



**ASTROPHYSICS  
SEMINAR SERIES**

**“Winds of Change: The Physics of Accretion and Ejection  
Around Stellar-Mass Black Holes”**

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**Monday, September 23, 2013**  
**Refreshments at 3:30pm in CAS 500**  
**Talk begins at 4:00pm in CAS 502**

**Abstract:**

In the last decade, radio and X-ray observations of stellar-mass black holes have revolutionized our understanding of the physics of accretion and ejection in strong gravitational fields. We now know that black holes can launch not only powerful relativistic jets that dominate the energetics of the accretion flow, but also highly-ionized winds that carry away the vast majority of the infalling gas. In this talk, I will focus on recent efforts in high-resolution X-ray spectroscopy to understand the role of these accretion disk winds, which may carry away as much as 25x more matter than reaches the black hole, and exert a powerful influence on the black hole feeding rate. After summarizing the current picture of accreting stellar mass black holes and reviewing a few major developments from the last decade, I will present some new results from our recent studies of winds, including some of the deepest absorption lines and the fastest wind variability ever observed by the Chandra X-ray Observatory. I will discuss how insights from high-resolution X-ray spectroscopy can be a linchpin for our understanding of the complex processes that govern black hole accretion.