



Contribution ID: 18

Type: Poster and Presentation

## Performance of the ATLAS Trigger Reconstruction for Minimum Bias Events, Jets, and Missing Transverse Energy in pp-collisions at $\sqrt{s} = 7$ TeV

Thursday, 2 September 2010 10:08 (5 minutes)

Since the restart of the LHC, ATLAS has successfully recorded data at  $\sqrt{s} = 0.9$  and 7 TeV. The ATLAS trigger strategy realised a step-wise activation of the three level trigger system, starting with hardware-based first-level (L1) triggers and moving with increasing luminosities to the deployment of the software-based high-level triggers (HLT). We will present L1 and HLT triggers and their performance on 7 TeV collision data, whose use case range from the measurements of inelastic charged particle spectra to new physics searches. We will focus on triggers selecting inelastic pp-collisions (minimum bias), missing transverse energies (missing  $E_{\text{T}}$ ), jets and bjets. Different minimum bias triggers based on central tracking and forward detector components, their efficiencies as well as possible biases are presented. We highlight missing  $E_{\text{T}}$  triggers, which require the magnitude of the vector sum of all transverse energies to exceed some threshold. While look-up-tables allow fast trigger decisions at L1, the full calorimeter signal is accessed at HLT to make a more precise estimate on missing  $E_{\text{T}}$ . We also outline the performance of various jet triggers, showing results for inclusive, dijet, and multijet efficiencies at L1 and HLT. Furthermore, results on the performance of bjet trigger algorithms are presented, allowing for b-meson identification at HLT.

**Primary author:** Ms KWEE, Regina (CERN/Humboldt University of Berlin)

**Presenter:** Ms KWEE, Regina (CERN/Humboldt University of Berlin)

**Session Classification:** Poster Presentations A

**Track Classification:** Poster