

New Results from the first 5 years of CALET observations on the International Space Station

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The CALorimetric Electron Telescope (CALET), developed and operated by Japan in collaboration with Italy and the United States, is a high-energy astroparticle physics experiment installed on the International Space Station (ISS). Its mission goals include investigating the possible presence of nearby sources of high-energy electrons, performing direct measurements of observables sensitive to the details of the acceleration and propagation of galactic particles, and detecting potential dark matter signatures.

CALET measures cosmic-ray electron+positron flux up to 20 TeV, gamma rays up to 10 TeV, and nuclei up to 1,000 TeV. Charge measurements cover from $Z=1$ to 40 allowing to study the more abundant elements and to extend the range of long-term observations above iron. CALET is collecting science data on the International Space Station since October 2015 with excellent and continuous performance with no major interruptions. Approximately 20 million triggered events per month are recorded with energies > 10 GeV. Here, we present the highlights of CALET observations carried out during the first 5.5 years of operation, including the electron+positron energy spectrum, the spectra of protons and other nuclei, gamma-ray observations, as well as the characterization of on-orbit performance. Some results on the electro-magnetic counterpart search for LIGO/Virgo gravitational wave events and the observations of solar modulation and gamma-ray bursts are also included.

Keywords

Cosmic-rays, Direct CR measurements, International Space Station

Collaboration

CALET

other Collaboration

Subcategory

Experimental Results

Primary authors: Prof. MARROCCHESI, Pier Simone (University of Siena and INFN Pisa); FOR THE CALET COLLABORATION

Presenter: Prof. MARROCCHESI, Pier Simone (University of Siena and INFN Pisa)

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