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### Swift Bulge Survey: X-ray activity of bursters KS 1741-293, IGR J17445-2747, SAX J1750.8-2900, and symbiotic X-ray binary XMMU J174445.5-295044

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## Swift Bulge Survey: X-ray activity of bursters KS 1741-293, IGR J17445-2747, SAX J1750.8-2900, and symbiotic X-ray binary XMMU J174445.5-295044

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on 5 Jun 2019; 18:29 UT

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

Referred to by ATel #: [13095](#)

The Swift Bulge Survey performs rapid shallow mapping of 16 square degrees of the Galactic Bulge with short (120-s in 2019) observations (see Atels #[10265](#),#[10273](#),#[10305](#),#[10355](#),#[10419](#),#[10422](#),#[10428](#),#[12751](#)). After our first 2019 observations on April 4, 18 and May 8-9, we conducted further Swift Bulge Survey observations on May 16, May 23, and May 30.

In our May 30 observations, the transient X-ray burster KS 1741-293 (e.g. Atel #[9387](#); De Cesare et al. 2007, MNRAS, 380, 615) was detected with the Swift/XRT at 0.2 cts/s (0.5-10 keV). We note that the Swift/XRT position of KS 1741-293 is consistent with the Chandra source CXOGC J174451.6-292042, in agreement with the identification by Degenaar, Wijnands and Muno (2008, Atel #[1531](#)), and inconsistent with the position suggested by Marti et al. (2007, A&A, 462, 1065). Using Degenaar et al's spectral parameters ( $N_H=1.7e23$ , photon index 1.6), we use PIMMS to estimate a flux  $F_X(0.5-10 \text{ keV, unabsorbed})=1.1e-10 \text{ erg/cm}^2/\text{s}$ , and (for an 8 kpc distance)  $L_X(0.5-10)=8e35 \text{ erg/s}$ . We estimate an upper limit, combining the three preceding Swift survey

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observations, of  $L_X < 6e34$  erg/s, so we conclude that we have detected a new outburst of KS 1741-293.

The transient X-ray burster IGR J17445-2747 (Atels #10256, #10265, #10272, #10273, #10305, #10395) was barely detected ( $F_X(0.5-10 \text{ keV}) = 1e-11$  erg/cm<sup>2</sup>/s) on May 9-10 (Atel #12751). We detect 0-1 photons within 30" (vs. 5 on May 9-10) in follow-up Swift/XRT observations on May 17, May 22, May 23, May 25, May 28, or June 1, nor in our Survey observations on May 23 and May 30. The follow-up observations give individual upper limits of typically  $F_X(\text{unabs}, 0.5-10 \text{ keV}) < 1e-12$  erg/cm<sup>2</sup>/s. For an assumed 8 kpc distance, we infer that we have likely observed a very faint X-ray outburst from IGR J17445-2747, with a peak observed  $L_X$  of  $8e34$  erg/s (0.5-10 keV), though it may have reached a brighter peak  $L_X$ . The outburst lasted less than one month.

The transient X-ray burster SAX J1750.8-2900 (e.g. Atels #12048, #1431) has been detected throughout our 2019 survey observations, showing strong variability. Atel #12751 reported an increase from  $3.2e-11$  to  $7e-10$  erg/cm<sup>2</sup>/s from April 4 to May 9; we then see a sharp drop on May 16 back to  $3e-11$  erg/cm<sup>2</sup>/s, then a slow rise again up to  $3.7e-10$  erg/cm<sup>2</sup>/s (or  $L_X(0.5-10 \text{ keV}) = 3e36$  erg/s, at 8 kpc) by May 30.

The likely symbiotic X-ray binary XMMU J174445.5-295044 (Bahramian et al. 2014, MNRAS, 441, 640) was detected at roughly 0.04 ct/s in the April 18, May 9, May 23, and May 30 observations, only undetected on April 4. For a 3.1 kpc distance (Bahramian et al. 2014),  $\Gamma = 1.18$ , and  $N_H$  about  $1e23 \text{ cm}^{-2}$  (Heinke et al. 2009, ApJ, 701, 1627), this corresponds to  $F_X(2-10 \text{ keV}, \text{unabs}) = 1e-11$  erg/cm<sup>2</sup>/s,  $L_X(2-10 \text{ keV}) = 1e34$  erg/s.

We thank the Swift team for their support of these observations.

- 12048 INTEGRAL detects a new outburst from the NS LMXB SAX J1750.8-2900
- 10900 Swift/XRT detects activity of a very-faint X-ray transient, likely the neutron star X-ray binary AX J1745.6-2901, near Sgr A\*
- 10428 Chandra follow-up
- 10422 Radio Non-Detection of the New Swift Bulge Survey Transient, Swift J175233.9-290952
- 10419 Variability from 1SXPS J1742150-291453: a very nearby X-ray source?
- 10402 Correction: Chandra Localization of IGR J17445-2747
- 10395 Chandra Localization of IGR J17445-2447
- 10355 Discovery of a new X-ray transient, Swift J175233.9-290952, in the Swift Bulge Survey
- 10323 Swift/XRT detects renewed activity of the Galactic center transient AX J1745.6-2901
- 10305 NIR follow-up observations of the IGR J17445-2747 field
- 10284 Confirmation of IGR J17445-2747 infrared counterpart
- 10273 IGR J17445-2747: Updated Swift position
- 10272 Discovery of SWIFT J174429.9-274557 - a soft X-ray counterpart of the X-ray burster IGR J17445-2747
- 10265 Activity of IGR J17445-2747 and SAX J1747.0-2853 in the Swift Bulge Survey
- 10256 First detection of a thermonuclear X-ray burst from IGR J17445-2747 (with INTEGRAL/JEM-X)
- 9387 Activity from SAX J1747.0-2853 and KS 1741-293 detected by INTEGRAL Galactic Bulge Monitoring
- 9115 Chandra detection of increased X-ray activity from SAX J1747.0-2853
- 8189 Swift/XRT imaging finds no new transient near MAXI reported burst position
- 8058 INTEGRAL finds renewed X-ray activity of the Neutron star X-ray transient SAX J1750.8-2900
- 5332 Report on (non-)activity in the Galactic bulge region as seen by INTEGRAL
- 5226 New Swift/XRT observations confirm that the active Galactic center transient is AX J1745.6-2901
- 5041 MAXI/GSC detection of an X-ray outburst probably from SAX J1747.0-2853 and Swift followup observation of the Galactic center region
- 4848 INTEGRAL/JEM-X detects a new outburst of the Rapid Burster (MXB 1730-335)
- 4840 Transient X-ray burster KS 1741-293 active again
- 4752 MAXI/GSC detection of brightening of a transient LMXB XTE J1810-189
- 3646 INTEGRAL Galactic Bulge monitoring: transient activity

	from KS 1741-293, MXB 1730-335, and IGR J17498-2921
3632	Swift detects an X-ray burst and renewed activity from KS 1741-293
3408	FERMI GBM DETECTION OF A WEAK OUTBURST OF 4U 0115+63
3170	INTEGRAL/IBIS observations of the Galactic center region at the epoch of the short Fermi/LAT flare
2465	INTEGRAL reports renewed activity from KS 1741-293
2099	4U 1626-67 Torque Reversal Simultaneous with Swift/BAT Flux Increase
2095	A torque reversal to spin-up in 4U 1626-67
1775	SuperAGILE detects an X-ray burst from SAX J1750.8-2900
1662	SAX J1750.8-2900 is returning to quiescence
1633	Confirmation of the NIR counterparts to SLX 1746-331 and XTE J1810-189
1577	Identification of the transient XTE J1719-291 = SWIFT J171916.9-290410
1541	Swift/XRT observations of the X-ray transients KS1741-293 and XTE J1719-291
1531	Chandra detects activity from the Galactic X-ray transients KS 1741-293, Swift J174535.5-290135.6 and CXOGC J174535.5-290124
1513	Chandra detects Swift J174535.5-290135.6 in a relatively bright state
1508	On the infrared counterpart to XTE J1810-189
1490	Chandra Positions for the Neutron Star X-ray Transients XTE J1810-189 and SAX J1750.8-2900
1472	A candidate near-infrared counterpart to SAX J1750.8-2900
1467	Re-brightening of XTE J1719-291
1451	Swift/XRT follow-up observation of the field of XTE J1719-291
1446	NIR counterparts in the Swift error circles of the active transients SAX J1750.8-2900 and XTE J1810-189
1443	XTE J1810-189 is a Neutron Star
1442	XTE J1719-291: A Brief X-ray Transient
1441	Further Swift observations of XTE J1810-189
1434	INTEGRAL detection of the outburst of SAX J1750.8-2900
1431	Swift localisation of SAX J1750.8-2900
1428	SuperAGILE detects the new outburst of SAX J1750.8-2900 a hard X-rays
1427	Optical activity of 4U 0115+63
1426	Swift/BAT reports increased activity from three galactic sources
1425	RXTE PCA detects a new outburst of SAX J1750.8-2900

1424	RXTE PCA detects a new transient, XTE J1810-189
1273	Swift/XRT observations of INTEGRAL sources
1058	Long duration outbursts from the two X-ray bursters AX J1745.6-2901 and GRS 1741.9-2853 suggested by XMM-Newton observations
1006	Renewed activity of the Galactic center transients Swift J174535.5-290135.6 and GRS 1741.9-2853 as observed with Swift/XRT
1005	Two active X-ray transients in the Galactic Center region as seen by INTEGRAL
892	Renewed activity of the very faint X-ray transient CXOGC J174535.5-290124 and continued activity of the neutron-star X-ray transient SAX J1747.0-2853
756	INTEGRAL detects SWIFT J174535.5-290135.6
753	Swift/XRT detection of a transient source in the Galactic Center
734	Three active neutron star X-ray transients: SAX J1747.0-2853, XTE J1739-285 and GRS 1747-312
642	On the (hard) X-ray activity of SAX J1747.0-2853 as seen with INTEGRAL
641	Swift Observation of SAX J1747.0-2853
638	Further Chandra observations of SAX J1747.0-2853 and the region around Sgr A*
637	Renewed activity of the neutron star X-ray transient SAX J1747.0-2853
326	New outburst from 4U0115+634

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[ **Telegram Index** ]

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