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Highlights from the Fermi Large Area Telescope

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The Fermi mission is operating in low Earth orbit since June 2008, and has collected more than one billion photons from the whole sky in the 100 MeV - 100 GeV band.

Thanks to the large acceptance of the Large Area Telescope, a pair-conversion telescope for high-energy electromagnetic radiation, Fermi also provided the largest high-energy cosmic-ray electron sample to date, with about 10k events above 1 TeV.

This unique database allows the study of thousands of gamma-ray sources of very different nature, from our own Galaxy to distant and active galactic nuclei, as well as addressing fundamental questions of particle astrophysics like the nature of dark matter and the origin of energetic gamma-ray bursts. In addition, cosmic-ray electrons provide a unique probe of the origin and propagation mechanisms of cosmic rays in local galactic environment.

I will review the most important results obtained with Fermi and illustrate the scientific potential of the upcoming years of high-statistics, high-resolution data.

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