



The High Energy Particle Detector on board the CSES China Seismo-Electromagnetic satellite

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The CSES space mission will study the ionospheric perturbations possibly associated with earthquakes - especially with destructive ones - and explore new approaches for short-term and imminent forecast. It will also help finding a new way for theoretical studies on the mechanism of earthquake preparation processes. CSES satellite will be launched in 2016 and inserted into a circular Sun-synchronous orbit with 98 degrees inclination and 500 km altitude. Expected lifetime is 5 years.

CSES hosts several instruments onboard: 2 magnetometers, an electrical field detector, a plasma analyzer, a Langmuir probe and a High Energy Particle Detector (HEPD). Task of the HEPD is to study particle fluxes on the Earth radiation belts in order to find sudden burst. Previous space missions, indeed, have found time-correlations between particle bursts measured in space and the occurrence of an earthquake on Ground.

HEPD detector will measure electrons (3 - 100 MeV) and protons (30 - 300 MeV) along CSES orbit. The angular and energy resolution and the detector acceptance are optimized to accurately detect the expected low short-term time variations of the particle flux from the radiation belts.

Topic of this talk is the technical description of the HEPD and its main characteristics.