Swift/XRT detects a new accretion outburst of the Galactic center neutron star transient GRS 1741-2853

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

Published in:
The astronomer's telegram

Citation for published version (APA):
Swift/XRT detects a new accretion outburst of the Galactic center neutron star transient GRS 1741-2853

ATel #10859; N. Degenaar, R. Wijnands (UvA), M. T. Reynolds, J. M. Miller (Michigan), J. A. Kennea (PSU), on behalf of a larger collaboration
on 17 Oct 2017; 07:14 UT

Credential Certification: Nathalie Degenaar (degenaar@uva.nl)

Subjects: X-ray, Binary, Neutron Star, Transient

Referred to by ATel #: 10900, 11263

Daily Swift/XRT monitoring observations of the Galactic center (Degenaar et al. 2015) have picked up renewed activity of the transient neutron star low-mass X-ray binary and thermonuclear X-ray burster GRS 1741-2853, which is located ~10 arcmin NW of Sgr A*. During a ~1 ks PC-mode observation performed on 2017 October 11 the source is detected at a net count rate of ~0.015 counts/s and it has been steadily brightening since, indicating the onset of a new accretion outburst.

During the most recent PC-mode observation, obtained on October 16 and with an exposure time of ~0.9 ks, the source is bright enough to cause significant pile-up. An averaged spectrum extracted using the online XRT analysis tool (Evans et al. 2009), which applies pile-up corrections, can be described by an absorbed power-law model with a photon index of 3.1 +/- 0.1 and a hydrogen column density of (2.1 +/- 0.7)E23 cm^-2. The inferred 2-10 keV unabsorbed flux is ~1.5E-9 erg/cm2/s, which corresponds to a luminosity of ~9E36 erg/s for a distance of 7.2 kpc (as inferred from X-ray burst analysis; Trap et al. 2009). We note that the absorption column obtained from this simple fit is similar to that seen during previous outbursts of the source, but the photon index is relatively high. This could possibly indicate that the source is currently in a soft spectral state (banana branch).

The current activity displayed by GRS 1741-2853 is similar to its previous outbursts recorded through the Swift Galactic center monitoring program in 2006, 2007, 2009, 2010 and 2013 (Degenaar & Wijnands 2009, 2010; Degenaar et al. 2013), as well as the most recent outburst that occurred between 2016 March 23 and May 1 (ATels #8881, #9109). The outbursts typically last a few weeks and reach a 2-10 keV luminosity of ~1E35-1E37 erg/s (Degenaar et al. 2015).

Apart from GRS 1741-2853 there are currently no other X-ray transients active within the ~20x20 arcmin XRT FOV around Sgr A*. The Swift Monitoring Campaign website can be found at: http://www.swift-sgra.com.
ATel #10859: Swift/XRT detects a new accretion outburst of the Galactic center neutron star transient GRS 1741-2853

References:
Degenaar & Wijnands 2009, A&A 495, 547
Degenaar & Wijnands 2010, A&A 524, 69
Degenaar et al. 2013, IAU conf. proc. 303, 315
Degenaar et al. 2015, JHEA 7, 137

Near-IR source content of the error region for SWIFT J174540.7-290015
INTEGRAL observations of Swift J174540.7-290015
New Galactic Center X-ray Transient Detected by Swift: SWIFT J174540.7-290015
Swift resumes X-ray monitoring observations of the Galactic center
Swift/XRT observations of the Galactic center have resumed
Report on (non-)activity in the Galactic bulge region as seen by INTEGRAL
Swift/XRT detects activity of the Galactic center transient GRS 1741-2853
New Swift/XRT observations confirm that the active Galactic center transient is AX J1745.6-2901
Swift/XRT monitoring observations detect an active X-ray transient near the Galactic center
NuSTAR discovery of a 3.76 second pulsar in the Sgr A* region
Chandra Localization of the Galactic Center X-ray Transient Swift J174535.5-285921
Swift/XRT discovers a new X-ray transient near the Galactic center: Swift J174535.5-285921
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
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

ATel #10859: Swift/XRT detects a new accretion outburst of the Galactic center neutron star transient GRS 1741-2853