New Galactic Center X-ray Transient Detected by Swift
SWIFT J174540.7-290015
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Published in:
The astronomer's telegram

Citation for published version (APA):
New Galactic Center X-ray Transient Detected by Swift: SWIFT J174540.7-290015

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on 7 Feb 2016; 20:04 UT

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Referred to by ATel #: 8684, 8689, 8729, 8746, 8793, 9109, 9196, 9236, 9551

We report on our ongoing Swift monitoring observations of the Galactic center (Degenaar et al. 2015). In the first Swift observation after the GC exited the solar constraint window, a new X-ray source is detected in a ~1ks observation on MJD 57424.87742 (t_start: 160206 @21:02UT), at a position of

RA (J2000): 17 45 40.74 (266.41974)
Dec (J2000): -29 00 14.7 (-29.00407)
90% Error radius: 2.2"

This lies approximately 16" to the north of Sgr A* and the magnetar SGR J1745-29. This observation also reveals the eclipsing neutron star transient AX J1745.6-29 (Degenaar & Wijnands 2009, 2010) to remain active over 2.5yrs since the onset of the current outburst (ATEL #5222, #5226).

Extrapolating a spectrum from a circular region (r=20") centered on this source and background from an annular region 28" to 37" from the source position, we measure a net count rate of 0.50 ± 0.02 ct/s. Assuming a constant column of N_H = 9.1e22 cm^-2, the resulting spectrum is equally well characterized by both a power-law (\gamma=0.60±0.26) and blackbody (kT=2.1±0.4-0.3 keV, norm=0.9±0.4-0.3), implying an emission radius of approx. 1.2 km at 8 kpc) model. Assuming a distance of 8 kpc, the source luminosity is 7.9e35 erg/s (2 - 10 keV). The observed spectrum would favor a transient accreting neutron star or magnetar interpretation for this source. The observed spectral shape is inconsistent with that observed from a typical accreting black hole.
Inspection of the source lightcurve does not reveal the presence of pulsations, though the observation was acquired in PC mode (delta_t = 2.5s), thus limiting our ability to detect rapid coherent pulsations.

We note the presence of two catalogued CXO sources in the immediate vicinity of this source:
CXOU J174540.1-290016
CXOGC J174540.0-290014

Chandra observations have determined CXOGC J174540.0-290014 to be a (very-faint) X-ray transient (Muno et al. 2005). However, at the current time, we cannot firmly associate this source with either of the above sources and as such it is possible that the detected source is a newly active Galactic center transient, which we designate SWIFT J174540.7-290015.

Follow-up observations are encouraged to determine the nature of this source.

The Swift/XRT Galactic Center monitoring campaign website can be found at: http://www.swift-sgra.com

References:
Degenaar & Wijnands 2009, A&A 495, 547
Degenaar & Wijnands 2010, A&A 524, 69
Degenaar et al., 2015, JHEAp, 7, 137
Polarisation profiles and rotation measure of PSR J1745-2900 measured at Effelsberg

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.

Detection by Sardinia Radio Telescope of radio pulses at 7 GHz from the Magnetar PSR J1745-2900 in the Galactic center region

Spin-down Measurement of PSR J1745-2900: a New Magnetar

Further radio pulsations from the direction of the NuSTAR 3.76-second X-ray pulsar, and a dispersion measure estimate.

Detection of radio pulsations from the direction of the NuSTAR 3.76 second X-ray pulsar at 8.35 GHz

Swift-BAT monitoring for additional bursts from SGR J1745-29 (Trigger S54891)

Detection of radio pulses from the direction of the Galactic center Soft Gamma-ray Repeater with Parkes and the GBT

Searches for Dispersed Radio Pulsar Emission from the Sag A* SGR

Chandra localization of the soft gamma repeater in the Galactic Center region

Searches for radio pulsations from the 3.76 second NuSTAR X-ray pulsar in the Galactic centre.

Limits on Radio Frequency Flux Density Changes in Sgr A*

NuSTAR discovery of a 3.76 second pulsar in the Sgr A* region

Continued Swift Monitoring of the Galactic Center Flare

Brightening of Sgr A* at 32 GHz from VLA observations

Possible brightening at 22 GHz of Sgr A*

Swift XRT spectrum of transient X-ray source at Sgr A*'s position

Swift/BAT detection of an SGR-like flare from near Sgr A*

Ongoing X-ray activity from Sgr A*

Large Flare from Sgr A* Detected by Swift

Transient X-ray burster KS 1741-293 active again

1E 1740.7-2942 (the Great Annihilator) enters a low-intensity state

IR counterpart candidates to the transient Swift J174535.5-285921 - UPDATE

Chandra Localization of the Galactic Center X-ray Transient Swift J174535.5-285921

The Galactic center transient Swift J174535.5-285921 has returned to quiescence

IR counterpart candidates to the transient Swift J174535.5-285921

Search for an IR counterpart to the newly discovered transient Swift J174535.5-
Swift/XRT discovers a new X-ray transient near the Galactic center: Swift J174535.5-285921

Swift/XRT detects new outbursts of the galactic center X-ray transients GRS 1741-2853 and XMM J174457-2850.3

Chandra detects activity from the Galactic X-ray transients KS 1741-293, Swift J174535.5-290135.6 and CXOGC J174535.5-290124

Chandra detects Swift J174535.5-290135.6 in a relatively bright state

Long duration outbursts from the two X-ray bursters AX J1745.6-2901 and GRS 1741.9-2853 suggested by XMM-Newton observations

Renewed activity of the Galactic center transients Swift J174535.5-290135.6 and GRS 1741.9-2853 as observed with Swift/XRT

Two active X-ray transients in the Galactic Center region as seen by INTEGRAL

Announcement of the Swift/BAT Hard X-ray Transient Monitor

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

INTEGRAL detects SWIFT J174535.5-290135.6

Swift/XRT detection of a transient source in the Galactic Center