



The ATLAS hadronic tau trigger

Saturday, 7 July 2012 18:00 (1 hour)

With the high luminosities of proton-proton collisions achieved at the LHC, the strategies for triggering have become more important than ever for physics analysis. The naïve inclusive single tau lepton triggers now suffer from severe rate limitations. To allow for a large program of physics analyses with taus, the development of topological triggers that combine tau signatures with other measured quantities in the event is required. These combined triggers open many opportunities to study new physics beyond the Standard Model and to search for the Standard Model Higgs.

We present the status and performance of the hadronic tau trigger in ATLAS. We demonstrate that the ATLAS tau trigger ran remarkably well over 2011, and how the lessons learned from 2011 led to numerous improvements in the preparation of the 2012 run. These improvements include the introduction of tau selection criteria that are robust against varying pileup scenarios, and the implementation of multivariate selection techniques in the tau trigger. First results from the improved 2012 tau trigger will be shown. Measurements of the trigger efficiency using the $Z \rightarrow \tau\tau$ and $W \rightarrow \tau\nu$ events are also presented.

Primary author: Mr BLACK, Curtis William (University of Sydney (AU))

Presenter: Mr BLACK, Curtis William (University of Sydney (AU))

Session Classification: Poster Session

Track Classification: Track 13. Detectors and Computing for HEP