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Continued Swift/XRT monitoring observations of the Galactic center

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Continued Swift/XRT monitoring observations of the Galactic center

ATel #5861; *N. Degenaar (U. of Michigan), R. Wijnands (U. of Amsterdam), M. T. Reynolds (U. of Michigan), J. M. Miller (U. of Michigan), J. A. Kennea (PSU), N. Gehrels (GSFC), D. Haggard (Northwestern), G. Ponti (MPE), D. N. Burrows (PSU) on behalf of a larger collaboration*

on 7 Feb 2014; 20:06 UT

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Subjects: X-ray, Black Hole, Neutron Star

Referred to by ATel #: [5922](#)



We report on continued X-ray monitoring observations of the Galactic center with the Swift/XRT (Atel #[5847](#)). Between 2014 February 2 and 6 the XRT count rate at the position of Sgr A* and the nearby transient magnetar SGR J1745-29 varied between $\sim 1\text{E-}2$ and $3\text{E-}2$ counts s⁻¹. This level is consistent with that expected from extrapolating a simple exponential decay fit to the 2013 Swift outburst data of SGR J1745-29 (yielding a decay time of ~ 149 days, see also Rea et al. 2013).

An XRT spectrum extracted from 4.8 ks of data obtained between 2014 February 2 and 6 can be described by an absorbed power law with a hydrogen column density of $(1.7\pm 1.3)\text{E}23$ cm⁻² and a power-law index of 4.2 ± 2.5 . Although the error bars are large, the photon index appears to be softer than the persistent emission detected at the position of Sgr A* between 2006 and 2011 (Degenaar et al. 2013). These spectral parameters are, however, consistent with those reported for SGR J1745-29 based on 2013 Swift/XRT data (Kennea et al. 2013; Rea et al. 2013). The resulting 2-10 keV absorbed and unabsorbed fluxes are $\sim 4.0\text{E-}12$ and $\sim 2.7\text{E-}11$ erg cm⁻² s⁻¹, respectively. For a distance of 8 kpc this translates into a luminosity of $\sim 3.0\text{E}34$ erg s⁻¹ (not corrected for absorption) or $\sim 2.1\text{E}35$ erg s⁻¹ (unabsorbed).

Ongoing Swift/XRT monitoring therefore suggests that SGR J1745-29 might still be X-ray active. Daily updates can be found at the [Swift Sgr A* Monitoring Campaign Website](#).

References:

Degenaar et al. 2013, ApJ 769, 155
Kennea et al. 2013, ApJ 770, L24
Rea et al. 2013, ApJ 775, L34

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