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Type : **Poster**

A Cherenkov imager for nuclear cosmic-rays charge measurement in the CREAM experiment

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Abstract content

A proximity focusing Cherenkov imager called CHERCAM (CHERenkov CAMera) has been added to the Cosmic Ray Energetics and Mass (CREAM) instrument for its forthcoming balloon flight in Antarctica. The detector is optimized for charge measurements with nearly constant resolution over the range of nuclear charge between $Z = 1$ and about 26 (Fe). The Cherenkov radiator is a $108 \times 108 \text{ cm}^2$ plane of two $10.4 \times 10.4 \times 1.1 \text{ cm}^3$ silica aerogel tiles stacks separated from the photon detector plane by a 12 cm ring expansion gap. The detector plane consists of an array of 1600 photomultipliers backed with dedicated front-end readout electronics, power supply, and DAQ readout electronics. The counter was tested with a set of high-energy (100 - 300 GeV) muon, pion, and proton beams at CERN before being integrated into the CREAM instrument at the University of Maryland. The salient CHERCAM features will be presented, along with the beam tests results and expected performance of the detector during flight.

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'Olive, 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 453-456

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