

21st International Conference on Computing in High Energy and Nuclear Physics (CHEP2015)



Contribution ID: 49

Type: **poster presentation**

Real-time flavour tagging selection in ATLAS

In high-energy physics experiments, online selection is crucial to identify the few interesting collisions from the large data volume processed. In the overall ATLAS trigger strategy, b-jet triggers are designed to identify heavy-flavor content in real-time and, in particular, 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 from QCD processes, while retaining a high efficiency on selecting jets from beauty, while maintaining affordable trigger rates without raising jet energy thresholds. This maps into a challenging computing task, as charged tracks and their corresponding vertexes must be reconstructed and analysed for each jet above the desired threshold, regardless of the increasingly harsh pile-up conditions. The performance of b-jet triggers during the LHC Run 1 data-taking campaigns is presented, together with an overview of the new online b-tagging strategy and algorithms, designed to face the above mentioned challenges, which will be adopted during Run 2.

Primary author: Dr BERTELLA, Claudia (Johannes-Gutenberg-Universitaet Mainz (DE))

Presenter: Dr BERTELLA, Claudia (Johannes-Gutenberg-Universitaet Mainz (DE))

Track Classification: Track1: Online computing