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The Spins of Stellar-Mass Black Holes



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Dr. James Steiner received his PhD from Harvard University in 2012 under the supervision of Jeff McClintock on stellar-mass black holes. He spent the next year working with Andy Fabian as a Post-Doctoral Researcher at the University of Cambridge (Cambridge, UK), before taking a Hubble Fellowship at the Harvard-Smithsonian Center for Astrophysics.

Abstract

Magnetic One of the most remarkable properties of an astrophysical black hole is that it can be completely described by just its mass and spin. Knowledge of spin is important for testing models of black hole formation, relativistic jets, GRBs, and more. There are two primary techniques by



which spin is being measured: the "Fe-line" and "continuum-fitting" methods. In both cases, spin is obtained by measuring the inner radius of the accretion disk, which corresponds to the innermost stable circular orbit (ISCO). I will describe these two techniques and present an overview of ongoing campaigns measuring the spins of stellar-mass black holes. Based on these measurements, we have an early, but strong indication that spin via the Blandford-Znajek mechanism is powering the most powerful ballistic jets from black-hole X-ray transients.

All are welcome! Tea, coffee, biscuits will be served at 2:15 P.M.