342, separated by 10 days, after 2019 January 22. In each observation, we request a 25~ks exposure with SXT. Using the simultaneous multi-wavelength data of the source, we will (i)derive the broadband SED, and (ii)study the disc-jet coupling by investigating the correlated variability of UV/X-ray properties associated with accretion flow and radio properties related to the jet emission.</p>	<p>1H 0323+342 03 24 41.1 +34 10 46 T01 savithri STCK"</p>
A05_022	Measuring the Evolution of Star Forming Regions through UVIT Observations of Nearby Galaxies	<p>We request 192 ks of time to execute AstroSat UVIT observations of eight nearby galaxies. These data will reveal the population of newly formed massive stars, which will be analyzed in concert with our ongoing survey of 74 galaxies with ALMA. The ALMA survey maps emission from star-forming molecular gas, and the joint analysis of the UVIT and ALMA data can be used to unravel the underlying physics that drives galaxy-scale star formation with our already-developed theoretical framework. With our first high-resolution survey of star forming gas coming from ALMA, UVIT provides a unique opportunity for progress because of its well matched resolution.</p>	<p>NGC 2835 9 17 52.910 -22 21 16.812 T01 rosolowsky UAlberta"</p>
A05_022	Measuring the Evolution of Star Forming Regions through UVIT Observations of Nearby Galaxies	<p>We request 192 ks of time to execute AstroSat UVIT observations of eight nearby galaxies. These data will reveal the population of newly formed massive stars, which will be analyzed in concert with our ongoing survey of 74 galaxies with ALMA. The ALMA survey maps emission from star-forming molecular gas, and the joint analysis of the UVIT and ALMA data can be used to unravel the underlying physics that drives galaxy-scale star formation with our already-developed theoretical framework. With our first high-resolution survey of star forming gas coming from ALMA, UVIT provides a unique opportunity for progress because of its well matched resolution.</p>	<p>NGC 3351 10 43 57.701 11 42 13.716 T03 rosolowsky UAlberta"</p>

A05_022	Measuring the Evolution of Star Forming Regions through UVIT Observations of Nearby Galaxies	We request 192 ks of time to execute AstroSat UVIT observations of eight nearby galaxies. These data will reveal the population of newly formed massive stars, which will be analyzed in concert with our ongoing survey of 74 galaxies with ALMA. The ALMA survey maps emission from star-forming molecular gas, and the joint analysis of the UVIT and ALMA data can be used to unravel the underlying physics that drives galaxy-scale star formation with our already-developed theoretical framework. With our first high-resolution survey of star forming gas coming from ALMA, UVIT provides a unique opportunity for progress because of its well matched resolution.	NGC 3627 11 20 14.964 12 59 29.544 T02 rosolowsky UAlberta"
A05_022	Measuring the Evolution of Star Forming Regions through UVIT Observations of Nearby Galaxies	We request 192 ks of time to execute AstroSat UVIT observations of eight nearby galaxies. These data will reveal the population of newly formed massive stars, which will be analyzed in concert with our ongoing survey of 74 galaxies with ALMA. The ALMA survey maps emission from star-forming molecular gas, and the joint analysis of the UVIT and ALMA data can be used to unravel the underlying physics that drives galaxy-scale star formation with our already-developed theoretical framework. With our first high-resolution survey of star forming gas coming from ALMA, UVIT provides a unique opportunity for progress because of its well matched resolution.	NGC 4535 12 34 20.309 8 11 51.900 T07 rosolowsky UAlberta"
A05_022	Measuring the Evolution of Star Forming Regions through UVIT Observations of Nearby Galaxies	We request 192 ks of time to execute AstroSat UVIT observations of eight nearby galaxies. These data will reveal the population of newly formed massive stars, which will be analyzed in concert with our ongoing survey of 74 galaxies with ALMA. The ALMA survey maps emission from star-forming molecular gas, and the joint analysis of the UVIT and ALMA data can be used to unravel the underlying physics that drives galaxy-scale star formation with our already-developed theoretical framework. With our first high-resolution survey of star forming gas coming from ALMA, UVIT provides a unique opportunity for progress because of its well matched resolution.	NGC 5068 13 18 54.809 -21 2 20.796 T08 rosolowsky UAlberta"
A05_022	Measuring the Evolution of Star Forming Regions through UVIT Observations of Nearby Galaxies	We request 192 ks of time to execute AstroSat UVIT observations of eight nearby galaxies. These data will reveal the population of newly formed massive stars, which will be analyzed in concert with our ongoing survey of 74 galaxies with ALMA. The ALMA survey maps emission from star-forming molecular gas, and the joint analysis of the UVIT and ALMA data can be used to unravel the underlying physics that drives galaxy-scale star formation with our already-developed theoretical framework. With our first high-resolution survey of star forming gas coming from ALMA, UVIT provides a unique opportunity for progress because of its well matched resolution.	NGC 6744 19 9 46.099 -63 51 27.108 T09 rosolowsky UAlberta"

A05_024	To probe accretion flow on white dwarf in V834~Cen using temporal variability	Magnetic cataclysmic variables show strong variations in their emitted radiation due to the changes in the flow of accretion matter impacting on the magnetic white dwarfs. The interactions of the ionized accretion matter with the magnetic field and the effective cooling of the hot plasma on the white dwarf surface are the key issues to explain the variability but these are not well understood. Here we propose to study the accretion flow characteristics close to the white dwarf surface for the source V834 Cen. The multi-wavelength observations using ASTROSAT will provide the information about the accretion flow geometry near the surface, the cooling mechanism of the hot accreted material.	V834 Cen 14 9 7.399 -45 17 16.116 T01 pbera NCRA"
A05_024	To probe accretion flow on white dwarf in V834~Cen using temporal variability	Magnetic cataclysmic variables show strong variations in their emitted radiation due to the changes in the flow of accretion matter impacting on the magnetic white dwarfs. The interactions of the ionized accretion matter with the magnetic field and the effective cooling of the hot plasma on the white dwarf surface are the key issues to explain the variability but these are not well understood. Here we propose to study the accretion flow characteristics close to the white dwarf surface for the source V834 Cen. The multi-wavelength observations using ASTROSAT will provide the information about the accretion flow geometry near the surface, the cooling mechanism of the hot accreted material.	V834 Cen 14 9 7.460 -45 17 17.099 T02 pbera NCRA"
A05_024	To probe accretion flow on white dwarf in V834~Cen using temporal variability	Magnetic cataclysmic variables show strong variations in their emitted radiation due to the changes in the flow of accretion matter impacting on the magnetic white dwarfs. The interactions of the ionized accretion matter with the magnetic field and the effective cooling of the hot plasma on the white dwarf surface are the key issues to explain the variability but these are not well understood. Here we propose to study the accretion flow characteristics close to the white dwarf surface for the source V834 Cen. The multi-wavelength observations using ASTROSAT will provide the information about the accretion flow geometry near the surface, the cooling mechanism of the hot accreted material.	V834 Cen 14 9 7.460 -45 17 17.099 T03 pbera NCRA"
A05_024	To probe accretion flow on white dwarf in V834~Cen using temporal variability	Magnetic cataclysmic variables show strong variations in their emitted radiation due to the changes in the flow of accretion matter impacting on the magnetic white dwarfs. The interactions of the ionized accretion matter with the magnetic field and the effective cooling of the hot plasma on the white dwarf surface are the key issues to explain the variability but these are not well understood. Here we propose to study the accretion flow characteristics close to the white dwarf surface for the source V834 Cen. The multi-wavelength observations using ASTROSAT will provide the information about the accretion flow geometry near the surface, the cooling mechanism of the hot accreted material.	V834 Cen 14 9 7.460 -45 17 17.099 T04 pbera NCRA"

A05_024	To probe accretion flow on white dwarf in V834~Cen using temporal variability	Magnetic cataclysmic variables show strong variations in their emitted radiation due to the changes in the flow of accretion matter impacting on the magnetic white dwarfs. The interactions of the ionized accretion matter with the magnetic field and the effective cooling of the hot plasma on the white dwarf surface are the key issues to explain the variability but these are not well understood. Here we propose to study the accretion flow characteristics close to the white dwarf surface for the source V834 Cen. The multi-wavelength observations using ASTROSAT will provide the information about the accretion flow geometry near the surface, the cooling mechanism of the hot accreted material.	V834 Cen 14 9 7.460 -45 17 17.099 T05 pbera NCRA"
A05_025	Exploring origins of hydrogen deficient stars in globular clusters.	The origin and evolution of hydrogen deficient stars is yet a mystery. They are presently thought to be a result of mergers of two white dwarfs. In optical region the extreme helium stars (hot H-deficient stars) show very similar spectral energy distributions as normal (i.e hydrogen rich) O- and B-type stars. Hence, they are not easily distinguishable. This limitation severely restricted the number of stars known as well as searches for them in older stellar aggregates (eg. globular clusters) which are very important consideration for estimating their life times and evolutionary considerations. Atmospheric models of EHes show that even though the optical colours are the same as normal stars the UVIT band colours are clearly different in the temperature range of 8000-30000 K. We propose to calibrate these indices and use them as criteria to discover new EHes and other H-deficient stars in globular clusters including the horizontal branch morphology.	NGC 1851 05 14 06.76 -40 02 47.6 T04 pandey IIA"
A05_025	Exploring origins of hydrogen deficient stars in globular clusters.	The origin and evolution of hydrogen deficient stars is yet a mystery. They are presently thought to be a result of mergers of two white dwarfs. In optical region the extreme helium stars (hot H-deficient stars) show very similar spectral energy distributions as normal (i.e hydrogen rich) O- and B-type stars. Hence, they are not easily distinguishable. This limitation severely restricted the number of stars known as well as searches for them in older stellar aggregates (eg. globular clusters) which are very important consideration for estimating their life times and evolutionary considerations. Atmospheric models of EHes show that even though the optical colours are the same as normal stars the UVIT band colours are clearly different in the temperature range of 8000-30000 K. We propose to calibrate these indices and use them as criteria to discover new EHes and other H-deficient stars in globular clusters including the horizontal branch morphology.	NGC 2298 06 48 59.41 -36 00 19.1 T16 pandey IIA"

A05_025	Exploring origins of hydrogen deficient stars in globular clusters.	<p>The origin and evolution of hydrogen deficient stars is yet a mystery. They are presently thought to be a result of mergers of two white dwarfs. In optical region the extreme helium stars (hot H-deficient stars) show very similar spectral energy distributions as normal (i.e hydrogen rich) O- and B-type stars. Hence, they are not easily distinguishable. This limitation severely restricted the number of stars known as well as searches for them in older stellar aggregates (eg. globular clusters) which are very important consideration for estimating their life times and evolutionary considerations. Atmospheric models of EHes show that even though the optical colours are the same as normal stars the UVIT band colours are clearly different in the temperature range of 8000-30000 K. We propose to calibrate these indices and use them as criteria to discover new EHes and other H-deficient stars in globular clusters including the horizontal branch morphology.</p>	<p>NGC 6101 16 26 25.99 -72 16 07.9 T17 pandey IIA"</p>
A05_025	Exploring origins of hydrogen deficient stars in globular clusters.	<p>The origin and evolution of hydrogen deficient stars is yet a mystery. They are presently thought to be a result of mergers of two white dwarfs. In optical region the extreme helium stars (hot H-deficient stars) show very similar spectral energy distributions as normal (i.e hydrogen rich) O- and B-type stars. Hence, they are not easily distinguishable. This limitation severely restricted the number of stars known as well as searches for them in older stellar aggregates (eg. globular clusters) which are very important consideration for estimating their life times and evolutionary considerations. Atmospheric models of EHes show that even though the optical colours are the same as normal stars the UVIT band colours are clearly different in the temperature range of 8000-30000 K. We propose to calibrate these indices and use them as criteria to discover new EHes and other H-deficient stars in globular clusters including the horizontal branch morphology.</p>	<p>NGC 6584 18 18 37.60 -52 12 56.8 T18 pandey IIA"</p>
A05_031	%latex%Spectro-timing studies of 4U 1608-52 during its outburst decay using {\em AstroSat}	<p>%latex%4U 1608-52 is a neutron star soft X-ray transient having an outburst period of <math>\sim 500</math> days. Although being one of the fastest spinning neutron stars, it exhibits spectral and temporal properties that are signatures of black holes. Even after extensive studies, its transition of spectral states during outburst decays, occurrence of quasi-periodic oscillations (QPOs) and lags exhibited by QPOs are not clearly understood. Since X-ray instruments on-board {\em AstroSat} can provide simultaneous observations from 0.3 - 80 keV energy range with better spectral and timing resolution, studies on 4U 1608-52 in this broad band during an outburst decay may give us substantial clarity on its spectral states, QPOs and lags. \textbf{Hence, we propose for an anticipated ToO of the source at 5, 10 and 20 days after trigger. We plan to schedule the observation into three 20 ks cycles each using SXT (as primary instrument) and LAXPC}</p>	<p>4U 1608-52 16 12 43.001 -52 25 23.016 T01 nealtitusthomas CU"</p>



A05_034	Searching for stellar superflares in the X-ray wavelength range	We ask for ASTROSAT time to observe three flaring red dwarfs: AT Mic, YZ CMi, and EQ Peg; we request 20 ks of observations for each target (60 ks in total). All three stars are known for high activity level, the flares have been detected in different spectral ranges, including X-rays. We expect to detect at least one flare from each star and obtain their X-ray light curves and spectra. We propose to use SXT as the primary instrument and LAXPC and CZTI as secondary instruments. These data will be used to a) estimate the parameters of the thermal and non-thermal electrons in the flares; b) investigate the Neupert effect in the stellar flares and analyze its similarities/differences from the solar case; c) analyze the quasi-periodic oscillations (if detected).	AT Mic 20 41 51.159 -32 26 6.828 T01 chandrashekhar.k IIA"
A05_037	Probing Absorption Induced Variability and X-ray reprocessing in NGC 6814	NGC 6814, a Seyfert 1.5 active galaxy, varies strongly on both short (hours) and longer (days/months) time scales. In addition to intrinsic variability, NGC 6814 exhibits rapid absorption variability on scales of fraction of a day. This AGN provides a unique opportunity to probe geometry of the absorber based on X-ray/UV absorption induced variability. Previous X-ray observations with 1 day cadence have found strong correlations and optical/UV reprocessing delay. We request for ~125 ks Astrosat observation with SXT as the primary instrument. This will allow us to probe UV reddening during X-ray eclipses and to measure wavelength dependent UV lags due to X-ray reprocessing. The lags observed for massive AGNs are longer than those predicted by the standard Shakura-Sunyaev disk theory, which should be checked for various masses (here, ~4.7 x less than NGC 5548) and accretion rates. Astrosat will measure the X-ray/UV delay and test the standard disk theory.	NGC 6814 19 42 40.576 -10 19 25.500 T01 pranotiy IUCAA"
A05_041	Star formation in gas-rich progenitors of Ultra-Diffuse Galaxies in the field	We request deep ultra-violet (FUV+NUV) imaging of a sample of eight gas-rich ultra-diffuse galaxies. These systems populate an intriguing threshold region of star formation, below which galaxies show weak/no apparent star formation despite their large reservoirs of neutral gas. Deep, high-resolution UV images are essential to measure the amount of recent star formation and to quantify its spatial distribution. Combined with our extensive multi-wavelength observations, this UV data will help to test the evolutionary pathways between these enigmatic gas-rich UDGs and their recently-identified gas-poor counterparts in clusters.	AGC 102983 00 33 37.60 +28 44 21.00 T01 sjanowie ICRAR-UWA"

A05_041	Star formation in gas-rich progenitors of Ultra-Diffuse Galaxies in the field	We request deep ultra-violet (FUV+NUV) imaging of a sample of eight gas-rich ultra-diffuse galaxies. These systems populate an intriguing threshold region of star formation, below which galaxies show weak/no apparent star formation despite their large reservoirs of neutral gas. Deep, high-resolution UV images are essential to measure the amount of recent star formation and to quantify its spatial distribution. Combined with our extensive multi-wavelength observations, this UV data will help to test the evolutionary pathways between these enigmatic gas-rich UDGs and their recently-identified gas-poor counterparts in clusters.	AGC 229101* 12 20 15.00 +25 30 00.00 T05 sjanowie ICRAR-UWA"
A05_041	Star formation in gas-rich progenitors of Ultra-Diffuse Galaxies in the field	We request deep ultra-violet (FUV+NUV) imaging of a sample of eight gas-rich ultra-diffuse galaxies. These systems populate an intriguing threshold region of star formation, below which galaxies show weak/no apparent star formation despite their large reservoirs of neutral gas. Deep, high-resolution UV images are essential to measure the amount of recent star formation and to quantify its spatial distribution. Combined with our extensive multi-wavelength observations, this UV data will help to test the evolutionary pathways between these enigmatic gas-rich UDGs and their recently-identified gas-poor counterparts in clusters.	AGC 229361 12 26 40.49 +19 45 15.8 T02 sjanowie ICRAR-UWA"
A05_041	Star formation in gas-rich progenitors of Ultra-Diffuse Galaxies in the field	We request deep ultra-violet (FUV+NUV) imaging of a sample of eight gas-rich ultra-diffuse galaxies. These systems populate an intriguing threshold region of star formation, below which galaxies show weak/no apparent star formation despite their large reservoirs of neutral gas. Deep, high-resolution UV images are essential to measure the amount of recent star formation and to quantify its spatial distribution. Combined with our extensive multi-wavelength observations, this UV data will help to test the evolutionary pathways between these enigmatic gas-rich UDGs and their recently-identified gas-poor counterparts in clusters.	AGC 334315 23 20 11.80 +22 24 07.0 T03 sjanowie ICRAR-UWA"
A05_046	Long Duration Monitoring of the X-ray Bright Variable QSO PDS456	We propose a long duration observation to continue monitoring of the nearby luminous and highly variable QSO PDS 456 and to use the ASTROSAT instrument complement to unravel the complex behaviour of this and similar objects with a view to elucidating the underlying physical conditions and geometry in the regions responsible for the optical to hard X-ray emission of accreting super-massive black-holes	PDS 456 17 28 19.901 -14 15 56.016 T01 Gordon Leicester"

A05_050	Broadband spectral and temporal studies of accretion-powered pulsars	<p>Accreting millisecond (ms) X-ray pulsars (AMXPs) are a class of rapidly spinning neutron stars, which accrete matter from a low-mass stellar companion, and show coherent X-ray intensity variation during outbursts. AMXPs exhibit a large number of X-ray spectral and timing features, which make them ideal test beds for studying dense matter and strong gravity physics. AstroSat can meaningfully observe these sources only during outbursts. The fact that there is so far no report of the detection of accretion-powered ms pulsations with AstroSat makes it very compelling for this satellite to observe one of the accreting ms pulsars during its next outburst. Here we propose to observe the first source going into an outburst for a duration of 50 ks, from a list of four accretion-powered ms pulsars and the unique 11 Hz pulsar.</p>	<p>HETE J1900.1-2455 19 0 8.650 -24 55 13.699 T05 navinsridhar IISER B"</p>
A05_050	Broadband spectral and temporal studies of accretion-powered pulsars	<p>Accreting millisecond (ms) X-ray pulsars (AMXPs) are a class of rapidly spinning neutron stars, which accrete matter from a low-mass stellar companion, and show coherent X-ray intensity variation during outbursts. AMXPs exhibit a large number of X-ray spectral and timing features, which make them ideal test beds for studying dense matter and strong gravity physics. AstroSat can meaningfully observe these sources only during outbursts. The fact that there is so far no report of the detection of accretion-powered ms pulsations with AstroSat makes it very compelling for this satellite to observe one of the accreting ms pulsars during its next outburst. Here we propose to observe the first source going into an outburst for a duration of 50 ks, from a list of four accretion-powered ms pulsars and the unique 11 Hz pulsar.</p>	<p>IGR J00291+5934 0 29 3.060 59 34 18.998 T04 navinsridhar IISER B"</p>
A05_050	Broadband spectral and temporal studies of accretion-powered pulsars	<p>Accreting millisecond (ms) X-ray pulsars (AMXPs) are a class of rapidly spinning neutron stars, which accrete matter from a low-mass stellar companion, and show coherent X-ray intensity variation during outbursts. AMXPs exhibit a large number of X-ray spectral and timing features, which make them ideal test beds for studying dense matter and strong gravity physics. AstroSat can meaningfully observe these sources only during outbursts. The fact that there is so far no report of the detection of accretion-powered ms pulsations with AstroSat makes it very compelling for this satellite to observe one of the accreting ms pulsars during its next outburst. Here we propose to observe the first source going into an outburst for a duration of 50 ks, from a list of four accretion-powered ms pulsars and the unique 11 Hz pulsar.</p>	<p>IGR J17480-2466 17 48 5.000 -24 46 48.000 T03 navinsridhar IISER B"</p>

A05_050	Broadband spectral and temporal studies of accretion-powered pulsars	<p>Accreting millisecond (ms) X-ray pulsars (AMXPs) are a class of rapidly spinning neutron stars, which accrete matter from a low-mass stellar companion, and show coherent X-ray intensity variation during outbursts. AMXPs exhibit a large number of X-ray spectral and timing features, which make them ideal test beds for studying dense matter and strong gravity physics. AstroSat can meaningfully observe these sources only during outbursts. The fact that there is so far no report of the detection of accretion-powered ms pulsations with AstroSat makes it very compelling for this satellite to observe one of the accreting ms pulsars during its next outburst. Here we propose to observe the first source going into an outburst for a duration of 50 ks, from a list of four accretion-powered ms pulsars and the unique 11 Hz pulsar.</p>	<p>SAX J1808.4-3658 18 8 27.540 -36 58 44.299 T01 navinsridhar IISER B"</p>
A05_050	Broadband spectral and temporal studies of accretion-powered pulsars	<p>Accreting millisecond (ms) X-ray pulsars (AMXPs) are a class of rapidly spinning neutron stars, which accrete matter from a low-mass stellar companion, and show coherent X-ray intensity variation during outbursts. AMXPs exhibit a large number of X-ray spectral and timing features, which make them ideal test beds for studying dense matter and strong gravity physics. AstroSat can meaningfully observe these sources only during outbursts. The fact that there is so far no report of the detection of accretion-powered ms pulsations with AstroSat makes it very compelling for this satellite to observe one of the accreting ms pulsars during its next outburst. Here we propose to observe the first source going into an outburst for a duration of 50 ks, from a list of four accretion-powered ms pulsars and the unique 11 Hz pulsar.</p>	<p>XTE J1807-294 18 6 59.801 -29 24 29.988 T02 navinsridhar IISER B"</p>
A05_053	Deepest Far-Ultraviolet imaging of the GOODS South field with UVIT-AstroSat	<p>We propose to carry out a very deep (<math>\sim 28^{\text{mag}}</math>) far-ultraviolet imaging survey of the GOODS-South field using UVIT-AstroSat. Such deep FUV observations are necessary to finding low-mass, compact, strongly star-forming galaxies (SFGs) that are potential Lyman continuum (LyC) emitters in the intermediate redshift range. Detection of these LyCs holds the key to our understanding of the level of ionizing radiation in our universe - playing a major role in the cosmological modelling of galaxy formation and evolution. Currently, there has been no direct detection of such sources with redshift <math>z \sim 1</math>. With the proposed observation, we will not only be able to place a stringent limit on the LyC detection, we will construct multi-band Spectral energy distribution (SED) (from FUV to FIR) and determine the physical properties such as stellar population, age and metal abundances of these low-mass SFGs. In this proposal we request 44~ksec of UVIT time.</p>	<p>AUDISGOODSS 3 32 29.686 -27 44 07.31 T01 kanak IUCAA"</p>

A05_056	DEVILS-UV: mapping the growth of star-forming galaxies across redshift and environment	We propose to use UVIT/ASTROSAT to perform a deep far- and near-ultraviolet survey of one of the fields targeted by the Deep Extragalactic Visible Legacy Survey (DEVILS). DEVILS is a spectroscopic campaign at the Anglo-Australian Telescope aimed at bridging the near and distant Universe by producing the highest completeness survey of galaxies and groups at intermediate redshifts ( $0.3 < z < 1.0$ ). DEVILS is targeting the same fields that will be observed by the LSST and MeerKAT/LADUMA projects. The primary goal of this proposal is to take advantage of the high resolution of ASTROSAT to determine how the structure of the star-forming disks has changed across environment in the last five billion years. As a by-product, this project will deliver the deepest and highest resolution ultraviolet catalogue of the Chandra Deep Field South region to the community, thus making sure that ASTROSAT will leave a long-lasting legacy to the field of galaxy evolution.	CDFS03 03 33 50.00 -27 58 00.00 T01 kanak IUCAA"
A05_059	Panchromatic study of the north-east Shell region of the SMC	We propose to observe 9 fields in the north-east region of the Small Magellanic Cloud (SMC) known as the Shell within which recent star formation has been detected across multiple wavelengths. The morphology of the Shell, as traced by both main-sequence stars from the near-infrared (IR) to far-ultraviolet, indicates that it is the result of tidal interactions. We plan to combine these UVIT data with optical and near-IR (proprietary) data to study the young stellar population of the Shell and to i) trace the tidal features and their connection to the main body of the SMC, ii) estimate age and spatial distribution of the recently formed stars in the tidal tails and iii) the shape and potential spatial variation of the extinction curve in and around these features.	SMC_Shell_3 01 01 29.4 -70 29 11.7 T03 annapurni IIA"
A05_059	Panchromatic study of the north-east Shell region of the SMC	We propose to observe 9 fields in the north-east region of the Small Magellanic Cloud (SMC) known as the Shell within which recent star formation has been detected across multiple wavelengths. The morphology of the Shell, as traced by both main-sequence stars from the near-infrared (IR) to far-ultraviolet, indicates that it is the result of tidal interactions. We plan to combine these UVIT data with optical and near-IR (proprietary) data to study the young stellar population of the Shell and to i) trace the tidal features and their connection to the main body of the SMC, ii) estimate age and spatial distribution of the recently formed stars in the tidal tails and iii) the shape and potential spatial variation of the extinction curve in and around these features.	SMC_Shell_4 01 04 40.4 -71 13 30.3 T04 annapurni IIA"

A05_059	Panchromatic study of the north-east Shell region of the SMC	We propose to observe 9 fields in the north-east region of the Small Magellanic Cloud (SMC) known as the Shell within which recent star formation has been detected across multiple wavelengths. The morphology of the Shell, as traced by both main-sequence stars from the near-infrared (IR) to far-ultraviolet, indicates that it is the result of tidal interactions. We plan to combine these UVIT data with optical and near-IR (proprietary) data to study the young stellar population of the Shell and to i) trace the tidal features and their connection to the main body of the SMC, ii) estimate age and spatial distribution of the recently formed stars in the tidal tails and iii) the shape and potential spatial variation of the extinction curve in and around these features.	SMC_Shell_5 01 08 12.9 -70 58 08.9 T05 annapurni IIA"
A05_059	Panchromatic study of the north-east Shell region of the SMC	We propose to observe 9 fields in the north-east region of the Small Magellanic Cloud (SMC) known as the Shell within which recent star formation has been detected across multiple wavelengths. The morphology of the Shell, as traced by both main-sequence stars from the near-infrared (IR) to far-ultraviolet, indicates that it is the result of tidal interactions. We plan to combine these UVIT data with optical and near-IR (proprietary) data to study the young stellar population of the Shell and to i) trace the tidal features and their connection to the main body of the SMC, ii) estimate age and spatial distribution of the recently formed stars in the tidal tails and iii) the shape and potential spatial variation of the extinction curve in and around these features.	SMC_Shell_7 01 13 04.4 -71 02 18.2 T07 annapurni IIA"
A05_062	Examining the correlation between fundamental frequencies in NS LMXBs	As part of the series of proposed observations for persistent kHz QPO sources that also exhibit type-1 X-ray bursts, we propose for a total of 80 ks observation for two persistent, bright bursting low mass X-ray binary sources 4U 1735-44 and GX 17+2 (40 ks each), using Astrosat/LAXPC. The main objective of this proposal would be to carry out sensitive and precise measurements of the frequencies and amplitudes of the previously reported pair of kHz QPOs. Since 4U 1735-44 and GX 17+2 are bursting sources, we also aim at detecting bursts and further examine the earlier reports of tentative Burst Oscillations (BO). Such a study will attempt to address one of the long standing uncertainties regarding correlations between the frequency separation of kHz QPOs ( $f_{\text{kHz-QPO-separation}}$ ), BO frequency ( $f_{\text{BO}}$ ) and NS spin frequency ( $f_{\text{spin}}$ ).	4U 1735-44 17 38 58.301 -44 27 0.000 T01 graman RRI"

A05_062	Examining the correlation between fundamental frequencies in NS LMXBs	As part of the series of proposed observations for persistent kHz QPO sources that also exhibit type-1 X-ray bursts, we propose for a total of 80 ks observation for two persistent, bright bursting low mass X-ray binary sources 4U 1735-44 and GX 17+2 (40 ks each), using Astrosat/LAXPC. The main objective of this proposal would be to carry out sensitive and precise measurements of the frequencies and amplitudes of the previously reported pair of kHz QPOs. Since 4U 1735-44 and GX 17+2 are bursting sources, we also aim at detecting bursts and further examine the earlier reports of tentative Burst Oscillations (BO). Such a study will attempt to address one of the long standing uncertainties regarding correlations between the frequency separation of kHz QPOs ( $f_{\text{kHz-QPO-separation}}$ ), BO frequency ( $f_{\text{BO}}$ ) and NS spin frequency ( $f_{\text{spin}}$ ).	GX 17+2 18 16 1.389 -14 2 10.620 T02 graman RRI"
A05_063	Star formation in galaxies falling into clusters	Defying traditional wisdom, several star-forming galaxies have been discovered in galaxy clusters in the last decade. These galaxies are a rare class of transition objects "caught in the act", and therefore provide essential clues for understanding the evolution of galaxies from being actively star-forming spirals and irregulars in low-density environments, to passively-evolving spheroids in the core of groups and clusters. We propose to image 4 such star-forming galaxies falling into clusters with UVIT. Together with the ancillary optical and infrared data, we will use the AstroSat data to explore the extent of the low surface brightness tidal features and the impact of gas loss on the morphology of the infalling galaxies. We will also study star formation efficiency in these galaxies undergoing tidal stress.	A1367b 11 42 50.97 +20 26 31.85 T02 smriti IISERM"
A05_063	Star formation in galaxies falling into clusters	Defying traditional wisdom, several star-forming galaxies have been discovered in galaxy clusters in the last decade. These galaxies are a rare class of transition objects "caught in the act", and therefore provide essential clues for understanding the evolution of galaxies from being actively star-forming spirals and irregulars in low-density environments, to passively-evolving spheroids in the core of groups and clusters. We propose to image 4 such star-forming galaxies falling into clusters with UVIT. Together with the ancillary optical and infrared data, we will use the AstroSat data to explore the extent of the low surface brightness tidal features and the impact of gas loss on the morphology of the infalling galaxies. We will also study star formation efficiency in these galaxies undergoing tidal stress.	A779 09 21 38.33 +33 44 14.84 T04 smriti IISERM"

A05_063	Star formation in galaxies falling into clusters	<p>Defying traditional wisdom, several star-forming galaxies have been discovered in galaxy clusters in the last decade. These galaxies are a rare class of transition objects “caught in the act”, and therefore provide essential clues for understanding the evolution of galaxies from being actively star-forming spirals and irregulars in low-density environments, to passively-evolving spheroids in the core of groups and clusters. We propose to image 4 such star-forming galaxies falling into clusters with UVIT. Together with the ancillary optical and infrared data, we will use the AstroSat data to explore the extent of the low surface brightness tidal features and the impact of gas loss on the morphology of the infalling galaxies. We will also study star formation efficiency in these galaxies undergoing tidal stress.</p>	<p>UGC10420 16 29 51.04 +39 45 59.50 T03 smriti IISERM"</p>
A05_064	Investigating the broadband spectral shape of Mrk~180 using multi-wavelength observation from AstroSat	<p>We request a single pointing 40\,ks multi-wavelength observation of the bright High-energy peaked BL Lac Mrk~180 using the SXT, LAXPC and UVIT instruments on-board AstroSat. SXT and LAXPC instruments will provide unprecedented spectral coverage of the synchrotron peak and beyond, which help to constrain the peak securely. Previous observation results of Mrk~180 had shown an evidence of departure of the X-ray spectrum from a power law shape, which is an indication of the spectral curvature. The broadband X-ray coverage of AstroSat can confirm the presence of such curvature. Optical/UV observation with UVIT will give an important piece of information regarding the complex multi-wavelength variability behaviour and origin of the low energy emission. By modelling the broadband SED, which can be obtained from the simultaneous multi-wavelength observation of AstroSat along with {it Fermi}, we will be able to constrain the physical parameters which provide useful information regarding the underlying physical processes.</p>	<p>Mrk 180 11 36 26.4 +70 09 27 T01 jitheshthejus IUCAA"</p>
A05_068	M67: A census of WDs hidden in binaries and chromospherically active stars.	<p>M67 cluster is known to have a wide variety of stars which are not supported by the single star evolutionary theory. The most famous among them are the blue straggler stars (BSS), along with the sub-subgiants and yellow stragglers. Mass transfer (MT) in a binary system is the favoured formation mechanism for these stars in open clusters. If these stars indeed are of MT origin, then their expected to have the presence of donor, as an evolved primary star. The detection and identification of evolutionary state of the donor is thus crucial to confirm MT pathway of the formation of these systems. Gosnell et al. (2015) found that about 20% of BSS are formed recently in the old open cluter NGC 188, by detecting hot WD companions using the HST FUV observations. No such detections are there in M67 so far.</p>	<p>M67 08 51 18.00 11 48 0.00 T01 sindhu IIA"</p>



A05_069	Deep UV imaging studies of the X-ray and optically Cygnus SNR.	The 5000- 8000 yr old Cygnus supernova remnant (SNR), 450 pc away, is optically, UV and x-ray bright, and serves as an excellent laboratory to study the propagation and the interaction of the supernova shock and its ejecta, as the blast wave propagates through the interstellar medium. We request herein Astrosat multiwaveband time to continue our program to map out this SNR in the UV narrow band filters, as well as in soft x-ray (0.3-10 keV) bands. The narrow band UVIT/NUV, and narrow + broad band UVIT/FUV filters trace emission line regions in C IV, He II, and Mg II, our observations will detect and isolate regions of hot ( $10^4$ - $5 \times 10^4$ K) and intermediate (5000- 8000 K) temperatures. Combined with Astrosat/SXT spectra and, archival x-ray and optical data of select fields, this will help determine the evolving physical conditions as the SN blast wave and ejecta interact with the local ISM.	Cygnus S-1 20 51 31.59 +29 04 03.8 T01 fsutaria IIA"
A05_069	Deep UV imaging studies of the X-ray and optically Cygnus SNR.	The 5000- 8000 yr old Cygnus supernova remnant (SNR), 450 pc away, is optically, UV and x-ray bright, and serves as an excellent laboratory to study the propagation and the interaction of the supernova shock and its ejecta, as the blast wave propagates through the interstellar medium. We request herein Astrosat multiwaveband time to continue our program to map out this SNR in the UV narrow band filters, as well as in soft x-ray (0.3-10 keV) bands. The narrow band UVIT/NUV, and narrow + broad band UVIT/FUV filters trace emission line regions in C IV, He II, and Mg II, our observations will detect and isolate regions of hot ( $10^4$ - $5 \times 10^4$ K) and intermediate (5000- 8000 K) temperatures. Combined with Astrosat/SXT spectra and, archival x-ray and optical data of select fields, this will help determine the evolving physical conditions as the SN blast wave and ejecta interact with the local ISM.	NGC 6960-IV 20 49 02.08 +30 24 17.9 T02 fsutaria IIA"
A05_069	Deep UV imaging studies of the X-ray and optically Cygnus SNR.	The 5000- 8000 yr old Cygnus supernova remnant (SNR), 450 pc away, is optically, UV and x-ray bright, and serves as an excellent laboratory to study the propagation and the interaction of the supernova shock and its ejecta, as the blast wave propagates through the interstellar medium. We request herein Astrosat multiwaveband time to continue our program to map out this SNR in the UV narrow band filters, as well as in soft x-ray (0.3-10 keV) bands. The narrow band UVIT/NUV, and narrow + broad band UVIT/FUV filters trace emission line regions in C IV, He II, and Mg II, our observations will detect and isolate regions of hot ( $10^4$ - $5 \times 10^4$ K) and intermediate (5000- 8000 K) temperatures. Combined with Astrosat/SXT spectra and, archival x-ray and optical data of select fields, this will help determine the evolving physical conditions as the SN blast wave and ejecta interact with the local ISM.	NGC 6960-V 20 47 32.63 +30 44 28.1 T03 fsutaria IIA"

A05_069	Deep UV imaging studies of the X-ray and optically Cygnus SNR.	The 5000- 8000 yr old Cygnus supernova remnant (SNR), 450 pc away, is optically, UV and x-ray bright, and serves as an excellent laboratory to study the propagation and the interaction of the supernova shock and its ejecta, as the blast wave propagates through the interstellar medium. We request herein Astrosat multiwaveband time to continue our program to map out this SNR in the UV narrow band filters, as well as in soft x-ray (0.3-10 keV) bands. The narrow band UVIT/NUV, and narrow + broad band UVIT/FUV filters trace emission line regions in C IV, He II, and Mg II, our observations will detect and isolate regions of hot ( $10^4$ - $5 \times 10^4$ K) and intermediate (5000- 8000 K) temperatures. Combined with Astrosat/SXT spectra and, archival x-ray and optical data of select fields, this will help determine the evolving physical conditions as the SN blast wave and ejecta interact with the local ISM.	NGC 6960-VI 20 49 42.24 +29 59 19.9 T04 fsutaria IIA"
A05_069	Deep UV imaging studies of the X-ray and optically Cygnus SNR.	The 5000- 8000 yr old Cygnus supernova remnant (SNR), 450 pc away, is optically, UV and x-ray bright, and serves as an excellent laboratory to study the propagation and the interaction of the supernova shock and its ejecta, as the blast wave propagates through the interstellar medium. We request herein Astrosat multiwaveband time to continue our program to map out this SNR in the UV narrow band filters, as well as in soft x-ray (0.3-10 keV) bands. The narrow band UVIT/NUV, and narrow + broad band UVIT/FUV filters trace emission line regions in C IV, He II, and Mg II, our observations will detect and isolate regions of hot ( $10^4$ - $5 \times 10^4$ K) and intermediate (5000- 8000 K) temperatures. Combined with Astrosat/SXT spectra and, archival x-ray and optical data of select fields, this will help determine the evolving physical conditions as the SN blast wave and ejecta interact with the local ISM.	NGC 6960-VII 20 51 09.85 +30 04 16.8 T05 fsutaria IIA"
A05_072	Globular cluster UVIT Legacy Survey (GlobULeS): UVIT+HST+Ground Treasury	Recent studies have shown that most of the Globular clusters (GCs) have multiple stellar populations. GCs also harbour exotic stars such as blue straggler stars (BSS, products of stellar collision, merger or mass transfer), horizontal branch (HB) and extreme HB stars which are found more in the core of the GCs. The HST treasury is a goldmine for the GC cores (inner 3 arcmin) in the optical and near-UV wavelengths. UVIT has the unique capability to create a complimentary treasury in the Far and near UV passbands, for not only the core, but also the full cluster. We propose to study selected GCs from the HST treasury survey, that have wide field photometry from ground observations. This UVIT+HST+Ground treasury will be a unique data set, covering the entire cluster in the FUV, NUV and optical passbands. We request for 2 FUV and one NUV pass band observations for 8 clusters.	NGC 5024 13 12 55.30 +18 10 09.0 T02 annapurni IIA"

A05_072	Globular cluster UVIT Legacy Survey (GlobULeS): UVIT+HST+Ground Treasury	Recent studies have shown that most of the Globular clusters (GCs) have multiple stellar populations. GCs also harbour exotic stars such as blue straggler stars (BSS, products of stellar collision, merger or mass transfer), horizontal branch (HB) and extreme HB stars which are found more in the core of the GCs. The HST treasury is a goldmine for the GC cores (inner 3 arcmin) in the optical and near-UV wavelengths. UVIT has the unique capability to create a complimentary treasury in the Far and near UV passbands, for not only the core, but also the full cluster. We propose to study selected GCs from the HST treasury survey, that have wide field photometry from ground observations. This UVIT+HST+Ground treasury will be a unique data set, covering the entire cluster in the FUV, NUV and optical passbands. We request for 2 FUV and one NUV pass band observations for 8 clusters.	NGC 6205 16 41 46.85 +36 32 37.0 T04 annapurni IIA"
A05_072	Globular cluster UVIT Legacy Survey (GlobULeS): UVIT+HST+Ground Treasury	Recent studies have shown that most of the Globular clusters (GCs) have multiple stellar populations. GCs also harbour exotic stars such as blue straggler stars (BSS, products of stellar collision, merger or mass transfer), horizontal branch (HB) and extreme HB stars which are found more in the core of the GCs. The HST treasury is a goldmine for the GC cores (inner 3 arcmin) in the optical and near-UV wavelengths. UVIT has the unique capability to create a complimentary treasury in the Far and near UV passbands, for not only the core, but also the full cluster. We propose to study selected GCs from the HST treasury survey, that have wide field photometry from ground observations. This UVIT+HST+Ground treasury will be a unique data set, covering the entire cluster in the FUV, NUV and optical passbands. We request for 2 FUV and one NUV pass band observations for 8 clusters.	NGC 6809 19 39 59.71 -30 57 53.1 T05 annapurni IIA"
A05_074	ASTROSAT UV imaging of the collisional ring galaxy Cartwheel	The Cartwheel galaxy is the prototype for the collisional ring galaxies often-used case to illustrate the success of collisional scenario of ring formation. In spite of a wealth of data available for this system, there are still some outstanding issues to be addressed. We propose to obtain high resolution UV images of the Cartwheel, that would enable us to detect, for the first time, UV emission from around 150 star-forming knots that have been detected on the HST and ground-based H alpha images. We expect to detect not only these current star-forming knots but also all knots formed over the past 100 Myr. Specifically, we aim to detect the traces of past star formation in the spokes of the Cartwheel and in the wake of the expanding ring. The UV and optical photometry would allow us to constrain the star formation history in the Cartwheel over the last 100 Myr.	Cartwheel 0 37 41.107 -33 42 58.790 T02 sbarway IIA"

A05_075	Near-Field Cosmology with Low-Mass Galaxies: Constraining the Escape of Radiation from the UV-slopes of Local Galaxies	Low-mass galaxies are thought to play a large role in reionizing the Universe at redshifts, $z > 6$ . However, due to the lack of high quality UV data on low-mass galaxies, the models used to estimate the escape of radiation are poorly constrained. We propose to use AstroSat-UVIT to greatly improve on the GALEX measured UV spectral slopes for 24 low-mass starforming galaxies at $z < 0.1$ selected from the KISSR survey. AstroSat UVIT filters are uniquely well-suited for these measurements. The proposed observations, combined with already developed theoretical models, will allow us to predict the escape of FUV/ionizing radiation from low-mass galaxies in a more robust way than has been possible to date. These predictions will be key to interpreting studies of the first stars in the early universe that will be performed with the James Webb Space Telescope (JWST).	KISSR1347* 12 35 44.0 +42 51 24.0 T01 av0897 USF"
A05_075	Near-Field Cosmology with Low-Mass Galaxies: Constraining the Escape of Radiation from the UV-slopes of Local Galaxies	Low-mass galaxies are thought to play a large role in reionizing the Universe at redshifts, $z > 6$ . However, due to the lack of high quality UV data on low-mass galaxies, the models used to estimate the escape of radiation are poorly constrained. We propose to use AstroSat-UVIT to greatly improve on the GALEX measured UV spectral slopes for 24 low-mass starforming galaxies at $z < 0.1$ selected from the KISSR survey. AstroSat UVIT filters are uniquely well-suited for these measurements. The proposed observations, combined with already developed theoretical models, will allow us to predict the escape of FUV/ionizing radiation from low-mass galaxies in a more robust way than has been possible to date. These predictions will be key to interpreting studies of the first stars in the early universe that will be performed with the James Webb Space Telescope (JWST).	KISSR1381 12 49 05.0 +43 05 42.0 T02 av0897 USF"
A05_075	Near-Field Cosmology with Low-Mass Galaxies: Constraining the Escape of Radiation from the UV-slopes of Local Galaxies	Low-mass galaxies are thought to play a large role in reionizing the Universe at redshifts, $z > 6$ . However, due to the lack of high quality UV data on low-mass galaxies, the models used to estimate the escape of radiation are poorly constrained. We propose to use AstroSat-UVIT to greatly improve on the GALEX measured UV spectral slopes for 24 low-mass starforming galaxies at $z < 0.1$ selected from the KISSR survey. AstroSat UVIT filters are uniquely well-suited for these measurements. The proposed observations, combined with already developed theoretical models, will allow us to predict the escape of FUV/ionizing radiation from low-mass galaxies in a more robust way than has been possible to date. These predictions will be key to interpreting studies of the first stars in the early universe that will be performed with the James Webb Space Telescope (JWST).	KISSR1462 13 08 42.0 +44 05 54.0 T03 av0897 USF"

A05_075	Near-Field Cosmology with Low-Mass Galaxies: Constraining the Escape of Radiation from the UV-slopes of Local Galaxies	Low-mass galaxies are thought to play a large role in reionizing the Universe at redshifts, $z > 6$ . However, due to the lack of high quality UV data on low-mass galaxies, the models used to estimate the escape of radiation are poorly constrained. We propose to use AstroSat-UVIT to greatly improve on the GALEX measured UV spectral slopes for 24 low-mass starforming galaxies at $z < 0.1$ selected from the KISSR survey. AstroSat UVIT filters are uniquely well-suited for these measurements. The proposed observations, combined with already developed theoretical models, will allow us to predict the escape of FUV/ionizing radiation from low-mass galaxies in a more robust way than has been possible to date. These predictions will be key to interpreting studies of the first stars in the early universe that will be performed with the James Webb Space Telescope (JWST).	KISSR1667/1671* 13 53 02.0 +42 58 14.0 T04 av0897 USF"
A05_075	Near-Field Cosmology with Low-Mass Galaxies: Constraining the Escape of Radiation from the UV-slopes of Local Galaxies	Low-mass galaxies are thought to play a large role in reionizing the Universe at redshifts, $z > 6$ . However, due to the lack of high quality UV data on low-mass galaxies, the models used to estimate the escape of radiation are poorly constrained. We propose to use AstroSat-UVIT to greatly improve on the GALEX measured UV spectral slopes for 24 low-mass starforming galaxies at $z < 0.1$ selected from the KISSR survey. AstroSat UVIT filters are uniquely well-suited for these measurements. The proposed observations, combined with already developed theoretical models, will allow us to predict the escape of FUV/ionizing radiation from low-mass galaxies in a more robust way than has been possible to date. These predictions will be key to interpreting studies of the first stars in the early universe that will be performed with the James Webb Space Telescope (JWST).	KISSR1786 14 26 33.0 +43 51 15.0 T06 av0897 USF"
A05_075	Near-Field Cosmology with Low-Mass Galaxies: Constraining the Escape of Radiation from the UV-slopes of Local Galaxies	Low-mass galaxies are thought to play a large role in reionizing the Universe at redshifts, $z > 6$ . However, due to the lack of high quality UV data on low-mass galaxies, the models used to estimate the escape of radiation are poorly constrained. We propose to use AstroSat-UVIT to greatly improve on the GALEX measured UV spectral slopes for 24 low-mass starforming galaxies at $z < 0.1$ selected from the KISSR survey. AstroSat UVIT filters are uniquely well-suited for these measurements. The proposed observations, combined with already developed theoretical models, will allow us to predict the escape of FUV/ionizing radiation from low-mass galaxies in a more robust way than has been possible to date. These predictions will be key to interpreting studies of the first stars in the early universe that will be performed with the James Webb Space Telescope (JWST).	KISSR1814* 14 33 54.0 +42 39 13.0 T05 av0897 USF"

A05_075	Near-Field Cosmology with Low-Mass Galaxies: Constraining the Escape of Radiation from the UV-slopes of Local Galaxies	Low-mass galaxies are thought to play a large role in reionizing the Universe at redshifts, $z > 6$ . However, due to the lack of high quality UV data on low-mass galaxies, the models used to estimate the escape of radiation are poorly constrained. We propose to use AstroSat-UVIT to greatly improve on the GALEX measured UV spectral slopes for 24 low-mass starforming galaxies at $z < 0.1$ selected from the KISSR survey. AstroSat UVIT filters are uniquely well-suited for these measurements. The proposed observations, combined with already developed theoretical models, will allow us to predict the escape of FUV/ionizing radiation from low-mass galaxies in a more robust way than has been possible to date. These predictions will be key to interpreting studies of the first stars in the early universe that will be performed with the James Webb Space Telescope (JWST).	KISSR2010 15 43 31.0 44 03 09.0 T10 av0897 USF"
A05_075	Near-Field Cosmology with Low-Mass Galaxies: Constraining the Escape of Radiation from the UV-slopes of Local Galaxies	Low-mass galaxies are thought to play a large role in reionizing the Universe at redshifts, $z > 6$ . However, due to the lack of high quality UV data on low-mass galaxies, the models used to estimate the escape of radiation are poorly constrained. We propose to use AstroSat-UVIT to greatly improve on the GALEX measured UV spectral slopes for 24 low-mass starforming galaxies at $z < 0.1$ selected from the KISSR survey. AstroSat UVIT filters are uniquely well-suited for these measurements. The proposed observations, combined with already developed theoretical models, will allow us to predict the escape of FUV/ionizing radiation from low-mass galaxies in a more robust way than has been possible to date. These predictions will be key to interpreting studies of the first stars in the early universe that will be performed with the James Webb Space Telescope (JWST).	KISSR2407 14 38 29.0 +33 20 07.0 T07 av0897 USF"
A05_075	Near-Field Cosmology with Low-Mass Galaxies: Constraining the Escape of Radiation from the UV-slopes of Local Galaxies	Low-mass galaxies are thought to play a large role in reionizing the Universe at redshifts, $z > 6$ . However, due to the lack of high quality UV data on low-mass galaxies, the models used to estimate the escape of radiation are poorly constrained. We propose to use AstroSat-UVIT to greatly improve on the GALEX measured UV spectral slopes for 24 low-mass starforming galaxies at $z < 0.1$ selected from the KISSR survey. AstroSat UVIT filters are uniquely well-suited for these measurements. The proposed observations, combined with already developed theoretical models, will allow us to predict the escape of FUV/ionizing radiation from low-mass galaxies in a more robust way than has been possible to date. These predictions will be key to interpreting studies of the first stars in the early universe that will be performed with the James Webb Space Telescope (JWST).	KISSR615 15 02 09.0 +29 44 46.0 T08 av0897 USF"

A05_075	Near-Field Cosmology with Low-Mass Galaxies: Constraining the Escape of Radiation from the UV-slopes of Local Galaxies	Low-mass galaxies are thought to play a large role in reionizing the Universe at redshifts, $z > 6$ . However, due to the lack of high quality UV data on low-mass galaxies, the models used to estimate the escape of radiation are poorly constrained. We propose to use AstroSat-UVIT to greatly improve on the GALEX measured UV spectral slopes for 24 low-mass star-forming galaxies at $z < 0.1$ selected from the KISSR survey. AstroSat UVIT filters are uniquely well-suited for these measurements. The proposed observations, combined with already developed theoretical models, will allow us to predict the escape of FUV/ionizing radiation from low-mass galaxies in a more robust way than has been possible to date. These predictions will be key to interpreting studies of the first stars in the early universe that will be performed with the James Webb Space Telescope (JWST).	KISSR692/698* 15 21 39.0 +29 07 30.0 T09 av0897 USF"
A05_078	Searching for white dwarfs orbiting blue stragglers: the fossil evidence of mass transfer formation	The UV excess recently observed in 7 Blue Straggler Stars (BSSs) in the open cluster NGC188 (Gosnell2015) has been interpreted as the photometric signature of hot and young white dwarf (WD) companions. Ferraro2006 discovered a sub-sample of BSSs in 47Tucanae showing carbon (C) and oxygen (O) depletion with respect to normal cluster stars which has been considered as the chemical signature of recent MT activity from a companion star, in which case the observed BSSs should be orbited by hot He-WDs. Here we propose UVIT far-UV photometry of 47Tuc to search for the suspected WD companions to BSSs. The appropriate combination of three FUV filters allow the construction of two narrow band-passes well suitable to properly detect the UV emission of the expected WDs which will allow us to unveil the combined (photometric and spectroscopic) signature of the MT formation channel of BSS in GCs.	47 Tuc 0 24 5.359 -72 4 53.200 T01 ferraro Bologna"
A05_081	Testing Radiation-Dominated Accretion Models with the Rapid Burster	We request one 40 ksec observation of the Neutron Star LMXB MXB 1730-335 (the 'Rapid Burster') during its next outburst. In previous outbursts, the Rapid Burster has displayed complex 'classes' of variability previously only seen in the Black Hole LMXBs GRS 1915+105 and IGR J17091-3624. Only 2 classes have been observed in the Rapid Burster, compared to 15 and 9 respectively in GRS 1915+105 and IGR J17091-3624. With LAXPC and SXT we aim to observe and perform phase-resolved spectroscopy of an additional class in the Rapid Burster, and the presence or absence of this class will allow us to quantify the role of the compact object in GRS 1915-like variability. We also expect to observe many (~100) Type I and Type II X-Ray Bursts, allowing us to further burst population studies performed by previous authors. This is an updated resubmit of proposal AO4 207, which was accepted but not triggered.	GRO J1744-28 17 33 24.610 -33 23 19.799 T01 jamiec Southampton"

A05_082	The UV Emission from Dual Nuclei in the End State of Galaxy Mergers- III	<p>We propose to map the UV emission around dual nuclei in late-stage galaxy mergers and interacting systems. Our targets have been observed by GALEX but not with the Hubble Space Telescope UVIS camera. The higher spatial resolution of UVIT compared to GALEX will help us resolve the dual cores and study the disk star-formation triggered by the merging process. Our targets are all low redshift, UV bright sources. We have observed a total of 11 merging galaxies with dual nuclei in previous ASTROSAT cycles and the preliminary results have been presented in meetings in India. With the help of the radio and optical follow-up observations, we have confirmed Dual AGN in a few targets. We have found signatures of AGN-feedback induced star-formation in some of the galaxies using the UVIT data. Hence we have selected four more merger remnants to increase the sample for a better statistical sample.</p>	SDSS J123351.61+195311.8 12 33 51.612 19 53 11.760 T08 rubinur IIA"
A05_082	The UV Emission from Dual Nuclei in the End State of Galaxy Mergers- III	<p>We propose to map the UV emission around dual nuclei in late-stage galaxy mergers and interacting systems. Our targets have been observed by GALEX but not with the Hubble Space Telescope UVIS camera. The higher spatial resolution of UVIT compared to GALEX will help us resolve the dual cores and study the disk star-formation triggered by the merging process. Our targets are all low redshift, UV bright sources. We have observed a total of 11 merging galaxies with dual nuclei in previous ASTROSAT cycles and the preliminary results have been presented in meetings in India. With the help of the radio and optical follow-up observations, we have confirmed Dual AGN in a few targets. We have found signatures of AGN-feedback induced star-formation in some of the galaxies using the UVIT data. Hence we have selected four more merger remnants to increase the sample for a better statistical sample.</p>	SDSS J125741.05+202347.8 12 57 41.050 20 23 47.796 T09 rubinur IIA"
A05_082	The UV Emission from Dual Nuclei in the End State of Galaxy Mergers- III	<p>We propose to map the UV emission around dual nuclei in late-stage galaxy mergers and interacting systems. Our targets have been observed by GALEX but not with the Hubble Space Telescope UVIS camera. The higher spatial resolution of UVIT compared to GALEX will help us resolve the dual cores and study the disk star-formation triggered by the merging process. Our targets are all low redshift, UV bright sources. We have observed a total of 11 merging galaxies with dual nuclei in previous ASTROSAT cycles and the preliminary results have been presented in meetings in India. With the help of the radio and optical follow-up observations, we have confirmed Dual AGN in a few targets. We have found signatures of AGN-feedback induced star-formation in some of the galaxies using the UVIT data. Hence we have selected four more merger remnants to increase the sample for a better statistical sample.</p>	SDSS J133638.35+203232.9 13 36 38.347 20 32 32.928 T10 rubinur IIA"



A05_082	The UV Emission from Dual Nuclei in the End State of Galaxy Mergers- III	<p>We propose to map the UV emission around dual nuclei in late-stage galaxy mergers and interacting systems. Our targets have been observed by GALEX but not with the Hubble Space Telescope UVIS camera. The higher spatial resolution of UVIT compared to GALEX will help us resolve the dual cores and study the disk star-formation triggered by the merging process. Our targets are all low redshift, UV bright sources. We have observed a total of 11 merging galaxies with dual nuclei in previous ASTROSAT cycles and the preliminary results have been presented in meetings in India. With the help of the radio and optical follow-up observations, we have confirmed Dual AGN in a few targets. We have found signatures of AGN-feedback induced star-formation in some of the galaxies using the UVIT data. Hence we have selected four more merger remnants to increase the sample for a better statistical sample.</p>	<p>SDSS J142722.83+200549.4 14 27 22.834 20 5 49.344 T12 rubinur IIA"</p>
A05_083	UVIT study of products of stellar collisions in M3	<p>Globular Clusters (GCs) house exotic stellar populations and are the only sites where the products of direct collision of stars (Blue Straggler stars, BSS) are found. GCs also have accreting binaries, WDs and Horizontal branch stars, which are all bright in the UV. In the UV, all these stars stand out from the swamp of the cooler main-sequence stars and red giants. Our study on NGC 1851 (Subramaniam et al. 2017) suggest that the colour-magnitude diagrams using UVIT filters create definite diagnostic regions which can be used to detect and identify these systems. Exploiting the resolution and filter system of the UVIT, we plan to derive the multi-wavelength SEDs and estimate the fundamental properties such as mass, temperature and Luminosity. NGC 5272 (M3) is one such cluster with many UV bright stars located in the cluster.</p>	<p>M3 13 42 11.227 28 22 31.620 T01 snehalata IIA"</p>
A05_084	UVIT OBSERVATIONS OF THE CENTRAL REGIONS OF ELLIPTICAL GALAXIES IN THE NEARBY UNIVERSE	<p>Elliptical galaxies are further classified into core ellipticals and core-less ellipticals based on their physical properties and evolution mechanisms. Kormendy et.al (2009) suggests core ellipticals are made up of old stars that are enhanced in alpha elements on the other hand core-less ellipticals are made up of young stars with near solar compositions. The UV flux is one of the best tracers of the current star formation in galaxies provided there is only limited dust present in the system. In this study, we request deep UVIT observations at the centres of six nearby elliptical galaxies which consisting of equal number of core and core-less galaxies. Further, the central intensity of galaxies is found to correlate well with the mass of central supermassive blackhole. Hence, we propose to study the central region of these galaxies in UV in an attempt to understand its connection with the evolution of galaxies.</p>	<p>NGC 1332 3 26 17.251 -21 20 6.792 T04 sruthiyatheendradas Calicut"</p>

A05_084	UVIT OBSERVATIONS OF THE CENTRAL REGIONS OF ELLIPTICAL GALAXIES IN THE NEARBY UNIVERSE	<p>Elliptical galaxies are further classified into core ellipticals and core-less ellipticals based on their physical properties and evolution mechanisms. Kormendy et.al (2009) suggests core ellipticals are made up of old stars that are enhanced in alpha elements on the other hand core-less ellipticals are made up of young stars with near solar compositions. The UV flux is one of the best tracers of the current star formation in galaxies provided there is only limited dust present in the system. In this study, we request deep UVIT observations at the centres of six nearby elliptical galaxies which consisting of equal number of core and core-less galaxies. Further, the central intensity of galaxies is found to correlate well with the mass of central supermassive blackhole. Hence, we propose to study the central region of these galaxies in UV in an attempt to understand its connection with the evolution of galaxies.</p>	<p>NGC 1374 3 35 16.589 -35 13 34.500 T06 sruthiyatheendradas Calicut"</p>
A05_085	Ultraviolet view of ram-pressure stripping in action: Star forming clumps outside galaxies and the quenching of star formation	<p>We ask for deep UV imaging of the galaxy JW108 and its surrounding galaxy cluster Abell 3376, to make a combined UV and optical IFU study of the advanced stage of galaxy gas stripping. In JW108 ram pressure stripping has removed all the gas from the disk except in the central region and has created a tail of unilateral ionized gas debris where new stars are formed. We will study the star-forming regions in the disk and the tails, in particular the formation and evolution of the stellar clumps outside of the galaxy disk. The UVIT data will allow us to study how the quenching proceeds within the galaxy disk, using the UV flux from recently born stars. Finally, we will obtain a census of galaxies with UV tails within 800kpc from JW108, and a color-map of galaxies to study spatially resolved star-formation.</p>	<p>JW108 06 00 47.944 -39 55 06.90 T01 biancapoggianti INAF - OAPD"</p>
A05_088	Study of Galactic Structure using UVIT star counts	<p>The aim of this proposal is to investigate in detail the observed UV star counts obtained by UVIT-ASTROSAT vis-a-vis the model simulated catalogues produced by the Besancon model of stellar population synthesis in several Galactic directions, and to explore the potential for studying the structure of our Galaxy from images in multiple NUV and FUV filters of the UVIT. UV star counts will be dominated by main-sequence (MS) stars, hot white dwarfs (WDs) and blue horizontal branch stars (BHBs), and hence will be very useful to separate out different stellar populations since we have several UV colours, which in turn will help us to estimate the structural parameters of the Galaxy with better precision. The population of WDs and BHBs is also integral to the study of stellar evolution and structure of the Milky Way as they belong to different stellar populations of the Galaxy.</p>	<p>GC50+40 16 37 43.89 +29 43 39.70 T02 dkojha TIFR"</p>

A05_088	Study of Galactic Structure using UVIT star counts	<p>The aim of this proposal is to investigate in detail the observed UV star counts obtained by UVIT-ASTROSAT vis-a-vis the model simulated catalogues produced by the Besancon model of stellar population synthesis in several Galactic directions, and to explore the potential for studying the structure of our Galaxy from images in multiple NUV and FUV filters of the UVIT. UV star counts will be dominated by main-sequence (MS) stars, hot white dwarfs (WDs) and blue horizontal branch stars (BHBs), and hence will be very useful to separate out different stellar populations since we have several UV colours, which in turn will help us to estimate the structural parameters of the Galaxy with better precision. The population of WDs and BHBs is also integral to the study of stellar evolution and structure of the Milky Way as they belong to different stellar populations of the Galaxy.</p>	GC50+48 16 00 43.60 +31 10 14.70 T03 dkojha TIFR"
A05_088	Study of Galactic Structure using UVIT star counts	<p>The aim of this proposal is to investigate in detail the observed UV star counts obtained by UVIT-ASTROSAT vis-a-vis the model simulated catalogues produced by the Besancon model of stellar population synthesis in several Galactic directions, and to explore the potential for studying the structure of our Galaxy from images in multiple NUV and FUV filters of the UVIT. UV star counts will be dominated by main-sequence (MS) stars, hot white dwarfs (WDs) and blue horizontal branch stars (BHBs), and hence will be very useful to separate out different stellar populations since we have several UV colours, which in turn will help us to estimate the structural parameters of the Galaxy with better precision. The population of WDs and BHBs is also integral to the study of stellar evolution and structure of the Milky Way as they belong to different stellar populations of the Galaxy.</p>	GC50+69 14 24 00.08 +31 34 06.10 T05 dkojha TIFR"
A05_092	Understanding the structure of dip in RX J0440.9+4431's pulse profile	<p>We propose for a 50 ks observation of a Be/X-ray binary system RX J0440.9+4431 during an outburst to study the peculiar dip structure in the pulse phase. The variation of the spectral parameters across the dip will enable us to learn more about the accretion geometry near the pole of the Neutron star. The study of the pulse profile and the evolution of the spin period can help in constraining the magnetic field and accretion geometry of the source. Detection of the cyclotron line can help in providing additional verification of the measurement of magnetic field. In this study, we plan to understand the structure of the dip using pulse-phase resolved spectroscopy and attempt to detect the cyclotron line in the phase-averaged spectrum.</p>	RX J0440.9+4431 04 40 59.3164 +44 31 49.269 T01 yashbhargava IUCAA"

A05_094	%Probing the UV/X-ray connection in a high accretion rate, rapidly variable AGN \rm{Mrk 382} with AstroSat%	<p>\rm{Mrk 382} is a bright narrow-line Seyfert 1 galaxy having a mass <math>\sim 3 \times 10^6 M_\odot</math>. It has very high accretion rate and exhibits rapid variability in the optical to X-ray bands. Despite these peculiar properties, the source has never been probed in detail. Using the capabilities of \textit{AstroSat}, we intend to probe the mechanism that drives the observed rapid variability as a test of the standard accretion disk theory of active galactic nuclei (AGNs). This is especially important because recent \textit{Swift} monitorings have shown that while the optical/UV variability of AGNs mostly results from reprocessing of X-rays in the disk, the measured lags are about three times longer than predicted. We will also check for Comptonisation lags where seed UV photons are upscattered into X-rays in the corona. The expected lag time-scales are <math>\sim 10-15</math> \,ms. To achieve these goals, we request <math>40</math> \,ks observing time for \rm{Mrk 382} with UVIT as the primary instrument.%</p>	mrk 382 7 55 25.296 39 11 10.140 T01 adegoke IISc"
A05_096	Accretion and Mass-loss Properties of Magellanic Cloud Supersoft Sources	<p>Supersoft X-ray sources (SSSs) are highly luminous, low-<math>kT</math> (<math>\sim 15-80</math> eV) sources, interpreted as steady thermonuclear burning on the surface of a white dwarf accreting at an extreme rate from its companion. Reprocessing in the surrounding envelope leads to high optical and UV fluxes. Maintaining the high <math>\dot{M}</math> requires either a high-mass donor or extreme irradiation of a low-mass donor to drive a wind, but no direct donor observations have been made yet. In AO-3 and AO-4, we obtained SXT/FUV/NUV data of the known eclipsing SSS CAL87 (LMC, <math>P_{\rm orb} = 10.6</math> hr) and the new SSS transient ASASSN-16oh (SMC, <math>P_{\rm orb} &gt; 5</math> d), demonstrating that these instruments are ideal for observing SSS. We propose to obtain similar SXT/FUV/NUV observations of five other Magellanic Cloud SSS, to undertake systematic modelling of the disc, disc-wind and SSS components for the first time. This could provide constraints on SSS evolution, which is essential in their SN-Ia progenitor candidacy.</p>	RX J0439.8-6809 4 39 49.640 -68 9 1.400 T04 Alida UFS"

A05_096	Accretion and Mass-loss Properties of Magellanic Cloud Supersoft Sources	<p>Supersoft X-ray sources (SSSs) are highly luminous, low-<math>kT</math> (<math>\sim 15\text{--}80\text{ eV}</math>) sources, interpreted as steady thermonuclear burning on the surface of a white dwarf accreting at an extreme rate from its companion. Reprocessing in the surrounding envelope leads to high optical and UV fluxes. Maintaining the high <math>\dot{M}</math> requires either a high-mass donor or extreme irradiation of a low-mass donor to drive a wind, but no direct donor observations have been made yet. In AO-3 and AO-4, we obtained SXT/FUV/NUV data of the known eclipsing SSS CAL87 (LMC, <math>P_{\text{orb}}=10.6\text{ hr}</math>) and the new SSS transient ASASSN-16oh (SMC, <math>P_{\text{orb}}&gt;5\text{ d}</math>), demonstrating that these instruments are ideal for observing SSS. We propose to obtain similar SXT/FUV/NUV observations of five other Magellanic Cloud SSS, to undertake systematic modelling of the disc, disc-wind and SSS components for the first time. This could provide constraints on SSS evolution, which is essential in their SN-Ia progenitor candidacy.</p>	RX J0537.7-7034 5 37 43.001 -70 34 14.988 T06 Alida UFS"
A05_097	Probing the Sloan Great Wall: Resolved star formation histories with ASTROSAT/UVIT	<p>We propose to use the ASTROSAT/UVIT to perform a deep, near- and far-ultraviolet survey of 6 patches chosen from the Sloan Great Wall (SGW) which is about 150-300 mega parsec wide and covers a redshift range from 0.07 to 0.15. The main goal of the proposal is to investigate the structural properties, temporal evolution and the effect of environment on the spatially resolved star-forming regions in galaxies in the SGW using ASTROSAT/UVIT. High resolution of UVIT will also leverage to perform the UV surface photometry and to investigate the nature and extent of the UV disks in galaxies along SGW. The proposed science goals will also be greatly benefited in synergy with SDSS which share a comparable resolution with UVIT. We request for a total 24 ksec of observational time to fulfil the goals of this proposal.</p>	SGW_d_01 14 07 17.52 +06 26 45.60 T01 anshuman TU"
A05_101	Tracing star formation and tidal tails in a sample of southern Interacting Galaxies	<p>We propose to study the UV emission from a sample of 10 closely interacting, spiral galaxies that show evidence of star formation in their galaxy disks and tidal tails. These observations can help us understand the role of mergers in the formation of massive galaxies in our Universe. The AGN activity and enhanced star formation also leads to winds that enrich the galaxy environments. We have already done near-infrared (NIR) observations of the sample using the 1m NIR South African Astronomical Observatory and the galaxies have been detected by Galex. We have checked that the sample is safe to be observed by the UVIT and have adequate UV flux. The higher sensitivity and spatial resolution of UVIT compared to GALEX will help us image the UV emission from the tidal arms/bridges, detect tidal dwarf galaxies (TDGs), isolate massive star forming regions and separate the AGN UV emission from the disk.</p>	ESO235-IG023 20 58 32.899 -49 17 4.992 T01 mousumi IIA"

A05_101	Tracing star formation and tidal tails in a sample of southern Interacting Galaxies	We propose to study the UV emission from a sample of 10 closely interacting, spiral galaxies that show evidence of star formation in their galaxy disks and tidal tails. These observations can help us understand the role of mergers in the formation of massive galaxies in our Universe. The AGN activity and enhanced star formation also leads to winds that enrich the galaxy environments. We have already done near-infrared (NIR) observations of the sample using the 1m NIR South African Astronomical Observatory and the galaxies have been detected by Galex. We have checked that the sample is safe to be observed by the UVIT and have adequate UV flux. The higher sensitivity and spatial resolution of UVIT compared to GALEX will help us image the UV emission from the tidal arms/bridges, detect tidal dwarf galaxies (TDGs), isolate massive star forming regions and separate the AGN UV emission from the disk.	ESO341-IG004 20 41 13.870 -38 11 36.312 T03 mousumi IIA"
A05_101	Tracing star formation and tidal tails in a sample of southern Interacting Galaxies	We propose to study the UV emission from a sample of 10 closely interacting, spiral galaxies that show evidence of star formation in their galaxy disks and tidal tails. These observations can help us understand the role of mergers in the formation of massive galaxies in our Universe. The AGN activity and enhanced star formation also leads to winds that enrich the galaxy environments. We have already done near-infrared (NIR) observations of the sample using the 1m NIR South African Astronomical Observatory and the galaxies have been detected by Galex. We have checked that the sample is safe to be observed by the UVIT and have adequate UV flux. The higher sensitivity and spatial resolution of UVIT compared to GALEX will help us image the UV emission from the tidal arms/bridges, detect tidal dwarf galaxies (TDGs), isolate massive star forming regions and separate the AGN UV emission from the disk.	IC 5110 21 30 43.390 -60 0 6.588 T04 mousumi IIA"
A05_101	Tracing star formation and tidal tails in a sample of southern Interacting Galaxies	We propose to study the UV emission from a sample of 10 closely interacting, spiral galaxies that show evidence of star formation in their galaxy disks and tidal tails. These observations can help us understand the role of mergers in the formation of massive galaxies in our Universe. The AGN activity and enhanced star formation also leads to winds that enrich the galaxy environments. We have already done near-infrared (NIR) observations of the sample using the 1m NIR South African Astronomical Observatory and the galaxies have been detected by Galex. We have checked that the sample is safe to be observed by the UVIT and have adequate UV flux. The higher sensitivity and spatial resolution of UVIT compared to GALEX will help us image the UV emission from the tidal arms/bridges, detect tidal dwarf galaxies (TDGs), isolate massive star forming regions and separate the AGN UV emission from the disk.	IC 5250 22 47 20.419 -65 3 31.392 T05 mousumi IIA"

A05_101	Tracing star formation and tidal tails in a sample of southern Interacting Galaxies	We propose to study the UV emission from a sample of 10 closely interacting, spiral galaxies that show evidence of star formation in their galaxy disks and tidal tails. These observations can help us understand the role of mergers in the formation of massive galaxies in our Universe. The AGN activity and enhanced star formation also leads to winds that enrich the galaxy environments. We have already done near-infrared (NIR) observations of the sample using the 1m NIR South African Astronomical Observatory and the galaxies have been detected by Galex. We have checked that the sample is safe to be observed by the UVIT and have adequate UV flux. The higher sensitivity and spatial resolution of UVIT compared to GALEX will help us image the UV emission from the tidal arms/bridges, detect tidal dwarf galaxies (TDGs), isolate massive star forming regions and separate the AGN UV emission from the disk.	NGC 0454 1 14 22.529 -55 23 55.356 T06 mousumi IIA"
A05_101	Tracing star formation and tidal tails in a sample of southern Interacting Galaxies	We propose to study the UV emission from a sample of 10 closely interacting, spiral galaxies that show evidence of star formation in their galaxy disks and tidal tails. These observations can help us understand the role of mergers in the formation of massive galaxies in our Universe. The AGN activity and enhanced star formation also leads to winds that enrich the galaxy environments. We have already done near-infrared (NIR) observations of the sample using the 1m NIR South African Astronomical Observatory and the galaxies have been detected by Galex. We have checked that the sample is safe to be observed by the UVIT and have adequate UV flux. The higher sensitivity and spatial resolution of UVIT compared to GALEX will help us image the UV emission from the tidal arms/bridges, detect tidal dwarf galaxies (TDGs), isolate massive star forming regions and separate the AGN UV emission from the disk.	NGC 0646 1 37 25.500 -64 53 47.004 T07 mousumi IIA"
A05_101	Tracing star formation and tidal tails in a sample of southern Interacting Galaxies	We propose to study the UV emission from a sample of 10 closely interacting, spiral galaxies that show evidence of star formation in their galaxy disks and tidal tails. These observations can help us understand the role of mergers in the formation of massive galaxies in our Universe. The AGN activity and enhanced star formation also leads to winds that enrich the galaxy environments. We have already done near-infrared (NIR) observations of the sample using the 1m NIR South African Astronomical Observatory and the galaxies have been detected by Galex. We have checked that the sample is safe to be observed by the UVIT and have adequate UV flux. The higher sensitivity and spatial resolution of UVIT compared to GALEX will help us image the UV emission from the tidal arms/bridges, detect tidal dwarf galaxies (TDGs), isolate massive star forming regions and separate the AGN UV emission from the disk.	NGC 6902A 20 22 59.765 -44 16 17.508 T08 mousumi IIA"

A05_101	Tracing star formation and tidal tails in a sample of southern Interacting Galaxies	We propose to study the UV emission from a sample of 10 closely interacting, spiral galaxies that show evidence of star formation in their galaxy disks and tidal tails. These observations can help us understand the role of mergers in the formation of massive galaxies in our Universe. The AGN activity and enhanced star formation also leads to winds that enrich the galaxy environments. We have already done near-infrared (NIR) observations of the sample using the 1m NIR South African Astronomical Observatory and the galaxies have been detected by Galex. We have checked that the sample is safe to be observed by the UVIT and have adequate UV flux. The higher sensitivity and spatial resolution of UVIT compared to GALEX will help us image the UV emission from the tidal arms/bridges, detect tidal dwarf galaxies (TDGs), isolate massive star forming regions and separate the AGN UV emission from the disk.	NGC 7733 23 42 32.950 -65 57 23.400 T09 mousumi IIA"
A05_101	Tracing star formation and tidal tails in a sample of southern Interacting Galaxies	We propose to study the UV emission from a sample of 10 closely interacting, spiral galaxies that show evidence of star formation in their galaxy disks and tidal tails. These observations can help us understand the role of mergers in the formation of massive galaxies in our Universe. The AGN activity and enhanced star formation also leads to winds that enrich the galaxy environments. We have already done near-infrared (NIR) observations of the sample using the 1m NIR South African Astronomical Observatory and the galaxies have been detected by Galex. We have checked that the sample is safe to be observed by the UVIT and have adequate UV flux. The higher sensitivity and spatial resolution of UVIT compared to GALEX will help us image the UV emission from the tidal arms/bridges, detect tidal dwarf galaxies (TDGs), isolate massive star forming regions and separate the AGN UV emission from the disk.	NGC1356 3 30 40.790 -50 18 34.596 T02 mousumi IIA"
A05_101	Tracing star formation and tidal tails in a sample of southern Interacting Galaxies	We propose to study the UV emission from a sample of 10 closely interacting, spiral galaxies that show evidence of star formation in their galaxy disks and tidal tails. These observations can help us understand the role of mergers in the formation of massive galaxies in our Universe. The AGN activity and enhanced star formation also leads to winds that enrich the galaxy environments. We have already done near-infrared (NIR) observations of the sample using the 1m NIR South African Astronomical Observatory and the galaxies have been detected by Galex. We have checked that the sample is safe to be observed by the UVIT and have adequate UV flux. The higher sensitivity and spatial resolution of UVIT compared to GALEX will help us image the UV emission from the tidal arms/bridges, detect tidal dwarf galaxies (TDGs), isolate massive star forming regions and separate the AGN UV emission from the disk.	VV 297 20 16 57.300 -70 45 29.988 T10 mousumi IIA"



A05_103	FUV halos, lobes, and jets around young planetary nebulae	The discovery of a novel FUV lobes and jets around NGC 6302 by UVIT opened a new window into the study of planetary nebulae. We would like to further this study to more young planetary nebulae.	NGC 4066 12 04 09.39 +20 20 52.1 T01 nkrao IIA"
A05_103	FUV halos, lobes, and jets around young planetary nebulae	The discovery of a novel FUV lobes and jets around NGC 6302 by UVIT opened a new window into the study of planetary nebulae. We would like to further this study to more young planetary nebulae.	NGC 6302 17 13 32.62 -37 01 24.0 T06 nkrao IIA"
A05_103	FUV halos, lobes, and jets around young planetary nebulae	The discovery of a novel FUV lobes and jets around NGC 6302 by UVIT opened a new window into the study of planetary nebulae. We would like to further this study to more young planetary nebulae.	OH 231.8 +4.2 07 42 24.90 -14 35 30.5 T02 nkrao IIA"
A05_103	FUV halos, lobes, and jets around young planetary nebulae	The discovery of a novel FUV lobes and jets around NGC 6302 by UVIT opened a new window into the study of planetary nebulae. We would like to further this study to more young planetary nebulae.	PN Mz 3 16 17 09.53 -51 52 57.2 T05 nkrao IIA"
A05_104	A UV Study of Star Formation in Tidally Interacting Galaxies	We propose to study the UV emission from a sample of 8 interacting galaxies from the ARP catalog that have bright, star forming disks, extended tidal tails or bridges and are at different stages of merging. The tidal structures are bright at UV wavelengths and some have clumps associated with tidal dwarf galaxies. Most of them also have one or more bright active galactic nuclei (AGN). The galaxies are nearby and have sizes of several arcminutes. The high sensitivity and spatial resolution of UVIT will enable us to isolate massive star forming regions in the disks, tails, bridges and separate the AGN from the disk UV emission. We will compare the star formation rates, colors and metallicities over different parts of the galaxies and model the ages of the star forming regions. We will also study how the nuclear activity and star formation enrich the environment around the galaxies.	arp220 15 34 57.254 23 30 11.304 T05 mousumi IIA"

A05_104	A UV Study of Star Formation in Tidally Interacting Galaxies	We propose to study the UV emission from a sample of 8 interacting galaxies from the ARP catalog that have bright, star forming disks, extended tidal tails or bridges and are at different stages of merging. The tidal structures are bright at UV wavelengths and some have clumps associated with tidal dwarf galaxies. Most of them also have one or more bright active galactic nuclei (AGN). The galaxies are nearby and have sizes of several arcminutes. The high sensitivity and spatial resolution of UVIT will enable us to isolate massive star forming regions in the disks, tails, bridges and separate the AGN from the disk UV emission. We will compare the star formation rates, colors and metallicities over different parts of the galaxies and model the ages of the star forming regions. We will also study how the nuclear activity and star formation enrich the environment around the galaxies.	arp244 12 1 53.299 -18 52 36.984 T06 mousumi IIA"
A05_104	A UV Study of Star Formation in Tidally Interacting Galaxies	We propose to study the UV emission from a sample of 8 interacting galaxies from the ARP catalog that have bright, star forming disks, extended tidal tails or bridges and are at different stages of merging. The tidal structures are bright at UV wavelengths and some have clumps associated with tidal dwarf galaxies. Most of them also have one or more bright active galactic nuclei (AGN). The galaxies are nearby and have sizes of several arcminutes. The high sensitivity and spatial resolution of UVIT will enable us to isolate massive star forming regions in the disks, tails, bridges and separate the AGN from the disk UV emission. We will compare the star formation rates, colors and metallicities over different parts of the galaxies and model the ages of the star forming regions. We will also study how the nuclear activity and star formation enrich the environment around the galaxies.	arp269 12 30 33.701 41 40 21.000 T07 mousumi IIA"
A05_104	A UV Study of Star Formation in Tidally Interacting Galaxies	We propose to study the UV emission from a sample of 8 interacting galaxies from the ARP catalog that have bright, star forming disks, extended tidal tails or bridges and are at different stages of merging. The tidal structures are bright at UV wavelengths and some have clumps associated with tidal dwarf galaxies. Most of them also have one or more bright active galactic nuclei (AGN). The galaxies are nearby and have sizes of several arcminutes. The high sensitivity and spatial resolution of UVIT will enable us to isolate massive star forming regions in the disks, tails, bridges and separate the AGN from the disk UV emission. We will compare the star formation rates, colors and metallicities over different parts of the galaxies and model the ages of the star forming regions. We will also study how the nuclear activity and star formation enrich the environment around the galaxies.	arp72 15 46 56.100 17 52 41.988 T01 mousumi IIA"

A05_104	A UV Study of Star Formation in Tidally Interacting Galaxies	We propose to study the UV emission from a sample of 8 interacting galaxies from the ARP catalog that have bright, star forming disks, extended tidal tails or bridges and are at different stages of merging. The tidal structures are bright at UV wavelengths and some have clumps associated with tidal dwarf galaxies. Most of them also have one or more bright active galactic nuclei (AGN). The galaxies are nearby and have sizes of several arcminutes. The high sensitivity and spatial resolution of UVIT will enable us to isolate massive star forming regions in the disks, tails, bridges and separate the AGN from the disk UV emission. We will compare the star formation rates, colors and metallicities over different parts of the galaxies and model the ages of the star forming regions. We will also study how the nuclear activity and star formation enrich the environment around the galaxies.	arp82 11 14.700 25 11 35.016 T02 mousumi IIA"	8
A05_104	A UV Study of Star Formation in Tidally Interacting Galaxies	We propose to study the UV emission from a sample of 8 interacting galaxies from the ARP catalog that have bright, star forming disks, extended tidal tails or bridges and are at different stages of merging. The tidal structures are bright at UV wavelengths and some have clumps associated with tidal dwarf galaxies. Most of them also have one or more bright active galactic nuclei (AGN). The galaxies are nearby and have sizes of several arcminutes. The high sensitivity and spatial resolution of UVIT will enable us to isolate massive star forming regions in the disks, tails, bridges and separate the AGN from the disk UV emission. We will compare the star formation rates, colors and metallicities over different parts of the galaxies and model the ages of the star forming regions. We will also study how the nuclear activity and star formation enrich the environment around the galaxies.	arp84 13 58 35.801 37 26 20.004 T03 mousumi IIA"	
A05_104	A UV Study of Star Formation in Tidally Interacting Galaxies	We propose to study the UV emission from a sample of 8 interacting galaxies from the ARP catalog that have bright, star forming disks, extended tidal tails or bridges and are at different stages of merging. The tidal structures are bright at UV wavelengths and some have clumps associated with tidal dwarf galaxies. Most of them also have one or more bright active galactic nuclei (AGN). The galaxies are nearby and have sizes of several arcminutes. The high sensitivity and spatial resolution of UVIT will enable us to isolate massive star forming regions in the disks, tails, bridges and separate the AGN from the disk UV emission. We will compare the star formation rates, colors and metallicities over different parts of the galaxies and model the ages of the star forming regions. We will also study how the nuclear activity and star formation enrich the environment around the galaxies.	arp86 23 47 1.699 29 28 15.996 T04 mousumi IIA"	

A05_104	A UV Study of Star Formation in Tidally Interacting Galaxies	<p>We propose to study the UV emission from a sample of 8 interacting galaxies from the ARP catalog that have bright, star forming disks, extended tidal tails or bridges and are at different stages of merging. The tidal structures are bright at UV wavelengths and some have clumps associated with tidal dwarf galaxies. Most of them also have one or more bright active galactic nuclei (AGN). The galaxies are nearby and have sizes of several arcminutes. The high sensitivity and spatial resolution of UVIT will enable us to isolate massive star forming regions in the disks, tails, bridges and separate the AGN from the disk UV emission. We will compare the star formation rates, colors and metallicities over different parts of the galaxies and model the ages of the star forming regions. We will also study how the nuclear activity and star formation enrich the environment around the galaxies.</p>	<p>ngc4567 12 36 32.710 11 15 28.800 T08 mousumi IIA"</p>
A05_107	Deep Investigations of the Broad-band Spectral Energy Distribution of Mrk 501 in a Low State	<p>We request a total of 90 ksec effective exposure on the blazar Mrk 501 distributed over three pointings of 30 ksec each, with SXT as primary instrument. Our goal is to study in detail the spectral behaviour of Mrk 501 in hard X-rays and TeV gamma rays, combining observations of ASTROSAT and the TeV-instrument FACT. Given the low state of the source for more than three years in both energy bands, we expect to study the low state with unprecedented precision. As the source is generally variable, splitting up the observation provides the possibility to measure and compare different flux states. A comparison with historical high-state data is planned as well. Including optical and GeV data, broad-band spectral energy distributions will be compiled and modeled. This will allow for conclusions on the still highly debated emission mechanism and a comparison of the dominant processes for low and high state.</p>	<p>Mrk 501 16 53 52.217 +39 45 36.61 T01 Daniela OTHERS"</p>
A05_108	Ultraviolet view of ram-pressure stripping in action: The case of Jellyfish galaxies	<p>Galaxies with tentacles of material that appear to be stripped, having a morphology suggestive of ram pressure stripping and found mostly in galaxy clusters are known as Jellyfish galaxies. The optical and H<math>\alpha</math> imaging of these galaxies reveal tidal debris with tails of ionised gas up to 150 Kpc long where new stars are born in knots and end up contributing to the intracluster light. The ongoing star formation in Jellyfish galaxies can be better understand in UV and making use of the spatial resolution of UVIT we plan to study the spatial variation of star formation in these systems. We propose to observe two galaxy clusters at redshift <math>\sim 0.05</math> with jellyfish galaxies for which we have VLT MUSE H<math>\alpha</math> and VLA HI observations. This study will shed more light in to the triggered star formation and galaxy evolution in dense environments.</p>	<p>Abell3530 12 57 04.32 -30 22 30.19 T02 koshy IIA"</p>

A05_108	Ultraviolet view of ram-pressure stripping in action: The case of Jellyfish galaxies	Galaxies with tentacles of material that appear to be stripped, having a morphology suggestive of ram pressure stripping and found mostly in galaxy clusters are known as Jellyfish galaxies. The optical and H $\alpha$ imaging of these galaxies reveal tidal debris with tails of ionised gas up to 150 Kpc long where new stars are born in knots and end up contributing to the intracluster light. The ongoing star formation in Jellyfish galaxies can be better understood in UV and making use of the spatial resolution of UVIT we plan to study the spatial variation of star formation in these systems. We propose to observe two galaxy clusters at redshift $\sim 0.05$ with jellyfish galaxies for which we have VLT MUSE H $\alpha$ and VLA HI observations. This study will shed more light in to the triggered star formation and galaxy evolution in dense environments.	Abell4059 23 57 00.74 -34 40 49.94 T01 koshy IIA"
A05_109	To investigate the multiple populations in Leo II group globular clusters through the eyes of UVIT	To better configure the evolutionary history of early-type galaxies (ETGs), we take the GC system as the powerful tool and take same age and metallicity for them. Over the last ten years, our outlook of similar age and metallicity for GC system got modified to a range of ages varying from young ( $\sim 2$ Gyr) to old ( $\sim 13$ Gyr). Studies confirmed the presence of multiple main sequence tracks (multiple stellar populations-MPs) in Galactic GCs, which expanded to extragalactic systems such as M31 and NGC 5128. Compared to age estimations from spectroscopic indices, UV-optical colours provide robust age estimations for MPs in GCs (Bianchi et al. 2007). Using the best possible high-resolution instrument, UVIT onboard ASTROSAT, we propose to study the ETGs in Leo II group. With the aid of UV data in addition to optical, we plan to confirm the presence of MPs in Leo II and precise age estimation.	NGC3607 11 16 54.6 +18 03 06 T01 sreeja CU"
A05_115	UVIT Imaging of the Coma Cluster: The Fossil Record of Star Formation (Fields 1, 3 and 6)	We propose multi-band UVIT imaging of the next three fields in our survey of the Coma cluster, the archetypal massive galaxy cluster in the nearby universe. Although a wealth of UV, optical and IR imaging, as well as optical spectroscopy, exists for the high- and intermediate-mass galaxies in this dense environment, the origin of their NUV emission remains uncertain (i.e., FUV-upturn leakage vs. residual star formation). Our proposed Astrosat A05 observations, which require 43,995 sec (12.2 hrs) of open shutter time, will significantly improve upon the existing constraints, from GALEX, on the UV emission in these galaxies by sampling the UV SEDs in four distinct wavelength regions — FUV-BaF2 (0.135-0.18 $\mu$ m), NUV-Silica (0.2-0.3 $\mu$ m), NUVB13 (0.23-0.26 $\mu$ m) and NUVB4 (0.25-0.28 $\mu$ m) — and by providing a three-fold improvement in the spatial resolution of the UV emission within individual galaxies.	Coma1 13 00 09.64 27 12 49.5 T03 mbalogh OTHERS"

A05_115	UVIT Imaging of the Coma Cluster: The Fossil Record of Star Formation (Fields 1, 3 and 6)	<p>We propose multi-band UVIT imaging of the next three fields in our survey of the Coma cluster, the archetypal massive galaxy cluster in the nearby universe.</p> <p>Although a wealth of UV, optical and IR imaging, as well as optical spectroscopy, exists for the high- and intermediate-mass galaxies in this dense environment, the origin of their NUV emission remains uncertain (i.e., FUV-upturn leakage vs. residual star formation).</p> <p>Our proposed Astrosat A05 observations, which require 43,995 sec (12.2 hrs) of open shutter time, will significantly improve upon the existing constraints, from GALEX, on the UV emission in these galaxies by sampling the UV SEDs in four distinct wavelength regions — FUV-BaF2 (0.135-0.18<math>\mu</math>m), NUV-Silica (0.2-0.3<math>\mu</math>m), NUVB13 (0.23-0.26<math>\mu</math>m) and NUVB4 (0.25-0.28<math>\mu</math>m) — and by providing a three-fold improvement in the spatial resolution of the UV emission within individual galaxies.</p>	<p>Coma3 12 57 08.62 28 21 44.7 T02 mbalogh OTHERS"</p>
A05_115	UVIT Imaging of the Coma Cluster: The Fossil Record of Star Formation (Fields 1, 3 and 6)	<p>We propose multi-band UVIT imaging of the next three fields in our survey of the Coma cluster, the archetypal massive galaxy cluster in the nearby universe.</p> <p>Although a wealth of UV, optical and IR imaging, as well as optical spectroscopy, exists for the high- and intermediate-mass galaxies in this dense environment, the origin of their NUV emission remains uncertain (i.e., FUV-upturn leakage vs. residual star formation).</p> <p>Our proposed Astrosat A05 observations, which require 43,995 sec (12.2 hrs) of open shutter time, will significantly improve upon the existing constraints, from GALEX, on the UV emission in these galaxies by sampling the UV SEDs in four distinct wavelength regions — FUV-BaF2 (0.135-0.18<math>\mu</math>m), NUV-Silica (0.2-0.3<math>\mu</math>m), NUVB13 (0.23-0.26<math>\mu</math>m) and NUVB4 (0.25-0.28<math>\mu</math>m) — and by providing a three-fold improvement in the spatial resolution of the UV emission within individual galaxies.</p>	<p>Coma6 12 57 59.71 27 59 45.5 T01 mbalogh OTHERS"</p>

A05_117	Probing the curved synchrotron spectral behaviour in blazar using ASTROSAT observations	<p>We propose multiwavelength observations of ASTROSAT for BL Lac object, PKS 2155-304 (<math>z=0.1160</math>). We request 45 ks observation time in total for 3 pointings for 15 ks each, at epochs separated by 15 and 30 days after the first observation. The synchrotron emission of this source shows a mild curvature in UV/X-ray energy band which deviates from a simple power-law model. To investigate the origin of the spectral curvature and the synchrotron spectral behaviour, we developed a model where the escape probability of the electron from an acceleration region is assumed to be energy dependent. The resultant synchrotron spectrum can be successfully fitted with this semi-analytical model. The combined UV and SXT observations are significant to resolve the synchrotron peak of the source. The simultaneous broadband ASTROSAT observations will be very crucial to perform the detailed study of our model, which provides better insight into the physics of blazar jets.</p>	<p>PKS 2155-304 21 58 52.06511 -30 13 32.1182 T01 Pranjupriya TU"</p>
A05_118	Young Stellar Populations in Nearby Galaxies with UVIT and SITELLE	<p>This project will characterize with unprecedented accuracy the young stellar clusters in a sample of four nearby star-forming galaxies, NGC628, NGC3344, NGC2903, and NGC4214, by combining two highly complementary tools: ultraviolet imagery of the underlying ionizing stellar populations using UVIT (this proposal) with imaging spectroscopy in the visible of the ionized gas using SITELLE. A set of UVIT filters is selected (FUV-F2, FUV-F5, NUV-F2, NUV-F3, NUV-F5, and VIS1) to cover sensitive regions over the spectral energy distribution of young stellar clusters. While SITELLE provides, with a spatial resolution similar to UVIT, a measurement of the gas emission lines, stellar cluster parameters revealed by UVIT will become inputs for a photoionization code used to gather the gas properties. The combined information from the ionized gas and stellar populations will allow us to study the impact of star formation and different mixing mechanisms on the evolution of galaxies.</p>	<p>NGC3344 10 43 31.1 +24 55 20 T02 carobert UL"</p>

A05_118	Young Stellar Populations in Nearby Galaxies with UVIT and SITELLE	<p>This project will characterize with unprecedented accuracy the young stellar clusters in a sample of four nearby star-forming galaxies, NGC628, NGC3344, NGC2903, and NGC4214, by combining two highly complementary tools: ultraviolet imagery of the underlying ionizing stellar populations using UVIT (this proposal) with imaging spectroscopy in the visible of the ionized gas using SITELLE. A set of UVIT filters is selected (FUV-F2, FUV-F5, NUV-F2, NUV-F3, NUV-F5, and VIS1) to cover sensitive regions over the spectral energy distribution of young stellar clusters. While SITELLE provides, with a spatial resolution similar to UVIT, a measurement of the gas emission lines, stellar cluster parameters revealed by UVIT will become inputs for a photoionization code used to gather the gas properties. The combined information from the ionized gas and stellar populations will allow us to study the impact of star formation and different mixing mechanisms on the evolution of galaxies.</p>	<p>NGC4214 12 15 39.2 +36 19 37 T04 carobert UL"</p>
A05_126	Black Holes in Transition: A Legacy ASTROSAT Project - 3 of 3	<p>Black hole X-ray binaries (BHXBs) cycle through different accretion states rapidly, providing a time-resolved view of how matter behaves in a strong gravity environment. Simultaneous multi-wavelength observations are the optimal tool that exposes this view. However, these campaigns (connecting the evolving accretion inflow and jet outflow) have been achieved rarely. We request triggered 864ks observations by ASTROSAT of a BHXB as it transitions from the hard to the soft state, when the accretion disk and relativistic jets change significantly. We have submitted three proposals (A05_130/A05_129/A05_126), but ask to observe only one BHXB (out of 15 listed targets); we ask that these proposals are treated together, distributing the proposal as 624/192/48ks against Indian/International/Canadian stare-time. Our group is well suited to attain the simultaneous multiwavelength observations that will maximize the scientific legacy of these observations; we will also make ASTROSAT data immediately public and have open procedures for joining our team.</p>	<p>H_1743-322 17 46 15.60 -32 14 00.60 T05 gsivakoff UAlberta"</p>



A05_126	Black Holes in Transition: A Legacy ASTROSAT Project - 3 of 3	<p>Black hole X-ray binaries (BHXBs) cycle through different accretion states rapidly, providing a time-resolved view of how matter behaves in a strong gravity environment. Simultaneous multi-wavelength observations are the optimal tool that exposes this view. However, these campaigns (connecting the evolving accretion inflow and jet outflow) have been achieved rarely. We request triggered 864ks observations by ASTROSAT of a BHXB as it transitions from the hard to the soft state, when the accretion disk and relativistic jets change significantly. We have submitted three proposals (A05_130/A05_129/A05_126), but ask to observe only one BHXB (out of 15 listed targets); we ask that these proposals are treated together, distributing the proposal as 624/192/48ks against Indian/International/Canadian stare-time. Our group is well suited to attain the simultaneous multiwavelength observations that will maximize the scientific legacy of these observations; we will also make ASTROSAT data immediately public and have open procedures for joining our team.</p>	<p>MAXI_J1820+070 18 20 21.95 +07 11 07.30 T02 gsivakoff UAlberta"</p>
A05_126	Black Holes in Transition: A Legacy ASTROSAT Project - 3 of 3	<p>Black hole X-ray binaries (BHXBs) cycle through different accretion states rapidly, providing a time-resolved view of how matter behaves in a strong gravity environment. Simultaneous multi-wavelength observations are the optimal tool that exposes this view. However, these campaigns (connecting the evolving accretion inflow and jet outflow) have been achieved rarely. We request triggered 864ks observations by ASTROSAT of a BHXB as it transitions from the hard to the soft state, when the accretion disk and relativistic jets change significantly. We have submitted three proposals (A05_130/A05_129/A05_126), but ask to observe only one BHXB (out of 15 listed targets); we ask that these proposals are treated together, distributing the proposal as 624/192/48ks against Indian/International/Canadian stare-time. Our group is well suited to attain the simultaneous multiwavelength observations that will maximize the scientific legacy of these observations; we will also make ASTROSAT data immediately public and have open procedures for joining our team.</p>	<p>Swift_J1357.2-0933 13 57 16.81 -09 32 38.55 T03 gsivakoff UAlberta"</p>

A05_126	Black Holes in Transition: A Legacy ASTROSAT Project - 3 of 3	<p>Black hole X-ray binaries (BHXBs) cycle through different accretion states rapidly, providing a time-resolved view of how matter behaves in a strong gravity environment. Simultaneous multi-wavelength observations are the optimal tool that exposes this view. However, these campaigns (connecting the evolving accretion inflow and jet outflow) have been achieved rarely. We request triggered 864ks observations by ASTROSAT of a BHXB as it transitions from the hard to the soft state, when the accretion disk and relativistic jets change significantly. We have submitted three proposals (A05_130/A05_129/A05_126), but ask to observe only one BHXB (out of 15 listed targets); we ask that these proposals are treated together, distributing the proposal as 624/192/48ks against Indian/International/Canadian stare-time. Our group is well suited to attain the simultaneous multiwavelength observations that will maximize the scientific legacy of these observations; we will also make ASTROSAT data immediately public and have open procedures for joining our team.</p>	<p>XTE_J1752-223 17 52 15.09 -22 20 32.78 T04 gsivakoff UAlberta"</p>
A05_126	Black Holes in Transition: A Legacy ASTROSAT Project - 3 of 3	<p>Black hole X-ray binaries (BHXBs) cycle through different accretion states rapidly, providing a time-resolved view of how matter behaves in a strong gravity environment. Simultaneous multi-wavelength observations are the optimal tool that exposes this view. However, these campaigns (connecting the evolving accretion inflow and jet outflow) have been achieved rarely. We request triggered 864ks observations by ASTROSAT of a BHXB as it transitions from the hard to the soft state, when the accretion disk and relativistic jets change significantly. We have submitted three proposals (A05_130/A05_129/A05_126), but ask to observe only one BHXB (out of 15 listed targets); we ask that these proposals are treated together, distributing the proposal as 624/192/48ks against Indian/International/Canadian stare-time. Our group is well suited to attain the simultaneous multiwavelength observations that will maximize the scientific legacy of these observations; we will also make ASTROSAT data immediately public and have open procedures for joining our team.</p>	<p>XTE_J1859+226 18 58 41.58 +22 39 29.40 T01 gsivakoff UAlberta"</p>

A05_128	AstroSat observations of a new transient in the globular cluster NGC 6440	<p>Globular clusters are known to host many X-ray sources, several of which have been identified as low-mass X-ray binaries (LMXBs) in quiescence. With a yet unknown recurrence time, some of these LMXBs have been seen in outburst. Here we request a 40 ksec AstroSat observation to follow-up and constrain the spectral characteristics of a transient outburst detected from the globular cluster NGC 6440 by any of the current All Sky Monitors. This observation aims particularly at identifying a new transient (neutron star or black hole), searching for coherent pulsations, constraining the broadband spectra, timing features. These observations will be complemented with multi-wavelength campaigns and will help identify the nature of the transient.</p>	<p>NGC6440 17 48 52.670 -20 21 34.499 T01 devraj OTHERS"</p>
A05_129	Black Holes in Transition: A Legacy AstroSat Project - 2 of 3	<p>Black hole X-ray binaries (BHXBs) cycle through different accretion states rapidly, providing a time-resolved view of how matter behaves in a strong gravity environment. Simultaneous multi-wavelength observations are the optimal tool that exposes this view. However, these campaigns (connecting the evolving accretion inflow and jet outflow) have been achieved rarely. We request triggered 864ks observations by AstroSat of a BHXB as it transitions from the hard to the soft state, when the accretion disk and relativistic jets change significantly. We have submitted three proposals (A05_130/A05_129/A05_126), but ask to observe only one BHXB (out of 15 listed targets); we ask that these proposals are treated together, distributing the proposal as 624/192/48ks against Indian/International/Canadian stare-time allocations. Our group is well suited to attain the simultaneous multiwavelength observations that will maximize the scientific legacy of these observations; we will also make AstroSat data immediately public and have open procedures for joining our team.</p>	<p>4U_1543-475 15 47 08.6 -47 40 10 T02 dibnob SAAO"</p>

A05_129	Black Holes in Transition: A Legacy AstroSat Project - 2 of 3	<p>Black hole X-ray binaries (BHXBs) cycle through different accretion states rapidly, providing a time-resolved view of how matter behaves in a strong gravity environment. Simultaneous multi-wavelength observations are the optimal tool that exposes this view. However, these campaigns (connecting the evolving accretion inflow and jet outflow) have been achieved rarely. We request triggered 864ks observations by AstroSat of a BHXB as it transitions from the hard to the soft state, when the accretion disk and relativistic jets change significantly. We have submitted three proposals (A05_130/A05_129/A05_126), but ask to observe only one BHXB (out of 15 listed targets); we ask that these proposals are treated together, distributing the proposal as 624/192/48ks against Indian/International/Canadian stare-time allocations. Our group is well suited to attain the simultaneous multiwavelength observations that will maximize the scientific legacy of these observations; we will also make AstroSat data immediately public and have open procedures for joining our team.</p>	<p>4U_1630-472 16 34 01.61 -47 23 34.8 T01 dibnob SAAO"</p>
A05_129	Black Holes in Transition: A Legacy AstroSat Project - 2 of 3	<p>Black hole X-ray binaries (BHXBs) cycle through different accretion states rapidly, providing a time-resolved view of how matter behaves in a strong gravity environment. Simultaneous multi-wavelength observations are the optimal tool that exposes this view. However, these campaigns (connecting the evolving accretion inflow and jet outflow) have been achieved rarely. We request triggered 864ks observations by AstroSat of a BHXB as it transitions from the hard to the soft state, when the accretion disk and relativistic jets change significantly. We have submitted three proposals (A05_130/A05_129/A05_126), but ask to observe only one BHXB (out of 15 listed targets); we ask that these proposals are treated together, distributing the proposal as 624/192/48ks against Indian/International/Canadian stare-time allocations. Our group is well suited to attain the simultaneous multiwavelength observations that will maximize the scientific legacy of these observations; we will also make AstroSat data immediately public and have open procedures for joining our team.</p>	<p>MAXI_J1535-571 15 35 19.73 -57 13 48.1 T04 dibnob SAAO"</p>

A05_129	Black Holes in Transition: A Legacy AstroSat Project - 2 of 3	<p>Black hole X-ray binaries (BHXBs) cycle through different accretion states rapidly, providing a time-resolved view of how matter behaves in a strong gravity environment. Simultaneous multi-wavelength observations are the optimal tool that exposes this view. However, these campaigns (connecting the evolving accretion inflow and jet outflow) have been achieved rarely. We request triggered 864ks observations by AstroSat of a BHXB as it transitions from the hard to the soft state, when the accretion disk and relativistic jets change significantly. We have submitted three proposals (A05_130/A05_129/A05_126), but ask to observe only one BHXB (out of 15 listed targets); we ask that these proposals are treated together, distributing the proposal as 624/192/48ks against Indian/International/Canadian stare-time allocations. Our group is well suited to attain the simultaneous multiwavelength observations that will maximize the scientific legacy of these observations; we will also make AstroSat data immediately public and have open procedures for joining our team.</p>	<p>Swift_J1539.2-6227 15 39 11.963 -62 28 02.30 T05 dibnob SAAO"</p>
A05_129	Black Holes in Transition: A Legacy AstroSat Project - 2 of 3	<p>Black hole X-ray binaries (BHXBs) cycle through different accretion states rapidly, providing a time-resolved view of how matter behaves in a strong gravity environment. Simultaneous multi-wavelength observations are the optimal tool that exposes this view. However, these campaigns (connecting the evolving accretion inflow and jet outflow) have been achieved rarely. We request triggered 864ks observations by AstroSat of a BHXB as it transitions from the hard to the soft state, when the accretion disk and relativistic jets change significantly. We have submitted three proposals (A05_130/A05_129/A05_126), but ask to observe only one BHXB (out of 15 listed targets); we ask that these proposals are treated together, distributing the proposal as 624/192/48ks against Indian/International/Canadian stare-time allocations. Our group is well suited to attain the simultaneous multiwavelength observations that will maximize the scientific legacy of these observations; we will also make AstroSat data immediately public and have open procedures for joining our team.</p>	<p>XTE_J1550-564 15 50 58.78 -56 28 35.0 T03 dibnob SAAO"</p>

A05_130	Black Holes in Transition: A Legacy AstroSat Project - 1 of 3	<p>Black hole X-ray binaries (BHXBs) cycle through different accretion states rapidly, providing a time-resolved view of how matter behaves in a strong gravity environment. Simultaneous multi-wavelength observations are the optimal tool that exposes this view. However, these campaigns (connecting the evolving accretion inflow and jet outflow) have been achieved rarely. We request triggered 864ks observations by AstroSat of a BHXB as it transitions from the hard to the soft state, when the accretion disk and relativistic jets change significantly. We have submitted three proposals (A05_130/A05_129/A05_126), but ask to observe only one BHXB (out of 15 listed targets); we ask that these proposals are treated together, distributing the proposal as 624/192/48ks against Indian/International/Canadian stare-time allocations. Our group is well suited to attain the simultaneous multiwavelength observations that will maximize the scientific legacy of these observations; we will also make AstroSat data immediately public and have open procedures for joining our team.</p>	<p>GRO_J1655-40 16 54 00.137 -39 50 44.90 T02 ranjeev IUCAA"</p>
A05_130	Black Holes in Transition: A Legacy AstroSat Project - 1 of 3	<p>Black hole X-ray binaries (BHXBs) cycle through different accretion states rapidly, providing a time-resolved view of how matter behaves in a strong gravity environment. Simultaneous multi-wavelength observations are the optimal tool that exposes this view. However, these campaigns (connecting the evolving accretion inflow and jet outflow) have been achieved rarely. We request triggered 864ks observations by AstroSat of a BHXB as it transitions from the hard to the soft state, when the accretion disk and relativistic jets change significantly. We have submitted three proposals (A05_130/A05_129/A05_126), but ask to observe only one BHXB (out of 15 listed targets); we ask that these proposals are treated together, distributing the proposal as 624/192/48ks against Indian/International/Canadian stare-time allocations. Our group is well suited to attain the simultaneous multiwavelength observations that will maximize the scientific legacy of these observations; we will also make AstroSat data immediately public and have open procedures for joining our team.</p>	<p>GX_339-4 17 02 49.36 -48 47 22.8 T04 ranjeev IUCAA"</p>

A05_130	Black Holes in Transition: A Legacy AstroSat Project - 1 of 3	<p>Black hole X-ray binaries (BHXBs) cycle through different accretion states rapidly, providing a time-resolved view of how matter behaves in a strong gravity environment. Simultaneous multi-wavelength observations are the optimal tool that exposes this view. However, these campaigns (connecting the evolving accretion inflow and jet outflow) have been achieved rarely. We request triggered 864ks observations by AstroSat of a BHXB as it transitions from the hard to the soft state, when the accretion disk and relativistic jets change significantly. We have submitted three proposals (A05_130/A05_129/A05_126), but ask to observe only one BHXB (out of 15 listed targets); we ask that these proposals are treated together, distributing the proposal as 624/192/48ks against Indian/International/Canadian stare-time allocations. Our group is well suited to attain the simultaneous multiwavelength observations that will maximize the scientific legacy of these observations; we will also make AstroSat data immediately public and have open procedures for joining our team.</p>	<p>Swift_J1658.2-4242 16 58 12.64 -42 41 54.5 T03 ranjeev IUCAA"</p>
A05_130	Black Holes in Transition: A Legacy AstroSat Project - 1 of 3	<p>Black hole X-ray binaries (BHXBs) cycle through different accretion states rapidly, providing a time-resolved view of how matter behaves in a strong gravity environment. Simultaneous multi-wavelength observations are the optimal tool that exposes this view. However, these campaigns (connecting the evolving accretion inflow and jet outflow) have been achieved rarely. We request triggered 864ks observations by AstroSat of a BHXB as it transitions from the hard to the soft state, when the accretion disk and relativistic jets change significantly. We have submitted three proposals (A05_130/A05_129/A05_126), but ask to observe only one BHXB (out of 15 listed targets); we ask that these proposals are treated together, distributing the proposal as 624/192/48ks against Indian/International/Canadian stare-time allocations. Our group is well suited to attain the simultaneous multiwavelength observations that will maximize the scientific legacy of these observations; we will also make AstroSat data immediately public and have open procedures for joining our team.</p>	<p>XTE_J1650-500 16 50 00.98 -49 57 43.6 T05 ranjeev IUCAA"</p>

A05_130	Black Holes in Transition: A Legacy AstroSat Project - 1 of 3	<p>Black hole X-ray binaries (BHXBs) cycle through different accretion states rapidly, providing a time-resolved view of how matter behaves in a strong gravity environment. Simultaneous multi-wavelength observations are the optimal tool that exposes this view. However, these campaigns (connecting the evolving accretion inflow and jet outflow) have been achieved rarely. We request triggered 864ks observations by AstroSat of a BHXB as it transitions from the hard to the soft state, when the accretion disk and relativistic jets change significantly. We have submitted three proposals (A05_130/A05_129/A05_126), but ask to observe only one BHXB (out of 15 listed targets); we ask that these proposals are treated together, distributing the proposal as 624/192/48ks against Indian/International/Canadian stare-time allocations. Our group is well suited to attain the simultaneous multiwavelength observations that will maximize the scientific legacy of these observations; we will also make AstroSat data immediately public and have open procedures for joining our team.</p>	<p>XTE_J1817-330 18 17 43.54 -33 01 07.8 T01 ranjeev IUCAA"</p>
A05_132	AstroSat Observations of the first eclipsing accreting millisecond X-ray pulsar Swift J1749.4-2807: Neutron Star Properties and Accretion Flows	<p>Swift J1749.4–2807 is an eclipsing accreting millisecond X-ray pulsar (AMXP) having tight constraints on its inclination range (<math>\sim 74.4 - 77.3</math> degree). It is a unique AMXP that shows double peaked pulse profiles during its outbursts and most importantly, it shows uncommonly strong harmonic content that, together with the known inclination, suggests that it might be the best source to date to set constraints on neutron star properties including compactness and geometry. To further explore this possibility we propose to observe the next outburst of Swift J1749.4–2807 with 40 ksec. We aim at performing pulse profile evolution study and to model these pulse profiles to constrain Equation of State (EOS) models. We will also perform spectral study of this source using X-ray data of the AstroSat (SXT+LAXPC). This will be complemented by an extensive Swift monitoring of the new outburst.</p>	<p>Swift J1749.4-2807 17 49 31.940 -28 8 5.800 T01 aruberi Southampton"</p>
A05_140	Decay rate measurement of cyclotron lines energy in Vela X-1	<p>We planned to investigate and verify decay trend of the cyclotron line energy of Vela X-1 using Astrosat measurements with high accuracy. We would also derive spectrum covering wide-energy band from 0.3-150 keV energy and study light-curves in X-rays and their correlation. We, therefore, propose Astrosat observation for a net exposure of 40 k-seconds using LAXPCs as prime instrument. The data from SXT, CZTI would also be utilised to compliment multi-wavelength studies.</p>	<p>Vela X-1 09 02 06.86 -40 33 16.9 T01 Kmukerjee TIFR"</p>



A05_142	The Driver of Correlated X-ray and Optical Sub-Second Variations in Binaries	<p>In recent, very successful coordinated multiwavelength campaigns on several Galactic black hole X-ray binaries, we have detected fast sub-second optical and infrared variability and remarkable multiwavelength timing correlations. These rule out a reprocessing origin for the optical fluxes. Instead, the data support a scenario where the rapid optical variations arise at the jet base, thereby allowing fundamental, quantitative constraints on the extensions of relativistic jets in compact objects. But such constraints exist for less than a handful of objects. Here, we propose to extend such constraints with anticipated ToO observations of up to 2 hard state outbursts with AstroSat strictly simultaneous with ground-based optical/infrared timing. We will probe rapid, sub-second photometric variations and search for inter-band time delays to disentangle the jet/disc/coronal components using spectral-timing. We additionally propose to test and calibrate UVIT timing mode.</p>	<p>MAXI J1820+070 18 20 21.94 07 11 07.08 T01 JohnPaice Southampton"</p>
A05_142	The Driver of Correlated X-ray and Optical Sub-Second Variations in Binaries	<p>In recent, very successful coordinated multiwavelength campaigns on several Galactic black hole X-ray binaries, we have detected fast sub-second optical and infrared variability and remarkable multiwavelength timing correlations. These rule out a reprocessing origin for the optical fluxes. Instead, the data support a scenario where the rapid optical variations arise at the jet base, thereby allowing fundamental, quantitative constraints on the extensions of relativistic jets in compact objects. But such constraints exist for less than a handful of objects. Here, we propose to extend such constraints with anticipated ToO observations of up to 2 hard state outbursts with AstroSat strictly simultaneous with ground-based optical/infrared timing. We will probe rapid, sub-second photometric variations and search for inter-band time delays to disentangle the jet/disc/coronal components using spectral-timing. We additionally propose to test and calibrate UVIT timing mode.</p>	<p>MAXI J1820+070 18 20 21.94 07 11 07.08 T02 JohnPaice Southampton"</p>
A05_143	Investigating the Nature of the X-ray Source in 4U 0923-31 Using AstroSat	<p>We propose a 40 ks observation of 4U 0923-31 using AstroSat to investigate its X-ray properties. 4U 0923-31 is a steady X-ray source, most likely an X-ray binary, discovered by the first X-ray satellite UHURU, but its nature is yet to be understood, with no published literature on this source. From an analysis of RXTE data we get a marginal evidence for a periodicity in this source. The RXTE observations were short (~15 ks) and hence could not confirm the nature of this source. With the proposed AstroSat observation, we should be able to detect possible pulsations in the source using LAXPC and make a detailed spectral study using the broad band coverage of AstroSat SXT and LAXPC. This will enable us to investigate whether this source is an X-ray pulsar or an accreting black hole source.</p>	<p>4U 0923-31 9 21 34.992 -31 26 42.000 T01 nilam09rn UMumbai"</p>

A05_144	Exploring the Eclipsing Effects in Suspected Symbiotic SU Lyn	<p>Recently proposed non-shell burning class of symbiotics posed a challenge for the understanding of their morphology and structure. With no or weak diagnostic lines available in visible as well as variable nature of red giant component dominating in near infrared, the ultra-violet (UV) observations are the most reliable methods to probe these rare objects. We have been allocated UVIT observing time in last AO cycle 4 for single pointing observation to reconstruct spectral energy distribution (SED) of one such object - SU Lyn. Here we propose regular UVIT monitoring observations (once a month) in single NUV silica filter to see the eclipsing effects in UV continuum over the period of 7-8 months. We also propose two pointing observations 6 months apart for Grism spectroscopy to detect any phase related change in FUV spectra of SU Lyn. SXT is requested to be secondary instrument for a plausible UV-X-ray correlation studies.</p>	<p>SU Lyn 6 42 55.140 55 28 27.240 T02 mudit PRL"</p>
A05_149	X-ray and UV morphologies and thermal structure of Planetary nebulae	<p>We plan to map X-ray bright Planetary nebulae (PN) in various FUV and NUV filters that isolate high excitation spectral lines like 1550 Å CIV, 1640 Å He II and intermediate and low excitation lines like 2326 Å CII] , 2470 Å [O II] etc to study the shocked regions in the nebula (by stellar winds) and their thermal and photoionization structures. These studies are important in obtaining better physical model of the nebula and for the studies of elemental abundances. They also illustrate how stellar wind interactions change the structure of the PNs</p>	<p>NGC 3587 11 14 52.80 +55 02 00.0 T03 nkrao IIA"</p>
A05_149	X-ray and UV morphologies and thermal structure of Planetary nebulae	<p>We plan to map X-ray bright Planetary nebulae (PN) in various FUV and NUV filters that isolate high excitation spectral lines like 1550 Å CIV, 1640 Å He II and intermediate and low excitation lines like 2326 Å CII] , 2470 Å [O II] etc to study the shocked regions in the nebula (by stellar winds) and their thermal and photoionization structures. These studies are important in obtaining better physical model of the nebula and for the studies of elemental abundances. They also illustrate how stellar wind interactions change the structure of the PNs</p>	<p>NGC 7027 21 07 01.80 +42 14 10.0 T04 nkrao IIA"</p>

A05_155	The Extended Ultraviolet Disks (XUV) of Low Luminosity Disk Galaxies	We propose to observe the UV emission from the low luminosity stellar disks of four spiral galaxies that have extended ultraviolet (XUV) disks. Our targets have all been detected by GALEX. They are all nearby spirals that we have selected based on their UV luminosity and disk sizes. XUV galaxies show star formation well beyond their optical disks, in halo dominated regions where the disk surface density lies below the threshold for star formation. GALEX found that 30% of spiral galaxies have XUV disks. The star formation is thought to be triggered by gas accretion from nearby clouds, galaxies or the intergalactic medium. In this study we will investigate the nature of XUV disk star formation, estimate its rate and morphology. The high sensitivity of UVIT will help isolate the star forming knots, estimate their colors, ages, star formation rates and sizes.	NGC2090 5 47 1.889 -34 15 2.196 T02 mousumi IIA"
A05_155	The Extended Ultraviolet Disks (XUV) of Low Luminosity Disk Galaxies	We propose to observe the UV emission from the low luminosity stellar disks of four spiral galaxies that have extended ultraviolet (XUV) disks. Our targets have all been detected by GALEX. They are all nearby spirals that we have selected based on their UV luminosity and disk sizes. XUV galaxies show star formation well beyond their optical disks, in halo dominated regions where the disk surface density lies below the threshold for star formation. GALEX found that 30% of spiral galaxies have XUV disks. The star formation is thought to be triggered by gas accretion from nearby clouds, galaxies or the intergalactic medium. In this study we will investigate the nature of XUV disk star formation, estimate its rate and morphology. The high sensitivity of UVIT will help isolate the star forming knots, estimate their colors, ages, star formation rates and sizes.	ngc5727 14 40 26.119 33 59 20.796 T04 mousumi IIA"
A05_156	Diffuse Ultraviolet Radiation in the Regions of Low Column Density	We propose to observe in the direction of four holes in the interstellar medium. These regions have low column densities which make them ideal locations to study the diffuse cosmic ultraviolet background radiation as there is less foreground emission from dust scattered starlight. The source of a substantial component of this observed UV background still remains a mystery. From these observations we will be able to estimate the contribution from dust scattering and extragalactic light from resolved sources to the observed background. Requested observations include two holes each in the northern and southern hemisphere which will give an estimate of whether the extragalactic light is of same magnitude in these directions and also allows us to sample integrated light from resolved sources over a larger area. The exposure time proposed is 20,000 seconds for deeper observations with significant SNRs which will aid in the study of different component contributing to the observed UV background.	Target 1 14 10 32.14 +39 49 11.56 T01 Akshaya CU"

A05_159	Probing emission mechanism and geometry in Crab pulsar by phase resolved polarimetry with AstroSat CZTI	<p>This proposal is in continuation of efforts to improve the phase-resolved polarization measurements of Crab pulsar reported in Vadawale et.al., 2018 using CZT-Imager. We reported the most sensitive measurement to date of polarization for Crab with CZT-Imager, when averaged over all phases. Estimated degree of polarization is <math>\sim 32.7\%</math> with polarization angle <math>\sim 143.5^\circ</math>. Analysis of polarization fraction and angle as function of pulse phase confirmed the higher polarization fraction in off-pulse and showed an indication of variation of polarization properties within off-pulse emission. The data also hint at a swing of polarization angles across pulse peaks. However, in order to draw concrete conclusions from observations regarding emission models and geometry, higher significance is required. Hence, we propose to continue the observation of Crab with AstroSat to achieve this over the mission life time. We propose 300 ks of observation during this cycle.</p>	<p>Crab 34 31.940 22 0 52.200 T01 mithunnps PRL"</p>	5
A05_160	Brightest Fermi Blazars Through Astrosat Eyes	<p>Blazars dominates the extra galactic sky in gamma-ray. The physical mechanism behind the high energy gamma-ray emission is still unknown. Multi-wavelength SED shows two characteristic broad humps, one in IR to X-ray and other in X-ray to gamma-ray band. We propose 60 ks observations each of CTA 102 and PKS 1222+216(4C +21.35), total observations is 120 ks. These sources have shown the minute scale variability in gamma-ray energies (Shukla et al. 2018; Aleksic et al. 2011), which challenges the existing standard emission models of blazars. Since AstroSat have UV, soft and hard X-ray instruments on board, it will be a great opportunity to study the variability in UV and X-ray along with simultaneous observation from Fermi at gamma-ray energies. The simultaneous observations from UVIT, SXT, LAXC and CZTI will be used to study the broad band SED, which will tell us about the physical processes happening in jets of blazars.</p>	<p>CTA 102 22 32 33.4 +11 43 13.0 T01 raj RRI"</p>	
A05_160	Brightest Fermi Blazars Through Astrosat Eyes	<p>Blazars dominates the extra galactic sky in gamma-ray. The physical mechanism behind the high energy gamma-ray emission is still unknown. Multi-wavelength SED shows two characteristic broad humps, one in IR to X-ray and other in X-ray to gamma-ray band. We propose 60 ks observations each of CTA 102 and PKS 1222+216(4C +21.35), total observations is 120 ks. These sources have shown the minute scale variability in gamma-ray energies (Shukla et al. 2018; Aleksic et al. 2011), which challenges the existing standard emission models of blazars. Since AstroSat have UV, soft and hard X-ray instruments on board, it will be a great opportunity to study the variability in UV and X-ray along with simultaneous observation from Fermi at gamma-ray energies. The simultaneous observations from UVIT, SXT, LAXC and CZTI will be used to study the broad band SED, which will tell us about the physical processes happening in jets of blazars.</p>	<p>PKS 1222+216 12 24 54.3 +21 22 56.2 T02 raj RRI"</p>	

A05_163	Investigating the emission features of the blazar 1ES 1741+196 with ASTROSAT observations	<p>We request the multi-wavelength ASTROSAT observation of the peculiar blazar 1ES 1741+196, in single pointing for 40 ks observing time. Being hosted in a triplet of interacting galaxies, previous observations of this source leave caveats in understanding the origin of optical/IR emission; that could be either from the host galaxy together with the companion galaxies, and/or from the blazar which could be explained by inhomogeneous curved helical jet models. The UVIT data, together with other archival data of this less-variable source can shed light on the emission features of the blazar and the host galaxy. SXT and LAXPC data will be helpful in constraining the synchrotron peak of the source, which was not feasible in the previous X-ray observations. Since the source is less variable in <math>\gamma</math>-rays, the combine ASTROSAT and the Fermi /MAGIC/VERITAS observations can provide a better understanding on the non-thermal emission features of this blazar.</p>	<p>1ES 1741+196 17 43 57.8326 +19 35 09.017 T01 Pranjupriya TU"</p>
A05_165	Measuring spectral energy distributions of BAT-selected type 1 AGN with AstroSat	<p>We request multi-wavelength AstroSat observations of Swift/BAT-selected, bright sample of 4 type 1 Active Galactic Nuclei (AGN). Using AstroSat and ground-based optical telescopes, we plan to derive simultaneous multi-wavelength spectral energy distributions (SEDs), including the far and near UV grating spectra, for the first time for AGN. AstroSat is the only satellite which can provide such multiwavelength data for AGN. We will use these data to (i) model fit the broad band SEDs (and test current theoretical ideas), (ii) derive bolometric luminosity, accretion rate and bolometric correction factor, (iii) study the connection between the disc emission and the shape of the X-ray continua, and (v) investigate any connection between the disk reflection and the thermal emission from the disc. This is a large programme, and we request a 75 ksec exposure with the UVIT for all our 4 targets.</p>	<p>SWIFT J0759.8-3844 7 59 41.820 -38 43 55.999 T12 jhep UoC"</p>
A05_165	Measuring spectral energy distributions of BAT-selected type 1 AGN with AstroSat	<p>We request multi-wavelength AstroSat observations of Swift/BAT-selected, bright sample of 4 type 1 Active Galactic Nuclei (AGN). Using AstroSat and ground-based optical telescopes, we plan to derive simultaneous multi-wavelength spectral energy distributions (SEDs), including the far and near UV grating spectra, for the first time for AGN. AstroSat is the only satellite which can provide such multiwavelength data for AGN. We will use these data to (i) model fit the broad band SEDs (and test current theoretical ideas), (ii) derive bolometric luminosity, accretion rate and bolometric correction factor, (iii) study the connection between the disc emission and the shape of the X-ray continua, and (v) investigate any connection between the disk reflection and the thermal emission from the disc. This is a large programme, and we request a 75 ksec exposure with the UVIT for all our 4 targets.</p>	<p>SWIFT J1335.8-3416 13 35 53.800 -34 17 43.780 T07 jhep UoC"</p>

A05_166	The Driver of Correlated X-ray and Optical Sub-Second Variations in Binaries 2a	<p>In recent, very successful coordinated multiwavelength campaigns on several Galactic black hole X-ray binaries, we have detected fast sub-second optical and infrared variability and remarkable multiwavelength timing correlations. These rule out a reprocessing origin for the optical fluxes. Instead, the data support a scenario where the rapid optical variations arise at the jet base, thereby allowing fundamental, quantitative constraints on the extensions of relativistic jets in compact objects. But such constraints exist for less than a handful of objects. Here, we propose to extend such constraints with anticipated ToO observations of up to 2 hard state outbursts with AstroSat strictly simultaneous with ground-based optical/infrared timing. We will probe rapid, sub-second photometric variations and search for inter-band time delays to disentangle the jet/disc/coronal components using spectral-timing. We additionally propose to test and calibrate UVIT timing mode.</p>	<p>GRO J1655-40 16 54 0.137 -39 50 44.900 T02 JohnPaice Southampton"</p>
A05_166	The Driver of Correlated X-ray and Optical Sub-Second Variations in Binaries 2a	<p>In recent, very successful coordinated multiwavelength campaigns on several Galactic black hole X-ray binaries, we have detected fast sub-second optical and infrared variability and remarkable multiwavelength timing correlations. These rule out a reprocessing origin for the optical fluxes. Instead, the data support a scenario where the rapid optical variations arise at the jet base, thereby allowing fundamental, quantitative constraints on the extensions of relativistic jets in compact objects. But such constraints exist for less than a handful of objects. Here, we propose to extend such constraints with anticipated ToO observations of up to 2 hard state outbursts with AstroSat strictly simultaneous with ground-based optical/infrared timing. We will probe rapid, sub-second photometric variations and search for inter-band time delays to disentangle the jet/disc/coronal components using spectral-timing. We additionally propose to test and calibrate UVIT timing mode.</p>	<p>GX339-4 17 02 49.36 -48 47 22.801 T01 JohnPaice Southampton"</p>

A05_166	The Driver of Correlated X-ray and Optical Sub-Second Variations in Binaries 2a	<p>In recent, very successful coordinated multiwavelength campaigns on several Galactic black hole X-ray binaries, we have detected fast sub-second optical and infrared variability and remarkable multiwavelength timing correlations. These rule out a reprocessing origin for the optical fluxes. Instead, the data support a scenario where the rapid optical variations arise at the jet base, thereby allowing fundamental, quantitative constraints on the extensions of relativistic jets in compact objects. But such constraints exist for less than a handful of objects. Here, we propose to extend such constraints with anticipated ToO observations of up to 2 hard state outbursts with AstroSat strictly simultaneous with ground-based optical/infrared timing. We will probe rapid, sub-second photometric variations and search for inter-band time delays to disentangle the jet/disc/coronal components using spectral-timing. We additionally propose to test and calibrate UVIT timing mode.</p>	<p>MAXI J1659-152 16 59 01.680 -15 15 28.73 T04 JohnPaice Southampton"</p>
A05_166	The Driver of Correlated X-ray and Optical Sub-Second Variations in Binaries 2a	<p>In recent, very successful coordinated multiwavelength campaigns on several Galactic black hole X-ray binaries, we have detected fast sub-second optical and infrared variability and remarkable multiwavelength timing correlations. These rule out a reprocessing origin for the optical fluxes. Instead, the data support a scenario where the rapid optical variations arise at the jet base, thereby allowing fundamental, quantitative constraints on the extensions of relativistic jets in compact objects. But such constraints exist for less than a handful of objects. Here, we propose to extend such constraints with anticipated ToO observations of up to 2 hard state outbursts with AstroSat strictly simultaneous with ground-based optical/infrared timing. We will probe rapid, sub-second photometric variations and search for inter-band time delays to disentangle the jet/disc/coronal components using spectral-timing. We additionally propose to test and calibrate UVIT timing mode.</p>	<p>MAXI J1836-194 18 35 43.440 -19 19 10.48 T03 JohnPaice Southampton"</p>

A05_167	Studying star formation in interacting galaxies within groups	We propose to image interacting galaxies in three Hickson groups, HCG77, HCG79 and HCG54 with UVIT. Interactions and mergers between galaxies can lead to distortions in their shapes and to enhanced star formation in them. The 1.3\$-\$1.5 arcsec resolution of the UVIT in nuv and fuv will help us study the tidally induced distortions in their shapes and resolve the star formation regions (SFRs) in them. The FUV-NUV colors combined with photometric colors from ground based observations will lead to the study of metallicities and ages of the star forming regions. Comparison with studies of isolated galaxies will help us quantify the enhancement of the star formation due to interactions. Data from existing Sloan Digital Sky Survey (SDSS) would be used (augmented by further ground based observations). Our observations will provide a much clearer picture of the SFRs compared to archival data from Galex.	HCG77 15 49 17.2 21 49 42 T01 hkjassal IISERM"
A05_169	Using Star Clusters As X-ray Binary Timekeepers	The NGC2207/IC2163 system hosts one of the youngest merger-induced starburst galaxies in the nearby Universe, making it an excellent target for catching in action the formation and early evolution of young star clusters. This intense, recent star formation has produced luminous neutron star (NS) and black hole (BH) X-ray binaries (XRBs) at a higher rate per unit star formation rate (SFR) than seen in any other galaxy in the local Universe. This is presumably caused by the very young ages of most of the star-forming regions, as predicted from population synthesis models. We propose multiband UVIT observations to measure the temporal evolution of the XRB formation efficiency from the precise ages of their host star forming regions. This is essential for understanding the gravitational-wave sources and short gamma-ray bursts (GRBs) that succeed XRBs.	NGC 2207 06 16 22.09 -21 22 21.80 T01 paulsell UoC"
A05_173	Study of transition between different classes of GRS 1915+105 and corresponding spectral and temporal evolution using AstroSat observation	We propose a 90 ks observation of galactic micro-quasar GRS 1915+105 on 3rd May 2018. GRS 1915+105 which shows extremely rich and puzzling variability features is the most studied galactic micro-quasar. We would like to do simultaneous Swift, Chandra and Nustar observations to compare energy spectrum in various X-ray classes at different flux level. 3.0-5.0 Hz QPO and milli Hz QPO have been already observed with AstroSat/LAXPC for the first time in rho class of GRS 1915+105. Our proposed 90 ks observation is aimed to study the state evolution, the study of nature of high-frequency QPOs, spectro-temporal features, the spectral evolution of source. As GRS 1915+105 is a highly variable source we expect 90 ks observation of AstroSat may unveil many scientific curiosities.	GRS 1915+105 19 15 11.789 10 56 45.672 T01 rawatdivya OTHERS"



A05_174	Multiwave observations of a BL Lac Object 1H2354-315 towards a group of galaxies	<p>Multiwavelength observations of a bright and variable high frequency BL Lac type object known as 1H 2354-315 are proposed. The source is embedded in a galaxy and is located towards a group of galaxies forming a wall of a supercluster. The aim of the proposal is to use the wide-band X-ray capability of the AstroSat to characterize the precise spectral shape of X-ray emission and study its intensity variability simultaneously in soft X-rays, hard X-rays, nuv and fuv bands. Modelling the SED would probe the location and nature of acceleration processes in the source. Deep exposure in X-rays help to study the presence of transient absorption towards the X-ray source. Simultaneous deep exposures in the UVIT will map and characterize its host galaxy and the galaxies in its neighbourhood in nuv and fuv bands.</p>	<p>1H 2354-315 23 59 7.910 -30 37 40.690 T01 KPSingh19 IISERM"</p>
A05_175	X-ray and UV variability study of Narrow Line Seyfert 1 galaxy Mkn~478 with AstroSat	<p>We request a single pointing 30 ks observation of Narrow Line Seyfert 1 galaxy (NLS1) Mkn~478 with SXT as primary instrument, simultaneously with LAXPC and UVIT. Mkn~478 is highly variable source and showed flux variation which is not associated with spectral properties. With the proposed observation, we will be able investigate the short-term variability of the source in the X-ray and UV band. The precise determination of the variation is useful in understanding the origin of UV-optical variability and the relationship between the emission in different bands provides important insights to the nature of the source. The simultaneous multi-wavelength coverage of AstroSat helps to construct the broadband SED of the source and constrain the key parameters such as Eddington ratio <math>L/L_{\text{Edd}}</math>, UV and X-ray spectral slopes, which is crucial in understanding the observed properties of Mkn~478.</p>	<p>Mkn 478 14 42 07.40 +35 26 23.00 T01 samuzal_astrosat HC"</p>
A05_176	Probing the spatial gradient in UV Upturn in Elliptical Galaxies	<p>Elliptical galaxies have wide variation in their FUV-NUV color, the cause of which has puzzled astronomers for decades. The FUV-NUV color correlates with Mg2 spectral index but the explanation has been elusive. Solving the puzzle requires a large dataset with both UV imaging and optical spectroscopy with the same spatial resolution and coverage. Previous UV imaging by GALEX has too poor a spatial resolution to match ground-based single-fiber spectroscopy from SDSS. With the advance of optical integral field spectroscopy providing spatial resolution at 2.5\arcsec\ for nearby galaxies, we urgently need high quality FUV and NUV images with similar spatial resolution. Therefore, we propose ASTROSAT/UVIT observations to obtain high resolution FUV and NUV images for a pilot sample of 6 ellipticals, to measure the FUV-NUV color gradients and correlate them with stellar population properties (age, metallicity, chemical abundance) measured from spectroscopy to understand UV color variations among ellipticals.</p>	<p>NGC4841Aoffset 12 57 12.2076 28 29 32.517 T03 renbin UKY"</p>

A05_176	Probing the spatial gradient in UV Upturn in Elliptical Galaxies	Elliptical galaxies have wide variation in their FUV-NUV color, the cause of which has puzzled astronomers for decades. The FUV-NUV color correlates with Mg2 spectral index but the explanation has been elusive. Solving the puzzle requires a large dataset with both UV imaging and optical spectroscopy with the same spatial resolution and coverage. Previous UV imaging by GALEX has too poor a spatial resolution to match ground-based single-fiber spectroscopy from SDSS. With the advance of optical integral field spectroscopy providing spatial resolution at 2.5\arcsec\ for nearby galaxies, we urgently need high quality FUV and NUV images with similar spatial resolution. Therefore, we propose ASTROSAT/UVIT observations to obtain high resolution FUV and NUV images for a pilot sample of 6 ellipticals, to measure the FUV-NUV color gradients and correlate them with stellar population properties (age, metallicity, chemical abundance) measured from spectroscopy to understand UV color variations among ellipticals.	NGC5473 14 4 43.226 54 53 33.468 T04 renbin UKY"
A05_176	Probing the spatial gradient in UV Upturn in Elliptical Galaxies	Elliptical galaxies have wide variation in their FUV-NUV color, the cause of which has puzzled astronomers for decades. The FUV-NUV color correlates with Mg2 spectral index but the explanation has been elusive. Solving the puzzle requires a large dataset with both UV imaging and optical spectroscopy with the same spatial resolution and coverage. Previous UV imaging by GALEX has too poor a spatial resolution to match ground-based single-fiber spectroscopy from SDSS. With the advance of optical integral field spectroscopy providing spatial resolution at 2.5\arcsec\ for nearby galaxies, we urgently need high quality FUV and NUV images with similar spatial resolution. Therefore, we propose ASTROSAT/UVIT observations to obtain high resolution FUV and NUV images for a pilot sample of 6 ellipticals, to measure the FUV-NUV color gradients and correlate them with stellar population properties (age, metallicity, chemical abundance) measured from spectroscopy to understand UV color variations among ellipticals.	NGC5546offset 14 18 20.222 7 35 33.104 T05 renbin UKY"
A05_178	AstroSAT observations of the next transient X-ray binary in the globular cluster Terzan 5	The globular cluster Terzan 5 contains numerous transient low-mass X-ray binaries. At least three of these have undergone X-ray outbursts over the past 15 years, showing a variety of intriguing behaviours. We propose a 40 ks AstroSAT observation of the next bright outburst from Terzan 5, to measure its X-ray energy spectrum, characterize its power spectrum, search for pulsations, and study any X-ray bursts that occur.	Terzan 5 17 48 04.80 -24 46 45 T01 cheinke UALberta"

A05_180	Spectro-polarimetric study of Cygnus X-1 in hard state	<p>Cygnus X-1, the enigmatic black hole binary, has been extensively studied with spectral-timing X-ray observations since the advent of X-ray astronomy. Despite these studies, there are certain aspects of X-ray emission which are not understood well. Different models suggest different origin of hard X-ray emission; some models favour Compton scattering in Corona alone and some predict contribution of Synchrotron emission from the jets. Polarization measurements in X-rays is expected to provide some insights into this aspect. For CZTI on-board AstroSat, which is capable of polarization measurements above 100 keV, Cygnus X-1 is a potential target. Polarization measurements along with broad band spectrum of Cygnus X-1 will be able to put better constraints on the origin of hard X-ray emission. In particular, polarization measurement in hard state of the BHB would be of much interest. In this context, we propose anticipated TOO observation of Cygnus X-1 for 300ks, during hard state.</p>	<p>Cygnus X-1 19 58 21.676 35 12 5.778 T01 santoshv PRL"</p>
A05_182	Search for the elusive companions of Be stars with UVIT	<p>Our proposal is to search for the elusive Be binary systems with white-dwarf (WD) or subdwarf O-type (sdO) star being the companion to the Be star. Theoretical models suggested that there can be <math>\sim 10^5</math> Be-WD and Be-sdO systems in our galaxy. However, no Be-WD system is detected till now and only a few (about 4) binaries were found to belong to Be-sdO category. We identified 8 Be stars in open clusters showing excess in NUV GALEX band. The possible UV excess is suggestive of a WD or sdO companion. However, there are no observation of these sources in the GALEX FUV, which is very much important to characterize the WD/sdO companion. We plan to image these 8 Be stars with UVIT in FUV and NUV filters, thereby characterizing the nature of the 'invisible' hot companion.</p>	<p>NGC 654(2) 01 44 02.95 +61 53 20.3 T02 PaulKT CU"</p>
A05_182	Search for the elusive companions of Be stars with UVIT	<p>Our proposal is to search for the elusive Be binary systems with white-dwarf (WD) or subdwarf O-type (sdO) star being the companion to the Be star. Theoretical models suggested that there can be <math>\sim 10^5</math> Be-WD and Be-sdO systems in our galaxy. However, no Be-WD system is detected till now and only a few (about 4) binaries were found to belong to Be-sdO category. We identified 8 Be stars in open clusters showing excess in NUV GALEX band. The possible UV excess is suggestive of a WD or sdO companion. However, there are no observation of these sources in the GALEX FUV, which is very much important to characterize the WD/sdO companion. We plan to image these 8 Be stars with UVIT in FUV and NUV filters, thereby characterizing the nature of the 'invisible' hot companion.</p>	<p>NGC 7261 22 20 07.00 +58 07 41.0 T03 PaulKT CU"</p>

A05_185	A long look at two TeV active HBLs: 1ES 1100-230 and 1H 0120+340 with AstroSat	<p>The class of TeV emitting blazars is dominated by high frequency BL Lac objects (HBLs). The peak of their synchrotron component lies in the range of FUV to X-rays. Here, we propose to obtain continuous deep {\it AstroSat} pointings of two HBLs: 1ES 0120+340 (120 ks) and 1H 1100-230 (140 ks), which will enable us to explore the spectral curvature in X-rays. The spectral curvature will help us to constrain the underlying particle distribution. The simultaneous deep imaging in NUV and FUV bands will provide us a time-series to extract further information through cross-correlation studies. Further multiwavelength data will help to differentiate between leptonic and hadronic models. The investigations of galaxies and stars in the fuv and nuv fields around the targets, not well studied because of poorer coverage with Galex in survey mode, are secondary scientific goals for this project.</p>	<p>1es 0120+340 1 23 8.648 34 20 48.560 T04 mzacharias OTHERS"</p>
A05_186	Probing galaxy interactions in smaller scales: UV view of interacting dwarf galaxies in Lynx-Cancer Void	<p>Theoretically, galaxy assembly process is expected to be present in all mass ranges. The signatures of the interactions/assembly process in the scales of dwarf galaxies can be better studied in low-density environment where the effect of nearby massive galaxies are minimal. To understand galaxy interactions in smaller scales and associated star formation, we propose a UV study of four dwarf galaxies, which are found to have undergone and/or on-going interactions with multiple nearby systems, in Lynx-Cancer Void region. From UVIT observations we plan to (i) identify the star forming knots and estimate their age as well as spatial distribution and (ii) trace tidal features around these systems. These metal-poor and gas-rich dwarf systems which resemble systems in high redshift can provide valuable insights to our understanding of the hierarchical galaxy assembly processes.</p>	<p>DDO 68 09 56 46.06 +28 49 43.68 T02 Smitha IIA"</p>
A05_186	Probing galaxy interactions in smaller scales: UV view of interacting dwarf galaxies in Lynx-Cancer Void	<p>Theoretically, galaxy assembly process is expected to be present in all mass ranges. The signatures of the interactions/assembly process in the scales of dwarf galaxies can be better studied in low-density environment where the effect of nearby massive galaxies are minimal. To understand galaxy interactions in smaller scales and associated star formation, we propose a UV study of four dwarf galaxies, which are found to have undergone and/or on-going interactions with multiple nearby systems, in Lynx-Cancer Void region. From UVIT observations we plan to (i) identify the star forming knots and estimate their age as well as spatial distribution and (ii) trace tidal features around these systems. These metal-poor and gas-rich dwarf systems which resemble systems in high redshift can provide valuable insights to our understanding of the hierarchical galaxy assembly processes.</p>	<p>UGC 3672 07 06 14.04 +30 14 00.40 T01 Smitha IIA"</p>

A05_187	Probing the coronae of an active fast rotator FR Cnc	We request 75 ks ASTROSAT observations of a highly active star FR Cnc in order to characterize it in X-ray and to study the X-ray rotational modulation. We intended to study the variation of X-ray spectral parameters (e.g. coronal temperature, density) with rotational phase and their correlation with the chromospheric and photospheric activities (cool spots) by performing the rotational phase-resolved X-ray spectroscopy.	FR Cnc 8 32 30.530 15 49 26.192 T03 jcpandey ARIES"
A05_188	Probing the non-thermal emission of the Vela pulsar in the hard X-ray regime	We ask for 50 ks of observations of the Vela pulsar with the three X-ray instruments onboard the ASTROSAT. The Vela pulsar was among the first pulsars to be discovered in several energy ranges from the radio to the TeV range because of its brightness. Its non-thermal emission provides constraints on the pulsar models as well as on particle acceleration and emission mechanisms. Yet, no publication of the Vela pulsar exists in hard X-rays, i. e. the major part of the sensitivity range of ASTROSAT LAXPC. Previous measurements have shown a power-law emission up to 8 keV. The proposed observations should help establish for the first time the light curve and the spectrum in hard X-rays. Moreover, we will probe the cut-off in the spectrum if any. In either cases, this will have important implications on pulsar models.	Vela Pulsar 8 35 20.655 -45 10 35.155 T01 Marion APC, Paris"
A05_191	ASTROSAT observation of the fastest accreting millisecond pulsar IGR J00291+5934	We propose a 70-ks ASTROSAT observation of the fastest accreting millisecond pulsar IGR J00291+5934 during its next outburst. We aim at measuring the spin and orbital parameters of this interesting source, in order to improve its ephemeris. This is the only accreting millisecond pulsar for which there is a general agreement on the spin-up observed during outbursts. It also shows a long-term spin-down, probably caused by magnetic dipole emission during quiescent periods or gravitational radiation from the fast spinning neutron star. The next outburst will allow us to constrain the still elusive orbital period derivative in this systems, and its long-term orbital evolution, or to give very tight upper limits. The knowledge of accurate and precise ephemeris of the pulsar are of paramount importance for a meaningful search of the radio and gamma-ray counterparts expected to turn on if the source switches to a rotation-powered pulsar state during X-ray quiescence.	IGR J00291+5934 00 29 03.06 59 34 19.0 T01 tdisalvo71 Unipa"

A05_192	The Driver of Correlated X-ray and Optical Sub-Second Variations in Binaries 2b	<p>In recent, very successful coordinated multiwavelength campaigns on several Galactic black hole X-ray binaries, we have detected fast sub-second optical and infrared variability and remarkable multiwavelength timing correlations. These rule out a reprocessing origin for the optical fluxes. Instead, the data support a scenario where the rapid optical variations arise at the jet base, thereby allowing fundamental, quantitative constraints on the extensions of relativistic jets in compact objects. But such constraints exist for less than a handful of objects. Here, we propose to extend such constraints with anticipated ToO observations of up to 2 hard state outbursts with AstroSat strictly simultaneous with ground-based optical/infrared timing. We will probe rapid, sub-second photometric variations and search for inter-band time delays to disentangle the jet/disc/coronal components using spectral-timing. We additionally propose to test and calibrate UVIT timing mode.</p>	<p>GRO J1655-40 16 54 0.137 -39 50 44.900 T02 JohnPaice Southampton"</p>
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A05_192	The Driver of Correlated X-ray and Optical Sub-Second Variations in Binaries 2b	<p>In recent, very successful coordinated multiwavelength campaigns on several Galactic black hole X-ray binaries, we have detected fast sub-second optical and infrared variability and remarkable multiwavelength timing correlations. These rule out a reprocessing origin for the optical fluxes. Instead, the data support a scenario where the rapid optical variations arise at the jet base, thereby allowing fundamental, quantitative constraints on the extensions of relativistic jets in compact objects. But such constraints exist for less than a handful of objects. Here, we propose to extend such constraints with anticipated ToO observations of up to 2 hard state outbursts with AstroSat strictly simultaneous with ground-based optical/infrared timing. We will probe rapid, sub-second photometric variations and search for inter-band time delays to disentangle the jet/disc/coronal components using spectral-timing. We additionally propose to test and calibrate UVIT timing mode.</p>	<p>MAXI J1659-152 16 59 01.680 -15 15 28.73 T04 JohnPaice Southampton"</p>
A05_192	The Driver of Correlated X-ray and Optical Sub-Second Variations in Binaries 2b	<p>In recent, very successful coordinated multiwavelength campaigns on several Galactic black hole X-ray binaries, we have detected fast sub-second optical and infrared variability and remarkable multiwavelength timing correlations. These rule out a reprocessing origin for the optical fluxes. Instead, the data support a scenario where the rapid optical variations arise at the jet base, thereby allowing fundamental, quantitative constraints on the extensions of relativistic jets in compact objects. But such constraints exist for less than a handful of objects. Here, we propose to extend such constraints with anticipated ToO observations of up to 2 hard state outbursts with AstroSat strictly simultaneous with ground-based optical/infrared timing. We will probe rapid, sub-second photometric variations and search for inter-band time delays to disentangle the jet/disc/coronal components using spectral-timing. We additionally propose to test and calibrate UVIT timing mode.</p>	<p>MAXI J1836-194 18 35 43.440 -19 19 10.48 T03 JohnPaice Southampton"</p>

A05_194	Observations of the host galaxies of Tidal Disruption Events using ASTROSAT/UVIT	<p>Requested observation: We propose for a regular-pointing program to study the host galaxies of Tidal Disruption Events (TDEs), distributed within redshift 0.1 using ASTROSAT/UVIT instrument. Total requested time to observe 14 objects using UVIT is 54.5 ks. Context: Recent developments in 'Time domain Astronomy' have discovered several new kinds of luminous transients near the center of galaxies. The diversities in the behaviour of these nuclear transients are yet not well explained. The natures of their hosts can shed light on the diversity of nuclear transients.</p> <p>Objectives &amp; Expected scientific results: These observations will lead to determine several physical parameters (e.g., stellar mass, dust content, Star Formation History, Black Hole mass) of the host galaxy. This study will constrain the TDE models and will also help to understand the diverse properties of nuclear transients.</p>	<p>2MASX J20390918-3045201 20 39 09.18 -30 45 20.10 T04 RupakRoy IUCAA"</p>
A05_194	Observations of the host galaxies of Tidal Disruption Events using ASTROSAT/UVIT	<p>Requested observation: We propose for a regular-pointing program to study the host galaxies of Tidal Disruption Events (TDEs), distributed within redshift 0.1 using ASTROSAT/UVIT instrument. Total requested time to observe 14 objects using UVIT is 54.5 ks. Context: Recent developments in 'Time domain Astronomy' have discovered several new kinds of luminous transients near the center of galaxies. The diversities in the behaviour of these nuclear transients are yet not well explained. The natures of their hosts can shed light on the diversity of nuclear transients.</p> <p>Objectives &amp; Expected scientific results: These observations will lead to determine several physical parameters (e.g., stellar mass, dust content, Star Formation History, Black Hole mass) of the host galaxy. This study will constrain the TDE models and will also help to understand the diverse properties of nuclear transients.</p>	<p>MRK 950 00 29 57.01 +32 53 37.24 T03 RupakRoy IUCAA"</p>
A05_194	Observations of the host galaxies of Tidal Disruption Events using ASTROSAT/UVIT	<p>Requested observation: We propose for a regular-pointing program to study the host galaxies of Tidal Disruption Events (TDEs), distributed within redshift 0.1 using ASTROSAT/UVIT instrument. Total requested time to observe 14 objects using UVIT is 54.5 ks. Context: Recent developments in 'Time domain Astronomy' have discovered several new kinds of luminous transients near the center of galaxies. The diversities in the behaviour of these nuclear transients are yet not well explained. The natures of their hosts can shed light on the diversity of nuclear transients.</p> <p>Objectives &amp; Expected scientific results: These observations will lead to determine several physical parameters (e.g., stellar mass, dust content, Star Formation History, Black Hole mass) of the host galaxy. This study will constrain the TDE models and will also help to understand the diverse properties of nuclear transients.</p>	<p>SDSS J100933+232255 10 09 33.14 +23 22 55.8 T13 RupakRoy IUCAA"</p>



A05_194	Observations of the host galaxies of Tidal Disruption Events using ASTROSAT/UVIT	<p>Requested observation: We propose for a regular-pointing program to study the host galaxies of Tidal Disruption Events (TDEs), distributed within redshift 0.1 using ASTROSAT/UVIT instrument. Total requested time to observe 14 objects using UVIT is 54.5 ks. Context: Recent developments in 'Time domain Astronomy' have discovered several new kinds of luminous transients near the center of galaxies. The diversities in the behaviour of these nuclear transients are yet not well explained. The natures of their hosts can shed light on the diversity of nuclear transients.</p> <p>Objectives &amp; Expected scientific results: These observations will lead to determine several physical parameters (e.g., stellar mass, dust content, Star Formation History, Black Hole mass) of the host galaxy. This study will constrain the TDE models and will also help to understand the diverse properties of nuclear transients.</p>	SDSS J124815+174626 12 48 15.23 +17 46 26.44 T05 RupakRoy IUCAA"
A05_195	ASTROSAT Anticipated ToO Observations of Magnetars in Outburst Phases	<p>We request 150 ks for select magnetars in outburst, with observations triggered by <math>&gt;10</math> mCrab <math>\{it{Swift}\}</math>-XRT flux. Such a triggered observation would be the first magnetar observed by ASTROSAT.</p> <p>Moreover, simultaneous soft and hard X-ray observations are a rarity for magnetars. The aim is to characterize correlated soft-hard variability and outburst evolution. If the outburst phase is bright enough, spin-phase dependent spectrum (or equivalently, energy-dependent phase-folded light curves) from UV/soft X-rays up <math>&gt;100</math> keV energies may be attainable. This will probe for spectral curvature in the <math>&gt;50</math> keV power-law where QED photon splitting can be influential. If, fortuitously, there are typical magnetar bursts of <math>10^2</math>-<math>10^3</math> Crab flux and <math>\sim 100</math> ms duration during the outburst phase, then polarization constraints will be attainable in the <math>&gt;100</math> keV regime. This would enable the first polarization constraints of prompt magnetar flare emission in any band, and herald a significant advance for the pulsar/magnetar community.</p>	AXP 1E 1048.1-5937 10 50 07.14 -59 53 21.4 T06 zwadiasingh NWU-SA"

A05_195	ASTROSAT Anticipated ToO Observations of Magnetars in Outburst Phases	<p>We request 150 ks for select magnetars in outburst, with observations triggered by <math>&gt;10</math> mCrab <math>\setminus it{Swift}</math>-XRT flux. Such a triggered observation would be the first magnetar observed by ASTROSAT.</p> <p>Moreover, simultaneous soft and hard X-ray observations are a rarity for magnetars. The aim is to characterize correlated soft-hard variability and outburst evolution. If the outburst phase is bright enough, spin-phase dependent spectrum (or equivalently, energy-dependent phase-folded light curves) from UV/soft X-rays up <math>&gt;100</math> keV energies may be attainable. This will probe for spectral curvature in the <math>&gt;50</math> keV power-law where QED photon splitting can be influential. If, fortuitously, there are typical magnetar bursts of <math>10^2</math>-<math>10^3</math> Crab flux and <math>\sim 100</math> ms duration during the outburst phase, then polarization constraints will be attainable in the <math>&gt;100</math> keV regime. This would enable the first polarization constraints of prompt magnetar flare emission in any band, and herald a significant advance for the pulsar/magnetar community.</p>	<p>SGR 1806-20 18 08 39.34 -20 24 39.85 T03 zwadiasingh NWU-SA"</p>
A05_195	ASTROSAT Anticipated ToO Observations of Magnetars in Outburst Phases	<p>We request 150 ks for select magnetars in outburst, with observations triggered by <math>&gt;10</math> mCrab <math>\setminus it{Swift}</math>-XRT flux. Such a triggered observation would be the first magnetar observed by ASTROSAT.</p> <p>Moreover, simultaneous soft and hard X-ray observations are a rarity for magnetars. The aim is to characterize correlated soft-hard variability and outburst evolution. If the outburst phase is bright enough, spin-phase dependent spectrum (or equivalently, energy-dependent phase-folded light curves) from UV/soft X-rays up <math>&gt;100</math> keV energies may be attainable. This will probe for spectral curvature in the <math>&gt;50</math> keV power-law where QED photon splitting can be influential. If, fortuitously, there are typical magnetar bursts of <math>10^2</math>-<math>10^3</math> Crab flux and <math>\sim 100</math> ms duration during the outburst phase, then polarization constraints will be attainable in the <math>&gt;100</math> keV regime. This would enable the first polarization constraints of prompt magnetar flare emission in any band, and herald a significant advance for the pulsar/magnetar community.</p>	<p>SGR 1900+14 19 07 14.33 +09 19 20.1 T05 zwadiasingh NWU-SA"</p>

A05_195	ASTROSAT Anticipated ToO Observations of Magnetars in Outburst Phases	<p>We request 150 ks for select magnetars in outburst, with observations triggered by <math>&gt;10</math> mCrab <math>\setminus</math>it{Swift}}-XRT flux. Such a triggered observation would be the first magnetar observed by ASTROSAT.</p> <p>Moreover, simultaneous soft and hard X-ray observations are a rarity for magnetars. The aim is to characterize correlated soft-hard variability and outburst evolution. If the outburst phase is bright enough, spin-phase dependent spectrum (or equivalently, energy-dependent phase-folded light curves) from UV/soft X-rays up <math>&gt;100</math> keV energies may be attainable. This will probe for spectral curvature in the <math>&gt;50</math> keV power-law where QED photon splitting can be influential. If, fortuitously, there are typical magnetar bursts of <math>10^2</math>-<math>10^3</math> Crab flux and <math>\sim 100</math> ms duration during the outburst phase, then polarization constraints will be attainable in the <math>&gt;100</math> keV regime. This would enable the first polarization constraints of prompt magnetar flare emission in any band, and herald a significant advance for the pulsar/magnetar community.</p>	<p>SGR J1550-5418 15 50 54.12 -54 18 24.11 T02 zwadiasingh NWU-SA"</p>
A05_195	ASTROSAT Anticipated ToO Observations of Magnetars in Outburst Phases	<p>We request 150 ks for select magnetars in outburst, with observations triggered by <math>&gt;10</math> mCrab <math>\setminus</math>it{Swift}}-XRT flux. Such a triggered observation would be the first magnetar observed by ASTROSAT.</p> <p>Moreover, simultaneous soft and hard X-ray observations are a rarity for magnetars. The aim is to characterize correlated soft-hard variability and outburst evolution. If the outburst phase is bright enough, spin-phase dependent spectrum (or equivalently, energy-dependent phase-folded light curves) from UV/soft X-rays up <math>&gt;100</math> keV energies may be attainable. This will probe for spectral curvature in the <math>&gt;50</math> keV power-law where QED photon splitting can be influential. If, fortuitously, there are typical magnetar bursts of <math>10^2</math>-<math>10^3</math> Crab flux and <math>\sim 100</math> ms duration during the outburst phase, then polarization constraints will be attainable in the <math>&gt;100</math> keV regime. This would enable the first polarization constraints of prompt magnetar flare emission in any band, and herald a significant advance for the pulsar/magnetar community.</p>	<p>SGR J1745-2900 17 45 40.16 -29 00 29.82 T01 zwadiasingh NWU-SA"</p>

A05_196	UVIT study of the Planetary nebula and cluster NGC 2818	<p>NGC 2818 was the subject of the first published scientific paper from 2.3 metre Vainu Bappu telescope in 1990 (Surendiranath et~al. 1990). The importance is that the PN NGC 2818 is located in the cluster NGC 2818. NGC 2818 is a bipolar planetary nebula with strong optical lobes that are separated by a dark lane. NGC 2818 has a strong spectrum of H<math>\beta</math> lines in the IR suggesting collisionally excited H<math>\beta</math> of 850<math>\pm</math>50 K (suggesting shocks). Does it have an FUV halo or outer structure that has been excited by UV fluorescent emission of H<math>\beta</math> similar to other bipolars like NGC 6302 and NGC 2440 (Kameswara Rao et~al. 2018 -preparation). We propose to test this aspect by imaging in FUV BaF<sub>2</sub>, Sapphire and Silica filters. NUV B4, N2, B13 and B15. Additional interest in this nebula is also to study UV properties of the galactic cluster NGC 2818.</p>	<p>NGC 2818 09 16 01.49 -36 37 37.4 T01 nkrao IIA"</p>
A05_198	Monitoring of MCG-2-58-22 via multi-wavelength Astrosat observations	<p>The emission from Active Galactic nuclei (AGN) vary on different timescales throughout the electromagnetic spectrum. The strong optical-UV-X-ray variability in AGN are often inter-connected. We plan to monitor the variability pattern of the Seyfert 1.5 galaxy MCG-2-58-22 by simultaneously observing it with UVIT, SXT and LAXPC through 5 pointings. We intend each pointing to be of 50 ks with SXT as the primary instrument. The observations will enable us to understand the relationship between the UV-X-ray emission mechanisms, and the geometry of the emitting regions. MCG-2-58-22 is one of the brightest Seyferts and it is surprising that for such a bright Seyfert, it is much less observed than the other sources in its class. It has not been observed a lot and has never been monitored over the broad UV-Xray band. Thus its Astrosat observation monitoring will be the 1st for the source.</p>	<p>MCG-2-58-22 23 4 43.478 -8 41 8.628 T01 astrosat2susmita IISc"</p>
A05_199	Reverberation mapping of NGC 4051	<p>Swift observations of lags between the X-ray and UV/optical bands in AGN show that most of the UV/optical variability is driven by reprocessing of X-rays by a surrounding disc. However the implied disc sizes are bigger than expected, there is an excess lag in the U-band, possibly from the BLR, and a large excess lag between the X-rays and UV, possibly from scattering obscuration in the inner disc. Disc temperature may explain these discrepancies as a higher temperature leads to a more inflated inner disc and hence more scattering obscuration and a more distant BLR hence larger U-band excess. Cooler discs will be more clumpy and appear bigger. Unfortunately most AGN observed by Swift have been of similar disc temperature. We therefore ask to measure lags in NGC4051, with a hotter disc, to determine whether temperature is the critical parameter. NGC4051 is perfectly suited to observations with ASTROSAT.</p>	<p>NGC 4051 12 3 9.614 44 31 52.788 T01 imh Southampton"</p>

A05_202	X-ray/UV study of the high energy peaked blazar PKS 0352-686	We request ASTROSAT observations of the high energy peaked Bl lac source PKS 0352-686 for a detailed study of its spectral curvature. The synchrotron component peaks at $\sim 100$ keV; however, the source was not detected at very high energy indicating a possible curvature in the gamma-ray spectra. The redshift of $z=0.087$ suggests the VHE spectral curvature due to absorption by extragalactic background light may not be very significant. The synchrotron component of the source is very prominent with peak at hard X-ray. The lack of soft X-ray spectra in the broadband spectral energy distribution (SED) hamper to identify the exact curvature around the peak. We plan a through study of the X-ray spectral curvature, which in turn can highlight about the diffusive processes in the jet. In addition, a broad band spectral modelling using Fermi will possibly answer the peculiar behaviour of the Compton sub-dominance of the source.	PKS 0352-686 03 52 57.510 -68 31 16.80 T01 sithajagan Calicut"
A05_204	Longlook Observations of Three Blazars	We propose to observe three blazars, namely, 1ES 1959+650, 3C 454.3 and Mrk 421 continuously for 100 ks each with SXT. Using additional archival light curves, we shall precisely determine the X-ray power spectral density (PSD) at hours to years timescales. We shall search for any characteristic timescale (e.g., a break) in the PSD and hence test if such patterns translate from the accretion disk to jet. This work will help put additional constraints on the disk-jet connection in AGN. We have indeed found a break in the PSD using similar observation of Mrk 421 in Cycle AO2. Further observation is crucial to determine if the PSD shape remains constant and to draw stronger conclusions about physical cause of the break. In this cycle we plan to organize simultaneous optical flux and polarization monitoring during the Mrk 421 Astrosat pointing, if granted.	Mrk421 11 4 27.314 38 12 31.788 T01 ritaban PU"
A05_205	Probing the dense stellar wind in OAO 1657-415 at late orbital phases	We propose a 60~ksec \emph{AstroSAT} observation with LAXPC (as primary instrument) of eclipsing HMXB pulsar \emph{OAO~1657-415} at its late orbital phases. The evolutionary state of this supergiant X-ray binary depicting high X-ray variability within its orbital period suggest it to be a possible link between supergiant fast X-ray transients and normal HMXBs. The of the source X-ray spectra during eclipse and early orbital phases show the presence of inhomogeneously distributed clumps of matter near the pulsar. The search for any cyclotron absorption line-like features in 10-100 keV spectra during low and high intensity phases yielded negative results. However, the observation of the pulsar at late orbital phases when the intensity is relatively high is sparse and less explored. The proposed \emph{AstroSAT} observation would allow us to probe the dense stellar-wind near the pulsar at this phase and will also help identifying the much anticipated cyclotron line near $\sim 36$ keV.	OA0 1657-415 17 0 48.884 -41 39 21.460 T01 prahlad PRL"

A05_206	An anomalously long AMXP outburst: looking for pulsation in MAXI J0911-655 after 1000 days	MAXI J0911-655 is a new accreting AMXPs, spinning at 340 Hz in NGC 2808. Since its discovery it is showing an astonishing outburst longer than 760 days, a record for an AMXP, whose outburst usually last 2-3 weeks. We propose a 50ks ASTROSAT observation to be performed with SXT, LAXPC and CZTI simultaneously and aiming to i) detect the pulsation, ii) obtain a precise spin frequency value to infer, for the first time, a direct measurement of the spin increased by the accretion of angular momentum with respect to the observation of 2016 April, iii) investigate the broad-band (0.3-150 keV) spectrum to study the accretion disk properties. Those information have strong scientific return, the presence of the pulsation will constrain the models of magnetic burial under accretion, and the measurement of spin frequency variation will allow to test the accretion mechanism and the role in it of the magnetic field.	MAXI J0911-655 09 12 2.43 -64 52 6.24 T01 an.sanna OTHERS"
A05_208	Star formation in the hosts of local active galactic nuclei	Nuclear activity can have an impact on the star formation (SF) properties of the hosts of active galactic nuclei (AGN) via feedback processes. Observationally there are evidences for positive and negative feedback and it is likely that they co-exist. Systematic investigation of the SF properties of AGN hosts on various physical scales (pc to kpc) will allow one to (i) reconcile the two contrasting observations on the feedback processes operating on AGN hosts and (ii) examine the complex interplay between black hole activity and SF in AGN. We therefore propose to carry out a systematic analysis of the SF properties of a sample of AGN on physical scales of hundreds of pc down to the lowest physical extent allowable by the resolution of UVIT. We request for a total of 42 ksec to observe three AGN. This is basically an extension of the proposal submitted in A04.	NGC 4736 12 50 53.16 +41 7 12.72 T03 KshamaSK IIA"
A05_208	Star formation in the hosts of local active galactic nuclei	Nuclear activity can have an impact on the star formation (SF) properties of the hosts of active galactic nuclei (AGN) via feedback processes. Observationally there are evidences for positive and negative feedback and it is likely that they co-exist. Systematic investigation of the SF properties of AGN hosts on various physical scales (pc to kpc) will allow one to (i) reconcile the two contrasting observations on the feedback processes operating on AGN hosts and (ii) examine the complex interplay between black hole activity and SF in AGN. We therefore propose to carry out a systematic analysis of the SF properties of a sample of AGN on physical scales of hundreds of pc down to the lowest physical extent allowable by the resolution of UVIT. We request for a total of 42 ksec to observe three AGN. This is basically an extension of the proposal submitted in A04.	NGC 4939 13 4 14.38 -10 20 22.56 T01 KshamaSK IIA"

A05_212	Metallicity Mapping of Galactic Halo-UVIT filter indices and physical parameters of stars.	We propose to map stars in the Galactic Halo, in various UVIT filters, in order to spatially map the halo metallicity. Such a study is important for understanding the formation of the Galactic Halo. We will also be surveying other major stellar constituents of the Halo through this survey. UVIT is uniquely suited for this purpose, not only because the strongest metal lines in late type stars occur in UV but also because UVIT filters are designed to sample these lines. Its wide field and spatial resolution are well suited for this purpose and can sample halo on both sides of the plane by the same set of instruments. The proposal has TWO parts: calibrations and survey of the Galactic Halo. In this proposal we would like to observe stars with a range in metallicity, Teff, log g and establish their relationship with various UVIT filter indices.	BD+17 4708 22 11 31.37 +18 05 34.2 T08 nkrao IIA"
A05_212	Metallicity Mapping of Galactic Halo-UVIT filter indices and physical parameters of stars.	We propose to map stars in the Galactic Halo, in various UVIT filters, in order to spatially map the halo metallicity. Such a study is important for understanding the formation of the Galactic Halo. We will also be surveying other major stellar constituents of the Halo through this survey. UVIT is uniquely suited for this purpose, not only because the strongest metal lines in late type stars occur in UV but also because UVIT filters are designed to sample these lines. Its wide field and spatial resolution are well suited for this purpose and can sample halo on both sides of the plane by the same set of instruments. The proposal has TWO parts: calibrations and survey of the Galactic Halo. In this proposal we would like to observe stars with a range in metallicity, Teff, log g and establish their relationship with various UVIT filter indices.	BPS BS 16545-0089 11 24 27.51 +36 50 28.8 T04 nkrao IIA"
A05_212	Metallicity Mapping of Galactic Halo-UVIT filter indices and physical parameters of stars.	We propose to map stars in the Galactic Halo, in various UVIT filters, in order to spatially map the halo metallicity. Such a study is important for understanding the formation of the Galactic Halo. We will also be surveying other major stellar constituents of the Halo through this survey. UVIT is uniquely suited for this purpose, not only because the strongest metal lines in late type stars occur in UV but also because UVIT filters are designed to sample these lines. Its wide field and spatial resolution are well suited for this purpose and can sample halo on both sides of the plane by the same set of instruments. The proposal has TWO parts: calibrations and survey of the Galactic Halo. In this proposal we would like to observe stars with a range in metallicity, Teff, log g and establish their relationship with various UVIT filter indices.	HD 113679 13 05 52.82 -38 31 00.0 T06 nkrao IIA"

A05_212	Metallicity Mapping of Galactic Halo-UVIT filter indices and physical parameters of stars.	We propose to map stars in the Galactic Halo, in various UVIT filters, in order to spatially map the halo metallicity. Such a study is important for understanding the formation of the Galactic Halo. We will also be surveying other major stellar constituents of the Halo through this survey. UVIT is uniquely suited for this purpose, not only because the strongest metal lines in late type stars occur in UV but also because UVIT filters are designed to sample these lines. Its wide field and spatial resolution are well suited for this purpose and can sample halo on both sides of the plane by the same set of instruments. The proposal has TWO parts: calibrations and survey of the Galactic Halo. In this proposal we would like to observe stars with a range in metallicity, Teff, log g and establish their relationship with various UVIT filter indices.	HE 0007-1832 00 09 52.78 -18 16 12.5 T01 nkrao IIA"
A05_212	Metallicity Mapping of Galactic Halo-UVIT filter indices and physical parameters of stars.	We propose to map stars in the Galactic Halo, in various UVIT filters, in order to spatially map the halo metallicity. Such a study is important for understanding the formation of the Galactic Halo. We will also be surveying other major stellar constituents of the Halo through this survey. UVIT is uniquely suited for this purpose, not only because the strongest metal lines in late type stars occur in UV but also because UVIT filters are designed to sample these lines. Its wide field and spatial resolution are well suited for this purpose and can sample halo on both sides of the plane by the same set of instruments. The proposal has TWO parts: calibrations and survey of the Galactic Halo. In this proposal we would like to observe stars with a range in metallicity, Teff, log g and establish their relationship with various UVIT filter indices.	HE 1012-1540 10 14 53.48 -15 55 53.2 T02 nkrao IIA"
A05_212	Metallicity Mapping of Galactic Halo-UVIT filter indices and physical parameters of stars.	We propose to map stars in the Galactic Halo, in various UVIT filters, in order to spatially map the halo metallicity. Such a study is important for understanding the formation of the Galactic Halo. We will also be surveying other major stellar constituents of the Halo through this survey. UVIT is uniquely suited for this purpose, not only because the strongest metal lines in late type stars occur in UV but also because UVIT filters are designed to sample these lines. Its wide field and spatial resolution are well suited for this purpose and can sample halo on both sides of the plane by the same set of instruments. The proposal has TWO parts: calibrations and survey of the Galactic Halo. In this proposal we would like to observe stars with a range in metallicity, Teff, log g and establish their relationship with various UVIT filter indices.	HE 1111-3026 11 13 44.90 -30 42 48.0 T03 nkrao IIA"



A05_212	Metallicity Mapping of Galactic Halo-UVIT filter indices and physical parameters of stars.	<p>We propose to map stars in the Galactic Halo, in various UVIT filters, in order to spatially map the halo metallicity. Such a study is important for understanding the formation of the Galactic Halo. We will also be surveying other major stellar constituents of the Halo through this survey. UVIT is uniquely suited for this purpose, not only because the strongest metal lines in late type stars occur in UV but also because UVIT filters are designed to sample these lines. Its wide field and spatial resolution are well suited for this purpose and can sample halo on both sides of the plane by the same set of instruments. The proposal has TWO parts: calibrations and survey of the Galactic Halo. In this proposal we would like to observe stars with a range in metallicity, Teff, log g and establish their relationship with various UVIT filter indices.</p>	<p>HE 2239-5019 22 42 26.83 -50 04 00.9 T09 nkrao IIA"</p>
A05_212	Metallicity Mapping of Galactic Halo-UVIT filter indices and physical parameters of stars.	<p>We propose to map stars in the Galactic Halo, in various UVIT filters, in order to spatially map the halo metallicity. Such a study is important for understanding the formation of the Galactic Halo. We will also be surveying other major stellar constituents of the Halo through this survey. UVIT is uniquely suited for this purpose, not only because the strongest metal lines in late type stars occur in UV but also because UVIT filters are designed to sample these lines. Its wide field and spatial resolution are well suited for this purpose and can sample halo on both sides of the plane by the same set of instruments. The proposal has TWO parts: calibrations and survey of the Galactic Halo. In this proposal we would like to observe stars with a range in metallicity, Teff, log g and establish their relationship with various UVIT filter indices.</p>	<p>HE 1351-1721 13 53 49.70 -17 36 38.0 T07 nkrao IIA"</p>
A05_212	Metallicity Mapping of Galactic Halo-UVIT filter indices and physical parameters of stars.	<p>We propose to map stars in the Galactic Halo, in various UVIT filters, in order to spatially map the halo metallicity. Such a study is important for understanding the formation of the Galactic Halo. We will also be surveying other major stellar constituents of the Halo through this survey. UVIT is uniquely suited for this purpose, not only because the strongest metal lines in late type stars occur in UV but also because UVIT filters are designed to sample these lines. Its wide field and spatial resolution are well suited for this purpose and can sample halo on both sides of the plane by the same set of instruments. The proposal has TWO parts: calibrations and survey of the Galactic Halo. In this proposal we would like to observe stars with a range in metallicity, Teff, log g and establish their relationship with various UVIT filter indices.</p>	<p>SDSS J112848.22+580741.9 11 28 48.22 +58 07 42.0 T05 nkrao IIA"</p>

A05_216	Probing the origin of UV emission and the disk/jet connection in the ultra-low luminosity LINER M81	A peculiar characteristic of the nearby AGN M81 is that the central supermassive black hole accretes at the Eddington fraction of $\sim 10^{-5}$ . At such an ultralow accretion rate, the standard accretion disk is assumed to truncate at a large radii and the accretion takes place via advection-dominated, hot flow. However, such scenarios cannot satisfactorily answer "What is the origin of UV emissions and variability in these systems? Is it the jet base or reprocessing from the truncated disk?" With the proposed UV/X-ray simultaneous monitoring of M81 for a week, we can provide answers by measuring the X-ray/UV lag and its nature. A lag timescale of the order of days favors outer disk reprocessing while a lag of ks timescale favors jet origin of UV variability. Therefore, the proposed observation will allow us to test the "jet model" that assume broadband emission during ultralow accretion is due to the jet alone.	M81 55 33.173 69 3 55.044 T01 mayukh3107 Southampton"	9
A05_221	A Study of Neutron Star LMXBs GX 9+1 and GX 9+9 with AstroSat	GX 9+1 and GX 9+9 are bright accreting Neutron Star (NS) Low Mass X-ray Binary (LMXB) sources. Both sources are persistently bright since their discovery. They belong to the group of atoll sources which have spectrally soft state. The sources have been known for more than half a century but we have hardly any information on their temporal and spectral parameters. We propose 40 ks observation, each for GX 9+1 and GX 9+9 with AstroSat. The primary goal of our observation is studying timing properties such as millisecond X-ray pulsations and kHz QPOs, which will be helpful to estimate the spin frequency of NSs with the excellent timing capability of Large Area X-ray Proportional Counter (LAXPC). By modeling spectra obtained by high energy resolution Soft X-ray Telescope (SXT) we will be able to estimate the distance to these sources.	GX 9+1 18 1 32.299 -20 31 44.004 T01 nilam09rn UMumbai"	
A05_225	UVIT observations of star formation history of most massive, rotationally supported spiral disks	ASTROSAT UVIT observations of star formation efficiency and feedback signatures in some of the most massive spiral galaxies with rotation velocities $V_{\text{rot}} > 300 \text{ km s}^{-1}$ are proposed. These galaxies clearly depart from stellar-mass and baryonic-mass Tully-Fisher relations, indicating a significant shortfall of "condensed" baryon fraction in them, despite their large halo mass. The high sensitivity of UVIT and its arcsecond scale resolution will be used to investigate their puzzling nature.	NGC 1030 2 39 50.599 18 1 27.408 T04 joydeep IUCAA"	

A05_225	UVIT observations of star formation history of most massive, rotationally supported spiral disks	ASTROSAT UVIT observations of star formation efficiency and feedback signatures in some of the most massive spiral galaxies with rotation velocities $V_{\text{rot}} > 300 \text{ km s}^{-1}$ are proposed. These galaxies clearly depart from stellar-mass and baryonic-mass Tully-Fisher relations, indicating a significant shortfall of "condensed" baryon fraction in them, despite their large halo mass. The high sensitivity of UVIT and its arcsecond scale resolution will be used to investigate their puzzling nature.	NGC 1961 5 40 30.50 69 22 42.4 T02 joydeep IUCAA"
A05_225	UVIT observations of star formation history of most massive, rotationally supported spiral disks	ASTROSAT UVIT observations of star formation efficiency and feedback signatures in some of the most massive spiral galaxies with rotation velocities $V_{\text{rot}} > 300 \text{ km s}^{-1}$ are proposed. These galaxies clearly depart from stellar-mass and baryonic-mass Tully-Fisher relations, indicating a significant shortfall of "condensed" baryon fraction in them, despite their large halo mass. The high sensitivity of UVIT and its arcsecond scale resolution will be used to investigate their puzzling nature.	UGC 12591 23 25 21.749 28 29 42.756 T01 joydeep IUCAA"
A05_226	UV imaging of dwarf Wolf-Rayet galaxies	Dwarf Wolf-Rayet(WR) galaxies are low-mass systems undergoing a very young ( $< 10 \text{ Myr}$ ) star-burst phase with several massive stars with a strong possibility of ongoing tidal interactions or accretion of matter from IGM. Identifying companion galaxies and/or collecting evidences of accretion from IGM will be important to understand evolution of dwarf galaxies. The UV images will trace both young and intermediate age star formation up to the last 100 - 200 Myr, providing an advantage over H-alpha images which can trace only the most recent and massive star formation in the last 10 Myr or so. We propose here to observe a sample of dwarf WR galaxies in the NUV/FUV bands on UVIT. The proposed deep UV observations will enable us to image (low surface brightness) star formation in the outer regions and/or in tidal debris and also to constrain star formation history over the past 200 Myr period or so.	IC2524 9 57 32.858 33 37 11.028 T01 aomar ARIES"

A05_226	UV imaging of dwarf Wolf-Rayet galaxies	Dwarf Wolf-Rayet(WR) galaxies are low-mass systems undergoing a very young ( $<10$ Myr) star-burst phase with several massive stars with a strong possibility of ongoing tidal interactions or accretion of matter from IGM. Identifying companion galaxies and/or collecting evidences of accretion from IGM will be important to understand evolution of dwarf galaxies. The UV images will trace both young and intermediate age star formation up to the last 100 - 200 Myr, providing an advantage over H-alpha images which can trace only the most recent and massive star formation in the last 10 Myr or so. We propose here to observe a sample of dwarf WR galaxies in the NUV/FUV bands on UVIT. The proposed deep UV observations will enable us to image (low surface brightness) star formation in the outer regions and/or in tidal debris and also to constrain star formation history over the past 200 Myr period or so.	ISZ59 11 57 28.032 -19 37 26.616 T09 aomar ARIES"
A05_226	UV imaging of dwarf Wolf-Rayet galaxies	Dwarf Wolf-Rayet(WR) galaxies are low-mass systems undergoing a very young ( $<10$ Myr) star-burst phase with several massive stars with a strong possibility of ongoing tidal interactions or accretion of matter from IGM. Identifying companion galaxies and/or collecting evidences of accretion from IGM will be important to understand evolution of dwarf galaxies. The UV images will trace both young and intermediate age star formation up to the last 100 - 200 Myr, providing an advantage over H-alpha images which can trace only the most recent and massive star formation in the last 10 Myr or so. We propose here to observe a sample of dwarf WR galaxies in the NUV/FUV bands on UVIT. The proposed deep UV observations will enable us to image (low surface brightness) star formation in the outer regions and/or in tidal debris and also to constrain star formation history over the past 200 Myr period or so.	KUG1013+381 10 16 24.516 37 54 45.972 T06 aomar ARIES"
A05_226	UV imaging of dwarf Wolf-Rayet galaxies	Dwarf Wolf-Rayet(WR) galaxies are low-mass systems undergoing a very young ( $<10$ Myr) star-burst phase with several massive stars with a strong possibility of ongoing tidal interactions or accretion of matter from IGM. Identifying companion galaxies and/or collecting evidences of accretion from IGM will be important to understand evolution of dwarf galaxies. The UV images will trace both young and intermediate age star formation up to the last 100 - 200 Myr, providing an advantage over H-alpha images which can trace only the most recent and massive star formation in the last 10 Myr or so. We propose here to observe a sample of dwarf WR galaxies in the NUV/FUV bands on UVIT. The proposed deep UV observations will enable us to image (low surface brightness) star formation in the outer regions and/or in tidal debris and also to constrain star formation history over the past 200 Myr period or so.	Mrk22 9 49 30.300 55 34 46.992 T02 aomar ARIES"

A05_226	UV imaging of dwarf Wolf-Rayet galaxies	Dwarf Wolf-Rayet(WR) galaxies are low-mass systems undergoing a very young ( $<10$ Myr) star-burst phase with several massive stars with a strong possibility of ongoing tidal interactions or accretion of matter from IGM. Identifying companion galaxies and/or collecting evidences of accretion from IGM will be important to understand evolution of dwarf galaxies. The UV images will trace both young and intermediate age star formation up to the last 100 - 200 Myr, providing an advantage over H-alpha images which can trace only the most recent and massive star formation in the last 10 Myr or so. We propose here to observe a sample of dwarf WR galaxies in the NUV/FUV bands on UVIT. The proposed deep UV observations will enable us to image (low surface brightness) star formation in the outer regions and/or in tidal debris and also to constrain star formation history over the past 200 Myr period or so.	UGC9273 14 28 10.860 13 33 5.688 T03 aomar ARIES"
A05_226	UV imaging of dwarf Wolf-Rayet galaxies	Dwarf Wolf-Rayet(WR) galaxies are low-mass systems undergoing a very young ( $<10$ Myr) star-burst phase with several massive stars with a strong possibility of ongoing tidal interactions or accretion of matter from IGM. Identifying companion galaxies and/or collecting evidences of accretion from IGM will be important to understand evolution of dwarf galaxies. The UV images will trace both young and intermediate age star formation up to the last 100 - 200 Myr, providing an advantage over H-alpha images which can trace only the most recent and massive star formation in the last 10 Myr or so. We propose here to observe a sample of dwarf WR galaxies in the NUV/FUV bands on UVIT. The proposed deep UV observations will enable us to image (low surface brightness) star formation in the outer regions and/or in tidal debris and also to constrain star formation history over the past 200 Myr period or so.	UGCA130 6 42 15.533 75 37 32.628 T05 aomar ARIES"
A05_227	Test of magnetospheric accretion model in Herbig Ae/Be stars	We propose to understand the accretion mechanism in Herbig Ae/Be stars, which are intermediate mass pre-main sequence stars. Magnetospheric accretion model was suggested as the mechanism for accretion in T Tauri stars. However, there is no clear consensus whether this model works for Herbig Ae/Be stars. We propose to address this problem from UVIT observations of a sample of 7 Herbig Ae/Be stars, covering a broad spectral range from early B to late A. Such a broad range of spectral type is employed to see whether other accretion mechanisms such as disc accretion works in Herbig Be stars. From UVIT observations in NUV and FUV bands and carefully modeling the spectral energy distribution we can identify whether UV continuum excess is seen in Herbig Ae/Be stars. The identification of UV excess confirms the fact that magnetospheric accretion model is the mechanism for accretion in Herbig Ae/Be stars.	HD 31648 04 58 46.26 +29 50 36.9 T07 amithgovind CU"

A05_227	Test of magnetospheric accretion model in Herbig Ae/Be stars	We propose to understand the accretion mechanism in Herbig Ae/Be stars, which are intermediate mass pre-main sequence stars. Magnetospheric accretion model was suggested as the mechanism for accretion in T Tauri stars. However, there is no clear consensus whether this model works for Herbig Ae/Be stars. We propose to address this problem from UVIT observations of a sample of 7 Herbig Ae/Be stars, covering a broad spectral range from early B to late A. Such a broad range of spectral type is employed to see whether other accretion mechanisms such as disc accretion works in Herbig Be stars. From UVIT observations in NUV and FUV bands and carefully modeling the spectral energy distribution we can identify whether UV continuum excess is seen in Herbig Ae/Be stars. The identification of UV excess confirms the fact that magnetospheric accretion model is the mechanism for accretion in Herbig Ae/Be stars.	MWC 1080 23 17 25.57 +60 50 43.3 T01 amithgovind CU"
A05_227	Test of magnetospheric accretion model in Herbig Ae/Be stars	We propose to understand the accretion mechanism in Herbig Ae/Be stars, which are intermediate mass pre-main sequence stars. Magnetospheric accretion model was suggested as the mechanism for accretion in T Tauri stars. However, there is no clear consensus whether this model works for Herbig Ae/Be stars. We propose to address this problem from UVIT observations of a sample of 7 Herbig Ae/Be stars, covering a broad spectral range from early B to late A. Such a broad range of spectral type is employed to see whether other accretion mechanisms such as disc accretion works in Herbig Be stars. From UVIT observations in NUV and FUV bands and carefully modeling the spectral energy distribution we can identify whether UV continuum excess is seen in Herbig Ae/Be stars. The identification of UV excess confirms the fact that magnetospheric accretion model is the mechanism for accretion in Herbig Ae/Be stars.	PDS 361S 13 03 21.49 -62 13 26.2 T03 amithgovind CU"
A05_227	Test of magnetospheric accretion model in Herbig Ae/Be stars	We propose to understand the accretion mechanism in Herbig Ae/Be stars, which are intermediate mass pre-main sequence stars. Magnetospheric accretion model was suggested as the mechanism for accretion in T Tauri stars. However, there is no clear consensus whether this model works for Herbig Ae/Be stars. We propose to address this problem from UVIT observations of a sample of 7 Herbig Ae/Be stars, covering a broad spectral range from early B to late A. Such a broad range of spectral type is employed to see whether other accretion mechanisms such as disc accretion works in Herbig Be stars. From UVIT observations in NUV and FUV bands and carefully modeling the spectral energy distribution we can identify whether UV continuum excess is seen in Herbig Ae/Be stars. The identification of UV excess confirms the fact that magnetospheric accretion model is the mechanism for accretion in Herbig Ae/Be stars.	V1185 Tau 03 39 00.56 +29 41 45.6 T06 amithgovind CU"

A05_229	Multiwavelength spectral and temporal features of persistent LMXBs: A probe into X-ray reprocessing	<p>A plethora of X-ray spectral and timing features with UV counterparts are seen during the periodic evolution of persistently accreting LMXB, which make them ideal test beds for studying dense matter and strong gravity physics. We aim to study the reprocessing of X-ray photons into UV, in order to address pertinent questions on, the mechanism behind the evolution of accretion flow, QPO frequencies, disc-coronal interaction, as the sources traverse through their evolutionary tracks in the Hardness Intensity Diagrams. The results from these observations would also allow for a thorough test of the paradigm for reprocessing of X-ray thermonuclear bursts. Sco X-1 being a Z-type source and 4U 1728-34 being an atoll source allow us to discuss various models in different evolutionary settings. We request to observe the evolution of Sco X-1 throughout its Z-track for a duration of 175 ks, and the thermonuclear bursting source 4U 1728-34 for 90 ks.</p>	<p>4U 1728-34 17 31 58.001 -33 50 7.008 T02 navinsridhar IISER B"</p>
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PROPOS AL_ID	TITLE	ABSTRACT	SRCNAME SRCRA SRCDEC GROUP_NAME PI_ID AFFILIATION"
A06_002	[LEGACY] An AstroSat-NICER campaign for bright neutron star low-mass X-ray binaries	Two large area high time resolution X-ray astronomy instruments, AstroSat/LAXPC (3-80 keV) and NICER (0.2-12 keV), are currently available. A careful program to observe neutron star low-mass X-ray binaries (LMXBs) utilizing the unique capabilities of these two instruments in largely complementary energy ranges will be useful to probe the fundamental physics of dense matter and strong gravity by studying kilohertz quasi-periodic oscillations and thermonuclear burst oscillations. Such joint LAXPC/NICER observations will also characterize the X-ray spectral components with the heretofore largest area X-ray instruments in a very broad energy range, and will explore the source state evolution in a new regime. Here, as a part of a multi-cycle campaign, which will provide unprecedented simultaneous LAXPC/NICER data sets with a strong legacy value, we propose for 400 ks of LAXPC exposure in this cycle for four bright neutron star LMXBs, which will be simultaneously observed with NICER with the best effort.	4U 1702-429 17 6 15.314 -43 2 8.690 T03 sudip TIFR"
A06_002	[LEGACY] An AstroSat-NICER campaign for bright neutron star low-mass X-ray binaries	Two large area high time resolution X-ray astronomy instruments, AstroSat/LAXPC (3-80 keV) and NICER (0.2-12 keV), are currently available. A careful program to observe neutron star low-mass X-ray binaries (LMXBs) utilizing the unique capabilities of these two instruments in largely complementary energy ranges will be useful to probe the fundamental physics of dense matter and strong gravity by studying kilohertz quasi-periodic oscillations and thermonuclear burst oscillations. Such joint LAXPC/NICER observations will also characterize the X-ray spectral components with the heretofore largest area X-ray instruments in a very broad energy range, and will explore the source state evolution in a new regime. Here, as a part of a multi-cycle campaign, which will provide unprecedented simultaneous LAXPC/NICER data sets with a strong legacy value, we propose for 400 ks of LAXPC exposure in this cycle for four bright neutron star LMXBs, which will be simultaneously observed with NICER with the best effort.	4U 1728-34 17 31 57.730 -33 50 2.501 T01 sudip TIFR"



A06_002	[LEGACY] An AstroSat-NICER campaign for bright neutron star low-mass X-ray binaries	Two large area high time resolution X-ray astronomy instruments, AstroSat/LAXPC (3-80 keV) and NICER (0.2-12 keV), are currently available. A careful program to observe neutron star low-mass X-ray binaries (LMXBs) utilizing the unique capabilities of these two instruments in largely complementary energy ranges will be useful to probe the fundamental physics of dense matter and strong gravity by studying kilohertz quasi-periodic oscillations and thermonuclear burst oscillations. Such joint LAXPC/NICER observations will also characterize the X-ray spectral components with the heretofore largest area X-ray instruments in a very broad energy range, and will explore the source state evolution in a new regime. Here, as a part of a multi-cycle campaign, which will provide unprecedented simultaneous LAXPC/NICER data sets with a strong legacy value, we propose for 400 ks of LAXPC exposure in this cycle for four bright neutron star LMXBs, which will be simultaneously observed with NICER with the best effort.	Cyg X-2 21 44 41.154 38 19 17.066 T02 sudip TIFR"
A06_003	LEGACY: YPULS - Young stellar Populations UVIT Legacy Survey	We propose to use UVIT for a survey of nearby star-forming galaxies. YPULS will cover a volume-limited sample of local ( $D < 10\text{Mpc}$ ) galaxies to provide a large homogeneous UV imaging database of spatially resolved young stellar complexes, at a mean resolution of 25 pc. These data will: 1) quantify the impact of the environment on the star formation process, 2) link stellar feedback mechanisms to the small-scale physics, and 3) measure variations of the star formation properties with respect to the indicators used for high redshift galaxies. YPULS targets have data from LEGUS (NUV-NIR maps at HST resolution of selected regions) and SIGNALS (mapping ionized gas in the visible). UVIT/FUV, with these and other complementary data, will be inputs for photoionization codes, vital to study star formation and galaxy evolution. YPULS data will also be rich and valuable for investigating many other phenomena, like X-ray binaries and supernova remnants.	IC 4182 13 5 49.536 37 36 17.604 T13 hutchingsj IIA"
A06_003	LEGACY: YPULS - Young stellar Populations UVIT Legacy Survey	We propose to use UVIT for a survey of nearby star-forming galaxies. YPULS will cover a volume-limited sample of local ( $D < 10\text{Mpc}$ ) galaxies to provide a large homogeneous UV imaging database of spatially resolved young stellar complexes, at a mean resolution of 25 pc. These data will: 1) quantify the impact of the environment on the star formation process, 2) link stellar feedback mechanisms to the small-scale physics, and 3) measure variations of the star formation properties with respect to the indicators used for high redshift galaxies. YPULS targets have data from LEGUS (NUV-NIR maps at HST resolution of selected regions) and SIGNALS (mapping ionized gas in the visible). UVIT/FUV, with these and other complementary data, will be inputs for photoionization codes, vital to study star formation and galaxy evolution. YPULS data will also be rich and valuable for investigating many other phenomena, like X-ray binaries and supernova remnants.	NGC 0337A 1 1 33.900 -7 35 17.700 T03 hutchingsj IIA"

A06_003	LEGACY: YPULS - Young stellar Populations UVIT Legacy Survey	We propose to use UVIT for a survey of nearby star-forming galaxies. YPULS will cover a volume-limited sample of local ( $D < 10\text{Mpc}$ ) galaxies to provide a large homogeneous UV imaging database of spatially resolved young stellar complexes, at a mean resolution of 25 pc. These data will: 1) quantify the impact of the environment on the star formation process, 2) link stellar feedback mechanisms to the small-scale physics, and 3) measure variations of the star formation properties with respect to the indicators used for high redshift galaxies. YPULS targets have data from LEGUS (NUV-NIR maps at HST resolution of selected regions) and SIGNALS (mapping ionized gas in the visible). UVIT/FUV, with these and other complementary data, will be inputs for photoionization codes, vital to study star formation and galaxy evolution. YPULS data will also be rich and valuable for investigating many other phenomena, like X-ray binaries and supernova remnants.	NGC 0925 2 27 16.879 33 34 45.012 T04 hutchingsj IIA"
A06_003	LEGACY: YPULS - Young stellar Populations UVIT Legacy Survey	We propose to use UVIT for a survey of nearby star-forming galaxies. YPULS will cover a volume-limited sample of local ( $D < 10\text{Mpc}$ ) galaxies to provide a large homogeneous UV imaging database of spatially resolved young stellar complexes, at a mean resolution of 25 pc. These data will: 1) quantify the impact of the environment on the star formation process, 2) link stellar feedback mechanisms to the small-scale physics, and 3) measure variations of the star formation properties with respect to the indicators used for high redshift galaxies. YPULS targets have data from LEGUS (NUV-NIR maps at HST resolution of selected regions) and SIGNALS (mapping ionized gas in the visible). UVIT/FUV, with these and other complementary data, will be inputs for photoionization codes, vital to study star formation and galaxy evolution. YPULS data will also be rich and valuable for investigating many other phenomena, like X-ray binaries and supernova remnants.	NGC 2903 9 32 10.109 21 30 2.988 T05 hutchingsj IIA"
A06_003	LEGACY: YPULS - Young stellar Populations UVIT Legacy Survey	We propose to use UVIT for a survey of nearby star-forming galaxies. YPULS will cover a volume-limited sample of local ( $D < 10\text{Mpc}$ ) galaxies to provide a large homogeneous UV imaging database of spatially resolved young stellar complexes, at a mean resolution of 25 pc. These data will: 1) quantify the impact of the environment on the star formation process, 2) link stellar feedback mechanisms to the small-scale physics, and 3) measure variations of the star formation properties with respect to the indicators used for high redshift galaxies. YPULS targets have data from LEGUS (NUV-NIR maps at HST resolution of selected regions) and SIGNALS (mapping ionized gas in the visible). UVIT/FUV, with these and other complementary data, will be inputs for photoionization codes, vital to study star formation and galaxy evolution. YPULS data will also be rich and valuable for investigating many other phenomena, like X-ray binaries and supernova remnants.	NGC 3627 11 20 14.964 12 59 29.544 T06 hutchingsj IIA"

A06_003	LEGACY: YPULS - Young stellar Populations UVIT Legacy Survey	We propose to use UVIT for a survey of nearby star-forming galaxies. YPULS will cover a volume-limited sample of local ( $D < 10\text{Mpc}$ ) galaxies to provide a large homogeneous UV imaging database of spatially resolved young stellar complexes, at a mean resolution of 25 pc. These data will: 1) quantify the impact of the environment on the star formation process, 2) link stellar feedback mechanisms to the small-scale physics, and 3) measure variations of the star formation properties with respect to the indicators used for high redshift galaxies. YPULS targets have data from LEGUS (NUV-NIR maps at HST resolution of selected regions) and SIGNALS (mapping ionized gas in the visible). UVIT/FUV, with these and other complementary data, will be inputs for photoionization codes, vital to study star formation and galaxy evolution. YPULS data will also be rich and valuable for investigating many other phenomena, like X-ray binaries and supernova remnants.	NGC 3631 11 21 2.875 53 10 10.452 T07 hutchingsj IIA"
A06_003	LEGACY: YPULS - Young stellar Populations UVIT Legacy Survey	We propose to use UVIT for a survey of nearby star-forming galaxies. YPULS will cover a volume-limited sample of local ( $D < 10\text{Mpc}$ ) galaxies to provide a large homogeneous UV imaging database of spatially resolved young stellar complexes, at a mean resolution of 25 pc. These data will: 1) quantify the impact of the environment on the star formation process, 2) link stellar feedback mechanisms to the small-scale physics, and 3) measure variations of the star formation properties with respect to the indicators used for high redshift galaxies. YPULS targets have data from LEGUS (NUV-NIR maps at HST resolution of selected regions) and SIGNALS (mapping ionized gas in the visible). UVIT/FUV, with these and other complementary data, will be inputs for photoionization codes, vital to study star formation and galaxy evolution. YPULS data will also be rich and valuable for investigating many other phenomena, like X-ray binaries and supernova remnants.	NGC 4242 12 17 30.178 45 37 9.480 T08 hutchingsj IIA"
A06_003	LEGACY: YPULS - Young stellar Populations UVIT Legacy Survey	We propose to use UVIT for a survey of nearby star-forming galaxies. YPULS will cover a volume-limited sample of local ( $D < 10\text{Mpc}$ ) galaxies to provide a large homogeneous UV imaging database of spatially resolved young stellar complexes, at a mean resolution of 25 pc. These data will: 1) quantify the impact of the environment on the star formation process, 2) link stellar feedback mechanisms to the small-scale physics, and 3) measure variations of the star formation properties with respect to the indicators used for high redshift galaxies. YPULS targets have data from LEGUS (NUV-NIR maps at HST resolution of selected regions) and SIGNALS (mapping ionized gas in the visible). UVIT/FUV, with these and other complementary data, will be inputs for photoionization codes, vital to study star formation and galaxy evolution. YPULS data will also be rich and valuable for investigating many other phenomena, like X-ray binaries and supernova remnants.	NGC 4258 12 18 57.504 47 18 14.292 T09 hutchingsj IIA"

A06_003	LEGACY: YPULS - Young stellar Populations UVIT Legacy Survey	We propose to use UVIT for a survey of nearby star-forming galaxies. YPULS will cover a volume-limited sample of local ( $D < 10\text{Mpc}$ ) galaxies to provide a large homogeneous UV imaging database of spatially resolved young stellar complexes, at a mean resolution of 25 pc. These data will: 1) quantify the impact of the environment on the star formation process, 2) link stellar feedback mechanisms to the small-scale physics, and 3) measure variations of the star formation properties with respect to the indicators used for high redshift galaxies. YPULS targets have data from LEGUS (NUV-NIR maps at HST resolution of selected regions) and SIGNALS (mapping ionized gas in the visible). UVIT/FUV, with these and other complementary data, will be inputs for photoionization codes, vital to study star formation and galaxy evolution. YPULS data will also be rich and valuable for investigating many other phenomena, like X-ray binaries and supernova remnants.	NGC 4395 12 25 48.862 33 32 48.948 T02 hutchingsj IIA"
A06_003	LEGACY: YPULS - Young stellar Populations UVIT Legacy Survey	We propose to use UVIT for a survey of nearby star-forming galaxies. YPULS will cover a volume-limited sample of local ( $D < 10\text{Mpc}$ ) galaxies to provide a large homogeneous UV imaging database of spatially resolved young stellar complexes, at a mean resolution of 25 pc. These data will: 1) quantify the impact of the environment on the star formation process, 2) link stellar feedback mechanisms to the small-scale physics, and 3) measure variations of the star formation properties with respect to the indicators used for high redshift galaxies. YPULS targets have data from LEGUS (NUV-NIR maps at HST resolution of selected regions) and SIGNALS (mapping ionized gas in the visible). UVIT/FUV, with these and other complementary data, will be inputs for photoionization codes, vital to study star formation and galaxy evolution. YPULS data will also be rich and valuable for investigating many other phenomena, like X-ray binaries and supernova remnants.	NGC 4449 12 28 11.102 44 5 37.068 T01 hutchingsj IIA"
A06_003	LEGACY: YPULS - Young stellar Populations UVIT Legacy Survey	We propose to use UVIT for a survey of nearby star-forming galaxies. YPULS will cover a volume-limited sample of local ( $D < 10\text{Mpc}$ ) galaxies to provide a large homogeneous UV imaging database of spatially resolved young stellar complexes, at a mean resolution of 25 pc. These data will: 1) quantify the impact of the environment on the star formation process, 2) link stellar feedback mechanisms to the small-scale physics, and 3) measure variations of the star formation properties with respect to the indicators used for high redshift galaxies. YPULS targets have data from LEGUS (NUV-NIR maps at HST resolution of selected regions) and SIGNALS (mapping ionized gas in the visible). UVIT/FUV, with these and other complementary data, will be inputs for photoionization codes, vital to study star formation and galaxy evolution. YPULS data will also be rich and valuable for investigating many other phenomena, like X-ray binaries and supernova remnants.	NGC 4490 12 30 36.240 41 38 38.040 T10 hutchingsj IIA"

A06_003	LEGACY: YPULS - Young stellar Populations UVIT Legacy Survey	We propose to use UVIT for a survey of nearby star-forming galaxies. YPULS will cover a volume-limited sample of local ( $D < 10\text{Mpc}$ ) galaxies to provide a large homogeneous UV imaging database of spatially resolved young stellar complexes, at a mean resolution of 25 pc. These data will: 1) quantify the impact of the environment on the star formation process, 2) link stellar feedback mechanisms to the small-scale physics, and 3) measure variations of the star formation properties with respect to the indicators used for high redshift galaxies. YPULS targets have data from LEGUS (NUV-NIR maps at HST resolution of selected regions) and SIGNALS (mapping ionized gas in the visible). UVIT/FUV, with these and other complementary data, will be inputs for photoionization codes, vital to study star formation and galaxy evolution. YPULS data will also be rich and valuable for investigating many other phenomena, like X-ray binaries and supernova remnants.	NGC 4736 12 50 53.062 41 7 13.656 T12 hutchingsj IIA"
A06_003	LEGACY: YPULS - Young stellar Populations UVIT Legacy Survey	We propose to use UVIT for a survey of nearby star-forming galaxies. YPULS will cover a volume-limited sample of local ( $D < 10\text{Mpc}$ ) galaxies to provide a large homogeneous UV imaging database of spatially resolved young stellar complexes, at a mean resolution of 25 pc. These data will: 1) quantify the impact of the environment on the star formation process, 2) link stellar feedback mechanisms to the small-scale physics, and 3) measure variations of the star formation properties with respect to the indicators used for high redshift galaxies. YPULS targets have data from LEGUS (NUV-NIR maps at HST resolution of selected regions) and SIGNALS (mapping ionized gas in the visible). UVIT/FUV, with these and other complementary data, will be inputs for photoionization codes, vital to study star formation and galaxy evolution. YPULS data will also be rich and valuable for investigating many other phenomena, like X-ray binaries and supernova remnants.	NGC 5055 13 15 49.330 42 1 45.408 T14 hutchingsj IIA"
A06_003	LEGACY: YPULS - Young stellar Populations UVIT Legacy Survey	We propose to use UVIT for a survey of nearby star-forming galaxies. YPULS will cover a volume-limited sample of local ( $D < 10\text{Mpc}$ ) galaxies to provide a large homogeneous UV imaging database of spatially resolved young stellar complexes, at a mean resolution of 25 pc. These data will: 1) quantify the impact of the environment on the star formation process, 2) link stellar feedback mechanisms to the small-scale physics, and 3) measure variations of the star formation properties with respect to the indicators used for high redshift galaxies. YPULS targets have data from LEGUS (NUV-NIR maps at HST resolution of selected regions) and SIGNALS (mapping ionized gas in the visible). UVIT/FUV, with these and other complementary data, will be inputs for photoionization codes, vital to study star formation and galaxy evolution. YPULS data will also be rich and valuable for investigating many other phenomena, like X-ray binaries and supernova remnants.	NGC 5194 13 29 52.711 47 11 42.612 T16 hutchingsj IIA"

A06_003	LEGACY: YPULS - Young stellar Populations UVIT Legacy Survey	We propose to use UVIT for a survey of nearby star-forming galaxies. YPULS will cover a volume-limited sample of local ( $D < 10\text{Mpc}$ ) galaxies to provide a large homogeneous UV imaging database of spatially resolved young stellar complexes, at a mean resolution of 25 pc. These data will: 1) quantify the impact of the environment on the star formation process, 2) link stellar feedback mechanisms to the small-scale physics, and 3) measure variations of the star formation properties with respect to the indicators used for high redshift galaxies. YPULS targets have data from LEGUS (NUV-NIR maps at HST resolution of selected regions) and SIGNALS (mapping ionized gas in the visible). UVIT/FUV, with these and other complementary data, will be inputs for photoionization codes, vital to study star formation and galaxy evolution. YPULS data will also be rich and valuable for investigating many other phenomena, like X-ray binaries and supernova remnants.	NGC 5204 13 29 36.511 58 25 7.392 T15 hutchingsj IIA"
A06_003	LEGACY: YPULS - Young stellar Populations UVIT Legacy Survey	We propose to use UVIT for a survey of nearby star-forming galaxies. YPULS will cover a volume-limited sample of local ( $D < 10\text{Mpc}$ ) galaxies to provide a large homogeneous UV imaging database of spatially resolved young stellar complexes, at a mean resolution of 25 pc. These data will: 1) quantify the impact of the environment on the star formation process, 2) link stellar feedback mechanisms to the small-scale physics, and 3) measure variations of the star formation properties with respect to the indicators used for high redshift galaxies. YPULS targets have data from LEGUS (NUV-NIR maps at HST resolution of selected regions) and SIGNALS (mapping ionized gas in the visible). UVIT/FUV, with these and other complementary data, will be inputs for photoionization codes, vital to study star formation and galaxy evolution. YPULS data will also be rich and valuable for investigating many other phenomena, like X-ray binaries and supernova remnants.	NGC 5247 13 38 3.041 -17 53 2.508 T17 hutchingsj IIA"
A06_003	LEGACY: YPULS - Young stellar Populations UVIT Legacy Survey	We propose to use UVIT for a survey of nearby star-forming galaxies. YPULS will cover a volume-limited sample of local ( $D < 10\text{Mpc}$ ) galaxies to provide a large homogeneous UV imaging database of spatially resolved young stellar complexes, at a mean resolution of 25 pc. These data will: 1) quantify the impact of the environment on the star formation process, 2) link stellar feedback mechanisms to the small-scale physics, and 3) measure variations of the star formation properties with respect to the indicators used for high redshift galaxies. YPULS targets have data from LEGUS (NUV-NIR maps at HST resolution of selected regions) and SIGNALS (mapping ionized gas in the visible). UVIT/FUV, with these and other complementary data, will be inputs for photoionization codes, vital to study star formation and galaxy evolution. YPULS data will also be rich and valuable for investigating many other phenomena, like X-ray binaries and supernova remnants.	NGC 5457 14 3 12.545 54 20 56.220 T18 hutchingsj IIA"

A06_003	LEGACY: YPULS - Young stellar Populations UVIT Legacy Survey	We propose to use UVIT for a survey of nearby star-forming galaxies. YPULS will cover a volume-limited sample of local ( $D < 10\text{Mpc}$ ) galaxies to provide a large homogeneous UV imaging database of spatially resolved young stellar complexes, at a mean resolution of 25 pc. These data will: 1) quantify the impact of the environment on the star formation process, 2) link stellar feedback mechanisms to the small-scale physics, and 3) measure variations of the star formation properties with respect to the indicators used for high redshift galaxies. YPULS targets have data from LEGUS (NUV-NIR maps at HST resolution of selected regions) and SIGNALS (mapping ionized gas in the visible). UVIT/FUV, with these and other complementary data, will be inputs for photoionization codes, vital to study star formation and galaxy evolution. YPULS data will also be rich and valuable for investigating many other phenomena, like X-ray binaries and supernova remnants.	NGC 5474 14 5 1.610 53 39 43.992 T19 hutchingsj IIA"
A06_003	LEGACY: YPULS - Young stellar Populations UVIT Legacy Survey	We propose to use UVIT for a survey of nearby star-forming galaxies. YPULS will cover a volume-limited sample of local ( $D < 10\text{Mpc}$ ) galaxies to provide a large homogeneous UV imaging database of spatially resolved young stellar complexes, at a mean resolution of 25 pc. These data will: 1) quantify the impact of the environment on the star formation process, 2) link stellar feedback mechanisms to the small-scale physics, and 3) measure variations of the star formation properties with respect to the indicators used for high redshift galaxies. YPULS targets have data from LEGUS (NUV-NIR maps at HST resolution of selected regions) and SIGNALS (mapping ionized gas in the visible). UVIT/FUV, with these and other complementary data, will be inputs for photoionization codes, vital to study star formation and galaxy evolution. YPULS data will also be rich and valuable for investigating many other phenomena, like X-ray binaries and supernova remnants.	UGC 07698 12 32 54.391 31 32 27.996 T11 hutchingsj IIA"
A06_005	LEGACY: Globular cluster UVIT Legacy Survey (GlobULeS)	Globular Clusters (GCs) harbour exotic stars such as blue straggler stars (BSS), horizontal branch (HB) and extreme HB (EHB) stars which are found concentrated in the core of the GCs. The HST UV Globular cluster survey (Nardiello et al. 2018) has 56 GC observed in near-UV to optical filters. This treasury lacks FUV coverage, which is necessary to characterise the hot HB stars and BSS population. UVIT has the unique capability to create a complimentary treasury in the Far-UV passbands for the hot stars in the core of each cluster. In this proposal, we propose to image 8 clusters which are not imaged by so far UVIT, to create a FUV added HUGS catalog (see Scientific justification). The primary science goals are (1) a complete census of hot stars (2) identification of BSS formation pathways and (3) Effect of Helium abundance, age and metallicity on the morphology of the HB.	NGC 3201 10 17 36.820 -46 24 44.899 T01 annapurni IIA"

A06_005	LEGACY: Globular cluster UVIT Legacy Survey (GlobULeS)	Globular Clusters (GCs) harbour exotic stars such as blue straggler stars (BSS), horizontal branch (HB) and extreme HB (EHB) stars which are found concentrated in the core of the GCs. The HST UV Globular cluster survey (Nardiello et al. 2018) has 56 GC observed in near-UV to optical filters. This treasury lacks FUV coverage, which is necessary to characterise the hot HB stars and BSS population. UVIT has the unique capability to create a complimentary treasury in the Far-UV passbands for the hot stars in the core of each cluster. In this proposal, we propose to image 8 clusters which are not imaged by so far UVIT, to create a FUV added HUGS catalog (see Scientific justification). The primary science goals are (1) a complete census of hot stars (2) identification of BSS formation pathways and (3) Effect of Helium abundance, age and metallicity on the morphology of the HB.	NGC 5986 15 46 3.000 -37 47 11.101 T02 annapurni IIA"
A06_005	LEGACY: Globular cluster UVIT Legacy Survey (GlobULeS)	Globular Clusters (GCs) harbour exotic stars such as blue straggler stars (BSS), horizontal branch (HB) and extreme HB (EHB) stars which are found concentrated in the core of the GCs. The HST UV Globular cluster survey (Nardiello et al. 2018) has 56 GC observed in near-UV to optical filters. This treasury lacks FUV coverage, which is necessary to characterise the hot HB stars and BSS population. UVIT has the unique capability to create a complimentary treasury in the Far-UV passbands for the hot stars in the core of each cluster. In this proposal, we propose to image 8 clusters which are not imaged by so far UVIT, to create a FUV added HUGS catalog (see Scientific justification). The primary science goals are (1) a complete census of hot stars (2) identification of BSS formation pathways and (3) Effect of Helium abundance, age and metallicity on the morphology of the HB.	NGC 6723 18 59 33.150 -36 37 53.100 T05 annapurni IIA"
A06_005	LEGACY: Globular cluster UVIT Legacy Survey (GlobULeS)	Globular Clusters (GCs) harbour exotic stars such as blue straggler stars (BSS), horizontal branch (HB) and extreme HB (EHB) stars which are found concentrated in the core of the GCs. The HST UV Globular cluster survey (Nardiello et al. 2018) has 56 GC observed in near-UV to optical filters. This treasury lacks FUV coverage, which is necessary to characterise the hot HB stars and BSS population. UVIT has the unique capability to create a complimentary treasury in the Far-UV passbands for the hot stars in the core of each cluster. In this proposal, we propose to image 8 clusters which are not imaged by so far UVIT, to create a FUV added HUGS catalog (see Scientific justification). The primary science goals are (1) a complete census of hot stars (2) identification of BSS formation pathways and (3) Effect of Helium abundance, age and metallicity on the morphology of the HB.	NGC 7099 21 40 22.120 -23 10 47.500 T09 annapurni IIA"



A06_006	[LEGACY]: AstroSat-UVIT Deep Field Legacy Survey	We propose AstroSat-UVIT Deep Field Legacy (AUDFL) survey for two deep fields covering the GOODS-South and North using its far-ultraviolet imaging camera. Such a deep wide-field FUV observation is essential to finding compact, low-mass-star-forming galaxies (LSFGs) that are potential Lyman continuum (LyC) leakers at the intermediate redshift range. Detection of LyC leakers holds the key to our understanding of the level of ionizing radiation in our universe - playing a major role in the cosmological modelling of galaxy formation. Currently, there has been no direct detection of such sources between redshift $\sim 0.5 - 2.5$ . Based on the data analysis of previous UVIT deep field, and proposed 190 kilosec observation, we will be in a position to detect several LyC leakers in that redshift-window and construct their space density. We will also construct multi-wavelength SEDs from FUV-to-IR and study the physical properties e.g., stellar-population, age and metallicity of these LSFGs.	AUDFLs 03 32 29.69 -27 44 07.31 T01 sntandon IUCAA"
A06_009	[Legacy] Long-term spectro-timing studies of Z type Neutron Star Low Mass X-ray Binaries	Z type NS-LMXBs show correlated spectral and temporal properties which vary on timescales of hours to days as revealed in their CD/HID. Additionally, their Z-tracks show long term secular shifts, the reason for which is unknown. Their PDS displays temporal signatures ranging from kHz to MHz with frequency and energy dependent time lags seen only in certain spectral states. While significant understanding of these sources have been obtained from continuous monitoring by RXTE (leading to more than 60 publications), a major impediment has been the absence of strictly simultaneous low energy spectra data which has hampered the interpretation of radiative processes causing source variability. AstroSat's SXT and LAXPC-20 are the ideal instruments to cover this deficiency and hence we propose a legacy campaign to continuously observe six Z-type NS-LMXBs for 5 ks each at $\sim 10$ -day intervals for a total exposure of 360 ks using LAXPC (primary instrument) and SXT.	GX 340+0 16 45 47.70 -45 36 40.00 T02 ranjeev IUCAA" "A06_009
A06_009	[Legacy] Long-term spectro-timing studies of Z type Neutron Star Low Mass X-ray Binaries	Z type NS-LMXBs show correlated spectral and temporal properties which vary on timescales of hours to days as revealed in their CD/HID. Additionally, their Z-tracks show long term secular shifts, the reason for which is unknown. Their PDS displays temporal signatures ranging from kHz to MHz with frequency and energy dependent time lags seen only in certain spectral states. While significant understanding of these sources have been obtained from continuous monitoring by RXTE (leading to more than 60 publications), a major impediment has been the absence of strictly simultaneous low energy spectra data which has hampered the interpretation of radiative processes causing source variability. AstroSat's SXT and LAXPC-20 are the ideal instruments to cover this deficiency and hence we propose a legacy campaign to continuously observe six Z-type NS-LMXBs for 5 ks each at $\sim 10$ -day intervals for a total exposure of 360 ks using LAXPC (primary instrument) and SXT.	GX 5-1 18 01 09.73 -25 04 44.13 T03 ranjeev IUCAA"