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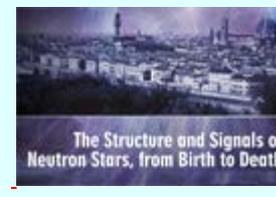
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Renewed activity of the galactic center X-ray transient XMM J174457-2850.3 detected with Swift/XRT

ATel #4305; [N. Degenaar \(U. Michigan\)](#), [R. Wijnands \(U. Amsterdam\)](#), [J. A. Kennea \(PSU\)](#), [J. M. Miller \(U. Michigan\)](#) and [N. Gehrels \(GSFC\)](#)

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Credential Certification: [Nathalie Degenaar \(degenaar@umich.edu\)](#)

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Referred to by ATel #: [4308](#)



Regular monitoring observations of the Galactic center with Swift's X-ray Telescope (XRT) have revealed renewed activity of the X-ray transient XMM J174457-2850.3 (Sakano et al. 2005). The source is first detected during a ~ 1.1 ks photon counting (PC) mode observation performed on 2012 August 5, at a count rate of $\sim 1\text{E-}2$ counts s $^{-1}$. In the subsequent PC mode observation obtained on August 8 (~ 1.0 ks), its intensity has increased to ~ 0.1 counts s $^{-1}$. The source is located near the edge of the CCD during these two observations, which prohibits a detailed spectral analysis. For a simple absorbed powerlaw model with $N_{\text{H}}=7.5\text{E}22$ cm $^{-2}$ and an index of 1.5 (Degenaar & Wijnands 2010), the XRT count rates of August 5 and 8 translate into a 2-10 keV luminosity of $\sim 1\text{E}34$ and $1\text{E}35$ erg s $^{-1}$, respectively (assuming a distance of 8 kpc).

XMM J174457-2850.3 is an unclassified X-ray transient that has frequently been active in the past years (for an overview, see Degenaar et al. 2012). It typically reaches a peak 2-10 keV luminosity of $\sim 1\text{E}36$ erg s $^{-1}$ during outbursts, while its quiescent luminosity is $\sim 1\text{E}32$ erg s $^{-1}$. Between 2012 June 27 and August 2, the source intensity was consistent with the XRT background ($\sim 2\text{E-}3$ counts s $^{-1}$). Using the spectral parameters mentioned above, we estimate a corresponding upper limit on the 2-10 keV luminosity of $\sim 3\text{E}33$ erg s $^{-1}$. This suggests that the source was in quiescence during this epoch, and therefore that the new outburst started between 2012 August 2 and 5.

We note that Swift's Burst Alert Telescope (BAT) triggered on XMM J174457-2850.3 on 2012 August 11 (GCN #[13619](#)), which is six days after the first activity detected with the XRT. The reported flux seen during the first seconds of the automated follow-up XRT observations would translate into a luminosity of $\sim 3\text{E}37$ erg/s (for an assumed distance of 8 kpc). This is a factor >10 brighter than the peak intensity that has ever been seen for this source during outburst. Alternatively, the BAT may have detected a thermonuclear X-ray burst, which would then classify XMM J174457-2850.3 as a neutron star low-mass X-ray binary.

Monitoring observations of the Galactic center with Swift/XRT are continuing.

References:

Sakano et al. 2005, MNRAS 357, 1211
 Degenaar & Wijnands 2010, A&A 524, 69

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Degenaar et al. 2012, A&A in press, arXiv:1204.6043

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