

The High Energy Particle Detector (HEPD-02) for the second China Seismo-Electromagnetic Satellite (CSES-02)

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What is this contribution about?

The High-energy Particle Detector (HEPD-02) is a particle detector devoted to measure the increase of the electron and proton fluxes due to short-time perturbations of the radiation belts induced by solar, terrestrial or anthropic phenomena, in the energy range 3-100 MeV for electrons and 30-200 MeV for protons, with the main purpose of identifying particle bursts from the stability bands of the Van Allen internal belt to find possible temporal correlations with terrestrial seismic events.

What is relevant/interesting?

HEPD-02 will be installed onboard CSES-02, the second China Seismo-Electromagnetic Satellite, a multi-instrumental scientific space program whose objectives are to investigate the near-Earth electromagnetic, plasma and particle environment and to study the seismo associated disturbances in the ionosphere-magnetosphere transition zone, the anthropogenic electromagnetic noise as well as the natural non-seismic electromagnetic emissions, mainly due to tropospheric activity.

What have we done?

The main characteristics and performance of HEPD-02 are presented, highlighting the architectural choices made to meet the scientific objectives of the mission.

What is the result?

It is shown that HEPD-02 will be capable to meet the mission scientific requirements with particular regard to those parameters (energy and angular resolution) related to the identification of particle bursts from the stability bands of the Van Allen internal belt.