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

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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

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

Referred to by ATel #: [10900](#), [11263](#)

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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 $(2.1 \pm 0.7) \times 10^{23}$ cm $^{-2}$. The inferred 2-10 keV unabsorbed flux is $\sim 1.5 \times 10^{-9}$ erg/cm 2 /s, which corresponds to a luminosity of $\sim 9 \times 10^{36}$ 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 $\sim 1 \times 10^{35}$ - 1×10^{37} erg/s (Degenaar et al. 2015).

Apart from GRS 1741-2853 there are currently no other X-ray transients active within the $\sim 20 \times 20$ arcmin XRT FOV around Sgr A*. The Swift Monitoring Campaign website can be found at: <http://www.swift-sgra.com>.

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