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Optical, X-, Gamma-ray flare of the FSRQ PKS 2320-035

ATel #8323; **Luigi Pacciani (INAF-IAPS)**
on **23 Nov 2015; 09:14 UT**

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Subjects: Optical, Ultra-Violet, X-ray, Gamma Ray, >GeV, Blazar, Quasar

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We asked a Swift ToO campaign on the FSRQ PKS 2320-035 ($z=1.411$), triggered by prolonged High Energy activity detected with FERMI-LAT. The trigger method detected activity at $E > 20\text{GeV}/(1+z)$ with $TS \sim 44$ and emission up to 54 GeV from 2015-09-03 to 2015-11-16, following the prescription of Pacciani et al. 2014, ApJ, 790, 45.

The flux integrated on the whole period is $(32.1 \pm 1.6)E^{-8} \text{ ph cm}^{-2} \text{ s}^{-1}$ ($E > 0.1 \text{ GeV}$), and the gamma-ray photon index 2.20 ± 0.06 .

On 2015-11-22nd the source had an hard gamma-ray flare with flux $(53 \pm 10)E^{-8} \text{ cm}^{-2} \text{ s}^{-1}$ and photon index 1.67 ± 0.15 .

The source has been already detected in high gamma-ray state from the end of April 2013 (ATel#[5022](#)).

The Swift Follow-up revealed the source in high state in optical/UV and X-ray. The preliminary Swift-UVOT photometry on 2015-11-22 is:

$$V = 16.55 \pm 0.07$$

$$B = 17.15 \pm 0.05$$

$$U = 16.27 \pm 0.04$$

$$UVW1 = 16.55 \pm 0.05$$

$$UVM2 = 16.66 \pm 0.06$$

$$UVW2 = 16.81 \pm 0.04$$

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- [8323 Optical, X-, Gamma-ray flare of the FSRQ PKS 2320-035](#)
- [5022 Fermi LAT Detection of a GeV Flare from FSRQ PKS 2320-035](#)

Magnitudes are in the UVOT photometric system (Poole et al. 2008, MNRAS, 383, 627) and have not been corrected for Galactic extinction.

These photometric data correspond to the brightest obtained with Swift-uvot observations.

The simultaneous Swift-XRT observation gives a counting rate of 0.066 cps, a photon index 1.44 ± 0.21 (90% c.l.), an unabsorbed flux of $(4.0 \pm 0.5) \times 10^{-12}$ erg/cm²/s which is the brightest detected with swift-XRT.

We encourage further multi-wavelength observations. We thank the Swift team and Swift Observatory Duty Scientist for rapidly scheduling our observations.

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