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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*

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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  $\sim 14$  arcmin NW of Sgr A\*. The source is clearly detected at an XRT count rate of  $\sim 2E-2$ ,  $3E-2$ , and  $9E-2$  c/s during  $\sim 1$  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 ( $\sim 3E-3$  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  $1.1E23$  cm $^{-2}$ , we obtain photon indices of  $1.6 \pm 0.5$  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  $(1.0 \pm 0.2)E-11$  and  $(3.3 \pm 0.5)E-11$  erg/cm $^2$ /s for September 24-25 and 26, respectively. The corresponding luminosities are  $(4.1 \pm 1.0)E34$  and  $(1.7 \pm 0.2)E35$  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  $< 5E33$  erg/s at that time. This source exhibits occasional outbursts with a 2-10 keV peak luminosity of  $\sim E35$ - $E36$  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
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- [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
- [10089](#) Swift resumes X-ray monitoring observations of the Galactic center in 2017
- [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>

|      |   |
|------|---|
| 9109 | Swift/XRT detection of another active X-ray transient close to Sgr A*                                     |
| 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  |
| 8746 | Chandra Position of Galactic Center X-ray Transient Swift J174540.7-290015                                |
| 8737 | VVV near-infrared observations of the Swift J174540.7-290015 field  |
| 8729 | Search for pulsed radio emission from SWIFT J174540.7-290015  |
| 8689 | Near-IR source content of the error region for SWIFT J174540.7-290015                                     |
| 8684 | INTEGRAL observations of Swift J174540.7-290015   |
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| 5847 | Swift/XRT observations of the Galactic center have resumed  |
| 5332 | Report on (non-)activity in the Galactic bulge region as seen by INTEGRAL                                 |
| 5319 | MAXI/GSC detection of a new X-ray outburst from RX J1709.5-2639(=XTE J1709-267)                           |
| 5301 | A new outburst from LMXB 1A 1744-361  |
| 5254 | Swift detection of a third burst from SGR J1745-29  |
| 5246 | Swift/XRT detects activity of the Galactic center transient GRS 1741-2853                                 |
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| 5226 | New Swift/XRT observations confirm that the active Galactic center transient is AX J1745.6-2901           |
| 5222 | Swift/XRT monitoring observations detect an active X-ray transient near the Galactic center               |
| 5159 | Limits on Low Frequency Radio Flux Density Changes for Sgr A*   |
| 5124 | Swift/BAT detection of a burst from SGR J1745-29  |
| 5095 | Chandra confirmation of transient X-ray activity from CXOGC J174540.0-290005 north of the Galactic Center |
| 5076 | Detection of radio pulsations at 22 GHz from the Magnetar PSR J1745-2900 in the archival data from 2011   |
| 5074 | Swift/XRT detection of an active X-ray transient near the Galactic center                                 |
| 5073 | NuSTAR detection of a transient in outburst north of Sgr A*   |
| 5070 | Search for pulsed radio emission from PSR J1745-2900 at 1 GHz with the GMRT                               |
| 5064 | Polarisation profiles and rotation measure of PSR J1745-2900 measured at Effelsberg                       |
| 5058 | On-going radio observations of PSR J1745-2900 at Effelsberg, Nancay, and                                  |

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|      | Jodrell Bank: flux density estimates, polarisation properties, spin-down measurement, and the highest dispersion measure measured. |
| 5053 | Detection by Sardinia Radio Telescope of radio pulses at 7 GHz from the Magnetar PSR J1745-2900 in the Galactic center region      |
| 5046 | Spin-down Measurement of PSR J1745-2900: a New Magnetar  |
| 5043 | Further radio pulsations from the direction of the NuSTAR 3.76-second X-ray pulsar, and a dispersion measure estimate.             |
| 5040 | Detection of radio pulsations from the direction of the NuSTAR 3.76 second X-ray pulsar at 8.35 GHz                                |
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| 5035 | Detection of radio pulsations from the direction of the Galactic center Soft Gamma-ray Repeater with Parkes and the GBT            |
| 5033 | Searches for Dispersed Radio Pulsar Emission from the Sag A* SGR   |
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| 5013 | Possible brightening at 22 GHz of Sgr A*   |
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| 5009 | Swift/BAT detection of an SGR-like flare from near Sgr A*  |
| 5008 | Ongoing X-ray activity from Sgr A*   |
| 5006 | Large Flare from Sgr A* Detected by Swift  |
| 4840 | Transient X-ray burster KS 1741-293 active again   |
| 4471 | 1E 1740.7-2942 (the Great Annihilator) enters a low-intensity state  |
| 3529 | IR counterpart candidates to the transient Swift J174535.5-285921 - UPDATE   |
| 3525 | Chandra Localization of the Galactic Center X-ray Transient Swift J174535.5-285921   |
| 3508 | The Galactic center transient Swift J174535.5-285921 has returned to quiescence  |
| 3481 | IR counterpart candidates to the transient Swift J174535.5-285921  |
| 3476 | Search for an IR counterpart to the newly discovered transient Swift J174535.5-285921  |
| 3472 | Swift/XRT discovers a new X-ray transient near the Galactic center: Swift J174535.5-285921   |
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