



- RAY ASTRONOMY 2019

Current Challenges and New Frontiers in the Next Decade

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Super-critical accretion - the case for jetted ULXs

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Accretion is known to occur at rates far in excess of the classical Eddington limit in the local and distant Universe alike. In our Galaxy we are provided with a view of such accretion in the form of the extreme binary SS433, observations of which tell us that mass-loaded outflows and persistent collimated jets are associated features which redistribute energy and matter into the local environment. Although we now have strong evidence that SS433 would appear as an ultraluminous X-ray source (ULX) if viewed face-on, its inclination poses problems for inferring how the jets couple to the accretion flow. In the case of ULXs, we can observe the accretion flow directly and the presence of winds is now well-established. The presence of jets on the other hand has been unclear with the closest match to SS433 –the archetypal ULX, Ho II X-1 –showing ejections which appear to recur only on very long (year) timescales. In this talk I will present the results of our new NICER/VLA/AMI campaign including the discovery that the jets in Ho II X-1, are quasi-persistent which opens the door to causally connecting the inflow and jets at super-critical rates for the first time.

Topic

Multi-messenger and transient astronomy

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