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Improving Fermi-LAT Angular Resolution with CTBCORE

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The Large Area Telescope on the Fermi Gamma-ray Space Telescope has a point spread function with large tails, consisting of events affected by tracker inefficiencies, inactive volumes, and hard scattering; these tails can make source confusion a limiting factor. The parameter CTBCORE, available in the publicly available Extended Fermi-LAT data, estimates the quality of each event's direction reconstruction; by implementing a cut in this parameter, the tails of the point spread function can be suppressed. We implement cuts on CTBCORE and present updated instrument response functions derived from the Fermi-LAT data itself, along with all-sky maps generated with these cuts. Having shown the effectiveness of these cuts, especially at low energies, we encourage their use in analyses where source confusion is important.

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