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

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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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