

Preliminary tests of Plastic Scintillator Detector for the High Energy cosmic-Radiation Detection (HERD) experiment

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The High Energy Cosmic Radiation Detection (HERD) facility onboard the future China's Space Station (CSS) will provide high quality data on charged cosmic rays and gamma rays in the energy range from few GeV to PeV. HERD will be equipped with a fine granularity cubic crystals calorimeter and a microstrip Si tracker detector. The entire instrument will be surrounded by a Plastic Scintillator Detector (PSD) that will be used to discriminate charged from neutral particles in order to correctly identify gamma-rays and nuclei. One proposed configuration for the HERD PSD consists of tiles of plastic scintillator, optically coupled to SiPMs. In 2019-2020, two beam tests were performed at CNAO (Centro Nazionale di Adroterapia Oncologica) in Pavia (Italy), exposing some PSD tiles, equipped with SiPM, to low β p and C ion beams in order to evaluate the detector response to heavy ions. Spatial and temporal resolution were also evaluated using a radioactive source. These results will be presented.

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No, this is an entirely new submission.

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