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Improving the Fermi LAT Source Catalog

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The Fermi Large Area Telescope has been routinely gathering science data since August 2008, surveying the full sky every three hours. The current source catalog (3FGL, Acero et al. 2015, arxiv 1501.02003) is based on four years of data.

Besides a longer time interval, the next source catalog will be based on the new Pass 8 data, which introduces a number of improvements at all energies, and in particular enhanced response at low energy.

This opens the possibility of broadening the energy range to reach below 100 MeV, but it also introduces new challenges due to the larger number of low-energy photons in a range where the point-spread function is several degrees wide. In that regime the source-to-background ratio is small (at the percent level) so systematic errors on the background model are critical. The energy dispersion must also be accounted for.

We will describe how we plan to address those challenges in order to keep the catalog robust.

Finally the procedure for associating LAT sources with counterparts at other wavelengths is also expected to improve, in particular by entering spectral information explicitly in the process.

Collaboration

FERMI

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