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Electron and Photon Performance and Electron pT Spectrum Measurement with ATLAS in pp Collisions at √s = 7 TeV

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The understanding of the reconstruction of electrons in the ATLAS experiment at LHC is one of the key issues for the 2010 run at a center of mass energy of 7 TeV. Two aspects are of interest: the energy calibration and the reconstruction efficiency. The energy measurement of electrons is based on the electromagnetic calorimeter over most of the relevant energy range (5 GeV to a few TeV). The electromagnetic calorimeter clusters are formed from electronically calibrated calorimeter cells and are corrected for local position and energy variations. A refined calibration procedure, developed and validated over years of test-beam strives to identify all sources of energy losses upstream of the outside the cluster and corrects for them one by one (using Monte Carlo). The present study is aiming at a first validation of this calibration strategy on prompt electrons from known physics processes. The electron reconstruction efficiency can be measured with data using a tag-and-probe approach with J/psi->ee and Z->ee decays. An initial measurement will be shown with the first pb-1 and compared to MC. The talk also presents a first measurement of the inclusive electron transverse momentum (pT) spectrum in proton proton collisions at a center of mass energy of 7 TeV using a data sample of a few pb-1.

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