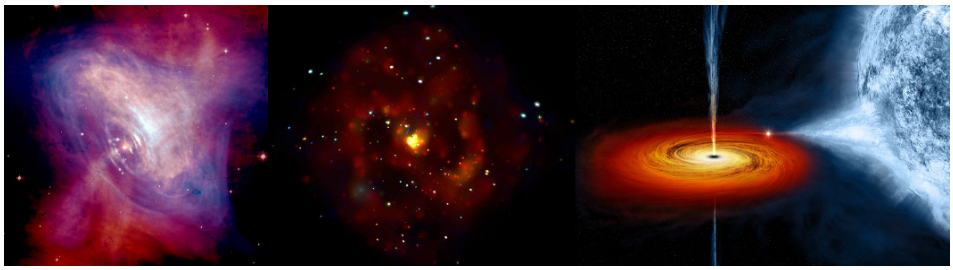

Contribution ID: **53** Type: **not specified**

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 ($kT_{\rm bb} = 0.29 - 0.51$ keV, $\Gamma = 1.46 - 2.06$ and $L_{\rm bol} = 0.27 - 8.22\%$ of Eddington luminosity $L_{\rm Edd}$), intermediate ($kT_{\rm in} = 0.75 - 1.08$ keV, $\Gamma = 1.71 - 2.49$, $L_{\rm bol} = 6.74 - 9.11\% L_{\rm Edd}$) and soft states ($kT_{\rm in} = 0.51 - 0.93$ keV, $\Gamma = 1.67 - 3.74$, $L_{\rm bol} = 9.06 - 15.27\% L_{\rm Edd}$). Instead H 1743−322 found to make transition from quiscence to only hard state ($\Gamma = 1.57 - 1.73$, $L_{\rm bol} = 3.07 - 6.61\% L_{\rm Edd}$). 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

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Session Classification: Black Hole: Observations

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