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The HEPD Segmented Calorimeter

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The core of the High-Energy Particle Detector (HEPD), on board of the China Seismo-Electromagnetic Satellite (CSES), is a segmented calorimeter, which is composed with an upper tower of plastic scintillator counters and a bottom array of LYSO large crystals. Electrons with energy below 100 MeV, protons and light nuclei, below few hundreds of MeV/nucleon are fully contained within this calorimeter. Mainly the LYSO array (density 7.3, thickness around 29.2 g/cm^2) extends the HEPD energy range, allowing those measurements (solar energetic particles, low-energy cosmic rays) which are more related to astroparticle physics topics. Two identical copies of HEPD, and then of its calorimeter, exist: the Flight (FM) and the Qualification (QM) models. While the FM has achieved the orbit on board of the CSES satellite in February 2018, the Qualification Model, is used, at ground, for tests and calibrations. A report on the characterization of this compact particle space detector and on preliminary studies and results, will be given.

Primary author: Dr VITALE, Vincenzo (ROMA2)

Presenter: Dr VITALE, Vincenzo (ROMA2)

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