GSIPoster_GlastSymposium

Heavy ions beam test for the LAT Calibration Unit

This page was created to group all the relevant material for construction of the poster contribution to the GLAST Symposium about test with heavy ions for the LAT calibration

Final version is available here

Abstract

The calorimeter (CAL) and the AntiCoincidence Detector (ACD) of the GLAST LAT telescope will be calibrated in flight with cosmic-ray heavy ions. A dedicated high level threshold in the ACD will trigger heavy ion events, and the pulse amplitude in the CAL and the ACD will be used to identify different ion species and calibrate the readout electronics. Tracker (TKR) information will be used to precisely identify the impact point and the path length of the ions in the plastic scintillators of the ACD and the CsI logs of the CAL. Such mode of operation was successfully tested in a heavy ion beam test carried out on the LAT Calibration Unit (CU) with Carbon and Xenon ions from the GSI synchrotron. The CU is a detector built with two complete flight spare modules, a third calorimeter and 5 ACD tiles which underwent a major beam test campaign in 2006 to validate the LAT MonteCarlo simulation with different particle beams.
The behaviour of all the three subsystems (TKR, CAL, ACD) under heavy ion irradiation is discussed in this poster, as well as the results that provide the necessary input for the optimization of the strategy for on-orbit calibration.

People

List of people interested

- Luca Latronico
- Thierry Reposeur
- Leon Rochester
- Benoit Lott

Useful material

- Setup and run conditions: GSI run 11/2006 report Luca
- CAL response: analysis report on CAL quenching factors from GSI run 11/2006 thierry
- CAL response: GSI paper from 2003 run NIMA 560(2006)
- TKR response: Leon analysis on cluster widths pdf
- TKR response: Bari analysis on cluster widths pdf