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Search for high-redshift blazars with Fermi/LAT

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High-redshift blazars ($z \geq 2.5$) are one of the most powerful classes of gamma-ray sources in the Universe. These objects possess the highest jet powers and luminosities and have black-hole masses often in excess of 10^9 solar masses. In addition, high-redshift blazars are important cosmological probes and serve as test objects for blazar evolution models. Due to their large distance, their high-energy emission peaks are often downshifted to energies below the GeV range, which makes them difficult to study with Fermi/LAT and only the very brightest objects are detectable. Hence, only a small number of high-redshift blazars could be detected with Fermi/LAT so far.

In this work, we present a strategy to significantly increase the detection statistics at redshift $z \geq 2.5$ via a search for flaring events in high-redshift gamma-ray blazars whose long-term flux is just below the sensitivity limit of Fermi/LAT. Seven previously GeV undetected high-redshift blazars have been identified from their bright monthly outburst periods, while more detections are expected in the future.

Are you presenting on behalf of collaborations or institutions?

On behalf of the Fermi/LAT collaboration

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