

Next incremental release of the Fermi LAT source catalog

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The latest Fermi-LAT source catalog (4FGL DR3: 6658 sources above 50 MeV) was based on twelve years (2008 - 2020) of data. Since neither the event reconstruction (Pass 8) nor the interstellar emission model (gll_iem_v07) has evolved since 2019, we provide incremental 4FGL releases at regular intervals of two years, until one of those two key ingredients changes. The next incremental catalog, 4FGL DR4 covering fourteen years of LAT data, will be released in 2023.

I will describe how we plan to improve the catalog for DR4 with respect to DR3, besides adding two years. Adding priors on the spectral curvature parameters helps to stabilize the source model at low energy. Smoothly modulating the diffuse model spatially avoids jumps between regions of interest. Leaving the spectral index of bright sources free in the light curves avoids residuals that can trigger false variability in faint nearby sources. Entering strongly variable sources that have average fluxes below detectability over the full time range ensures that their flare is not attributed to a neighbor.

Track

Analysis Techniques

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