

Performance of the missing transverse energy measurement with the ATLAS detector in commissioning data

The measurement of the missing transverse momentum in events produced in proton- proton collisions is an important ingredient in the physics program of LHC. In 2008 the Atlas detector has been operated to commission and integrate the individual sub-detectors and a large data-set of millions of events has been recorded. It has been shown that the noise in more than 200000 cells in the ATLAS calorimeter does not introduce a significant bias in the measurement of the scalar and vectorial transverse energy. Moreover, the noise in the Atlas liquid argon calorimeter is compatible with the expectation for uncorrelated Gaussian noise. Also large energy deposits of several TeV in the Atlas calorimeters have been analyzed. It is shown that the transverse momentum spectrum of these high energy depositions can be explained by photons radiated from high energetic muons produced in cosmic rays. Furthermore it is investigated how energy depositions induced by cosmic rays can be rejected based on jet properties. This study shows that ATLAS is well prepared to analyze first collision expected in autumn of 2009.

Primary author: Prof. ANNA, Di Ciaccio (University of Roma Tor Vergata and INFN)

Presenter: Dr WEBER, Pavel (University of Heidelberg)

Track Classification: Poster session