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## Performances of the Signal Reconstruction in the ATLAS Hadronic Tile Calorimeter

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The Tile Calorimeter (TileCal) is the central section of the hadronic calorimeter of ATLAS. It is a key detector for the reconstruction of hadrons, jets, taus and missing transverse energy. TileCal is a sampling calorimeter with steel as absorber and scintillators as active medium. The scintillators are read-out by wavelength shifting fibers coupled to photomultiplier tubes (PMTs). The analogue signals from the PMTs are amplified, shaped and digitized by sampling the signal every 25 ns. The read-out system is designed to reconstruct the data in real time fulfilling the tight time constraint imposed by the ATLAS first level trigger rate (100 kHz). The signal amplitude for each channel and the phases are measured using Optimal Filtering techniques both at on-line and off-line level.

We present the performances of these techniques on the data collected in the proton-proton collisions at center-of-mass energy equal to 7 TeV. We show in particular the measurements of low amplitudes, where the cell signals and the noise overlap, using as probe high transverse momenta muons produced in the proton-proton collisions.

### for the collaboration

On behalf of the ATLAS Tile Calorimeter group

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