

The High Energy Particle Detector on board of the CSES mission

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The China Seismo-Electromagnetic Satellite (CSES) has the purpose to measure electromagnetic waves emissions, plasma properties and particles fluxes in the Earth ionosphere and magnetosphere, to investigate the possible correlation with seismic events.

Phenomena related to the solar-terrestrial interactions, such as Coronal Mass Ejections (CMEs), and the study of low energy cosmic rays are also within the scientific objectives of this mission.

CSES, prepared by a Chinese-Italian collaboration, is scheduled to be launched in the first half of 2017 and has an expected lifetime of 5 years. The satellite will have a circular Sun-synchronous orbit with 98 degrees inclination and 500 km altitude.

A series of instruments will be used to investigate the many aspects of the electromagnetic environment: 2 magnetometers, an electrical field detector, a plasma analyzer, a Langmuir probe and the High Energy Particle Detector (HEPD).

The HEPD is built by the Italian collaborators. It includes a silicon tracker for the precision measurement of the particles pitch angle

and a segmented (plastic scintillator and LYSO) calorimeter for the particle identification and the energy measurement.

The HEPD will measure electrons and protons up to few hundreds of MeV, as also heavier nuclei.

A description of the HEPD and its characteristics will be reported.

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