New Galactic Center X-ray Transient Outburst Detected by Swift: SWIFT J174448.4-290729

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New Galactic Center X-ray Transient Outburst Detected by Swift: SWIFT J174448.4-290729

ATel #12927; ***Mark Reynolds (Michigan), Nathalie Degenaar (Amsterdam), Rudy Wijnands (Amsterdam), Jon Miller (Michigan), Jamie Kennea (Penn State) on behalf of a larger collaboration.***
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We report on our ongoing Swift monitoring observations of the Galactic center (Degenaar et al. 2015). In the latest Swift observation (obsid: 00095329087), a transient X-ray source is detected in a ~ 0.8 ks observation on MJD 58675.19653 (t_start: 190711 @04:42UT) at a position of

RA (J2000): 17h 44m 48.4s (266.20167)
Dec (J2000): -29Â° 07? 28.8?? (-29.124663)
90% Error radius: 2.2??

This source lies approximately 13.4' southwest of Sgr A*. Extracting a spectrum from a circular region (r=18") centered on this source and background from an annular region 28"-37" from the source position, we measure a net count rate of 0.19+/-0.05 ct/s. Counts from the source are detected in the 0.3 - 4 keV band. In order to characterize this source, spectral fits were carried out in xspec, utilizing the c-statistic. All quoted uncertainties are at the 90% confidence level.

Assuming a gamma=1.8 powerlaw continuum, we measure

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N_H = (0.25 -0.23 +0.38)e22 cm^-2
Gamma = 1.8
Norm = (2.5 -1.1 +1.8)e-4
Flux = (1.2 +/- 0.7)e-12 erg/s/cm^2 (0.3-10.0 keV) - Lx ~ 1e34 erg/s @8kpc
cstat/dof = 10.6/14

Assuming a 0.5 keV blackbody continuum, we measure
N_H < 0.4e22 cm^-2
kT_bbrad = 0.5 keV
Norm = 1.0 -0.38 +0.75
Flux = (6.7 -3.9 +2.2)e-13 erg/s/cm^2 (0.3-10.0 keV) - Lx ~ 5e33 erg/s @8kpc
cstat/dof = 11.2/14

At a distance of 8 kpc, the inferred luminosity (Lx ~ 1e34 erg/s) is similar to that of the population of very-faint X-ray transients in the Galactic center. The measured absorption column density appears to be a factor ~10 lower than for these objects (e.g. Degenaar & Wijnands 2009, 2010). This could suggest that the object is more proximate than 8 kpc (and hence less luminous).

We note that the source position is consistent with that of the known catalogued sources 2XMMi J174448.0-290731 and CXO J174448.1-290732, where it was previously detected at fluxes of Fx_xmm = (2.5+/-0.6)e-14 erg/s/cm^2 (0.2-12.0 keV) and Fx_cxo = (1.3 +/- 0.3)e-14 erg/s/cm^2 (0.5-7.0 keV) respectively. If the association is correct, this would imply an increase in flux of almost 2 orders of magnitude. The measured hardness ratios during the XMM-Newton detection are consistent with those observed from CVs and rotation/accretion powered pulsars (e.g., Lin et al. 2012 and Fig. 2 therein). It is possible that we have caught the source on the rise of a larger outburst. Daily monitoring observations of the Galactic center will continue with Swift, and further significant evolution will be reported in subsequent telegrams.

At the current time, we cannot firmly associate this source with the above catalogued source and as such it is possible that the detected source is a previously unknown active Galactic center transient, which we designate SWIFT J174448.4-290729. Follow-up observations are encouraged to determine the nature of this source.

The Swift/XRT Monitoring Campaign website can be found at: http://www.swift-sgra.com

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