Contribution ID: **1173** Type: **Parallel session talk**

Design and Performance of MiniFIT, the small-scale version of the HERD particle tracker

Thursday 18 July 2024 11:05 (15 minutes)

The High Energy cosmic-Radiation Detection facility (HERD) will be the largest calorimetric experiment dedicated to the direct detection of cosmic rays. HERD aims at probing potential dark matter signatures by detecting electrons from 10 GeV and photons from 500 MeV, up to 100 TeV. It will also measure the flux of cosmic protons and heavier nuclei up to a few PeV, shedding light on the origin and propagation mechanisms of high-energy cosmic rays. HERD will be equipped with a scintillating-fiber tracker (FIT) read out by silicon photomultipliers that will enable the reconstruction of charged particle trajectories, the measurement of their absolute electric charge, and the enhancement of photon conversion into electron-positron pairs. A miniature version of the FIT sector, called MiniFIT, was designed, built, and tested with particle beams at CERN. This presentation will delve into the design and physics performance of MiniFIT, particularly focusing on its space and charge resolution.

Alternate track

1. Astro-particle Physics and Cosmology

I read the instructions above

Yes

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Session Classification: Astro-particle Physics and Cosmology

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