23.8 h QPO in the Swift light curve of XMMU J134736.6+173404
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XMMU J134736.6+173404 was observed serendipitously by XMM-Newton in 2003 with a peculiar light curve: high state followed by a sharp flux drop of a factor 6.5 in 1 h. Top: EPIC MOS & pn light curve. Bottom: hardness-ratios (H=2-10 keV, S=0.2-2 keV)

The optical counterpart, here SDSS images in R, G and U band, is a pair of galaxies (right a Seyfert 2 AGN) both located at z=0.045. White circle indicates the source position of a pointed Chandra observation from 2008 with radius of 3 ”. Green contours are from the 8 ″ off-axis XMM-Newton observation of 2003.

The spectrum is an absorbed power-law model, with $\Gamma\sim2.7-2.8$. The 2003 fluxes and luminosities in high and low states are $F_{0.2-10\text{ keV}} = 1.33$ vs $0.24 \times 10^{-12} \text{ erg/s/cm}^2$ and $L_{0.2-10\text{ keV}} = 6.5$ vs $1.0 \times 10^{42} \text{ erg/s}$.

Spectral Energy Distribution: Swift XRT (black in X-ray) & UVOT (black in UV), XMM EPIC-pn (purple), SDSS (blue), 2MASS (orange), Spitzer IRAC (green), WISE (magenta)+scaling factors. Spectral model: OPTXAGNF

BH Mass=$9.8^{+18.4}_{-3.6} \times 10^6 \text{ M}_\odot$

$L=0.047^{+0.062}_{-0.036} L_{\text{Edd}}$

$R_{\text{Corona}}=9.9^{+7.2}_{-1.2} R_G$

29 Swift XRT observations were performed in 2008 Feb 6 to May 28, with exposures from 800 to 8000s. Top: Swift LC, Middle: Lomb Scargle periodogram with white-noise confidence levels at 90%, 99%, 99.9%, Bottom: folded light curve Results: discovery of twin-peak QPO @ 23.82 h & 71.44 h.

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