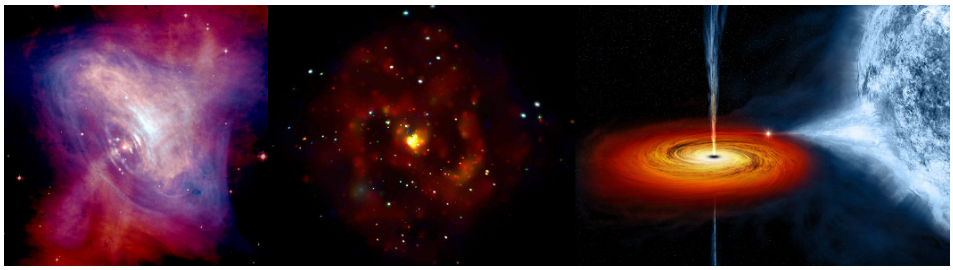

Contribution ID: **88** Type: **not specified**

A stellar mass ULX NGC 6946 X-1 and its super-Eddington accretion

Wednesday, April 5, 2023 12:30 PM (15 minutes)

Ultraluminous X-ray sources (ULXs) are the brightest known non-nuclear X-ray binaries with luminosities exceeding the classical Eddington limit of a 10 $M_\odot$ black hole. Recent discoveries of neutron star cores in ULXs confirm that the Eddington ratio can be a few hundred. Broadband spectral studies are pivotal to deciphering the emission mechanism in these mysterious sources. Here we discuss the accretion mechanism in a soft ultraluminous X-ray source NGC 6946 X-1. The broadband X-ray spectra of this source show quasi-steady nature in different epochs of observation. Two thermal emission components primarily govern the continuum. One originates from the inner accretion flow from a slim accretion disk, and the other is associated with an optically thick wind due to super-critical accretion. We also discuss some physical properties of the source based on the assumption of a realistic inclination angle of the accretion disk. The implication of a low massive black hole ($\sim 6 - 10$ $M_\odot$) or a neutron star of weak magnetic field ($B \leq 2 \times 10^{11}$ G) confirms the super-Eddington accreting nature of this source.

Presentation Type

Oral

Primary author: GHOSH, Tanuman (Raman Research Institute)

Co-author: Dr RANA, Vikram (Raman Research Institute)

Presenter: GHOSH, Tanuman (Raman Research Institute)

Session Classification: ULX Sources

Track Classification: ULX Sources