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SAX J1747.0-2853: 'normal' thermonuclear bursts resumed

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SAX J1747.0-2853: 'normal' thermonuclear bursts resumed

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on 11 Mar 2011; 17:50 UT

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Subjects: X-ray, Neutron Star, Transient

Referred to by ATel #: [3930](#), [15368](#)

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We report the detection of a type I X-ray burst in a ~9ksec-long RXTE-PCA observation of the neutron star transient SAX J1747.0-2853. The burst bolometric flux was $[1.7\pm 0.1]\times 10^{-8}$ erg/s/cm² at the peak, on 2011-03-10 16:29:13 UTC, and the burst lasted for about 15 seconds. The blackbody temperature reached 2.4 ± 0.1 keV at the peak and decayed to 1.0 ± 0.2 keV within ~8s. We inspected 0.5-s, 1-s and 2-s long Fourier transforms and found no significant oscillations during the burst in the 10-1000 Hz frequency range.

A ~4hrs-long superburst from SAX J1747.0-2853 was recently reported by Chenevez et al. (ATel #[3183](#)), detected by INTEGRAL on 2011-02-13. SAX J1747.0-2853 was observed by RXTE on 4 other occasions between 2011-02-13 and 2011-03-10 for a total of ~19 ksec, and no bursts were detected. Superbursts are attributed to the ignition of a layer of carbon, after which normal bursting activity is quenched for about a month, presumably due to the heat injected by the superburst in the surface layers (Cumming & Macbeth 2004, ApJ 603 L37). We find an upper limit on the quenching time after the February 2011 superburst from SAX J1747.0-2853 of 25 days. This is, as far as we know, the second shortest limit on the quenching time following a superburst, after the upper limit of 19 days found by Kuulkers et al. (2010, A&A 514 65) in 4U 0614+09.

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