

# Status of the Top and Bottom Counting Detectors for the ISS-CREAM Experiment

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It is important to measure the cosmic ray spectra to study the origin, acceleration and propagation mechanisms of high-energy cosmic rays. A payload of the Cosmic Ray Energetics And Mass (CREAM) experiment is scheduled to launch in 2017 to the International Space Station (ISS) for measuring cosmic ray elemental spectra at energies beyond the reach of balloon instruments. Top Counting Detector (TCD) and Bottom Counting Detector (BCD) as a two-dimensional detector are to separate electrons from nuclei for electron/gamma-ray physics. The T/BCD each consists of a plastic scintillator read out by 20 by 20 photodiodes and is placed before and after the Calorimeter (CAL), respectively. Energy and hit information of the T/BCD can distinguish shower profiles of electrons and nuclei, which show narrower and shorter showers from electrons at a given energy. The T/BCD performance has been studied with the instrument's Silicon Charge Detector (SCD) and CAL in various energy ranges by using a GEANT3 + FLUKA 3.21 simulation package. By comparing the number of hits and distributions between electrons and protons, we study optimal parameters for the e/p separation. In this presentation, we will show the construction and performance of the T/BCD, and report a status of the simulation study for cosmic ray electron physics.

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