Contribution submission to the conference Münster 2017

Analysis of CERN 2015 Test Beam data of the CALICE Analog Hadronic Calorimeter technological prototype — •Ambra Provenza for the CALICE-D-Collaboration — DESY — Hamburg University

The goal of the CALICE Collaboration is to develop calorimeters for a future e^+ e^- linear collider.

The Analog Hadronic Calorimeter (AHCAL) is a high granularity calorimeter, developed to use the Particle Flow method, to reach a good jet energy resolution. The AHCAL technological prototype, scalable to a full collider detector, is composed of 3×3 cm^2 scintillator tiles read out by Silicon Photomultipliers.

During the year 2015 two periods of test beams at CERN have been performed, to validate the detector calibration with muon and electron beams and to study the shower evolution with hadron beams. In fact a very important and new feature of this prototype is the possibility to have time information of the hits in the detector. The talk will start with an overview of the AHCAL technological prototype and its development.

It will then focus on the analysis of the test beam data taken at CERN with a steel absorber structure. In particular a detailed look into the electrons data will presented. Due to the well known physics of electromagnetic showers, this analysis allows us to understand the behaviour and the performance of the prototype.

This analysis will also allow the validation of the prototype implementation in the Monte Carlo simulation.

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