

# Characterization of a scintillator tile equipped with SiPMs for future cosmic-ray space experiments

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Current gamma-ray and cosmic-ray satellite experiments employ plastic scintillators to discriminate charged and neutral particles and to identify nuclei. Scintillators are commonly read out using the classical photomultiplier tubes (PMTs). Recent measurements and R&D projects are demonstrating that Silicon Photomultipliers (SiPMs) are suitable for the detection of fast light signals with resolution up to the single photoelectron, with a lower power consumption. For these reasons, next generation missions are planning to replace PMTs with SiPMs. We tested a prototype plastic scintillator tile, equipped with a set of SiPMs and studied its response to a beam of electrons and pions at CERN. We used Near Ultraviolet (NUV) SiPMs of  $1 \times 1 \text{ mm}^2$  and  $4 \times 4 \text{ mm}^2$  area, placed along the edges of the tile. The tile was irradiated in different positions in order to study the dependence of the collected light on the impact point of the beam particles. We also varied the energy of the beam in order to study how this parameter affects the amount of collected light.

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