



Contribution ID: 53

Type: not specified

## AstroSat-NuSTAR monitoring of GX 339-4 and H 1743-322 : Broadband spectro-temporal analyses

Monday, April 3, 2023 4:50 PM (15 minutes)

We present the results from X-ray broadband spectro-temporal analyses of recurrent outbursting sources GX 339–4 and H 1743–322 using AstroSat and NuSTAR archival observations carried out during 2016–2022. GX 339–4 was found to be making transition from quiescence to outburst, and the wide-band spectral analyses results during outbursts shows that GX 339–4 was in hard ( $kT_{bb} = 0.29 - 0.51$  keV,  $\Gamma = 1.46 - 2.06$  and  $L_{bol} = 0.27 - 8.22\%$  of Eddington luminosity  $L_{Edd}$ ), intermediate ( $kT_{in} = 0.75 - 1.08$  keV,  $\Gamma = 1.71 - 2.49$ ,  $L_{bol} = 6.74 - 9.11\%$   $L_{Edd}$ ) and soft states ( $kT_{in} = 0.51 - 0.93$  keV,  $\Gamma = 1.67 - 3.74$ ,  $L_{bol} = 9.06 - 15.27\%$   $L_{Edd}$ ). Instead H 1743–322 found to make transition from quiescence to only hard state ( $\Gamma = 1.57 - 1.73$ ,  $L_{bol} = 3.07 - 6.61\%$   $L_{Edd}$ ). Timing variability studies revealed the presence of Quasi-periodic Oscillations (QPOs) in GX 339–4 with frequencies varying between 0.10–5.37 Hz along with harmonics. We detect type C QPOs in H 1743–322 with frequencies in the range 0.22–1.01 Hz along with distinct harmonics. The energy dependent power density spectral study shows that, in GX 339–4 fundamental QPO and harmonics are present only in 3–20 keV. Whereas in H 1743–322, the fundamental QPO is present only in 3–40 keV energy band and the harmonic is not significant above  $\sim 20$  keV. We discuss these observational findings in the context of accretion dynamics around black hole binary.

### Presentation Type

Oral

**Primary author:** U, ANEESHA (IIT GUWAHATI)

**Co-authors:** Dr NANDI, Anuj (U.R.Rao Satellite centre, Bangalore); Dr DAS, Santabrata (IIT GUWAHATI); Dr KATOCH, Tilak B (TIFR MUMBAI)

**Presenter:** U, ANEESHA (IIT GUWAHATI)

**Session Classification:** Black Hole: Observations

**Track Classification:** Black Hole: Observations