Contribution ID: **77** Type: **not specified**

Tau trigger and identification commissioning and first physics in ATLAS

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

Tau leptons, and particularly their hadronic decays, will play an important role at the LHC. They will not only be invaluable for understanding the performance of the ATLAS detector but will also be of great importance in searches for the Higgs Boson and supersymmetric particles.
A key component of the overall tau selection is the tau trigger, which will provide a rejection of 10^6 against low-energy jets and an overall efficiency of 80% with respect to hadronic tau leptons identified by the offline algorithms. In the initial running it will be used standalone for high energy items (typically for E_T above 60 GeV) and in combination with missing E_T, electrons, muons or jets for lower E_T values.
Several offline identification strategies are being developed, some of them using advanced multivariate techniques. The commissioning of both trigger and identification algorithms has started with cosmics and first beam data.
Feasibility studies for analyses which can be envisaged with an integrated luminosity of 100 pb^{-1} are presented. W->tau nu events will provide the first relatively clean sample of tau leptons, allowing studies of the performance of the tau trigger and identification. Z->tau tau events with one tau decaying leptonically and one hadronically will help to understand efficiencies of the tau trigger, identification and mis-tagging. In addition they will allow for the in-situ determination of the tau energy scale and of the missing transverse energy scale. Events from ttbar processes with one W decaying to a tau lepton will be used to understand the reconstruction and identification performance of taus in a busier environment, more relevant to the future discovery physics program in ATLAS.

Primary author: Dr POGGIOLI, Luc (LAL Orsay, France)

Presenter: Dr POGGIOLI, Luc (LAL Orsay, France)

Session Classification: Poster Session