

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



Contribution ID: 50

Type: not specified

## Multiwavelength study of obscured AGN NGC 1365 using AstroSat X-ray/UVIT observations

*Tuesday, April 4, 2023 12:25 PM (15 minutes)*

We present a multi-wavelength study of the active nucleus and the off-nuclear X-ray sources in the nearby spiral galaxy, NGC 1365 using three simultaneous UV/X-ray observations by AstroSat over a two months period and archival IR observations performed with Spitzer and Herschel. Utilising the data from the Soft X-ray Telescope (SXT) on-board AstroSat, we find spectral variability mainly caused by the variation in the X-ray column density, ( $N_H \sim 10^{22} - 10^{23} \text{ cm}^{-2}$ ). With the accurate spatial resolution of the UVIT onboard AstroSat, We detect no significant variation in the NUV emission over the observation period. The AGN in FUV band is undetectable due to heavy intrinsic extinction. Further, the multi-wavelength IR/UV/X-ray AGN SED reveals that the AGN is in a low uminosity phase with accretion rate  $\sim 0.01 L_{Edd}$ . The steady UV emission and strong X-ray absorption variability suggest that the obscuring clouds are likely compact and affect the compact X-ray source only and do not possibly cover the extended UV emitting region. In addition, the UVIT is able to resolve two bright spots at a radius of  $7''$  ( $\sim 6.3 \text{ Kpc}$ ) from the central nucleus in the South-West (SW) direction and also detect UV counterparts for one well- known ULX source.

### Presentation Type

Oral

**Primary author:** SWAIN, Subhashree (IIA Bengaluru)

**Co-authors:** DEWANGAN, Gulab Chand (IUCAA); Dr SHALIMA, P (Manipal Centre for Natural Sciences, Centre of Excellence, Manipal Academy of Higher Education, Manipal,); TRIPATHI, PRAKASH (IUCAA, Pune, India); Dr LATA, KVP (Pondicherry University, India)

**Presenter:** SWAIN, Subhashree (IIA Bengaluru)

**Session Classification:** AGNs & Blazars

**Track Classification:** AGNs and Blazars