Black Hole Disk Winds at Chandra's Highest Resolution

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Abstract

The most sensitive HETG observations of stellar-mass black holes in outburst deliver excellent spectra of disk winds. In some cases, third-order spectra can be utilized; with a resolution of 15 eV in the Fe K band, these spectra sit halfway between the resolution of standard first-order HETG spectra and the calorimeter data anticipated with XARM. Much faster and more highly ionized outflows are detected with the aid of third-order data, increasing by orders of magnitude the mass outflow rates and kinetic power inferred from disk winds. This talk will present an overview of these spectra, methods of inferring launching radii, and consequences for wind driving mechanisms, fundamental disk physics, and binary evolution.