



Contribution ID: 153

Type: oral

EUSO-TA fluorescence detector

Thursday, 8 September 2016 17:15 (15 minutes)

EUSO-TA is a pathfinder experiment for the space based JEM-EUSO mission for the detection of ultra-high energy cosmic rays.

EUSO-TA is a fluorescence detector installed in front of the Black Rock Mesa fluorescence detectors of the Telescope Array (TA) experiment, in Utah (USA). At the TA site, an Electron Light Source and a Central Laser Facility are installed for calibration purposes, since they emit laser and electron beams respectively, with known energy and geometry.

EUSO-TA consists of two 1 m Fresnel lenses, with a field of view of 10.5° , that focus the light on a Photo Detector Module (PDM). The PDM currently consists of 36 Hamamatsu Multi-Anode Photo-Multipliers Tubes (MAPMTs) with 64 channels each. Front-End readout is performed by 36 ASICs, with trigger and readout tasks performed by two FPGA boards that send the data to a CPU and a storage system.

The detector was installed in February 2015. Tests using the mentioned light sources have been performed and observations of cosmic ray events, as well as those of stars with different magnitude and color index have been done. The data acquisitions are triggered by TA fluorescence detectors, although a self-trigger algorithm is currently in the last phases of development and test. TA, with its large field of view and the surface detectors, allows the cosmic ray shower events' track reconstruction and with the reconstruction parameters simulations using Offline are performed. Simulations of the detected events are compared with data and the results are shown in this work.

Primary author: Dr BISCONTI, Francesca (Karlsruhe Institute of Technology)

Presenter: Dr BISCONTI, Francesca (Karlsruhe Institute of Technology)

Session Classification: Parallel