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In-flight performance of the HEPD detector on-board CSES

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The CSES (China Seismo-Electromagnetic Satellite) mission, will investigate the dynamics of the ionosphere by monitoring electric and magnetic fields, plasma disturbances and trapped particle fluctuations, searching for a correlation with the geophysical activity.

The High-Energy Particle Detector (HEPD), developed by the Italian National Institute for Nuclear Physics (INFN) in collaboration with other Italian institutes and universities, is devoted to the measure of electrons (3-200 MeV) and protons (30-300 MeV) with the possibility of discriminate precipitating trapped particles. The HEPD consists of two planes of double-side silicon micro-strip detectors for the reconstruction of the incident particle direction, a segmented layer of plastic scintillators for the trigger, a calorimeter constituted by a tower of plastic scintillator counters and a LYSO matrix and a veto system.

CSES was launched from the Jiuquan Satellite Launch Center (China) on the 2nd of February 2018. The HEPD has been powered a few days after launch for a health check and the beginning of the commissioning phase. In the commissioning period (February-July 2018) different payload configurations have been tested in order to optimize the detector configuration in flight. Topic of this talk is the in-flight performance of the HEPD apparatus.

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