30th International Cosmic Ray Conference



Contribution ID : 841

Type : Poster

Development of a high dynamic range read-out system using multi-photodiode for the Total Absorption Calorimeter of CALET

Wednesday, 4 July 2007 14:45 (0:00)

Abstract content

We have been developing the CALET instrument, which is proposed to be launched on the Japanese Experiment Module (JEM), Exposed Facility (EF) of the ISS. CALET consists of an imaging calorimeter (IMC) and a total absorption calorimeter (TASC). The role of IMC is identification of the incident particle by imaging the shower tracks with scintillating fibers. TASC is used for observing the total development of shower particles with a stack of BGO scintillators. A read-out system using multi-photodiode and a front-end circuit including analog ASIC, 16 bit ADC, FPGA was developed to measure the energy deposit with the dynamic range from 1MIP(Minimum Ionization Particle) up to 10⁶MIPs in a BGO bar of TASC. The output signal of 1 MIP was calibrated by cosmic ray muon. The dynamic range of the read-out system was measured with both LED pulser and heavy ions beam in the range from 1MIP to about 2400 MIPs . In this paper, the performance of the read-out system is described.

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

CALET

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 437-440

Primary author(s) : Dr. KATAYOSE, yusaku (Department of Physics, Faculty of Engineering, Yokohama National University)

Co-author(s): Prof. SHIBATA, Makio (Department of Physics, Yokohama National University); Prof. TORII, Shoji (Advanced Research Institute for Science and Engineering, Waseda University); Dr. SHIMIZU, Yuki (Advanced Research Institute for Science and Engineering, Waseda University); Dr. TAMURA, Tadahisa (Faculty of Engineering, Kanagawa University); Dr. HIBINO, Kinya (Faculty of

Engineering, Kanagawa University); Dr. OKUNO, Shoji (Faculty of Engineering, Kanagawa University); Dr. YOSHIDA, Kenji (Department of Electronic & Information Systems, Shibaura Institute of Technology); Dr. KITAMURA, Hisashi (National Institute of Radiological Sciences); Dr. UCHIHORI, Yukio (National Institute of Radiological Sciences); Dr. MURAKAMI, Hiroyuki (Department of Physics, Rikkyo University)

Presenter(s) : Dr. KATAYOSE, yusaku (Department of Physics, Faculty of Engineering, Yokohama National University)

Session Classification : Posters 1 + Coffee

Track Classification : OG.1.5