New insights on the accretion disk corona of Her X-1 from *Chandra* LETGS data

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Abstract

The X-ray binary Her X-1 was observed using the *Chandra* low energy transmission grating spectrometer (LETGS) during its anomalous low state and 10 months later during the X-ray bright phase. These observations allow us for the first time to detect emission, in the form of the intercombination lines of density sensitive He-like OVII and NVI triplets as well as the Lya-like OVIII and NVII lines, from the corona above the accretion disc in Her X-1. The He-like emission lines seem to be present at all times. Both data sets cover nearly the same range in orbital phase which allows for good comparison of properties in the different states. Additionally the second data set shows clearly a series of pre-eclipse dips. The spin period was not detected in the anomalous low state but clearly in the X-ray 35-day period bright data where the period we obtain indicates that the spin-period is continuing to increase. A detailed analysis of these fascinating observations of Her X-1 will be presented here.

CATEGORY: BLACK HOLE AND NEUTRON STAR BINARIES