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## Swift/XRT follow up of the X-ray transient in the globular cluster Terzan 5

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on 17 Mar 2015; 23:38 UT

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Referred to by ATel #: [7247](#), [7262](#), [7430](#)

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Following the report of a new outburst (ATel #[7240](#)), Swift-XRT observed the globular cluster Terzan 5 on 2015-03-17 17:41 UT, for 2 ksec.

One bright source is detected in the core of Terzan 5, at a count rate of about 1.3 cts/s with no indication of bursts or dips. The unenhanced XRT location is RA, DEC (J2000): 267.0207, -24.779, with an error radius of 3.5". This position is marginally consistent with two of the known transients in Terzan 5: EXO 1745-248 (2000 outburst) and Terzan 5 X2 (2010 outburst), but not with Terzan 5 X3 (2012 outburst; being 9.5" away). The 2015 transient position is also consistent with CXOGb J174804.8-244644 (a quiescent NS LMXB candidate), CXOGb J174805.0-244641 (a known radio MSP), and CXOGb J174805.1-244645, CXOGb J174804.7-244642, CXOGb J174804.9-244642 from Heinke et al. (2006, ApJ, 651, 1098).

Due to the high level of pile-up, we extracted a spectrum from an annulus of 13"-60" radii. The spectrum can be well-described by an absorbed powerlaw with  $N_H$  of  $(4 \pm 0.8) \times 10^{22} \text{ cm}^{-2}$  and (a relatively hard) photon index of  $1.0 \pm 0.2$ . The  $N_H$  value is higher than the value found for the cluster (Bahramian et al. 2014, ApJ, 780, 127), which suggests the presence of intrinsic absorption in this transient. The source is currently at  $\sim 1e36 \text{ erg/s}$  (0.5-10 keV band, assuming a distance of 5.9 kpc to Terzan 5).

EXO 1745-248 is known to show enhanced  $N_H$  (Kuulkers et al. 2003 A&A, 399, 663). Thus the enhanced  $N_H$  we observed may suggest EXO 1745-248 as the source of this transient event.

More observations have been requested to follow up the outburst evolution. We thank the Swift team for rapidly scheduling our observations.

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