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*Published in:*  
The astronomer's telegram

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*Citation for published version (APA):*

Heinke, C. O., Bahramian, A., Wijnands, R., & Altamirano, D. (2013). IGR J18245-2452 is a new transient located in the core of the globular cluster M28. *The astronomer's telegram*, 4927.  
<http://www.astronomerstelegam.org/?read=4927>

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## IGR J18245-2452 is a new transient located in the core of the globular cluster M28

ATel #4927; *C. O. Heinke, A. Bahramian (U. Alberta), R. Wijnands, D. Altamirano (U. Amsterdam)**on 30 Mar 2013; 06:33 UT**Credential Certification: Craig Heinke (cheinke@virginia.edu)*

Subjects: X-ray, Globular Cluster, Transient

Referred to by ATel #: [4929](#), [4934](#), [4959](#), [4960](#), [4961](#), [4964](#), [4981](#), [5003](#), [5031](#), [5045](#), [5068](#), [5069](#), [5086](#)

Eckert et al. (Atel #4925) report a new INTEGRAL ISGRI transient, IGR J18245-2452, consistent with the location of the globular cluster M28, but with a large (1.4', 90% conf) error circle. We used the UK Swift Science Centre XRT products tool, and our own processing, to analyze a Swift observation of IGR J18245-2452 (PI Ferrigno), which started on March 29, 2013 and lasted 1977 seconds. The transient is clearly detected and heavily piled-up, but the PSF is symmetrical, allowing a reliable centroid position. The centroid position is (J2000) 18:24:32.20,-24:52:05.5, with error radius 3.5" (at 90% confidence), inside the core of M28. We note that this position is inconsistent with the one known quiescent LMXB in the cluster, at position 18:24:32.821,-24:52:08.26 (Becker et al. 2003, ApJ, 594, 798), and is only consistent (within 90% confidence) with one source from Becker et al. (2003), their source 22. Note that source 22 is probably a combination of X-ray emission from millisecond pulsar L and another source (see Bogdanov et al. 2011, ApJ, 730, 81). It is quite possible that the true quiescent counterpart to IGR J18245-2452 is fainter than Becker et al.'s detection limit.

The Swift XRT observation shows substantial variability, by over a factor of two within less than 100 seconds. Spectral fitting (excluding 17 arcseconds around the central piled-up core) gives  $N_H=4.4\pm 0.4e21$  cm<sup>-2</sup> (slightly higher than the cluster  $N_H$  of 2.4e21), photon index=1.41±0.07, and 0.5-10 keV (unabsorbed) flux of 5.7±0.2e-10 erg/cm<sup>2</sup>/s. For M28's distance of 5.5 kpc (Harris, 1996, AJ, 112, 1487; 2010 edition), this gives an inferred 0.5-10 keV luminosity of 2.1±0.1e36 ergs/s.

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rrutledge@astronomerstelegram.org

dfox@astronomerstelegram.org

mansik@astronomerstelegram.org

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