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Characterisation and calibration of SiPMs and read-out system for space-borne plastic scintillator detectors

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Plastic scintillator detectors can provide charge measurement and participate in the anti-coincidence trigger system for gamma detection in space-born cosmic ray experiments, such as HERD (High Energy Cosmic Radiation Detection). In order to achieve its objective, the plastic scintillator bars will be equipped with two different kinds of silicon photomultipliers (SiPMs) for HighZ and LowZ particles. We are currently conducting tests for this role using Hamamatsu SiPMs—models S14160-3050HS and S14160-1315. SiPMs are at the forefront of space-based applications, owing to their low-cost, high gain, excellent time resolution and high photon-detection efficiency amongst other advantages.

This work will report the calibration, characterization and optimization of the SiPMs with a custom-made BETA-ASIC readout electronics for the PSD setup.

Eligibility for "Best presentation for young researcher" or "Best poster for young researcher" prize

Yes

Author: Ms GHOSE, Essna (INFN Lecce e University of Trento (IT))

Presenter: Ms GHOSE, Essna (INFN Lecce e University of Trento (IT))

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