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

Degenaar, N.; Wijnands, R.; Reynolds, M.T.; Miller, J.M.; Kennea, J.A.; Gehrels, N.

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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*

Credential Certification: Rudy Wijnands (rudy@space.mit.edu)

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 ~(1.5-5.0)E-2 counts/s. The intensity at the source position is consistent with the local background level (~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 $N_{\text{H}} \sim 1.9E23 \text{ cm}^{-2}$ 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 ~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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	transient in outburst north of Sgr A*
5070	Search for pulsed radio emission from PSR J1745-2900 at 1 GHz with the GMRT
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5058	On-going radio observations of PSR J1745-2900 at Effelsberg, Nancay, and 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
5037	Swift-BAT monitoring for additional bursts from SGR J1745-29 (Trigger 554491)
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
5032	Chandra localization of the soft gamma repeater in the Galactic Center region
5027	Searches for radio pulsations from the 3.76 second NuSTAR X-ray pulsar in the Galactic centre.
5025	Limits on Radio Frequency Flux Density Changes in Sgr A*
5024	NICT VLBI Observations of Sgr A* at 8 GHz and 2 GHz
5020	NuSTAR discovery of a 3.76 second pulsar in the Sgr A* region
5018	1.3mm CARMA Flux Density for Sgr A*
5016	Continued Swift Monitoring of the Galactic Center Flare
5014	Brightening of Sgr A* at 32 GHz from VLA observations
5013	Possible brightening at 22 GHz of Sgr A*
5011	Swift XRT spectrum of transient X-ray source at Sgr A*'s position
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

- 4923** Non-detection of flare at 22 GHz of Sgr A* induced by the approaching G2 cloud in February and March 2013
- 4840** Transient X-ray burster KS 1741-293 active again
- 4471** 1E 1740.7-2942 (the Great Annihilator) enters a low-intensity state
- 4302** Chandra Identification of the 2012 Transient in Terzan 5
- 4264** The new X-ray transient Swift J174805.3-244637 in Terzan 5 is a neutron star LMXB
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- 2770** Swift/XRT detects new outbursts of the galactic center X-ray transients GRS 1741-2853 and XMM J174457-2850.3
- 1513** Chandra detects Swift J174535.5-290135.6 in a relatively bright state
- 904** Announcement of the Swift/BAT Hard X-ray Transient Monitor
- 753** Swift/XRT detection of a transient source in the Galactic Center

[**Telegram Index**]

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`rrutledge@astronomerstelegam.org`

`dfox@astronomerstelegam.org`

`mansi@astronomerstelegam.org`