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A search for cosmic-ray proton anisotropy with the Fermi Large Area Telescope

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Although cosmic rays are nearly isotropic, ground-based arrays sensitive to TeV cosmic rays have measured a small anisotropy in right ascension. Understanding the morphology and energy dependence of this anisotropy can yield insight into cosmic-ray sources and propagation in the local magnetic field. The Fermi Large Area Telescope (LAT) is optimized for gamma-ray measurements, but it records cosmic-ray protons at an even higher rate. We present a Fermi LAT search for cosmic-ray proton anisotropy at energies ~100 GeV and greater. The energy range is complementary to ground-based measurements. Moreover, while ground-based instruments cover only part of the sky and most are only sensitive to the right ascension component of the anisotropy, the LAT is sensitive to the full sky and to all orientations of anisotropy.

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