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Single Hadron Response Measurements in ATLAS

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Single hadron response measurement in minimum bias proton-proton collisions at a center of mass energy of $\sqrt{s} = 7 \text{ TeV}$ are presented. Together with test-beam results these measurement form the basis to evaluate the calorimeter response uncertainty of jets at high transverse momenta. The novel technique to evaluate the jet from the single particle response will be presented.

The single hadrons response is measured in the momentum range of 0.5 to about 20 GeV in-situ by comparing the calorimeter response of all energy deposits in a cone around an isolated track with the precisely measured track momenta.

The agreement between data and Monte Carlo simulation is on the level of a few percent. Using kaon and Lambda particles the calorimeter response of identified pions, proton and anti-proton. The MC simulation describes pions and protons well, but differences are observed for anti-protons. It is discuss how the jet calorimeter response uncertainty and it correlation between tranverse momentum bins is determined from these measurements.

for the collaboration

On behalf of the ATLAS jet/etmiss group

Presenter: Mr SOUSA, Mário (LIP-Lisbon, FCUL)

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