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The Structure and Signals of Neutron Stars, from Birth to Death

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New INTEGRAL and Swift observations of the faint neutron-star X-ray transient SAX J1806.5-2215

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on 4 Apr 2012; 17:56 UT

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Subjects: Binary, Neutron Star, Transient



One year after the beginning of its most recent outburst (ATels #[3193](#), #[3202](#), #[3210](#), #[3218](#)), the faint neutron-star X-ray transient SAX J1806.5-2215 (in't Zand et al. 1998, NuPhS, 69, 228) was found (using a Swift/XRT observation) to be still in outburst in February 2012 (Atel #[3926](#)). At the same time, the Galactic Center region could be observed again by INTEGRAL.

We have analyzed the first set of IBIS/ISGRI observations on the source collected between 10 and 19 February 2012 (satellite revolutions 1139-1142; effective exposure ~26 ks), that were quasi-simultaneous with the Swift/XRT observation reported in the ATel #[3926](#). The source could not be detected in the IBIS/ISGRI data and the 5 sigma upper limit on the 20-40 keV flux is 9 mCrab.

During the latest INTEGRAL observations (~33 ks of exposure time) performed on March 29-31 (revolution 1155), we found that SAX J1806.5-2215 could be detected at a flux level of 14.2+/-1.4 mCrab in the 20-40 keV energy band (uncertainty at 1 sigma, statistical only). The 20-100 keV spectrum is well fitted by a power-law model with photon index as 2.8+/-0.6; the derived 20-80 keV flux is 1.6E-10 erg/cm2/s.

We have obtained a 2 ks observation with Swift/XRT which has been performed on April 4th at 00:07:21 UT in photon counting mode. The source mean 0.3-10 keV count rate is 5 counts/s (after the pile-up correction). The X-ray spectrum could be fitted with an absorbed power-law model with photon index 1.7 +/- 0.2 and a hydrogen column density, NH of (4.2 +/- 0.6)E+22 cm-2 (reduced chi square/dof=1.07/62). It results in a 2-10 keV unabsorbed flux of 6.6E-10 erg/cm2/s; this translates in a luminosity of about 5E+36 erg/s (for a distance of 8 kpc) which is roughly a factor of 1.7 higher than the previous Swift/XRT observation (ATel #[3926](#)).

We thank the Swift team for making this observation possible.

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R. E. Rutledge, Editor-in-Chief

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