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MEASUREMENTS OF THE COSMIC-RAY ELECTRON AND POSITRON SPECTRUM AND ANISOTROPIES WITH THE FERMI LAT

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The Large Area Telescope onboard the Fermi satellite is a pair-conversion telescope for high-energy gamma rays of astrophysical origin. Although it was designed to be a high-sensitivity gamma-ray telescope, the LAT has proved to be an excellent electron/positron detector. It has been operating in low Earth orbit since June 2008 and has collected more than 16 millions of cosmic-ray electron and positron (CRE) events in its first seven years of operation. The huge data sample collected by the LAT enables a precise measurement of the CRE energy spectrum up to the TeV region. A search for anisotropies in the arrival directions of CREs was also performed. The upper limits on the dipole anisotropies probe the presence of nearby young and middle-aged CRE sources.

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