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Highlights from the 10 years observations with CALET on the International Space Station

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The CALorimetric Electron Telescope (CALET) space experiment is a high-energy astroparticle physics mission in operation on the International Space Station (ISS) since 2015 with excellent and continuous performance. The instrument consists of two layers of segmented plastic scintillators for the identification of cosmic-rays via a measurement of their charge (CHD), a 3 radiation length thick tungsten-scintillating fiber imaging calorimeter (IMC) and a 27 radiation length thick lead-tungstate calorimeter (TASC). The primary goals of the CALET mission include studying the details of galactic cosmic-ray acceleration and propagation, and searching for possible nearby sources of high-energy electrons and dark matter signatures. The CALET experiment is designed to measure the flux of cosmic-ray electrons (including positrons) up to 20 TeV (and gamma-rays up to 10 TeV), and also proton, helium and heavy nuclei up to the PeV region. CALET also measures the relative abundances of ultra-heavy galactic cosmic rays (UHGRC) above atomic number Z=28 (nickel) and past Z=44 (ruthenium).
Here, we present the highlights of the CALET latest science results stemming from almost 10 years of observations for various components of cosmic rays (leptons, hadrons, and photons). Some results on the observations of solar modulation during nearly one solar cycle will also be included, together with the study of space-weather phenomena, X-ray and soft gamma-ray transients, and searches of electromagnetic counterparts of LIGO/Virgo gravitational wave events. Characterization of on-orbit performance, with approximately 20 million events above 10 GeV recorded per month, will be reported.

Collaboration you are representing

CALET

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