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Swift/XRT detects renewed activity of the Galactic center transient XMM J174457-2850.3

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Swift/XRT detects renewed activity of the Galactic center transient XMM J174457-2850.3

ATel #9551; *N. Degenaar (Cambridge), R. Wijnands (UvA), M. T. Reynolds, J. M. Miller (Michigan), J. A. Kennea (PSU), N. Gehrels (GSFC), on behalf of a larger collaboration on 26 Sep 2016; 21:47 UT**Credential Certification: Nathalie Degenaar (degenaar@ast.cam.ac.uk)*

Subjects: X-ray, Binary, Neutron Star, Transient

Referred to by ATel #: [10089](#)

Daily X-ray monitoring observations of the Galactic center with Swift (Degenaar et al. 2015, JHEAp 7, 137) reveal activity at a position consistent with the location of the transient neutron star low-mass X-ray binary (LMXB) XMM J174457-2850.3. This known thermonuclear X-ray burster is located ~ 14 arcmin NW of Sgr A*. The source is clearly detected at an XRT count rate of $\sim 2\text{E}-2$, $3\text{E}-2$, and $9\text{E}-2$ c/s during ~ 1 ks PC-mode observations performed on 2016 September 24, 25 and 26, respectively. The count rate at the source position is consistent with the local background ($\sim 3\text{E}-3$ c/s) during a 1-ks pointing performed on September 23.

We extracted an average spectrum from the September 24 and 25 observations and fitted that together with the September 26 spectral data. Using an absorbed power-law model with the hydrogen column density fixed at $1.1\text{E}23$ cm $^{-2}$, we obtain photon indices of 1.6 ± 0.5 for both spectra (comparable to that found for previous outbursts of this source; Degenaar et al. 2014, ApJ 792, 109). The inferred unabsorbed 2-10 keV fluxes are $(1.0 \pm 0.2)\text{E}-11$ and $(3.3 \pm 0.5)\text{E}-11$ erg/cm 2 /s for September 24-25 and 26, respectively. The corresponding luminosities are $(4.1 \pm 1.0)\text{E}34$ and $(1.7 \pm 0.2)\text{E}35$ erg/s for a distance of 6.5 kpc (inferred from thermonuclear burst analysis; Degenaar et al. 2014). Using these spectral parameters, the non-detection with Swift on September 23 implies a 2-10 keV luminosity of $< 5\text{E}33$ erg/s at that time. This source exhibits occasional outbursts with a 2-10 keV peak luminosity of $\sim \text{E}35\text{-E}36$ erg/s that last for a few weeks (Degenaar et al. 2014).

XMM J174457-2850.3 is currently the only active X-ray transient in the FOV of the Swift Galactic center monitoring observations (which cover $\sim 20' \times 20'$ around Sgr A*), but it is the 6th active transient seen this year. Earlier on in the 2016 campaign, Swift observed activity of the neutron star LMXBs AX J1745.6-2901 (e.g. ATel #[5222](#), #[9196](#)) and GRS 1741-2853 (ATel

Related

- [13683](#) Swift/XRT detects a new outburst of the Galactic Center transient GRS 1741.9-2853
- [13453](#) Swift/XRT detects (continued) activity of the Galactic center transient AX J1745.6-2901
- [13150](#) Swift/XRT detects a new outburst of the Galactic Center transient AX J1745.6-2901
- [11263](#) Swift resumes X-ray monitoring observations of the Galactic center in 2018
- [10900](#) Swift/XRT detects activity of a very-faint X-ray transient, likely the neutron star X-ray binary AX J1745.6-2901, near Sgr A*
- [10859](#) Swift/XRT detects a new accretion outburst of the Galactic center neutron star transient GRS 1741-2853
- [10671](#) MAXI/GSC detection of a weak X-ray outburst from RX J1709.5-2639 (XTE J1709-267)
- [10323](#) Swift/XRT detects renewed activity of the Galactic center transient AX J1745.6-2901
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- [9551](#) Swift/XRT detects renewed activity of the Galactic center transient XMM J174457-2850.3
- [9236](#) Swift/XRT detects renewed activity of the Galactic center X-ray transient Swift J174535.5-285921
- [9196](#) Continued Swift/XRT observations of the new Galactic center transients SWIFT J174540.2-290037 and SWIFT J174540.7-290015
- [9152](#) VVV near-infrared observations of the Swift J174540.2-290037 field

#8881, #9109), as well as the unclassified X-ray transients Swift J174540.7-290015 (e.g. ATel #8649, #8689, #8746, #9109, #9196, #9236), Swift J174540.2-290037 (ATel #9109, #9196, #9236), and Swift J174535.5-285921 (ATel #9236). All those other X-ray transients are currently not detected with the XRT. Daily X-ray observations of the Galactic center with Swift are ongoing.

The Swift Monitoring Campaign website can be found at: <http://www.swift-sgra.com>

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9000	Hard X-ray activity from the direction to Sgr A* revealed by INTEGRAL
8881	Swift/XRT detects renewed activity of the Galactic center transient GRS 1741-2853
8793	A Search for a Radio Counterpart to Swift J174540.7-290015
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