Study of Aperiodic Time Variation of the X-ray binary Pulsar, Centaurus X-3

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Abstract

We present the study of the aperiodic time variation of the binary X-ray pulsar Centaurus X-3 observed with the *Rossi X-Ray Timing Explorer* (RXTE). The iron K lines observed from Centaurus X-3 is considered to come from a re-processing matter around the neutron star. Thus the X-rays in the energy band containing the iron K lines is expected to have a certain delay from the higher energy X-rays.

We discovered, for the first time, that the temporal variation of iron-band emission is delayed as compared with that of the other energy X-rays by 0.39 ± 0.10 ms (1-σ error). We also discovered that a general trend such that the higher energy X-rays are advanced in comparison with the lower energy X-rays with the exception of the iron-band.

We will present our detail analysis by using cross spectra and discuss the implications of our results.

CATEGORY: BLACK HOLE AND NEUTRON STAR BINARIES