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# Studies of the ATLAS hadronic Calorimeter response to different particles at Test Beams

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The Large Hadron Collider (LHC) Phase II upgrade aims to increase the accelerator luminosity by a factor of 5-10. Due to the expected higher radiation levels and the aging of the current electronics, a new readout system of the ATLAS experiment hadronic calorimeter (TileCal) is needed. A prototype of the upgrade TileCal electronics has been tested using the beam from the Super Proton Synchrotron (SPS) accelerator at CERN. Data were collected with beams of muons, electrons and hadrons at various incident energies and impact angles.

The muons data allow to study the dependence of the response on the incident point and angle in the cell.

The electron data are used to determine the linearity of the electron energy measurement.

The hadron data will allow to tune the calorimeter response to pions and kaons modelling to improve the reconstruction of the jet energies.

The results of the ongoing data analysis are discussed in the presentation.

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