CALET Project:

Astrophysics Mission for Japanese Experiment Module (Kibo) at the ISS

Shoji Torii Research Institute of Science and Technology, Waseda University
Space Environment Utilization Center, JAXA

The CALET (CALrimetric Electron Telescope) is an astrophysics mission for the International Space Station: ISS that will search for signatures of Dark Mater and provide the highest energy direct measurements of the cosmic ray electron spectrum in order to observe discrete sources of high energy particle acceleration in our local region of the Galaxy. CALET will address many of the outstanding questions including ; (1) the nature of the sources of high energy particles and photons, through the high energy spectrum, (2) the details of particle transportation in the Galaxy, and (3) signatures of dark matter, in either the high energy electrons or gamma ray spectrum. It will also be capable of monitoring gamma ray transients and solar modulation.

The unique feature of CALET is its thick , fully active calorimeter that allows well into the TeV energy region with excellent energy resolution, coupled with a fine imaging upper calorimeter to accurately identify the starting point of electromagnetic showers and with a charge detector to determine the charge of incident particles up to Z=40. It is in the TeV region that we anticipate being able to observe, for first time, an unambiguous signature of energetic particles (electrons) accelerated in specific sources in our local region of the Galaxy and then propagating to Earth. The instrument will also monitor solar activity and search for gamma ray transients.

The CALET project is carried out by an international collaboration with USA and Italy in an agreement of JAXA with NASA and ASI, respectively. The mission is approved for launching in 2013 JFY by HII Transfer Vehicle :HTV for 5-year observation period on ISS.