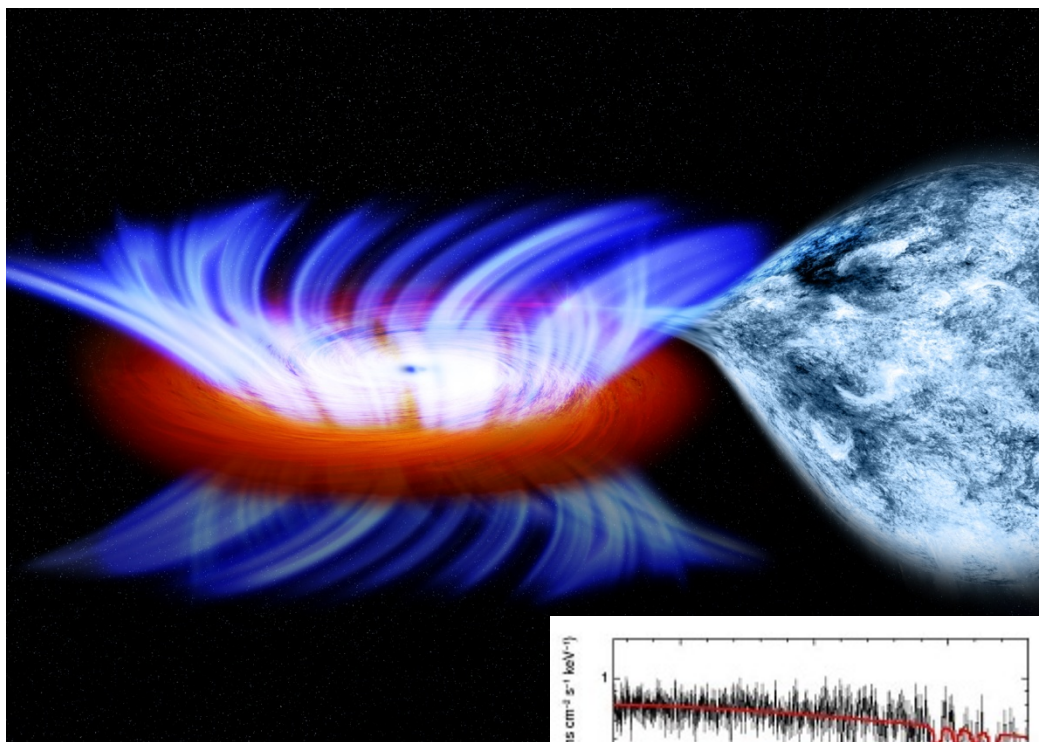




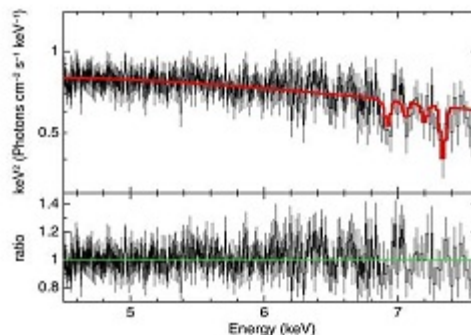
# Chandra Science Highlight

## IGR J17091-3624: NASA'S Chandra Finds Fastest Wind from Stellar-Mass Black Hole

Illustration: NASA/CXC/M.Weiss



Distance Estimate: about 28,000 light years



Chandra HETG grating spectrum

This artist's impression shows a binary system in which a stellar-mass black hole is pulling gas away from a companion star to form an accretion disk around the black hole. Chandra spectra (inset) indicate that a high speed wind is flowing away from the disk.

- A Chandra High Energy grating spectrum reveals an absorption line at  $6.91 \pm 0.01$  keV.
- Associating this line with He-like Fe XXV requires a blue-shift of 9300 km/s (0.03c), the highest speed detected in a wind associated with a disk around a stellar-mass black hole.
- This speed is equivalent to the escape velocity at 1000 Schwarzschild radii.
- Models for the wind suggest that thermal or magnetic processes may be expelling more gas than the black hole accretes.

Reference: King, A. et al, 2012, ApJ, 746, L20;  
arXiv:1112.3648