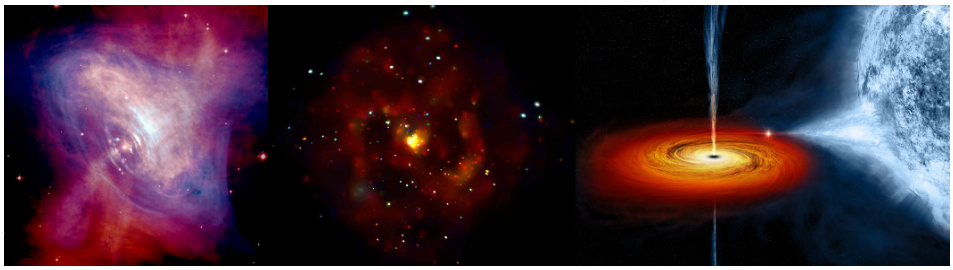

Contribution ID: **57** Type: **not specified**

A detailed study of the thermonuclear X-ray Bursts source 4U 1728-34 with AstroSat

Tuesday, April 4, 2023 3:20 PM (15 minutes)

In Low Mass X-ray Binary (LMXB) sources, during the active accretion from the secondary star, the accumulated fuel (a mixture of Hydrogen and Helium) undergoes hydrostatic compression as more matter keeps piling up. When temperature and density conditions reach ignition levels (typically within a few hours to days), the entire fuel layer on the NS surface burns rapidly, leading to a thermonuclear burst. During these bursting episodes, the X-ray intensity rises by order of magnitude within a few seconds –reaching peak luminosities of 10^39 erg/s. The flux then exponentially decays at a slower rate (tens to hundreds of seconds). Studying the spectral and timing properties of thermonuclear bursts helps us probe the Neutron stars' fundamental properties and the binary systems' accretion environment. This work presents our preliminary results of analyzing *AstroSat* data of well-known thermonuclear burst source 4U 1728-34. We have studied the source in different spectral states. We will present a detailed study of evolution of the source spectrum and analysis of bursts from the source over the years of observation.

Presentation Type

Oral

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