



UvA-DARE (Digital Academic Repository)

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>

General rights

It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations

If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: <https://uba.uva.nl/en/contact>, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.

Outside

GCN
IAUCs
ATel on Twitter

Patreon

The Astronomer's Telegram

Post | Search | Policies
Credential | Feeds | Email

21 Mar 2022; 07:18 UT

This space for free for your conference.

MIAPP workshop on
Interacting Supernovae
6 February - 3 March 2023
Garching, GermanyNe/O Si
→

Thanks to Patrons, The Astronomer's Telegram is free to read, free to publish and always will be. Thank you.

[[Previous](#) | [Next](#) | [ADS](#)]

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

[Tweet](#)

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

Related

- | | |
|-------|---|
| 14788 | Swift/XRT detects a new accretion outburst from the Galactic center X-ray transient AX J1745.6-2901 |
| 14378 | Swift resumes X-ray monitoring observations of the Galactic center after Sun constraints |
| 13839 | Renewed activity of the Galactic center transient Swift J174535.5-285921 seen with Swift/XRT |
| 13683 | Swift/XRT detects a new outburst of the Galactic Center transient GRS 1741.9-2853 |
| 13453 | Swift/XRT detects (continued) activity of the Galactic center transient AX J1745.6-2901 |
| 13150 | Swift/XRT detects a new outburst of the Galactic Center transient AX J1745.6-2901 |
| 11263 | Swift resumes X-ray monitoring observations of the Galactic center in 2018 |
| 10900 | Swift/XRT detects activity of a very-faint X-ray transient, likely the neutron star X-ray binary AX J1745.6-2901, near Sgr A* |
| 10859 | Swift/XRT detects a new accretion outburst of the Galactic center neutron star transient GRS 1741-2853 |
| 10323 | Swift/XRT detects renewed activity of the Galactic center transient AX J1745.6-2901 |
| 9551 | Swift/XRT detects renewed activity of the Galactic center transient XMM J174457-2850.3 |
| 9236 | Swift/XRT detects renewed activity of the Galactic center 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 |
| 9109 | Swift/XRT detection of another active X-ray transient close to Sgr A* |
| 8881 | Swift/XRT detects renewed activity of the Galactic center transient GRS 1741-2853 |
| 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 |

Evans et al. 2009, MNRAS 397, 1177

Goad et al. 2007, A&A 476, 1401

	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
3525	Chandra Localization of the Galactic Center X-ray 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](#)]

R. E. Rutledge, Editor-in-Chief

rrutledge@astronomerstelegram.org

Derek Fox, Editor

dfox@astronomerstelegram.org