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Precise measurement of the electron plus positron spectrum with CALET on the International Space Station

The primary objectives of the CALorimetric Electron Telescope (CALET) mission are to search for possible nearby cosmic-ray sources and dark matter signatures through the precise measurement of the electron plus positron (all-electron) spectrum. The instrument is optimized to measure the all-electron spectrum well into the TeV region, with a total thickness of 30 radiation lengths at normal incidence and fine shower imaging capability. These capabilities provide an excellent energy resolution of 2% over a wide energy range from 20 GeV to 20 TeV, and enable highly precise measurements by suppressing hadron contamination to below a few percent. CALET has been accumulating scientific data for more than nine years on the International Space Station without major interruption. In this study, we will present the latest results of the all-electron spectrum with high-statistics data, and briefly discuss its interpretation regarding nearby electron sources at the TeV region.

Collaboration(s)

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