

## [PAY-05] Test of a Compact Detector for the GeV and TeV Electrons in Space

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For the measurement of the high energy, GeV and TeV, electrons in space a stand-alone compact detector is described. The detector consists of a Synchrotron Radiation Detector (SRD) and a Transition Radiation Detector (TRD) as a trigger device. The prototype trigger device was made of an irregular radiator and a thin scintillator crystal-photomultiplier detector instead of commonly used gaseous transition radiation detector. The proposed TRD has negligible impact on the SRD due to the backsplashes of high energy electrons as well as a low weight and moderate power consumption. The feasibility studies of the proposed TRD were done using GEANT4 Monte Carlo simulations and a prototype TRD test at CERN. For the trigger test the thin YAP scintillators of the various thicknesses, 60, 80, 100, and 140 micrometers were optically coupled to several HAMAMATSU R5900U photomultipliers and different layers of the irregular radiator in the thickness range from 0 to 40 cm were located in front of the TRD. The performance of the prototype trigger was studied in negative 5 GeV/c secondaries like negative pion, electron, and negative muon. During the trigger test the electrons are tagged by a Cherenkov counter. The MC simulation and the TRD test will be presented.