Gamma-ray lightcurve correlation searches for IceCube neutrinos from blazar flares

Blazars have long been considered as accelerator candidates for cosmic rays. In such a scenario, hadronic interactions in their jet would produce neutrinos and gamma-rays. Correlating the astrophysical neutrinos detected by IceCube, a cubic-kilometre neutrino telescope at the South Pole, with the gamma-ray emission from blazars could therefore reveal the origin of cosmic rays. In our method we focus on periods where blazars show an enhanced gamma-ray flux, as measured by Fermi-LAT, thereby reducing the background of the search. We present results for TXS 0506+056, using nearly 10 years of IceCube data and discuss them in the context of other recent analyses on this source. Further we give an outlook on applying this method in a stacked search for the combined emission from a selection of variable Fermi blazars.

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