

Simulation of the CALICE Semi-Digital Hadronic Calorimeter

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The CALICE Semi-Digital Hadronic Calorimeter technological prototype is a sampling calorimeter using Glass Resistive Plate Chamber detectors with a three-threshold readout as the active medium. This technology is one of the two options proposed for the hadronic calorimeter of the International Large Detector for the International Linear Collider. The prototype was exposed to beams of muons, electrons and pions of different energies at the CERN Super Proton Synchrotron. To be able to study the performance of such a calorimeter in future experiments it is important to ensure reliable simulation of its response. The simulation of this prototype and the digitisation procedure are presented. Comparisons between beam test data and the simulation, covering detector response and shower shapes, are also discussed. Finally a method allowing the reconstruction of track segments within hadronic showers is presented and tested using data and the simulation.

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