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Multi-wavelength outburst evolution of the black hole transient Swift J1727.

I will present the results of a unique multi-wavelength campaign focused on the recently discovered black-hole transient Swift J1727. This system exhibited the brightest X-ray source in the sky ever observed, and it was the first to be observed with the X-ray polarimeter (IXPE) throughout an entire outburst. Our observations covered simultaneously the full frequency range from X-ray to radio and were provided by observatories including HST, XMM, VLT/X-Shooter, NICER, and MeerKAT. Totalling 12 different visits throughout the outburst, we covered all the distinct spectral states, including the hard-to-soft transition and back to the low-hard state.

Our simultaneous spectroscopy covering from the far-UV to the near-IR reveals the presence of a massive multi-phase outflow emerging during the soft-to-hard transition from the inner parts of the disk, signalling a large-scale change in the structure of the disk triggered by the state transition. The modelling of the observed spectral energy distribution allowed us to infer the geometry of the system and track the evolution of the different emitting regions throughout the entire outburst. I will put these results in context with the X-ray polarimetric observations and compare them with previous multi-wavelength campaigns of low-mass X-ray binaries (LMXBs; e.g. Maxi 1820 and Swift J1858).

Contribution

Oral talk

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