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Swift/XRT detects a new accretion outburst from the Galactic center X-ray transient AX J1745.6-2901

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

Publication date

2021

Document Version

Final published version

Published in

The astronomer's telegram

License

Unspecified

[Link to publication](#)

Citation for published version (APA):

Degenaar, N., Wijnands, R., Reynolds, M. T., Miller, J. M., & Kennea, J. A. (2021). Swift/XRT detects a new accretion outburst from the Galactic center X-ray transient AX J1745.6-2901. *The astronomer's telegram*, 14788. <https://www.astronomerstelegam.org/?read=14788>

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Swift/XRT detects a new accretion outburst from the Galactic center X-ray transient AX J1745.6-2901

ATel #14788; *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 15 Jul 2021; 06:02 UT

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

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

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Starting on 2021 July 10, our daily Swift/XRT monitoring observations of the Galactic center (Degenaar et al. 2015) detect activity from a transient X-ray source located $\sim 1'$ to the South-East of Sgr A*. Running the online XRT products tool on the 1.0-ks exposure obtained on July 13 (obsID 00096134085), we determine an 'enhanced' position for this X-ray transient of R.A. = 17:45:35.71, Dec. = -29:01:33.2 (J2000) with a 90% confidence error of 2.8" (Goad et al. 2007; Evans et al. 2009). This localization is fully consistent with that of the known eclipsing and bursting transient neutron star low-mass X-ray binary AX J1745.6-2901 (Degenaar & Wijnands 2009), so we are likely detecting a new outburst from this source.

The average XRT spectrum of the transient, extracted from the 2021 July 13 observation with the online XRT tool (Evans et al. 2009), can be described by an absorbed power-law model with an index of 3.5 ± 0.9 and a hydrogen column density of $(2.2 \pm 0.6) \times 10^{23} \text{ cm}^{-2}$ (1-sigma confidence errors). The resulting 2-10 keV unabsorbed flux is $1.1 (+1.2, -0.4) \times 10^{-10} \text{ erg cm}^{-2} \text{ s}^{-1}$, which converts into a luminosity of $\sim 8.4 \times 10^{35} \text{ erg/s}$ at a distance of 8 kpc. In the past 15 years, the Swift monitoring program detected several different accretion outbursts from AX J1745.6-2901 (see ATel #13150 for a list), lasting for months to years and reaching a peak luminosity of a few times 10^{35} - 10^{36} erg/s (e.g., Degenaar et al. 2015).

Daily Swift/XRT monitoring of the Galactic Center is ongoing and the results of new observations are automatically posted on <http://www.swift-sgra.com>.

References:

Degenaar & Wijnands 2009, A&A 495, 547

Degenaar et al. 2015, JHEAp, 7, 137

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rrutledge@astronomerstelegram.org

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dfox@astronomerstelegram.org