Contribution ID: **456** Type: **Poster**

Performance of the SiPMs and Beta ASIC in the FIT Scintillating Fiber Tracker

The scintillating FIber Tracker (FIT) has been designed as a tracking detector for the upcoming High Energy cosmic-Radiation Detection (HERD) facility. The FIT combines excellent angular resolution with precise charge reconstruction measurements for cosmic-rays detection. The tracker consists of multiple tracking planes made of fiber mats, arranged in two orthogonal directions, and read out with Hamamatsu S13552-10 SiPM arrays. A custom-made ASIC, the BETA ASIC, has been developed, in order to fulfill the stringent requirements for noise, linearity, dynamic range, and power consumption of space applications.
This work reports the performance of the SiPMs and the BETA read-out system used in FIT. Our setup has been optimized, characterized, and calibrated using an LED light source. Additionally, we discuss the system' s performance in generating efficient triggers for the identification of ionizing particles.

Collaboration(s)

HERD

Author: LATHIKA, Keerthana Rajan (Institut de Física d'Altes Energies (IFAE), The Barcelona Institute of Science and Technology (BIST), E-08193 Bellaterra, Barcelona, Spain)

Co-authors: ESPINYA, Albert (ICCUB (Department of Física Quàntica i Astrofísica, Institut de Ciències Del Cosmos, Universidad de Barcelona, E-08007, Barcelona, Spain)); SANUY, Andreu (ICCUB (Department of Física Quàntica i Astrofísica, Institut de Ciències Del Cosmos, Universidad de Barcelona, E-08007, Barcelona, Spain)); PERRINA, Chiara (Institute of Physics, Ecole Polytechnique Fédérale de Lausanne (EPFL), Bâtiment PH, Station 3, CH-1015 Lausanne, Switzerland); GUBERMAN, Daniel (ICCUB (Department of Física Quàntica i Astrofísica, Institut de Ciències Del Cosmos, Universidad de Barcelona, E-08007, Barcelona, Spain)); GASCON, David (ICCUB (Department of Física Quàntica i Astrofísica, Institut de Ciències Del Cosmos, Universidad de Barcelona, E-08007, Barcelona, Spain)); LUCCHETTA, Giulio (Institut de Física d'Altes Energies (IFAE), The Barcelona Institute of Science and Technology (BIST), E-08193 Bellaterra, Barcelona, Spain); RICO, Javier (Institut de Física d'Altes Energies (IFAE), The Barcelona Institute of Science and Technology (BIST), E-08193 Bellaterra, Barcelona, Spain); FRIEDEN, Jennifer Maria (Institute of Physics, Ecole Polytechnique Fédérale de Lausanne (EPFL), Bâtiment PH, Station 3, CH-1015 Lausanne, Switzerland); MAURICIO, Joan (ICCUB (Department of Física Quàntica i Astrofísica, Institut de Ciències Del Cosmos, Universidad de Barcelona, E-08007, Barcelona, Spain)); BOIX, Juan (Institut de Física d'Altes Energies (IFAE), The Barcelona Institute of Science and Technology (BIST), E-08193 Bellaterra, Barcelona, Spain); KEYSER, Kimberly Sarah (Institute of Physics, Ecole Polytechnique Fédérale de Lausanne (EPFL), Bâtiment PH, Station 3, CH-1015 Lausanne, Switzerland); CARDIEL SAS, Laia (Institut de Física d'Altes Energies (IFAE), The Barcelona Institute of Science and Technology (BIST), E-08193 Bellaterra, Barcelona, Spain); MARTINEZ, Manel (Institut de Física d'Altes Energies (IFAE), The Barcelona Institute of Science and Technology (BIST), E-08193 Bellaterra, Barcelona, Spain); ORTA, Marina (ICCUB (Department of Física Quàntica i Astrofísica, Institut de Ciències Del Cosmos, Universidad de Barcelona, E-08007, Barcelona, Spain)); BLANCH, Oscar (Institut de Física d'Altes Energies (IFAE), The Barcelona Institute of Science and Technology (BIST), E-08193 Bellaterra, Barcelona, Spain); AZZARELLO, Philipp (Département de Physique Nucléaire et Corpusculaire (DPNC), Université de Genève, 24 quai Ernest-Ansermet, CH-1211 Genève 4, Switzerland)

Presenter: LATHIKA, Keerthana Rajan (Institut de Física d'Altes Energies (IFAE), The Barcelona Institute of Science and Technology (BIST), E-08193 Bellaterra, Barcelona, Spain)

Session Classification: PO-1

Track Classification: Cosmic-Ray Direct & Acceleration