



Contribution ID: 797

Type: **Poster**

Real-time flavour tagging selection in ATLAS

Saturday 6 August 2016 18:00 (2 hours)

In high-energy physics experiments, online selection is crucial to select interesting collisions from the large data volume. ATLAS b-jet triggers are designed to identify heavy-flavour content in real-time and provide the only option to efficiently record events with fully hadronic final states containing b-jets. In doing so, two different, but related, challenges are faced. The physics goal is to optimise as far as possible the rejection of light jets, while retaining a high efficiency on selecting b-jets and maintaining affordable trigger rates without raising jet energy thresholds. This maps into a challenging computing task, as tracks and their corresponding vertices must be reconstructed and analysed for each jet above the desired threshold, regardless of the increasingly harsh pile-up conditions.

We present an overview of the ATLAS strategy for online b-jet selection for the LHC Run 2, including the use of novel methods and sophisticated algorithms designed to face the above mentioned challenges. The performance in Run 2 data, including the highest centre of mass energy collision, is shown.

The ATLAS FastTracKer (FTK) system does global track reconstruction after each level-1 trigger to enable the high-level trigger to have early access to tracking information. We present the status of the FTK commissioning (expected to be completed in 2016) and discuss how the system can be exploited to improve the current b-jet trigger performance.

Presenter: ALISON, John (University of Chicago (US))**Session Classification:** Poster Session**Track Classification:** Detector: R&D and Performance