



Contribution ID : 641

Type : **Poster**

Calibrating the CREAM-III Calorimeter with a Silicon Beam Tracker

Abstract content

Cosmic Ray Energetics And Mass (CREAM) is a balloon-borne experiment designed to study high energy cosmic rays. The CREAM-III instrument is being prepared for a planned flight in Antarctica during the 2007/8 season. The CREAM-III calorimeter was exposed to high energy electron and proton beams at CERN's H2 beam line in October 2006 for testing and calibration. A 4-layer silicon strip beam tracker (SBT) was deployed in the beam to provide independent tracking information on an event by event basis. A new calorimeter calibration method has been developed using the accurate information provided by the SBT for the incident beam particle position. The new method was tested and compared with the conventional method using maximum energy deposit information in each layer from the calorimeter. The SBT information was also used to conduct a detailed position-dependence study of the calorimeter. In this paper we present the SBT-based calibration method and results, along with the calorimeter position uniformity study.

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

Summary

Reference

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Session Classification : Posters 1 + Coffee

Track Classification : OG.1.5