

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 X-pulsars in binaries with LAXPC	study of pulsation and spectral characteristic of X-pulsars 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	OTHER S	
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	
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	
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	
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	

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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 SFXT.							
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 J17091-3x624	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 Xray 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 28.9293 7	+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 Xray binaries (BHXBs) can provide information about black hole spin, strong gravity regime and accretionejection 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 Xrays, 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	Institut e	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 ± 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 ± 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	Institut e	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.	Mkn42 1	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 Xray 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	Institut e	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 $(18000 \text{ yr} \text{ to } 9000 \text{ yr})$ (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 ($5000-8000 \text{ K}$) 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 $(18000 \text{ yr} \text{ to } 9000 \text{ yr})$ (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 ($5000-8000 \text{ K}$) 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	annapur ni	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	Institut e	Remarks
G05_211	ASTROSAT observation of 1ES1218+304 : (old 090)	Extreme blazars (EHBL), 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, 1ES1218+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.	1ES1218+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	Institut e	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 $(18000 \text{ yr} - 9000 \text{ yr})$ (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 ($10^4 - 5 \times 10^4$ 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, Xray 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 (~ 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	KPSing h19	TIFR	
--	--	--	BL Lac	22 2 43.291	42 16 39.980	T03	KPSing h19	TIFR	
--	--	--	S4 0954+65	9 58 47.245	65 33 54.818	T02	KPSing h19	TIFR	
--	--	--	cta 102	22 32 36.408	11 43 50.880	T01	KPSing h19	TIFR	
--	--	--	mrk 501	16 53 52.217	39 45 36.609	T05	KPSing h19	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 ~ 3.5 days)	NGC45 93	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 9×10^{-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 ~ 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 α are extensively used for 10 Myr 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 ~ 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	Institut e	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 (≈ 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 Hya	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 Xrays.[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	Institut e	Remarks
--	--	--	REJ 1034+3 96	10 34 38.602	39 38 27.770	T03	KPSing h19	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	

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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 G)5_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	

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		in the low/hard state in the broad energy range from soft Xrays 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 Xrays to hard X-rays.</p>	H1743322	17 46 15.608	-32 14 0.600	T03	ramade vi	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 Xrays to hard X-rays.</p>	XTEJ17 52-223	17 52 15.095	-22 20 32.782	T02	ramade vi	ISRO	

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Total Accepted Proposals are 81

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institutes	Remarks
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	
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	
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 α 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	
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	
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 δ α 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 it 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	

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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	
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 timescale 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	
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	
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	
--	--	--	Crab	5 34 31.940	22 0 52.200	T01	santoshv	PRL	
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	
--	--	--	GX 13+1	18 14 31.55	-17 09 26.7	T02	KPSingh19	TIFR	

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	
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	
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	
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	
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	
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	

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	
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	
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	
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	
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	

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	
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	
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	
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	
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 ± 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	

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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	
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	
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	
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	

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	
G06_070	Study and Morphology and Ionization structure of Planetary Nebulae VIII -- MyCn 18.	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.	My Cn 18	13 39 43.00	-67 18 30.00	T01	nkrao	IIA	
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	
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	

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	KPSing h19	TIFR	
--	--	--	Ophiuchus	17 12 24.7	-23 21 01	T02	KPSing h19	TIFR	
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	
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	
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	KPSing h19	TIFR	
--	--	--	1ES 1959+6 59	19 59 59.85	+65 08 54.65	T01	KPSing h19	TIFR	
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	
--	--	--	NGC 5033	13 13 27.4	+36 35 38	T04	stalin	IIA	
--	--	--	NGC 5371	13 55 39.9	+40 27 42	T02	stalin	IIA	
--	--	--	NGC 7314	22 35 46.2	-26 03 02	T03	stalin	IIA	

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	
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	
G06_093	Observing IGR J11215-5952: a supergiant fast X-ray transient with ASTROSAT (alternative to G06 052)	IGR J11215-5952 is the only SFXT that show outbursts at a periodicity equal to the orbital period (165 d) of the system. This bright outburst consists of several smaller flares and in effect, the dynamic range spans variation of three orders of magnitude. We propose 40 ks long observation of IGR J11215-5952 during outburst with SXT and LAXPC onboard ASTROSAT to primarily study the onset of such flares. Detailed spin phase-resolved and hardness-ratio resolved spectral analysis would help us understand the accretion mechanism in this system. In addition, detailed pulse profile analysis will also be carried out for the first time for this source in the soft (0.2-10 keV) and hard X-rays (15-80 keV) which will shed light on the beaming mechanism of X-rays. This observation will also further allow us to investigate the presence of any cyclotron line which is invaluable in distinguishing different theories of SFXTs.	IGR J11215-5952	11 21 46.78	-59 51 46.5	T01	bpaul	RRI	
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	
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	

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
G06_104	LAXPC observatory 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	
G06_106	Deep UV imaging studies of X-ray and optically bright SNRs VI-- NGC6992.	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 (18000-9000) 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 6992	20 55 31.47	31 49 42.2	T01	fsutaria	IIA	
G06_111	4U 1630-472 (alternative for G06-104 4U 1636-536)	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 behavior 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 low mass this is alternative for G06-104 4U 1636-536.	4U 1630- 472	16 34 0	-47 23 39	T01	jsyadav	TIFR	
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	ramadevi	ISRO	
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 ± 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	

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	
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	
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	
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 ± 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	
G06_125	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 ± 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	
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 $(18000 \text{ to } 9000)$ 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 - 10^5) 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 - 10^7) 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	

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
G06_128	Deep UV imaging studies of X-ray and optically bright SNRs VIII - IC1340	%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 ± 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 35.06	30 58 30.17	T01	fsutaria	IIA	
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 ± 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	
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	annapur ni	IIA	
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	annapur ni	IIA	
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	
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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	
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	
--	--	--	NGC 2541	08 14 40.0	+49 03 41.2	T02	swarna	NCRA	
--	--	--	NGC 5474	14 05 01.6	+53 39 43.9	T03	swarna	NCRA	
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	
--	--	--	GC15+60	14 49 25.4	+14 56 41.0	T01	dkojha	TIFR	
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 (0.135-0.18 μ m), NUV-Silica (0.2-0.3 μ m), NUVB13 (0.23-0.26 μ m) and NUVB4 (0.25-0.28 μ m) — 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	
--	--	--	Coma5	13 00 33.49	27 47 22.7	T02	pcote_nrc	NRC-Herzberg	
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 (0.135-0.18 μ m), NUV-Silica (0.2-0.3 μ m), NUVB13 (0.23-0.26 μ m) and NUVB4 (0.25-0.28 μ m) — 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	
--	--	--	Coma7	13 02 05.70	28 17 16.4	T03	pcote_nrc	NRC-Herzberg	

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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	
--	--	--	GC47-43	21 51 2.8	-8 33 36.6	T01	dkojha	TIFR	
--	--	--	SGP	00 51 26.0	-27 07 42.0	T05	dkojha	TIFR	
G06_140	LAXPC Black Hole Binaries 4U 1957+115 [Standby / alternative]	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	jsyadav	TIFR	
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	
--	--	--	HD 219134	23 13 16.976	57 10 6.082	T01	girish	OTHERS	
G06_147	Revisiting Her X-1 : Is Energy of Cyclotron Line in Her X-1 Changing ?	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 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.	Bkg	17 8 0	37 0 0	T02	jsyadav	TIFR	
--	--	--	Her X-1	16 57 49.810	35 20 32.399	T01	jsyadav	TIFR	
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	
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G06_153	CZTI GT monitoring observations of Terzan 5	Terzan 5, a globular cluster, harbours many transient X-ray binaries. Apart from occasional outbursts from such X-ray binaries, Terzan 5 shows an overall low-intensity X-ray variation with a time period of roughly two months. We propose to monitor such variation with AstroSat. We plan to observe the source three times with time gaps of 15 days, each time for 33 ks. This is a CZTI GT proposal.	Terzan 5	17 48 5.000	-24 46 48.000	T01	arrao	TIFR	
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	
--	--	--	Abell1367B	11 44 50.0	+20 15 21.0	T04	kanak	IUCAA	
--	--	--	Coma B	12 58 51.0	+27 43 0.0	T01	kanak	IUCAA	
--	--	--	Coma C	12 58 0.0	+28 00 0.0	T02	kanak	IUCAA	
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	
--	--	--	Mrk766	12 18 26.484	29 48 46.150	T02	KPSingh19	TIFR	
G06_159	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 4051	12 3 9.686	44 31 52.540	T02	KPSingh19	TIFR	

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G06_160	Accretion and Mass-loss Properties of Magellanic Cloud Supersoft Sources	Supersoft X-ray sources (SSS) are highly luminous low-T X-ray sources, interpreted as an 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 $P_{orb} > 6$ hrs) or extreme irradiation of a low-mass donor to drive a wind (< 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.	2E0035.4-7229	0 37 19.001	-72 14 13.992	T01	KPSingh19	TIFR	
--	--	--	CAL87	5 46 46.540	-71 8 53.902	T02	KPSingh19	TIFR	
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	
G06_165	LAXPC observation of Cas A	This is a calibration requirement. LAXPC instrument has purification system on-board which is activated as and when detector energy resolution degrades. Observation of CAS A is required to study energy resolution at 6.4 keV and plan operation of purification system.	CAS A	23 23 27.94	+58 48 42.4	T1	jsyadav	TIFR	
G06_166	Rapid Buster (MXB 170-335) [Standby / alternative]	We are requesting 40 ksec observation of the Rapid Burster during highly active period (usually persists for ~ 2 months) when very frequent type I and type II X-ray bursts occurred. During the active period the source showed high X-ray variability similar to the heartbeat oscillations and theta class observed from the enigmatic Galactic micro-quasar GRS 1915+105. This implies that the X-ray variability observed from GRS 1915+105 is not unique to black hole nature of compact object. Using the 40 ksec exposure primarily with LAXPC, we will further investigate the origin of such high X-ray variability during active period in this source and perform a broadband spectral-timing comparative study with GRS 1915+105. With our results, we will also expect to constrain the accretion properties in both neutron star and black hole X-ray binaries. The occurrence period of next active state would be between January 2017 and March 2017.	MXB 1730-335	17 33 24.6	-33 23 19.63	T01	jsyadav	TIFR	
G06_167	H 1743-322 anticipated 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	
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_{eff} , $\log g$ and establish their relationship with various UVIT filter indices.	BS16084-160	16 28 50.7	+54 37 03	T22	nkrao	IIA	

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
--	--	--	BS1693 4-002	13 29 46.4	+16 15 39	T18	nkrao	IIA	
--	--	--	CS2950 3-0109	00 04 55.4	-24 24 19	T01	nkrao	IIA	
--	--	--	G139 -8	17 01 43.9	+16 09 03	T23	nkrao	IIA	
--	--	--	HD 218732	23 10 25.4	-13 18 35	T25	nkrao	IIA	
--	--	--	HD 3008	00 33 14.3	-10 43 43	T02	nkrao	IIA	
--	--	--	HD1037 23	11 56 36.0	-21 25 10	T12	nkrao	IIA	
--	--	--	HD1050 04	12 05 24.9	-26 35 44	T14	nkrao	IIA	
--	--	--	HE0107 -5240	01 09 29.1	-52 24 34	T04	nkrao	IIA	
--	--	--	HE0134 -1519	01 37 05.4	-15 04 24	T05	nkrao	IIA	
--	--	--	HE0557 -48	10 29 15.2	+17 29 28	T10	nkrao	IIA	
--	--	--	HE1351 -1721	13 53 49.7	17 36 38	T20	nkrao	IIA	
--	--	--	HS1236 +4754	12 39 05.1	+47 37 51	T15	nkrao	IIA	
--	--	--	J1248+6 1	12 48 27.1	+61 43 59	T16	nkrao	IIA	
--	--	--	SDSSJ1 204+12 01	12 04 41.4	+12 01 11.5	T13	nkrao	IIA	
--	--	--	SMSSJ0 313- 6708	03 13 00.4	-67 08 39	T07	nkrao	IIA	
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 ₂ -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	
--	--	--	55 Cnc e	8 52 35.811	28 19 50.947	T01	girish	OTHER S	
G06_170	EXPLORING ORIGINS OF HYDROGEN DEFICIENT STARS AND EXTREME HELIUM STARS	The origin and evolution of hydrogen deficient stars is yet a mystery. In optical region the extreme helium stars (EHe) show very similar spectral energy distributions as normal O and B stars. Thus it is not easy to distinguish them. 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 EHe stars 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 EHe and Hydrogen deficient stars in clusters. Few known EHe and normal stars would be observed along with two globular clusters M5 and M15 in UVIT bands. 2. Background	AV151	00 53 59.4	-72 45 59.6	T04	nkrao	IIA	
--	--	--	AV242	01 00 06.9	-72 13 57.5	T05	nkrao	IIA	
--	--	--	AV96	00 51 23.2	-72 07 21.0	T06	nkrao	IIA	
--	--	--	DY Cen	13 25 34.0	-54 14 47	T01	nkrao	IIA	

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
--	--	--	LSIV-14 109	18 59 39.4	-14 26 11	T03	nkrao	IIA	

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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	
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	
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	
--	--	--	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	
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	

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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	
--	--	--	M31 No.2	0 44 08.88	41 33 26.45	T03	dleahy	Calgary	
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	
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	
--	--	--	NGC5053	13 16 27.09	+17 42 00.9	T01	sarita	ISRO	
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	
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	

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	
--	--	--	NGC 4262	12 19 30.582	14 52 39.780	T02	omkar	NCRA	
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	sriramou	O.U.	
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	
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	

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
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 5 44.490	-36 25 23.099	T01	sudip	TIFR	
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	IISERM	
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	
--	--	--	NGC3319	10 39 9.458	41 41 12.048	T02	mousumi	IIA	
--	--	--	ugc4393	8 26 4.387	45 58 3.504	T05	mousumi	IIA	
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	
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.	

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
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 ~ 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	
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	
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 EHBLS, 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	atreyee	TIFR	
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	
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 (~ 48 1ks) when averaged over all phases. Estimated degree of polarization is $\sim 35\%$ with polarization angle ~ 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	
--	--	--	Crab	5 34 31.940	22 0 52.200	T01	tanmoy	PRL	

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
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 a 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	jayashreeroy	CBS	
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	mayukh3107	IUCAA	
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	
--	--	--	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}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	

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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	
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	
--	--	--	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 γ -ray activity state	The EGRET and Fermi observations reveal that a number of flat spectrum radio quasars (FSRQ) exhibit long term γ -ray variability. PKS-0208-512 is one such source which shows at least an order of magnitude lower γ -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 γ -ray emission state. To understand the radiative process in sources at their low γ -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 γ -ray activity state.	PKS 0208-512	2 10 46.200	-51 1 1.884	T01	debbijoy	MCNS, MU	
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	

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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	
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	
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	
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	
--	--	--	GRO J1655-40	16 54 0.137	-39 50 44.900	T03	mangalam	IIA	
--	--	--	H 1743-322	17 46 15.608	-32 14 0.600	T04	mangalam	IIA	
--	--	--	XTE J1550-564	15 50 58.780	-56 28 35.000	T02	mangalam	IIA	
--	--	--	XTE J1650-500	16 50 0.980	-49 57 43.600	T06	mangalam	IIA	
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	

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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	
--	--	--	NGC 5466	14 05 27.29	28 32 04.0	T04	ananta	OTHERS	
--	--	--	NGC 7492	23 08 26.63	-15 36 41.4	T01	ananta	OTHERS	
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	
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	
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	
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 Astrosat 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	
--	--	--	MXB 1658-298	17 2 6.540	-29 56 44.100	T01	cjain	OTHERS	

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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	
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	
--	--	--	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	
--	--	--	mrk 306	22 31 51.247	19 41 28.968	T04	rubinur	IIA	
--	--	--	mrk 721	10 23 32.616	10 57 34.992	T06	rubinur	IIA	
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 α 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	
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	

PropId	Title	Abstract	SrcName	RA	DEC	Tid	Piid	Institute	Remarks
--	--	--	King 2	00 51 00	+58 11 00	T02	rsagar52	IIA	
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	
--	--	--	HD 241570	05 12 53.95	+21 58 02.15	T04	shruthibhat	OTHERS	
--	--	--	MWC 709	02 21 59.15	+70 55 53	T03	shruthibhat	OTHERS	
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	
--	--	--	Mrk 766	12 18 26.484	+29 48 46.15	T04	lgallo	SMU	
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	mayukh3107	IUCAA	
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 onboard 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	

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 $1.2e8 M_{\text{sun}}$ 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	
A02_180	Observing the rapid X-ray variability of neutron star LMXB XTE J1701-407 with ASTROSAT	%latex%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	
--	--	--	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 5×10^{-6} ph/cm ² /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	
--	--	--	S5 0836+71	08 41 24.3	+70 53 42	T01	amit	IIA	
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 10^2-5M_{\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 $1000M_{\odot}$ 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 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	

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+540014	14 12 53.92	54 00 14.40	T01	vineet	ARIES	
--	--	--	J141721+534103	14 17 21.79	53 41 2.61	T02	vineet	ARIES	
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	
--	--	--	M31-2	00 40 09.40	+41 11 05.21	T02	tapasb	TIFR	
--	--	--	M31-3	00 41 17.84	+41 00 23.04	T05	tapasb	TIFR	
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	
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	

**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 α 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 α 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_{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 18.000	51 0.000	11 0.000	48	T01	annapurn i	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 ± 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 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 55	45	31 30.0	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 \approx " FUV-BaF2 (0.135-0.18 μ m), NUV-Silica (0.2-0.3 μ m), NUVB13 (0.23-0.26 μ m) and NUVB4 (0.25-0.28 μ m) \approx and by providing a three-fold improvement in the spatial resolution of the UV emission within individual galaxies.	Coma1 Coma6 Coma8	13 00 12 57 59.71	27 12 27 59 45.5	12 12.1	31	T03 T01 T02	pcote_nr c	NRC- Herzberg	

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	
			NGC 6822	19 44	-14 47	T03			
			NGC 7479	23 04	12 19	T04			
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 124	09 21	64 12 47	T02	askpati	IIA	
			NGC6872 grp	20 18	-70 48	T01			
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	KPSingh19	TIFR	
			243.0-331430	43.172	24.786				
			1RXSJ183	18 32	-48 11	T01			
			227.5-481149	27.434	49.940				

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 47.700	-45 36 39.996	T01	mayukh3 107	IUCAA	
G07_017	GX 3+1 [Alternate/Low Priority]	We are proposing 40 ks effective exposure of GX 3+1, a bright, low-mass neutron star X-ray binary that shows persistent soft spectra with photon powerlaw index of ~2.0 despite of the source spectral state change from high state to low state. It has been proposed that transition from fainter branch to brighter branch involve monotonically increasing temperature of Compton electron cloud from 2.3 keV to 4.5 keV while mass accretion rate changes by a factor of 4. The role of comptonization while transiting from one branch to another can be tested and verified using AstroSat/LAXPC observations which has efficiency higher by many factors than RXTE/PCA above 10 keV. Using simultaneous spectra (combining SXT, LAXPC and CZTI) as well as timing analysis we will verify the model in which the energy release in the transition layer located between the accretion disk and NS surface dominates that in the disk.	GX 3+1	17 47 55.999	-26 33 48.996	T01	mayukh3 107	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 10.800	48 2 12.599	T01	mayukh3 107	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 QS Tel	14 53 41.060	-55 21 38.700	T01 T02	KPSingh19	TIFR	
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+71 ($z \sim 2.17$) 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_025	AstroSat observations of HBL PKS 2155-304: Studying the clean synchrotron emission from blazars	We request observations of a bright high energy peaked BL Lac object (HBL) PKS 2155-304 utilizing the multi-wavelength capability of AstroSat. We propose for a single pointing of 65 ks of this object. The proposed observations will enable us a strictly simultaneous coverage over several decades in X-rays and simultaneous measurements in the three bands in UV, providing an opportunity to study the energy dependent intensity variations ranging from several minutes to few hours. The X-ray emission in HBLs is mainly contributed by the synchrotron processes and hence can be uniquely used to probe the magnetic fields, once combined with polarization information. A simultaneous/contemporary polarimetric and spectropolarimetric observation using SALT is also planned.	PKS 2155-304	21-58 52.065	30-13 32.118	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 21.676	35-12 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 11.550	10-56 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 Blank sky-2	12 55.2	13 00	22 0.00	48 00	T01 T02	santoshv	PRL	
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 ± 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 35.06	56 30.17	30 30.17	58 30.17	T01	fsutaria	IIA	
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 38.5	29 13.6	-20 13.6	50 13.6	T01	nkrao	IIA	

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 27.60	30 47.5	-20 49	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 46.71	15 32.61	+55 02	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 54.91	41 29.7	-18 12	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	
G07_036	Cas A [Alternate/Low Priority]	This is a calibration requirement. LAXPC instrument has purification system on-board which is activated as and when detector energy resolution degrades. Observation of CAS A is required to study energy resolution at 6.4 keV and plan operation of purification system.	CAS A	23 23 27.94	+58 48 42.4	T1	jsyadav	TIFR	
G07_037	4U 1630-472 Anticipated target [Alternate/Low Priority]	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 behavior 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 low mass this is alternative for G06-104 4U 1636-536.	4U 1630-472	16 34 1.610	-47 23 34.800	T01	jsyadav	TIFR	
G07_038	GX 5-1 [Alternate/Low Priority]	GX 5-1 is the second brightest Z source (Bradt et al. 1968), located at a distance of 9.0 ± 2.7 kpc (Christian & Swank 1997) with a luminosity in the range of 6.0 ± 7.6 × 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	

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 ± 2 Mo. Distance is nearly 8.5 ± 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 1728â€³34, 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 28.9293 7	+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 Sky_4u1626	16 16.79	32 39.3	-67 -70 0 0	27 T02	T01	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	1 21 42.4	11 46 39.5	+19 -8	28 36	T02 T01	djojha	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	19 24.210	59 32.400	11	42	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 msec, 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	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	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. {\it 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	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 39.030	13 22.300	-33 46	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 59.64	17 38.6	+14 32	T01	stalin	IIA	
			NGC 1365	03 36.37	33 25.4	-36 08	T02			
			NGC 1961	05 4.65	42 42.4	+69 22	T03			
			NGC 5135	13 44.06	25 01.2	-29 50	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 52.670	48 34.500	-20 21	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 ± 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	+30 03	T01	fsutaria	IIA	
G07_064	Deep UV imaging studies of X-ray and optically bright SNRs VI – NGC6960, 3rd pointing, FUV-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 ± 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	+30 03	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	-59 5	T02	sudip	TIFR	
			4U 1850-087	18 53	-8 42	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	-47 13	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 1RXS J161935.7+524630	A ROSAT X-ray source 1RXS 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.	1RXS J161935.7+524630	16	19	52	46	T01	girish	ISRO	
				35.700		30.000					
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	RII	
				46.81		18.6					

G07_073	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. NGC~4151 is a Seyfert 1.5 galaxy with significant absorption below a few keV, and strongest hard X-ray Seyfert in the sky. Under the SXT GT programme, we plan to continue observing NGC4151, we request a \$50\ks\$ AstroSat observations of NGC~4151 with SXT as the primary instrument. 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 39 24	32.574 20.880	T01	KPSingh19	TIFR	
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 processes 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	02 43 3.68	+32 26 44.3	T01	kanak	IUCAA	
			NGC 4169	12 12 32.48	+29 10 1.6	T04			
			NGC 5903	15 18 22.67	-24 02 26.98	T02			
			NGC 6658	18 33 55	+22 53 18.0	T03			

G07_077	Probing Star-formation and Evolution in Void Galaxies: Bootes Void	<p>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.</p>	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	<p>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.</p>	X Persei	03 55 23.08	31 02 45.0	T01	bpaul	RII	
G07_080	Metallicity Mapping of Galactic Halo-UVIT filter indices and physical parameters of stars SEGUEIA	<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>	SEGUEIA	08 38 28.80	+53 54 36.6	T03	nkrao	IIA	

G07_082	Eclipse timing of the low mass X-ray binary MXB 1658â€²298 (alternate/low priority)	We propose four observations of 10 ks each of the eclipsing LMXB MXB 1658â€²298. It has an orbital period of 7.1 hr and allows a study of its orbital period evolution. From the mid-eclipse time measurements, spread over the last four decades, we have found an unusual orbital period decay in the system. The timing residuals indicate the possibility of presence of a third body around the compact object with ~16 Jovian mass and ~700 lt-sec orbital radius, respectively. If true, then it will be the most massive circumbinary planet and also the smallest period binary known to host a planet. The fact that the LMXB is an old system has interesting implication for formation and migration of orbits of planets in binary stellar systems. The principle objective of the proposed observations is to confirm and establish our claim of the presence of Jupiter sized planet around the binary system.	MXB 1658-298	17 02-29 56 T01	06.54 44.1	bpaul	RR1	
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+66 31 T03	47.761 33.88	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 01-34 42 T01 11 32-31 19 T02	51.9 17.0 18.3 51.8	dkojha	TIFR	

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.	centaurus 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	dleahy	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	dleahy	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	RR1	
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	pshastri	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 LAXPC-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 (μ GMRT) 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 (~ 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	pshastri	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 super-flares 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 M31-II	00 37 02.56 00 39 51.64	+39 58 20.5 +40 21 11.3	T03 T04	bhargavi. sg	PPISR	
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	jayashre ero	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_{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 ($\approx -34^\circ$) 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	snehalat a	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	γ -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 γ -ray emitter. However, Fermi detected ~ 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 γ -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	atreyee	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 ~ 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 ~ 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 (Astrosat). We propose a 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 44 keV has been tentatively detected in this pulsar which can be confirmed by using the (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 nH, 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	RR1	
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 (2.33×10^{-10} erg cm ⁻² s ⁻¹ in 2-100 keV band). It is a heavily obscured source With NH value of 2×10^{23} cm ⁻² found on many occasions and once rose to even higher value 5×10^{23} cm ⁻² . Recent studies with hydrogen column density and iron ka 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	-69 44 35.660	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 NC5548 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=4.1h), CAL87 (LMC, P=10.6h) 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 ~ 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	