

On the measurement of handedness in Fermi Large Area Telescope data

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A handedness in the arrival directions of high-energy photons from outside our Galaxy can be related back to the helicity of the inter-galactic magnetic field. Previous estimates by Tashiro et al. (2014) showed a hint of a signal present in the photons observed by the Fermi Large Area Telescope (LAT). An update on the measurement of handedness in the arrival direction of photons observed by the LAT is presented, using more than 10 years of observations. Simulations are performed to study the uncertainty of the measurements, taking into account the structure of the exposure caused by the energy-dependent instrument response and its observing profile, as well as the background from the interstellar medium. The uncertainties found from these simulations exceed those estimated previously, rendering the signal seen in the earlier Fermi-LAT data insignificant.

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