Outside
GCN
IAUCs

Other
ATel on Twitter and Facebook
ATELstream
ATel Community Site
MacOS: Dashboard Widget

The Astronomer's Telegram
Post a New Telegram | Search | Information
Telegram Index
Obtain Credential To Post | RSS Feeds | Email Settings

Present Time: 24 Jan 2014; 13:55 UT

This space for free for your conference.

[Previous | Next | ADS]

A new X-ray transient in the globular cluster Terzan 5

ATel #4242; *R. Wijnands, D. Altamirano (University of Amsterdam), C. O. Heinke, G. R. Sivakoff (University of Alberta), D. Pooley (Sam Houston State University, Eureka Scientific)*
*on **7 Jul 2012; 19:21 UT***
Distributed as an Instant Email Notice Transients
Credential Certification: Rudy Wijnands (rudy@space.mit.edu)

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

Referred to by ATel #: 4249, 4264, 4302

Tweet 1

Recommend 0

As part of our program (PI: Altamirano) using Swift/XRT to monitor several globular clusters to detect transient behavior of X-ray binaries in those clusters, we obtained a 1.2 ksec observation of Terzan 5 on 6 July 2012. During this observation, we detect a clear excess of photons which was not present during previous Swift observations (i.e., 26 June 2012, 30 June 2012).

The Swift/XRT unenhanced position (J2000) of this new source is

RA = 17h 48m 05.24s
Dec = -24d 46' 38.4s"

with an error of 3.7" (90% confidence) and the enhanced position is

RA = 17h 48m 05.37s
Dec = -24d 46' 37.5s"

with an error of 2.5", using the online Swift tools (http://www.swift.ac.uk/user_objects).

This position is inconsistent (>10" away) with the positions of the two known bright X-ray transients in this cluster (Heinke et al. 2003, ApJ 590, 809; Pooley et al. 2011, ATel #3743), but it is consistent with a faint source detected during previous Chandra observations of Terzan 5 performed in 2000, 2003, and 2009-2012 (CX 2 in Heinke et al. 2006, ApJ 651, 1098). This source was suggested to be a transient neutron-star low-mass X-ray binary in its quiescent state, and the detection of an outburst from this source strongly supports this interpretation. However, we do note that the XRT position is also consistent with an even fainter Chandra source (CX 45 of Heinke et al. 2006). Of course, the presently active source could also be a new source previously undetected in archival Chandra observations. A Chandra observation during the current active state of the source would determine conclusively which source is in outburst.

The source spectrum could be fitted with an absorbed power-law model with a column density of 1.6+0.9-0.6 E22 cm-2 (which is consistent with that of CX 2; Heinke et al. 2006) and a photon index of 2.1+/-0.8. The 0.3-10.0 keV observed flux is 5.4+1.8-1.2 E-12 erg/cm2/s and the 0.3-10 keV unabsorbed flux is 1.4+2.5-0.5 e-11 erg/cm2/s. For a distance of 5.5 kpc (Ortolani et al. 2007, A&A, 470, 1043), this would result in 0.3-10 keV absorbed and unabsorbed X-ray

Related
5095 Chandra confirmation of transient X-ray activity from CXOGC J174540.0-290005 north of the Galactic Center
5074 Swift/XRT detection of an active X-ray transient near the Galactic center
5073 NuSTAR detection of a transient in outburst north of Sgr A*
5053 Detection by Sardinia Radio Telescope of radio pulses at 7 GHz from the Magnetar PSR J1745-2900 in the Galactic center region
5046 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
5011 Swift XRT spectrum of transient X-ray source at Sgr A*'s position
5009 Swift/BAT detection of an SGR-like flare from near Sgr A*
4915 Confirmation of GRS 1747-312 as the active transient in Terzan 6
4883 INTEGRAL/JEM-X detection of a possible new outburst from GRS 1747-312
4302 Chandra Identification of the 2012 Transient in Terzan 5
4264 The new X-ray transient Swift J174805.3-244637 in Terzan 5 is a neutron star LMXB
4249 Brightening and hardening of new X-ray transient in globular cluster Terzan 5
4242 A new X-ray transient in the globular cluster Terzan 5
3892 Sub-arcsecond position of the the transient 11-Hz X-ray pulsar in the Globular Cluster Terzan 5 derived from a Moon occultation observed by RXTE
3743 Chandra Identification of the 2011 Transient in Terzan 5: Same as the 2000 Transient
3729 MAXI detection of a super-burst from EXO 1745-248 in Terzan 5
3723 Improved Swift-XRT position of the transient source in

luminosities of ~2e34 erg/s and ~5e34 erg/s, respectively. This is ~10 times brighter than the quiescent luminosity of CX 2 (Heinke et al. 2003, 2006) again demonstrating that the source is in outburst. The current X-ray luminosity is still very low which either indicates that the source is a very-faint X-ray transient with peak outburst luminosities below 1e36 erg/s (see Wijnands et al. 2006, A&A 449, 1117, for a discussion) or we observe the beginning of a brighter outburst. Approved follow-up Swift/XRT observations during the current active state of the source will determine the peak brightness of this source.

We thank the Swift teams at Penn State and Leicester.

Terzan 5
3720 Swift and RXTE follow up observations of the transient currently active in the globular cluster Terzan 5
3718 INTEGRAL non detection of renewed activity from Terzan 5
3714 New X-ray transient outburst in Terzan 5
3264 A possible IR counterpart to the transient X-ray pulsar IGR J17480-2446 in Terzan 5
3044 Terzan 5 transient IGR J17480-2446: return of thermonuclear bursts or were they always there?
3000 Type-II bursts from the new Terzan 5 transient: a GRO J1744-28 analogue?
2974 Chandra Identification of the Transient in Terzan 5: Not the 2000 Transient.
2958 Discovery of mHz QPOs and burst rate evolution in the active Terzan 5 neutron star transient
2952 D. Altamirano (Amsterdam), J. Homan (MIT), M. Linares (MIT), A. Patruno (Amsterdam), Y. Yang (Amsterdam), A. Watts (Amsterdam), M. Kalamkar (Amsterdam), P. Casella (Southampton), M. Armas-Padilla (Amsterdam), Y. Cavecchi (Amsterdam), N. Degenaar (Amsterdam), D. Russell (Amsterdam), R. Kaur (Amsterdam), M. van der Klis (Amsterdam), N. Rea (CSIC-IEEC), R. Wijnands (Amsterdam)
2946 A Refined Orbital Solution and the Transient Pulsar in Terzan 5 is Not Eclipsing
2939 A preliminary orbital solution for the transient eclipsing pulsar in Terzan 5
2937 Eclipsing X-ray Burster in Terzan 5: Improved Swift Localization
2935 Discovery of kilohertz quasi-periodic oscillations from EXO 1745-248
2933 The Eclipsing X-ray Burster in Terzan 5 is Probably Not the 2000 Transient
2932 Discovery of 11 Hz burst oscillations from the 11 Hz Eclipsing Pulsar in Terzan 5
2929 EXO 1745-248 is an 11 Hz Eclipsing Pulsar
2924 Further INTEGRAL observations of the transient X-ray burster EXO 1745-248
2922 Swift follow-up observations of EXO 1745-248
2920 Swift-XRT location of the ongoing Terzan 5 outburst
2919 A hard X-ray transient in the direction of Terzan 5 detected by INTEGRAL
2139 New transient LMXB in the globular cluster NGC 6440

[Telegram Index]

R. E. Rutledge, Editor-in-Chief rrutledge@astronomerstelegram.org
Derek Fox, Editor dfox@astronomerstelegram.org
Mansi M. Kasliwal, Co-Editor mansi@astronomerstelegram.org