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Swift/XRT detects renewed activity of the Galactic center transient AX J1745.6-2901

ATel #10323; *N. Degenaar (U. of Amsterdam), M. T. Reynolds (U. of Michigan), R. Wijnands (U. of Amsterdam), J. M. Miller (U. of Michigan), J. A. Kennea (PSU), on behalf of a larger collaboration*

on 26 Apr 2017; 15:28 UT

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

Our daily monitoring observations of the Galactic center with Swift/XRT (Degenaar et al. 2015, JHEAp, 7, 137) have revealed X-ray activity of a transient source located $\sim 1.5'$ to the south-east of Sgr A*. This object is detected at a count rate of $\sim (1.3-2.5)E-2$ c/s during two ~ 0.9 ks PC-mode observations performed on April 24-25 (obsID 00092395090-91).

Utilizing the online XRT data products tool (Evans et al. 2007, A&A 469, 379; 2009, MNRAS 397, 1177) for the two April 24-25 observations, we obtain an "enhanced" position (see Goad et al. 2007, A&A 476, 1401; Evans et al. 2009) for the active transient of RA = 17:45:35.92, DEC = -29:01:30.0 (J2000) with a 90% confidence error of 3.0". These coordinates are consistent with the Chandra localisation of the 8.4-hr eclipsing low-mass X-ray binary and thermonuclear X-ray burster AX J1745.6-2901 (ATel #1513). We thus conclude that we have likely detected renewed activity of this transient.

Assuming a power-law spectral shape with an index of 2 and a hydrogen column density of $2E23$ cm $^{-2}$, the observed XRT count rates translate into a 2-10 keV unabsorbed flux of $\sim (5-10)E-12$ erg/cm 2 /s. This suggests that the current luminosity is $\sim (4-8)E34$ erg/s for a distance of 8 kpc. Previous outbursts from AX J1745.6-2901 were detected through our Swift monitoring program in 2006, 2007-2008, 2010 (e.g. Degenaar et al. 2015) and 2013-2016 (e.g. ATels #5226, #9196). The years-long 2007-2008 and 2013-2016 outbursts reached a peak luminosity of several times $\sim E36$ erg/s, whereas during the shorter (months-long) 2006 and 2010 outbursts the source did not become brighter than a few times $E35$ erg/s.

Daily Swift/XRT monitoring of the Galactic center is ongoing and our results can be found at <http://www.swift-sgra.com>

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- 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
8649	New Galactic Center X-ray Transient Detected by Swift: SWIFT J174540.7-290015
7023	Swift resumes X-ray monitoring observations of the Galactic center
5861	Continued Swift/XRT monitoring observations of the Galactic center
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
5246	Swift/XRT detects activity of the Galactic center transient GRS 1741-2853
5241	MAXI/GSC detection of a renewed outburst from the black hole candidate H 1743-322
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
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
5037	Swift-BAT monitoring for additional bursts from SGR J1745-29 (Trigger 554491)
5032	Chandra localization of the soft gamma repeater in the Galactic Center region
5020	NuSTAR discovery of a 3.76 second pulsar in the Sgr A* region
5016	Continued Swift Monitoring of the Galactic Center Flare
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
3632	Swift detects an X-ray burst and renewed activity from KS 1741-293
3525	Chandra Localization of the Galactic Center X-ray Transient Swift J174535.5-285921
	Swift/XRT discovers a new

3472	X-ray transient near the Galactic center: Swift J174535.5-285921
2770	Swift/XRT detects new outbursts of the galactic center X-ray transients GRS 1741-2853 and XMM J174457-2850.3
2690	Swift/XRT detects renewed activity of the galactic center X-ray transient AX J1745.6-2901
1739	INTEGRAL spots renewed activity from H1743-322
1541	Swift/XRT observations of the X-ray transients KS1741-293 and XTE J1719-291
1531	Chandra detects activity from the Galactic X-ray transients KS 1741-293, Swift J174535.5-290135.6 and CXOGC J174535.5-290124
1513	Chandra detects Swift J174535.5-290135.6 in a relatively bright state
1385	INTEGRAL Galactic bulge monitoring observations of GRO J1750-27 (AX J1749.1-2639), H1743-322 and SLX 1746-331
1266	Recent and past activity of the supergiant fast X-ray transient IGR J17544-2619 as seen by INTEGRAL
1185	INTEGRAL detects hard X-rays from SAX J1810.8-2609 during its current outburst
1058	Long duration outbursts from the two X-ray bursters AX J1745.6-2901 and GRS 1741.9-2853 suggested by XMM-Newton observations
1013	Chandra Detection of Three Enigmatic X-ray Transients: GRS 1741.9-2853,
1008	IGR J17453-2853 = Granat 1741.9-2853?
1007	ATCA radio observations of GX 339-4
1006	Renewed activity of the Galactic center transients Swift J174535.5-290135.6 and GRS 1741.9-2853 as observed with Swift/XRT
1005	Two active X-ray transients in the Galactic Center region as seen by INTEGRAL
904	Announcement of the Swift/BAT Hard X-ray Transient Monitor
892	Renewed activity of the very faint X-ray transient CXOGC J174535.5-290124 and continued activity of the neutron-star X-ray transient SAX J1747.0-2853
874	New INTEGRAL source, IGR J17354-3255, and continuation of the INTEGRAL Galactic Bulge monitoring program
756	INTEGRAL detects SWIFT J174535.5-290135.6
753	Swift/XRT detection of a transient source in the Galactic Center
734	Three active neutron star X-ray transients: SAX J1747.0-2853, XTE J1739-285 and GRS 1747-312
642	On the (hard) X-ray activity of SAX J1747.0-2853 as seen with INTEGRAL

641	Swift Observation of SAX J1747.0-2853
638	Further Chandra observations of SAX J1747.0-2853 and the region around Sgr A*
637	Renewed activity of the neutron star X-ray transient SAX J1747.0-2853

[**Telegram Index**]

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