


# ASTROPHYSICS SEMINAR SERIES

## Relativistic Jets From Weakly Accreting Black Holes

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The 'average' black hole in the local Universe accretes relatively weakly, emitting low levels of radiation in a 'quiescent' spectral state (with X-ray luminosities  $L_{\text{xray}} < 1e-5 L_{\text{edd}}$ , where  $L_{\text{edd}}$  is the Eddington luminosity). There is growing evidence that quiescent black holes can launch compact relativistic jets that emit relatively large amounts of synchrotron radiation in the radio waveband. At higher luminosities, in the so-called 'hard state' ( $1e-5 L_{\text{edd}} < L_{\text{xray}} < 1e-2 L_{\text{edd}}$ ), black holes appear to always launch compact radio jets. However, there is still uncertainty whether physical properties of jets are different between the hard state and quiescence. I will present recent multiwavelength observations of stellar mass black holes ( $\sim 10 M_{\text{sun}}$ ) in quiescent X-ray binary systems. I will discuss how our results are yielding new insights into how jets evolve as accretion rate decreases, and the implications for both stellar mass and supermassive black holes in our Galaxy and beyond (including the formation of the first black holes in the early Universe).

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