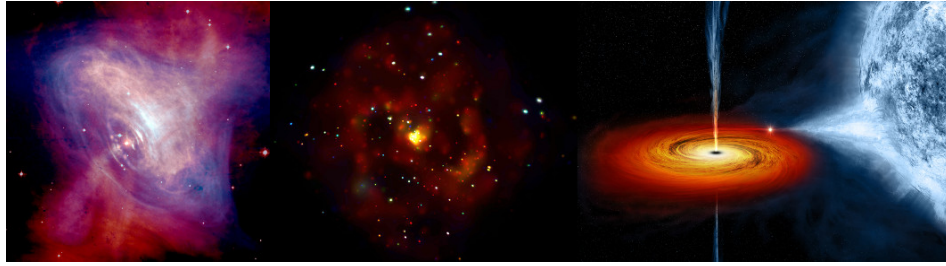


National conference on REcent Trends in the study of Compact Objects
(RETCO-V): Theory and Observation



Contribution ID: 80

Type: not specified

Multiwavelength observations and Optical spectra modeling of the extragalactic Novae M31N2008-12a

Wednesday, April 5, 2023 11:45 AM (15 minutes)

Nova outburst is an astronomical phenomenon accompanied by the ejection of matter, causing an increase in luminosity, leading to the appearance of a sudden bright star in the sky, which fades away over several weeks or months. They are interacting binary systems with a white dwarf (WD) primary and a main-sequence or sub/red-giant secondary. We have observed outbursts of the recurrent nova M31N from 2019-2022 using UVIT and SXT instruments onboard Astrosat and used archival long-time Swift UVOT and XRT data for a board analysis. The UV and X-ray data are complemented by optical imaging and spectroscopy from GROWTH-India Telescope (GIT) and the Himalayan Chandra Telescope (HCT). The light curves are seen to undergo a steep linear decline within the first 3 days from maximum before forming a plateau, marking the beginning of the super-soft source (SSS) phase. The SSS phase, which starts from day 6 after the eruption and lasts for about 14 days, was also detected every year by SXT and XRT. The optical spectra reveal a high-velocity ejecta with an overabundance of He compared to solar values.

I will present the analysis of multiwavelength light curves to understand the nova eruption mechanism and probe the nature of the primary WD. The optical spectra modeled using Cloudy will be used to constrain the temperature of the central WD and the morphology of the ejecta.

Presentation Type

Oral

Primary authors: ANUPAMA, G.C. (IIA); BASU, Judhajeet (Indian Institute of Astrophysics); SINGH, K. P. (IISER Mohali, India); Dr M, Pavana; BARWAY, Sudhanshu

Presenter: BASU, Judhajeet (Indian Institute of Astrophysics)

Session Classification: Cataclysmic Variables

Track Classification: Cataclysmic Variables