

Calibration and Performance of the ATLAS Tile Calorimeter

B. S. Peralva on behalf of the Tile Calorimeter group

TileCal is the hadronic calorimeter covering the most central region of the ATLAS experiment at the LHC. It is a key detector for the measurement of hadrons, jets, tau leptons and missing transverse energy. Scintillation light produced in the tiles is transmitted by wavelength shifting fibers to photomultiplier tubes (PMTs). The resulting electronic signals from approximately 10000 PMTs are measured and digitized before being transferred to off-detector data-acquisition systems.

The calorimeter response is monitored to better than 1% using radioactive source, laser, and charge injection systems. This multi-faceted calibration system allows to monitor and equalize the calorimeter response at each stage of the signal production, from scintillation light to digitization.

This contribution presents a brief description of the different TileCal calibration systems as well as the latest results on their performance in terms of calibration factors, linearity and stability.

The performance of the Tile Calorimeter with the cosmic muons and collision data is also presented, including the absolute energy scale, time resolution and associated stabilities.