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Precision Measurement of the (e++e–) Flux in Primary Cosmic Rays from 0.5 GeV to 1 TeV with the Alpha Magnetic Spectrometer on the International Space Station

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We present a measurement of the cosmic ray (e^++e^-) flux in the range 0.5 GeV to 1 TeV based on the analysis of 10.6 million (e^++e^-) events collected by AMS. The statistics and the resolution of AMS provide a precision measurement of the flux. The flux is smooth and reveals new and distinct information. AMS measurements of individual e^+ and e^- fluxes show neither e^+ nor e^- can be described by a single power law above 27.2 and 52.3 GeV, respectively. Surprisingly, above 30.2 GeV, the combined (e^++e^-) flux can be described accurately by a single power law with a spectral index γ=-3.170±0.008(stat+syst) ±0.008(energy scale).

Collaboration

AMS

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