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Optical, X, HE gamma-ray flare of the FSRQ S4 1030+61

ATel #9009; ***Luigi Pacciani (IAPS-INAF)***
*on **29 Apr 2016; 08:20 UT***
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Subjects: Optical, Ultra-Violet, X-ray, Gamma Ray, >GeV, Blazar

The Large Area Telescope (LAT), one of the two instruments on the Fermi Gamma-ray Space Telescope, has observed unusually high activity above 10 GeV from

a source positionally consistent with the flat spectrum radio quasar S4 1030+61 (z=1.40).

The HE trigger detected activity at E > 20/(1+z) GeV with TS ~78 integrating the FERMI-LAT data between 2016-03-27 and 2016-04-28,

following the prescription of Pacciani et al. 2014, ApJ, 790, 45.

The source showed a flux of (25.5+-1.4)E-8 ph/cm2/s (E>100 MeV), and a photon index of 2.10+-0.07, to be compared to a catalog flux of 6.1E-8 ph/cm2/s (E> 100 MeV),

and a catalog photon index of 2.20.

The three most energetic photons detected from a position positionally consistent with the source have an energy of 26, 23, and 20 GeV.

The Swift follow-up revealed the source in its brightest state in optical-uv too:

The preliminary Swift-UVOT photometry on 2016-04-19 is:

V = 15.56 +/- 0.05

B = 15.93 +/- 0.02

U = 15.07 +/- 0.02

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UVW1 = 15.32 +/- 0.02

UVM2 = 15.32 +/- 0.01

UVW2 = 15.71 +/- 0.02

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

The optical/uv flux level are 0.3-0.5 magnitude brighter than the Swift-UVOT ever detected brightest state (observed during the follow-up of a bright gamma-ray flare

with a flux of 1.5+-0.3 E-6 ph/cm2/s, E> 100 MeV, performed on May 2010, see ATel #2622, and ATel #2628).

The simultaneous Swift-XRT observation gives a counting rate of 0.078+/-0.005 cps, a soft X-ray spectrum with photon index 2.2+-0.2 (90% c.l.),

an unabsorbed flux of (2.85+-0.40)10^-12 erg/cm2/s (0-3-10 keV).

The x-ray flux is at the same level detected during the May 2010 outburst.

Similar optical-uv, and X-ray fluxes were obtained for a previous HE flare, simultaneous to the observation of a giant NIR flare

reported in ATel #8715 on February 16th, 2016.

We encourage further multi-wavelength observations, particularly in NIR.

We thank the Swift team and Swift Observatory Duty Scientist for rapidly scheduling the observation.

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