



## UvA-DARE (Digital Academic Repository)

### A sub-luminous outburst of a transient in the Galactic globular cluster Terzan 5, possibly due to EXO 1745-248 (aka Terzan 5 X-1)

Wijnands, R.; Bahramian, A.; Altamirano, D.; Sivakoff, G.; Heinke, C.; Degenaar, N.

**Publication date**

2016

**Document Version**

Final published version

**Published in**

The astronomer's telegram

[Link to publication](#)

**Citation for published version (APA):**

Wijnands, R., Bahramian, A., Altamirano, D., Sivakoff, G., Heinke, C., & Degenaar, N. (2016). A sub-luminous outburst of a transient in the Galactic globular cluster Terzan 5, possibly due to EXO 1745-248 (aka Terzan 5 X-1). *The astronomer's telegram*, 8982. <http://www.astronomerstelegam.org/?read=8982>

**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](#)

16 Jul 2020; 13:47 UT

This space for free for your conference.

### Outside

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

### Other

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

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

# A sub-luminous outburst of a transient in the Galactic globular cluster Terzan 5, possibly due to EXO 1745-248 (aka Terzan 5 X-1)

ATel #8982; *R. Wijnands (U. Amsterdam), A. Bahramian (U. Alberta), D. Altamirano (Southampton U.), G. Sivakoff, C. Heinke (U. Alberta), N. Degenaar (Cambridge U.)*  
on 24 Apr 2016; 05:00 UT

*Credential Certification: Craig Heinke (cheinke@virginia.edu)*

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

Referred to by ATel #: [8996](#)

Using Swift/XRT, the Galactic globular cluster Terzan 5 was observed on 17 April 2016. During this observation, we found that the X-ray flux originating from this cluster was significantly above the normal cluster background, indicating that a possible X-ray transient was active during this XRT observation. To confirm this transient and follow its outburst evolution, we obtained two additional XRT observations on 21 April and 23 April. Also during those observations, the X-ray flux was significantly above the cluster background confirming activity from an X-ray transient. Combining all data, we obtained the following position for this transient (UVOT enhanced):

RA (J2000) : 17h 48m 05.22s (267.02175)

Dec (J2000): -24d 46' 48.6" (-24.78017)

with a 90% error radius of 2.1". This position is fully consistent with the known neutron-star transient EXO 1745-248 (aka Terzan 5 X-1), but inconsistent with the other two known transients. Therefore, it is likely that EXO 1745-248 is in outburst again, although the presence of a new transient close to this source cannot be excluded.

### Related

[8996](#) **Swift-XRT globular cluster monitor: April 2016 Terzan 5 observations**

[8982](#) **A sub-luminous outburst of a transient in the Galactic globular cluster Terzan 5, possibly due to EXO 1745-248 (aka Terzan 5 X-1)**

We fitted the obtained X-ray spectra using an absorbed power-law model, which could adequately fit the data. We found that the photon index stayed roughly constant at 1.7-1.8. The 0.5-10 keV unabsorbed flux was approximately the same on 17 and 21 April ( $\sim 8\text{-}9\text{e-}12$  erg/s/cm<sup>2</sup>) but declined to  $4.8\text{e-}12$  erg/s/cm<sup>2</sup> on April 23 (possibly indicating a rapid decline of the source). This corresponds to 0.5-10 keV luminosities ranging from  $\sim 4\text{e}34$  erg/s to  $\sim 2\text{e}34$  erg/s. The outburst of this source is very sub-luminous compared to the normal outbursts of EXO 1745-248 that can reach luminosities of  $\sim 1\text{e}38$  erg/s. Therefore, either EXO 1745-248 also can exhibit very faint outbursts or indeed a new source is active close to EXO 1745-248.

Additional Swift/XRT observations are scheduled to follow this transient to further study this source.

---

---

[ [Telegram Index](#) ]

R. E. Rutledge, Editor-in-Chief

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

Derek Fox, Editor

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

Mansi M. Kasliwal, Co-Editor

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