Contribution ID: **65** Type: **Poster**

Event reconstruction strategies for the High-Energy Particle Detector (HEPD-02) onboard the ready-to-launch CSES-02

Thursday 15 May 2025 22:02 (2 minutes)

The forthcoming second China Seismo-Electromagnetic Satellite (CSES-02) will host the novel generation High-Energy Particle Detector (HEPD-02), optimized for the detection of 30 MeV - 200 MeV protons and 3 MeV - 100 MeV electrons. HEPD-02 is equipped with a silicon pixel tracker, a stack of plastic scintillators, and a segmented LYSO crystal scintillator. The complex design of the detector requires an efficient event reconstruction pipeline, which will be presented in this talk: the pipeline combines the information collected by multiple sub-detectors in order to accurately interpret the HEPD-02 response in terms of arrival direction, energy and particle classification. Moreover, as for its predecessor HEPD-01, standard algorithmic event reconstruction is coupled with deep learning tools designed to exploit correlation of low-level signals to further enhance the detector performance. Thanks to this advanced pipeline, the instrument will be able to provide estimates of cosmic ray fluxes with an increased accuracy and acceptance. In addition, a dedicated part of the pipeline will enable reliable photon detection above 0.5 MeV and thus detect and characterize Gamma-Ray Bursts.

Eligibility for ”Best presentation for young researcher” or ”Best poster for young researcher” prize

No

Author: Dr PERINELLI, Alessio (University of Trento)

Co-author: CSES-LIMADOU COLLABORATION

Presenter: Dr PERINELLI, Alessio (University of Trento)

Session Classification: Posters