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A Simulation Study of Shower Reconstruction for the CREAM Calorimeter

Abstract content

The Cosmic Ray Energetics And Mass (CREAM) instrument is designed to measure the composition and energy spectra of cosmic rays up to an energy of $\sim 10^{15}$ eV. CREAM has had two successful long-duration balloon (LDB) flights, launched from McMurdo Station, Antarctica, for 42 days in 2004/2005 and 28 days in 2005/2006. In both flights CREAM employed a 20 radiation length tungsten/scintillating-fiber sampling calorimeter to trigger cosmic rays with energy above 10^{12} eV and measure their energy. Each of the 20 active layers was segmented into 50 one-cm-wide ribbons. Signals from these ribbons were used to reconstruct and extrapolate trajectories back to the Silicon Charge Detector and the Timing Charge Detector for accurate charge measurement. In this paper we describe a shower reconstruction algorithm for the calorimeter, along with results of GEANT simulations and efficiencies thereof.

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

Summary

Reference

Primary author(s) : Dr. AHN, Hoseok (Institute for Physical Science and Technology, University of Maryland)

Co-author(s) : GANEL, O. (Institute for Physical Science and Technology, University of Maryland); HAN, J. H. (Institute for Physical Science and Technology, University of Maryland); KIM, K. C. (Institute for Physical Science and Technology, University of Maryland); LEE, M. H. (Institute for Physical Science and Technology, University of Maryland); MALININ, A. (Institute for Physical Science and Technology, University of Maryland); SEO, E. S. (Dept. of Physics and IPST, University of Maryland); WU, J. (Institute for Physical Science and Technology, University of Maryland); YOON, Y. S. (Dept. of Physics and IPST, University of Maryland); ZINN, S. Y. (Institute for Physical Science and Technology, University of Maryland)

Presenter(s) : Dr. AHN, Hoseok (Institute for Physical Science and Technology, University of Maryland)

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