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## CREAM Timing Charge Detector: Timing Analysis

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### Abstract content

The first flight of the Cosmic Ray Energetics And Mass (CREAM) balloon experiment employed a Timing Charge Detector (TCD) and a Calorimeter. For high energy events a large background of back splash particles are created in the Calorimeter, which wash out the low Z charge peaks in the TCD. Traditionally, highly pixelated detectors are used in this situation in order to reduce the effects of the background. However, CREAM employed ultra fast photomultipliers and electronics in order to measure the rise time of the charge peak, which should be proportional to the amplitude of the charge peak and provide the charge of low Z cosmic rays when the peak detectors are saturated. These fast detectors also provide useful lateral tracking information along the direction of the scintillation paddle. These analysis techniques will be presented.

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

CREAM-I

### 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 373-376

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