

ATLAS Trigger Overview

Wednesday, 11 September 2013 12:50 (35 minutes)

The ATLAS Experiment is a general purpose detector aimed at studying a wide range of processes and final states. To this end the ATLAS Detector and trigger must be able to detect and record a very large variety of objects and topologies. In particular events containing final state electrons, muons, photons and jets are used in analyses making precision Standard Model measurements as well as searches for the Higgs Boson and extensions to the Standard Model.

The ATLAS Detector, running at the LHC bunch crossing rate of 40MHz, produces a raw data rate of approximately 1 Petabyte per second. It is unfeasible to record all of this due to limitations in read-out technology, storage space and the CPU time required for full reconstruction. To overcome these difficulties the recording rate must therefore be reduced to 200-400Hz, depending on beam conditions. To achieve this ATLAS employs a 3 level trigger, the first of which is built from fast electronics and the remaining two consist of high power computer farms. The design of the ATLAS Trigger, and in particular the Level-1 Calorimeter Trigger, is presented here.

Primary author: ALLBROOKE, Benedict (University of Birmingham (GB))

Presenter: ALLBROOKE, Benedict (University of Birmingham (GB))

Session Classification: Session 10

Track Classification: Higgs Boson Search