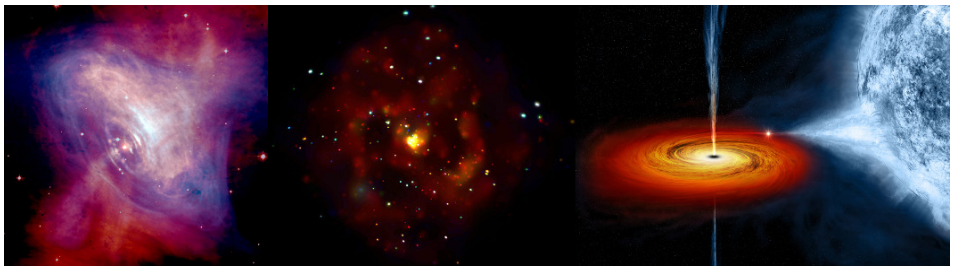

Contribution ID: **122** Type: **not specified**

Hard X-ray spectral states in Cygnus X-1 and its polarisation dependence using AstroSat

Monday, April 3, 2023 3:30 PM (15 minutes)

Cygnus X-1 is a well-known galactic accreting black hole binary that shows several observational features suggesting a complex interaction between the accretion disk, its atmosphere called Corona, and the jet. The polarisation characteristics of the Corona and the jet are different. To understand the high energy emission mechanism and the system's geometry, we have carried out a spectro-polarimetric study of Cygnus X-1 using AstroSat data. AstroSat-CZTI detectors are of 5 mm thickness and hence have good efficiency for Compton interactions (double pixel events) beyond 100 keV and are utilized for the polarisation study in 100 to 380 keV. We measure the flux and spectral index in the 22 –100 keV energy band and the short-term spectral and flux correlation index. The distinct accretion modes corresponding to different spectral states, are consistent with the recent INTEGRAL results. Detailed investigation of polarization in different spectral states suggests a strong spectral state dependence of polarisation. We interpret these results to understand the coronal and jet emission mechanism.

Presentation Type

Oral

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