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Swift and the Supergiant Fast X-ray Transient outburst factory

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We present the results of the Swift Supergiant Fast X-ray Transients project,
which has been exploiting *Swift*'s capabilities in a systematic study of SFXTs and classical
supergiant X-ray binaries (SGXBs) since 2007.
The unique combination of sensitivity and scheduling flexibility of *Swift*/XRT
allowed us to perform an efficient long-term monitoring of 16 including both SFXTs and classical SGXBs.
We followed source activity across more than 4 orders of magnitude in X-ray luminosity and sampled the light curves on timescales spanning from hours to years.
Our measurements of dynamic ranges, duty cycles as a function of luminosity, and of
luminosity distributions show systematic differences that
help discriminate between different models of SFXTs/SGXBs, while our outburst follow-ups
provide a steady advancement in the comprehension of the SFXT phenomenon.
In particular, the observations of the SFXT prototype IGR J17544-2619
on 2014 October 10, when the source reached a peak luminosity of 3×10^{38} erg s^{-1},
challenged, for the first time, the maximum theoretical luminosity achievable
by a wind-fed neutron star high mass X-ray binary. We propose that this giant outburst was due to the formation of a
transient accretion disc around the compact object.

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