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INTEGRAL observations of Swift J174540.7-290015

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on 12 Feb 2016; 16:59 UT

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Subjects: X-ray, Transient

Referred to by ATel #: [8729](#), [8737](#), [8793](#), [8881](#)

The newly discovered X-ray transient Swift J174540.7-290015 (ATel #8649) was observed within the field-of-view of the IBIS/ISGRI and JEM-X instruments on-board INTEGRAL on 2016 February 11 from 14:12 to 17:22 (UTC), while the satellite was pointing toward the Galactic Bulge (ATel #438). The total exposure time was 10.8 ks.

The source was detected in the IBIS/ISGRI mosaic at a significance of 21 sigma in the 20-40 keV energy band and 15 sigma in the 40-80 keV energy range. The corresponding fluxes were 41 \pm 2 mCrab and 42 \pm 3 mCrab. The source is also detected by JEM-X at a significance of 18 sigma in the 3-10 keV energy band and 11 sigma in the 10-20 keV energy band. The corresponding fluxes were 52 \pm 3 mCrab and 46 \pm 5 mCrab. All uncertainties given on the above fluxes are only statistical and at 1 sigma confidence level.

The combined ISGRI+JEM-X spectrum could be well fit (reduced $\chi^2/\text{d.o.f.}=0.9/17$) by using a simple power-law model with the column density fixed at 9.1E22 cm⁻², as measured by Swift/XRT (see ATel #8649). The measured power-law photon index is 2.7 \pm 0.2 and the spectral flux evaluated from the fit is of 7.5E-10 ergs/cm²/s in the 5-20 keV energy band and 8.3E-10 ergs/cm²/s in the 20-100 keV energy band.

We note that neither IBIS/ISGRI nor JEM-X are able to discriminate between the different X-ray emitting sources currently active in the vicinities of Swift J174540.7-290015 due to the limited angular resolution of these instruments compared to, e.g., Swift/XRT. However, we used previous

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- 9152 [VVV near-infrared observations of the Swift J174540.2-290037 field](#)

INTEGRAL observations of the Galactic Bulge to verify that none of the other sources could provide a dominating contribution in the 3-20 keV and 20-100 keV energy bands. Observations carried out in the satellite revolution 1597 (from 2015-10-11 at 05:57 to 09:34 UTC) and 1603 (from 2015-10-27 at 03:57 to 08:41 UTC) showed that there is no overlapping source detected by IBIS/ISGRI and only 1A 1742-289 has a position compatible with that of Swift J174540.7-290015 in JEM-X. The latter source is always detected by JEM-X in all the above mentioned revolutions at a flux of ~ 15 mCrab in the 3-10 keV energy band and ~ 10 mCrab in the 10-20 keV energy band. We are thus confident that the reported spectrum and fluxes for Swift J174540.7-290015 from IBIS/ISGRI cannot be largely contaminated by any other source currently active around the new Swift transients, while for JEM-X a contamination at a level of 20% is possible.

Further observations of the Galactic Bulge with INTEGRAL are already planned for the coming weeks.

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