Characteristics of the X-ray Spectrum of the Ultra-Luminous X-ray Object in M82

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Abstract

We discovered an Ultra Luminous X-ray source (ULX) in M82 with the Chandra HRC (Matsumoto et al. 2001; Kaaret et al. 2001). The source is a strong candidate for an Intermediate-Mass Black Hole. The X-ray luminosity of the ULX reached 10^{41} erg s^{-1}, and the source is considered to be an extreme version of ULXs found in other galaxies (e.g. Makishima et al. 2000). However, we found that the ASCA spectrum of the M82 ULX can be fitted with either a thermal bremsstrahlung model or a multi-color disk model, and in either case its temperature is not correlated with its X-ray luminosity. This is quite different from the characteristics of the ULXs in other galaxies, and the M82 ULX may be distinctly different from other ULXs.

CATEGORY: BLACK HOLE AND NEUTRON STAR BINARIES