

HERCULIS X1: RESULTS AND INTERPRETATION

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The hard X-ray spectrum of Her X1 was measured for the first time with a high-resolution (1.4 keV FWHM) germanium spectrometer (LEGS: GSFC/Saclay collaboration). The observation was performed near the peak of the OB state in the 35 day cycle and 1.24 s pulsations were observed between the energies of 20 keV and 70 keV. The best fit energies are 35 keV for an absorption line and 39 keV for an emission line. These are significantly lower energies than those derived from previous experiments.

It seems that this line energy variation is correlated with the intensity of the line as well as the continuum luminosity emitted by HER X1. In order to explain such a correlation, we consider the cooling by comptonization on a cold plasma of a black body spectrum, injected at the bottom of the accretion column.

We show that a temperature variation of the injected spectrum could produce the line energy shift as well as its correlation with the line intensity and the continuum luminosity.

The results of satellite observations as well as balloon borne experiments are summarized and compared with our model.