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Characteristics of Gamma-Ray Loud Blazars in the VLBA Imaging and Polarimetry Survey

J. D. Linford, G. B. Taylor, R. Romani, S. E. Healey, J. F. Helmboldt, A. C. S. Readhead, R. Reeves, J. Richards, G. Cotter

(Submitted on 27 Oct 2010)

The radio properties of blazars detected by the Large Area Telescope (LAT) on board the Fermi Gamma-ray Space Telescope have been observed as part of the VLBA Imaging and Polarimetry Survey (VIPS). This large, flux-limited sample of active galactic nuclei (AGN) provides insights into the mechanism that produces strong gamma-ray emission. At lower flux levels, radio flux density does not directly correlate with gamma-ray flux. We find that the LAT-detected BL Lacs tend to be similar to the non-LAT BL Lacs, but that the LAT-detected FSRQs are often significantly different from the non-LAT FSRQs. The differences between the gamma-ray loud and quiet FSRQs can be explained by Doppler boosting; these objects appear to require larger Doppler factors than those of the BL Lacs. It is possible that the gamma-ray loud FSRQs are fundamentally different from the gamma-ray quiet FSRQs. Strong polarization at the base of the jet appears to be a signature for gamma-ray loud AGN.

Comments: 32 pages, 9 figures, accepted by ApJ

Subjects: **Cosmology and Extragalactic Astrophysics (astro-ph.CO)**

Cite as: **arXiv:1010.5812v1 [astro-ph.CO]**

Submission history

From: Justin Linford [[view email](#)]

[v1] Wed, 27 Oct 2010 21:32:48 GMT (669kb)

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