



## UvA-DARE (Digital Academic Repository)

### Swift/XRT detects a new outburst of the Galactic Center transient AX J1745.6-2901

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

**Publication date**

2019

**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. (2019). Swift/XRT detects a new outburst of the Galactic Center transient AX J1745.6-2901. *The astronomer's telegram*, 13150. <http://www.astronomerstelegam.org/?read=13150>

**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.

# The Astronomer's Telegram

[Post](#) | [Search](#) | [Policies](#)  
[Credential](#) | [Feeds](#) | [Email](#)

24 Feb 2020; 10:44 UT

## Outside

[GCN](#)  
[IAUCs](#)

## Other

ATel on [Twitter](#) and [Facebook](#)  
[ATELstream](#)  
[ATel Community Site](#)

This space for free for your conference.



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

## Swift/XRT detects a new outburst of the Galactic Center transient AX J1745.6-2901

ATel #13150; *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 1 Oct 2019; 07:27 UT*

*Distributed as an Instant Email Notice Transients*

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

Subjects: X-ray, Neutron Star, Transient

Referred to by ATel #: [13453](#)

Our daily Swift/XRT monitoring observations of the Galactic Center (Degenaar et al. 2015, JHEAp, 7, 137) show X-ray activity of a transient source located  $\sim 1.5'$  to the south-east of Sgr A\*. This object is clearly detected in individual XRT images since September 17 (obs ID 00095329145), with a count rate of  $\sim 0.04$ - $0.12$  c/s.

Using the tool `xrtcentroid` on a combined image of the 13 observations taken between September 17 and 29 (obsID 00095329145-157), we determine that the position of the transient is RA = 17:45:36.16, DEC = -29:01:33.24 (J2000) with a 90% confidence error of  $3.6''$ . These coordinates are consistent with the Chandra localisation (ATel #1513) of the 8.4-hr eclipsing low-mass X-ray binary and thermonuclear X-ray burster AX J1745.6-2901. We thus conclude that we have likely detected a new outburst of this transient.

We extracted an average spectrum from the above mentioned observations. This spectrum can be described by an absorbed power-law model with an index of  $2.4 \pm 0.4$  and a hydrogen column density of  $(2.0 \pm 0.3) \times 10^{23} \text{ cm}^{-2}$  (1-sigma errors). The inferred 2-10 keV unabsorbed flux for this fit is  $(3.7 \pm 0.9) \times 10^{-11} \text{ erg cm}^{-2} \text{ s}^{-1}$ , which translates into a luminosity of  $\sim 3 \times 10^{35} \text{ erg/s}$  at a distance

### Related

- 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](#)
- 12843** [Swift Bulge Survey: X-ray activity of bursters KS 1741-293, IGR J17445-2747, SAX J1750.8-2900, and symbiotic X-ray binary XMMU J174445.5-295044](#)
- 11313** [X-ray Flare from Galactic Center Detected by Swift](#)
- 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](#)
- 10671** [MAXI/GSC detection of a weak X-ray outburst from RX J1709.5-2639 \(XTE J1709-267\)](#)
- 10323** [Swift/XRT detects renewed activity of the Galactic center transient AX J1745.6-2901](#)
- 10089** [Swift resumes X-ray monitoring observations of the Galactic center in 2017](#)
- 9551** [Swift/XRT detects renewed activity of the Galactic center transient XMM J17457-2850.3](#)

of 8 kpc.

AX J1745.6-2901 is very frequently active: our monitoring program previously detected outbursts from this system in 2006, 2007-2008, 2010 (e.g. Degenaar et al. 2015), 2013-2016 (e.g. ATels #5226, #9196), and two in 2017 (ATels #10323, #10900). The years-long outbursts that occurred in 2007-2008 and 2013-2016 reached a peak luminosity of several times E36 erg/s. All the other outbursts had a shorter duration (months) and a lower peak luminosity of a few times E35 erg/s. It seems that the current outburst belongs to the latter class.

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>.

|             |   |
|-------------|---|
| <b>9236</b> | Swift/XRT detects renewed activity of the Galactic center X-ray transient Swift J174535.5-285921                              |
| <b>9196</b> | Continued Swift/XRT observations of the new Galactic center transients SWIFT J174540.2-290037 and SWIFT J174540.7-290015      |
| <b>9152</b> | VVV near-infrared observations of the Swift J174540.2-290037 field  |
| <b>9109</b> | Swift/XRT detection of another active X-ray transient close to Sgr A*   |
| <b>9000</b> | Hard X-ray activity from the direction to Sgr A* revealed by INTEGRAL   |
| <b>8881</b> | Swift/XRT detects renewed activity of the Galactic center transient GRS 1741-2853   |
| <b>8793</b> | A Search for a Radio Counterpart to Swift J174540.7-290015  |
| <b>8746</b> | Chandra Position of Galactic Center X-ray Transient Swift J174540.7-290015  |
| <b>8737</b> | VVV near-infrared observations of the Swift J174540.7-290015 field  |
| <b>8729</b> | Search for pulsed radio emission from SWIFT J174540.7-290015  |
| <b>8689</b> | Near-IR source content of the error region for SWIFT J174540.7-290015   |
| <b>8684</b> | INTEGRAL observations of Swift J174540.7-290015   |
| <b>8649</b> | New Galactic Center X-ray Transient Detected by Swift: SWIFT J174540.7-290015   |
| <b>7023</b> | Swift resumes X-ray monitoring observations of the Galactic center  |
| <b>5861</b> | Continued Swift/XRT monitoring observations of the Galactic center  |
| <b>5847</b> | Swift/XRT observations of the Galactic center have resumed  |
| <b>5332</b> | Report on (non-)activity in the Galactic bulge region as seen by INTEGRAL   |
| <b>5319</b> | MAXI/GSC detection of a new X-ray outburst from RX J1709.5-2639(=XTE J1709-267)   |
| <b>5301</b> | A new outburst from LMXB 1A 1744-361  |
| <b>5246</b> | Swift/XRT detects activity of the Galactic center transient GRS 1741-2853   |
| <b>5241</b> | MAXI/GSC detection of a renewed outburst from the black hole candidate H 1743-322   |
| <b>5226</b> | New Swift/XRT observations confirm that the active Galactic center transient is AX J1745.6-2901                               |
| <b>5222</b> | Swift/XRT monitoring observations detect an active X-ray transient near the Galactic center                                   |
| <b>5053</b> | Detection by Sardinia Radio Telescope of radio pulses at 7 GHz from the Magnetar PSR J1745-2900 in the Galactic center region |
| <b>5046</b> | Spin-down Measurement of PSR J1745-2900: a New Magnetar   |

|      |  |
|------|--|
| 5037 | Swift-BAT monitoring for additional bursts from SGR J1745-29 (Trigger 554491)  |
| 5032 | Chandra localization of the soft gamma repeater in the Galactic Center region  |
| 5020 | NuSTAR discovery of a 3.76 second pulsar in the Sgr A* region  |
| 5016 | Continued Swift Monitoring of the Galactic Center Flare  |
| 5009 | Swift/BAT detection of an SGR-like flare from near Sgr A*  |
| 5008 | Ongoing X-ray activity from Sgr A*   |
| 5006 | Large Flare from Sgr A* Detected by Swift  |
| 4840 | Transient X-ray burster KS 1741-293 active again   |
| 4471 | 1E 1740.7-2942 (the Great Annihilator) enters a low-intensity state  |
| 3632 | Swift detects an X-ray burst and renewed activity from KS 1741-293   |
| 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                                   |
| 2770 | Swift/XRT detects new outbursts of the galactic center X-ray transients GRS 1741-2853 and XMM J174457-2850.3                 |
| 2690 | Swift/XRT detects renewed activity of the galactic center X-ray transient AX J1745.6-2901                                    |
| 1739 | INTEGRAL spots renewed activity from H1743-322   |
| 1541 | Swift/XRT observations of the X-ray transients KS1741-293 and XTE J1719-291  |
| 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  |
| 1385 | INTEGRAL Galactic bulge monitoring observations of GRO J1750-27 (AX J1749.1-2639), H1743-322 and SLX 1746-331                |
| 1266 | Recent and past activity of the supergiant fast X-ray transient IGR J17544-2619 as seen by INTEGRAL                          |
| 1185 | INTEGRAL detects hard X-rays from SAX J1810.8-2609 during its current outburst   |
| 1058 | Long duration outbursts from the two X-ray bursters AX J1745.6-2901 and GRS 1741.9-2853 suggested by XMM-Newton observations |
| 1013 | Chandra Detection of Three Enigmatic X-ray Transients: GRS 1741.9-2853,  |
| 1008 | IGR J17453-2853 = Granat 1741.9-2853?  |
| 1007 | ATCA radio observations of GX 339-4  |
| 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   |
| 904  | Announcement of the Swift/BAT Hard X-ray Transient Monitor  |
| 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 |
| 874  | New INTEGRAL source, IGR J17354-3255, and continuation of the INTEGRAL Galactic Bulge monitoring program  |
| 756  | INTEGRAL detects SWIFT J174535.5-290135.6   |
| 753  | Swift/XRT detection of a transient source in the Galactic Center  |
| 734  | Three active neutron star X-ray transients: SAX J1747.0-2853, XTE J1739-285 and GRS 1747-312  |
| 642  | On the (hard) X-ray activity of SAX J1747.0-2853 as seen with INTEGRAL  |
| 641  | Swift Observation of SAX J1747.0-2853   |
| 638  | Further Chandra observations of SAX J1747.0-2853 and the region around Sgr A*   |
| 637  | Renewed activity of the neutron star X-ray transient SAX J1747.0-2853   |

---

[ [Telegram Index](#) ]

R. E. Rutledge, Editor-in-Chief

Derek Fox, Editor

Mansi M. Kasliwal, Co-Editor

[rrutledge@astronomerstelegam.org](mailto:rrutledge@astronomerstelegam.org)

[dfox@astronomerstelegam.org](mailto:dfox@astronomerstelegam.org)

[mansi@astronomerstelegam.org](mailto:mansi@astronomerstelegam.org)