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A new measurement of cosmic-ray electrons and positrons with the Large Area Telescope

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We present an updated measurement of the cosmic-ray electron and positron spectrum between 7 GeV and 2 TeV, based on 7 years of data collected with the Fermi Large Area Telescope (LAT). The LAT is the first space-based instrument to directly explore the region above 1 TeV. At such high energies, the shape of the spectrum can provide useful information about the origin and propagation of cosmic-ray electrons in the nearby Galactic space. The best fit to the spectrum that we measure is given by a broken power-law, with the break located at 53 ± 8 GeV. Such break, however, is not significant when all the systematic uncertainties are taken into account. Above 50 GeV our data are well described by a single power law with a spectral index of 3.07 ± 0.02 (stat + syst) ± 0.06 (energy scale). An exponential cutoff lower than 1.7 TeV is excluded at 95% CL.

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