

Single pion energy resolution of a high granularity scintillator calorimeter system

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Within the CALICE collaboration, several high granularity calorimeter prototypes optimised for particle flow reconstruction have been realised. One of the explored readout technologies consists of scintillating plastic elements read out by silicon photomultipliers (SiPMs), enabling unprecedented granularity in scintillator calorimeters. With this technology the ScECAL, an EM calorimeter with W absorbers and $45 \times 10 \text{mm}^2$ strip readout, the AHCAL, a hadron calorimeter with steel absorbers and down to $30 \times 30 \text{mm}^2$ tile segmentation, and the TCMT with steel absorbers instrumented with $50 \times 1000 \text{mm}^2$ scintillator strips, have been realised. During the testbeam campaign in the MTest beamline at FTBF in 2009 the ScECAL, AHCAL and TCMT have been operated in muon, electron and pion beams in the momentum range of 1 to 32 GeV/c.

The detailed simulation model of the combined calorimeter system is validated with muons and electromagnetic showers.

This talk will be the first public discussion of the single pion energy resolution of the setup in data and simulations, using both classical energy reconstruction as well as software compensation techniques.

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