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Swift/XRT detection of an active X-ray transient near the Galactic center

ATel #5074; *N. Degenaar (Michigan), R. Wijnands (UvA), M. T. Reynolds, J. M. Miller (Michigan), J. A. Kennea (PSU) and N. Gehrels (GSFC), on behalf of a larger collaboration on 20 May 2013; 08:13 UT*

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Subjects: X-ray, Transient

Referred to by ATel #: [5095](#)

Daily monitoring observations of the Galactic center performed with the Swift/XRT (Atel #5006; see link below) reveal that in addition to the new magnetar SGR J1745-29 (Atels #5009, #5011, #5020, #5032, #5037, #5046, #5053; Kennea et al. 2013; Mori et al. 2013) a transient X-ray source located ~20" north of Sgr A* is currently active. This object is clearly detected during ~1.0 ks PC mode observations obtained on 2013 May 15, 16, 18 and 19, at count rates of $\sim(1.5-5.0)E-2$ counts/s. The intensity at the source position is consistent with the local background level ($\sim 7E-3$ counts/s) during other observations performed earlier this year. This source is very likely the same transient that was detected with NuSTAR on 2013 May 18-19 (Atel # 5073).

Summing the Swift/XRT data of May 15-19 (Obs IDs 91736035-38) shows that the X-ray spectrum can be characterized by an absorbed power-law model with $NH \sim 1.9E23$ cm⁻² and a photon index of ~ 2.4 . The resulting absorbed (unabsorbed) 2-10 keV flux is $9.0E-12$ ($2.3E-11$) erg/cm²/s. Assuming a distance of 8 kpc, this translates into a 2-10 keV luminosity of $1.8E35$ erg/s.

Using the tool `xrtcentroid`, we determine a position of R.A. = 17:45:39.86 and Dec. = -29:00:02.3 (J2000), with an uncertainty of 3.6" (90% confidence). This position is $\sim 4.5''$ from that of the known recurrent X-ray transient CXOGC J174540.1-290005, which was active in 2003 and 2006 (Muno et al. 2005; Degenaar & Wijnands 2009; see also Atel #5073). The spectral parameters and intensity inferred for the currently active transient are comparable to that observed with Swift/XRT in 2006 for CXOGC J174540.1-290005 (Degenaar & Wijnands 2009). We therefore consider it likely that we have detected renewed activity of this transient. Its 2006 outburst had a duration of ~ 2 weeks.

We encourage follow-up observation at different wavelengths to determine the nature of this transient X-ray source.

Swift Monitoring Campaign Website: <http://www.swift-sgra.com/>

References:

Degenaar & Wijnands 2009, A&A 495, 547
Kennea et al. 2013, accepted to ApJ letters, arXiv:1305.2128
Mori et al. 2013, accepted to ApJ letters, arXiv:1305.1945

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