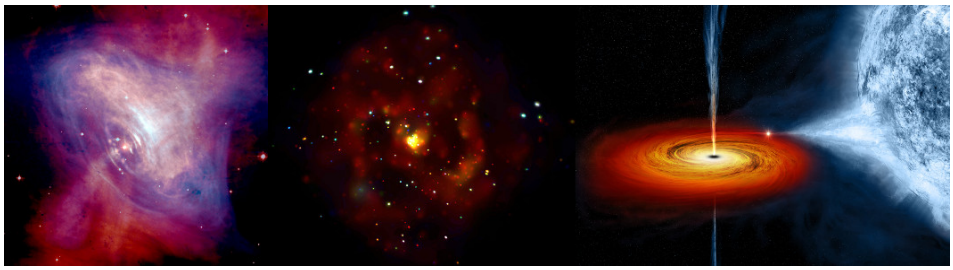

Contribution ID: **102** Type: **not specified**

Spectral studies of 4U 1636-536 using AstroSat

4U 1636−536 is an atoll type neutron star low mass X-ray binary (NS-LMXB) first observed by the Uhuru and Copernicus missions in 1974. It is a frequent burster which has shown a total of 664 unique bursts between 1996 to 2012. Some of these bursts have been short waiting time bursts with a mean burst rate of 0.26 hr^{-1}. Given its frequent bursting nature, this source provides us with an opportunity to study the evolution of spectral properties of the system during thermonuclear bursts, and put constraints on the physical parameters of the system. 4U 1636−536 has been observed on several occasions by the Soft X-ray Telescope (SXT) and Large Area X-ray Proportional Counter (LAXPC) instruments aboard AstroSat since 2016. We have carried out the spectral and temporal analysis on one such observation, during which the source has exhibited three thermonuclear bursts one of which is a photospheric radius expansion (PRE) burst. We present the results obtained from the broadband time-resolved spectroscopy of thermonuclear bursts in the energy range 3.0 - 25 keV detected using LAXPC. We have studied the spectral properties of 4U 1636-536 in the 0.3 - 25 keV energy range using the simultaneous data from SXT and LAXPC. Using the obtained spectral properties, we have inferred physical parameters such as the radius of the neutron star photosphere, mass accretion rate, source distance, etc. These results will be presented at the conference.

Presentation Type

Poster

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