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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 x 32.0 mmˆ2 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 μm 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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