Contribution ID: **60** Type: **Talk**

Events leading up to the ejection of the corona in a microquasar

Superluminal ejections were first reported from microquasars almost thirty years ago. Their apparent superluminal motion is due to discrete, relativistic, collimated ejections of plasma launched from the vicinity of the black hole, during hard-to-soft state transitions. It is suspected, but not definitively proven, that these jets are fed from particles in the highly energetic corona, rather than the inner accretion disc material. The ejections are associated with abrupt changes in the fast X-ray variations in the corona. The physical cause of the discrete ejections, and the suppression of the corona and the steady jet, have remained contentious topics of debate. Here, we show that the vertical extent of the corona, and the base of the steady jet, both shrink together and then grow to their largest size contemporaneously, in the Galactic black hole, MAXI J1535-571. This suggests corona particles indeed feed the steady jet, and we find that the corona is largest at exactly the time of the discrete, superluminal ejection. A likely explanation is that when the corona shrinks, it feeds less particles into the steady jet, reducing its power. This results in the inflowing particles remaining in the corona, causing it to grow in size, and eventually escape as the superluminal ejection. This explanation of the cause of ejection of the corona, and the quenching of the steady jet, has implications for the disc-jet connection in both X-ray binaries and active Galactic nuclei, and could explain how quasars reach their bright, disc dominated state.

Affiliation

New York University Abu Dhabi

E-mail

dr124@nyu.edu

Author: RUSSELL, Dave (New York University Abu Dhabi)

Presenter: RUSSELL, Dave (New York University Abu Dhabi)

Session Classification: Accretion-ejection (observation, theory, simulations)

Track Classification: Talk