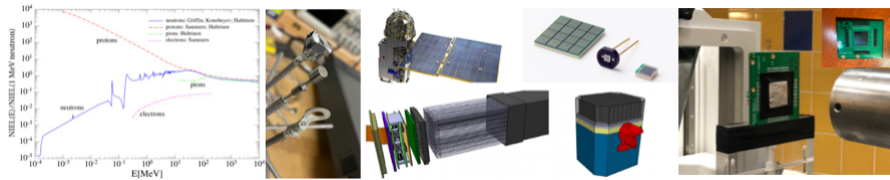


SiPM Radiation: Quantifying Light for Nuclear, Space and Medical Instruments under Harsh Radiation Conditions



Contribution ID: 34

Type: **not specified**

SiPM characterization and fully automated test facilities for astroparticle detection space projects

Monday, 25 April 2022 14:40 (25 minutes)

Most of the astrophysics experiments use astro particle detectors comprising scintillators coupled large number of photomultipliers (either PMTs or SiPMs) to generate the electrical pulses corresponding to the detected particle. The performance of the detectors is strongly dependent to the parameters of each photodetector and therefore they have to be thoroughly and individually characterized to better design the detector, improve the understanding of the systematics and increase the quality during the production phase of the projects. Furthermore, each individual channel has to be tested as a single photomultiplier in the case of multi-channel photomultipliers and also evaluation of possible influence in-between channels has to be performed, highly increasing the stress and demand of a perfected and fast test bench. A dedicated and accurate testing facility is highly recommended for the R&D phase of the projects while a fully automated testing facility is normally used for mass production as part of the quality assurance plan to match the project specs and for better understanding of the spread in the parameters of large numbers of photomultipliers. Preliminary results of characterization of a Hamamatsu S13360-6050PE MPPC are shown in this work together with an overview of a fully automated test system for mass production. This automated test facility at CNEA was used for the R&D and mass production of the enhancement and upgrade projects of the Pierre Auger Observatory.

Primary author: Dr LUCERO, Luis Agustin (Laboratorio Argentino de Haces de Neutrones)

Presenter: Dr LUCERO, Luis Agustin (Laboratorio Argentino de Haces de Neutrones)

Session Classification: Irradiation & Testing Facilities

Track Classification: Irradiation or Testing Facilities