



Contribution ID: 28

Type: Talk

First sub-second Infrared/X-ray observations of low inclination black hole X-ray transient 4U 1543-475

In recent years, fast optical-infrared (O-IR) variability of LMXBs has opened a new window in the study of the jet and accretion flow properties. All objects observed thus far are known to have an intermediate-high inclination, biasing our interpretations and hampering the possibility of adequately testing models. Here, I present the first sub-second multiwavelength analysis of low inclination black hole X-ray transient 4U 1543-475 ($i < 30^\circ$). Observations were taken during its 2022 outburst using sub-second observations from HAWK-I@VLT (IR) and NICER (X-ray). Similarly to higher inclination objects, cross-correlation analysis shows a strong correlation between the IR and X-ray bands with IR lagging the X-rays by ~ 100 ms. More interestingly, an IR QPO is detected at 0.07 Hz with an X-ray counterpart at twice the IR frequency (0.14 Hz), indicating a possible harmonic relation. These results provide the first constraints on jet timing signatures at low viewing angles, representing a key dataset for our understanding of these collimated outflows.

Affiliation

University of Southampton

E-mail

swd1g20@soton.ac.uk

Author: Ms WOAHENE-DEMEHIN, Sian Akua (University of Southampton)

Co-authors: ALTAMIRANO, Diego (University of Southampton); VINCENTELLI, Federico Maria (Istituto Nazionale di Astrofisica (INAF))

Presenter: Ms WOAHENE-DEMEHIN, Sian Akua (University of Southampton)

Session Classification: Timing properties (Observations, modelling)

Track Classification: Talk