

CREAM LED Data Analysis

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The Cosmic Ray Energetics And Mass (CREAM) experiment was developed to measure the cosmic ray elemental spectra for $Z=1-26$ nuclei at energies ranging from $\sim 10^{12}$ to $\sim 10^{15}$ eV. The balloon-borne CREAM had 7 successful flights over Antarctica and it was recently installed on the International Space Station. For energy measurements, the CREAM instrument uses a calorimeter (CAL). The CAL has 20 layers of tungsten plates interleaved with 20 layers of 50 scintillating fiber ribbons to detect showers produced by cosmic ray interactions. These ribbons are read out using 40 pixelated Hybrid Photodiodes (HPD). Each HPD consists of 73 pixels, 3 of which receive optical signals from Light Emitting Diodes (LED). These LEDs are used for checking channel aliveness and the HPD pixel-to-fiber alignment. Channel gains were measured by varying high voltages from 3 to 10.5 kV, DAC values from 6000 to 9000, and bias voltage on and off. Analysis results will be presented.

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