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THE FLIGHT ELECTRONICS SYSTEM FOR THE COSMIC RAY ELECTRON SYNCHROTRON TELESCOPE (CREST) EXPERIMENT

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Abstract content

The balloon-borne Cosmic Ray Electron Synchrotron Telescope (CREST) experiment will employ a novel distributed electronics system to collect timing and pulse height information from 1024 BaF2 crystal detectors and 42 PMTs in its anticoincidence shield. The timing of single photoelectron triggers from the PMTs in the crystal array is recorded to an accuracy of 1 ns least count. Wide dynamic range pulse height information from two dynodes on each PMT is recorded when two or more crystals receive single photoelectron triggers. Timing and pulse height information from the anticoincidence shield is recorded only when received within a preset time window of crystal array triggers. Integral Cockroft-Walton high voltage power supplies, potted within the PMTs are individually set by a digitally addressable control and monitoring system. Extensive use of FPGAs and CPLDs enable high-speed synchronous operation and low power consumption with a flexible distributed and modular architecture.

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

CREST

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 313-316

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