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Imaging of 0.3-50 MeV Gamma-Rays with 3-DTI (Three-Dimensional Track Imager).

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Abstract content

A instrument to image medium energy gamma-rays is being designed for the future NASA Advanced Compton Telescope (ACT) mission. This instrument consists of a gas microwell imaging detector with an active detection volume of approximately 1.6 m x 1.6m x 0.5m which is surrounded by a segmented calorimeter. The use of the gas imager allows for the detection and tracking of the recoil electron from the Compton interaction from an incident gamma-ray photon as well as a measure of its energy from the amount of ionization in the gas volume. The segmented calorimeter provides a trajectory and energy measurement of the scattered gamma. The goal is an instrument capable of providing excellent position resolution (4 degrees at 2 MeV) and good energy resolution (<20% at 6 keV). We will discuss the design and performance of a small-scale prototype detector unit as well as future plans for testing and 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'Olivo, Gustavo Medina-Tanco, Lukas Nellen, Federico A. Sánchez, José F. Valdés-Galicia (eds.); Universidad Nacional Autónoma de México, Mexico City, Mexico, 2008; Vol. 3 (OG part 2), pages 1337-1340

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