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Swift/XRT detects a new outburst of the Galactic Center transient GRS 1741.9-2853

ATel #13683; *N. Degenaar (U. of Amsterdam), R. Wijnands (U. of Amsterdam), M. T. Reynolds (U. of Michigan), J. M. Miller (U. of Michigan), J. A. Kennea (PSU), on behalf of a larger collaboration*

on 28 Apr 2020; 21:44 UT

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Subjects: X-ray, Neutron Star, Transient

Referred to by ATel #: [13839](#), [14378](#)

During our daily Swift/XRT monitoring observations of the Galactic Center (Degenaar et al. 2015, JHEAp, 7, 137), we detect renewed activity of a transient X-ray source located ~ 10 arcmin from Sgr A*. The location of this object is consistent with the position of the known neutron star low-mass X-ray binary (LMXB) and thermonuclear X-ray burster GRS 1741.9-2853. The source is first detected in a 0.9-ks XRT exposure obtained on 2020 April 25, in photon-counting (PC) mode, at a count rate of $\sim 1\text{E-}2$ c/s (obsID 00095660023). Over the past 2 days it brightened to $\sim 9\text{E-}2$ c/s.

We extracted an average spectrum for GRS 1741.9-2853 from the PC-mode data obtained on April 25-27 (obsIDs 00095660023, 00095660024, 00095660025). This spectrum can be described by an absorbed power-law model with an index of 2.8 ± 1.0 and a hydrogen column density of $(1.8 \pm 0.6)\text{E+}23$ cm $^{-2}$ (1-sigma errors). These spectral parameters are similar to those inferred from Swift/XRT data of previous outbursts of this source (see below). For this fit we infer a 2-10 keV unabsorbed flux of $(1.6 \pm 0.6)\text{E-}11$ erg cm $^{-2}$ s $^{-1}$, which translates into a luminosity of $\sim 9.9\text{E+}34$ erg s $^{-1}$ at a distance of 7.2 kpc (deduced from its thermonuclear X-ray bursts; Trap et al. 2009).

Over the past 15 years, the Swift/XRT monitoring campaign has recorded several outbursts from GRS 1741.9-2853: in 2006, 2007, 2009, 2010, 2013, 2016 and 2017 (Degenaar & Wijnands 2009, 2010; Degenaar et al. 2013; ATels #[8881](#), #[9109](#), #[10859](#), #[11263](#)). Its outbursts typically reach a 2-10 keV luminosity of $\sim 1\text{E+}35\text{-}1\text{E+}37$ erg s $^{-1}$ and last a few weeks (Degenaar et al. 2015). Given the steady rise in XRT count rate during the past few days, and the luminosity inferred above, it is plausible that GRS 1741.9-2853 is currently in the rising phase of another bright

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outburst.

We report that apart from GRS 1741.9-2853, we detect ongoing activity from the transient neutron star LMXB AX J1745.6-2901. This source, located ~ 1.5 arcmin from Sgr A*, was detected in outburst in 2019 September-October (ATel #13150) and has remained active since the XRT monitoring observations resumed in 2020 Feb after the Sun-constrained window (ATel #13453).

Results of our ongoing daily Swift/XRT monitoring of the Galactic Center are automatically posted on <http://www.swift-sgra.com>.

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- 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
 Trap et al. 2009, A&A 504, 501

	X-ray transient Swift J174535.5-285921
9196	Continued Swift/XRT observations of the new Galactic center transients SWIFT J174540.2-290037 and SWIFT J174540.7-290015
9152	VVV near-infrared observations of the Swift J174540.2-290037 field
9109	Swift/XRT detection of another active X-ray transient close to Sgr A*
9000	Hard X-ray activity from the direction to Sgr A* revealed by INTEGRAL
8881	Swift/XRT detects renewed activity of the Galactic center transient GRS 1741-2853
8793	A Search for a Radio Counterpart to Swift J174540.7-290015
8746	Chandra Position of Galactic Center X-ray Transient Swift J174540.7-290015
8737	VVV near-infrared observations of the Swift J174540.7-290015 field
8729	Search for pulsed radio emission from SWIFT J174540.7-290015
8689	Near-IR source content of the error region for SWIFT J174540.7-290015
8684	INTEGRAL observations of Swift J174540.7-290015
8649	New Galactic Center X-ray Transient Detected by Swift: SWIFT J174540.7-290015
7023	Swift resumes X-ray monitoring observations of the Galactic center
5847	Swift/XRT observations of the Galactic center have resumed
5332	Report on (non-)activity in the Galactic bulge region as seen by INTEGRAL
5246	Swift/XRT detects activity of the Galactic center transient GRS 1741-2853
5226	New Swift/XRT observations confirm that the active Galactic center transient is AX J1745.6-2901
5222	Swift/XRT monitoring observations detect an active X-ray transient near the Galactic center
5020	NuSTAR discovery of a 3.76 second pulsar in the Sgr A* region
3529	IR counterpart candidates to the transient Swift J174535.5-285921 - UPDATE
3525	Chandra Localization of the Galactic Center X-ray Transient Swift J174535.5-285921
3508	The Galactic center transient Swift J174535.5-285921 has returned to quiescence
3481	IR counterpart candidates to the transient Swift J174535.5-285921
3476	Search for an IR counterpart to the newly discovered transient Swift J174535.5-285921
3472	Swift/XRT discovers a new X-ray transient near the Galactic center: Swift J174535.5-285921
1531	Chandra detects activity from the Galactic X-ray transients KS 1741-293, Swift J174535.5-290135.6 and CXOGC J174535.5-290124
1513	Chandra detects Swift J174535.5-290135.6 in a

	relatively bright state
1058	Long duration outbursts from the two X-ray bursters AX J1745.6-2901 and GRS 1741.9-2853 suggested by XMM-Newton observations
1006	Renewed activity of the Galactic center transients Swift J174535.5-290135.6 and GRS 1741.9-2853 as observed with Swift/XRT
1005	Two active X-ray transients in the Galactic Center region as seen by INTEGRAL
892	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
756	INTEGRAL detects SWIFT J174535.5-290135.6
753	Swift/XRT detection of a transient source in the Galactic Center

[[Telegram Index](#)]

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