



ID contributo: 41

Tipo: oral

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

giovedì 8 settembre 2016 12:00 (15 minuti)

We present a precise measurement of the combined electron plus positron flux from 0.5 GeV to 1 TeV, based on the analysis of the data collected by the Alpha Magnetic Spectrometer on the International Space Station. The statistics and the high resolution of AMS-02 detector 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. Surprisingly, above 30.2 GeV, the combined electron plus positron flux can be described accurately by a single power law with a spectral index.

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Classifica Sessioni: Parallel