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Construction and Performance of a Silicon Beam Tracker

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Abstract content

When testing and calibrating particle detectors in a test beam, accurate tracking information independent of the detector being tested is extremely useful during offline analysis of the data. A general purpose Silicon Beam Tracker (SBT) was constructed with an active area of $32.0 \times 32.0 \text{ mm}^2$ to provide this capability for the Cosmic Ray Energetics And Mass (CREAM) calorimeter. The tracker consists of two modules, each comprised of two orthogonal layers of $380 \text{ }\mu\text{m}$ thick silicon strip sensors. In one module each layer is a 64-channel AC-coupled single-sided silicon strip detector (SSD) with 0.5 mm pitch. In the other, each layer is a 32-channel DC-coupled single-sided SSD with 1.0 mm pitch. The signals from the 4 layers are read out using modified CREAM hodoscope front-end electronics with a USB 2.0 interface board to a Linux DAQ PC. In this paper we present the construction of the SBT, along with its performance in radioactive source tests and in a CERN beam test in October 2006.

If this papers is presented for a collaboration, please specify the collaboration

Summary

Reference

Proceedings of the 30th International Cosmic Ray Conference; Rogelio Caballero, Juan Carlos D'Olivo, Gustavo Medina-Tanco, Lukas Nellen, Federico A. Sánchez, José F. Valdés-Galicia (eds.); Universidad Nacional Autónoma de México, Mexico City, Mexico, 2008; Vol. 2 (OG part 1), pages 389-392

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