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Swift/XRT detection of another active X-ray transient close to Sgr A*  

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Daily monitoring observations of the Galactic center performed with the Swift/XRT (Degenaar et al. 2015) have revealed activity of a new X-ray transient located ~10" South of Sgr A*. This object is clearly detected during three consecutive ~0.9 ks PC mode observations performed on 2016 May 28 and 30, and June 1. The 0.3-10 keV count rate has risen from ~2E-2 to ~0.1 counts/s between those observations.

Using the tool xrtcentroid, we determine a position of R.A. = 17:45:40.26 and Dec. = -29:00:37.85 (J2000), with an uncertainty of 3.7" (90% confidence). This position is ~7.7" from that of the known X-ray transient CXOGCJ174540.0-290031, which was active in 2004-2005. This object showed 7.9 hr X-ray eclipses and was proposed to be a candidate black hole low-mass X-ray binary (LMXB) based on its bright radio counterpart (Bower et al. 2005; Munu et al. 2005ab; Porquet et al. 2005). Given that the position of CXOGCJ174540.0-290031 is outside the 90% XRT error circle and that there are no other known transient X-ray sources consistent with the XRT localization, we tentatively designate the newly active transient SWIFT J174540.2-290037.

The X-ray spectrum of SWIFT J174540.2-290037 extracted from the most recent observation (ObsIDs 92236058) can be described by an absorbed power-law model with N_H = (2.2 +/-0.8)E23 cm-2 and a photon index of ~1.7 +/- 1.0 (1-sigma errors). The resulting unabsorbed 2-10 keV flux is ~(7 +/-2)E-11 erg/cm2/s. For a fiducial distance of 8 kpc, this translates into a 2-10 keV luminosity of ~5E35 erg/s.

Apart from this new transient, there are two other X-ray sources active within the Swift/XRT field of view. The first is the unclassified transient that was discovered earlier this year and has
remained active since, SWIFT J174540.7-290015 (ATel #8649). We note that this transient is likely responsible for the hard X-ray activity recently detected with INTEGRAL (ATel #9000). We also detect ongoing activity of the neutron star LMXB AX J1745.6-2901, which started its prolonged accretion outburst in 2013 July (Degenaar et al. 2015; Ponti et al. 2015). The neutron star LMXB GRS 1741-2853, which entered a new accretion outburst around 2016 March 23 (ATel #8881), has not been detected by the XRT since 2016 May 1.

Follow-up observations, particularly at radio wavelengths, are encouraged to determine the nature of the newly active transient X-ray source SWIFT J174540.2-290037 and whether it can possibly be associated with the transient candidate black hole LMXB CXOGJ174540.0-290031.

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

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