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Large Flare from Sgr A* Detected by Swift

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Large Flare from Sgr A* Detected by Swift

ATel #5006; *N. Degenaar, M. T. Reynolds, J. M. Miller (Michigan), J. A. Kennea (Penn State), R Wijnands (Amsterdam)*
on 25 Apr 2013; 00:54 UT
Credential Certification: [Mark Reynolds \(markrey@umich.edu\)](mailto:markrey@umich.edu)

Subjects: Radio, Infra-Red, X-ray, AGN, Black Hole, Transient

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We report the detection of a large X-ray flare from a position consistent with Sgr A* during regular monitoring observations of the Galactic center with Swift.

In a 1ks observation on 2013-04-24 (17:34UT) a large flare is detected. Using an 10" radius extraction region centred on the known radio position, we measure a count rate of 0.11+/-0.1 ct/s. Comparing to the long term X-ray lightcurve of Sgr A* accumulated by Swift from 2006-2011 (Degenaar et al., 2013), the flare is consistent with the largest count rate detected from Sgr A* by Swift to date.

A total of 122 counts are detected during the observation facilitating basic spectral fitting. Assuming a fixed column density of $9.1e22 \text{ cm}^{-2}$ (see Degenaar et al. 2013) and fitting with a power-law in the 2 - 10 keV bandpass, we measure

Gamma: 2.1+/-0.5
norm: 0.018 +0.019 -0.01

where the errors are at the 90% confidence level, resulting in an absorbed flux of $2.1e-11 \text{ erg/s/cm}^2$ (2-10 keV), or a luminosity of $\sim 1.6e35 \text{ erg/s}$ for an assumed distance of 8 kpc. These properties are consistent with the most luminous X-ray flares previously observed from Sgr A*, e.g., Degenaar et al. (2013), Nowak et al. (2012), Porquet et al. (2003, 2008), Baganoff et al. (2001).

Swift is carrying out a daily monitoring campaign throughout 2013 to study the evolution of the X-ray properties of Sgr A* as it interacts with the G2 cloud (Gillessen et al., 2012, 2013). All observations are promptly analyzed and the resulting X-ray lightcurve will be made publicly available at the link below. Bright flares ($L_x > 1e35 \text{ erg/s}$) will be reported to the community in further telegrams.

If you would like to receive an automated email update of large flares, please email [swift.sgra 'at' gmail.com](mailto:swift.sgra@atgmail.com) to be added to the mailing list.

[Swift Sgr A Monitoring Campaign Website](#)*

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