



Contribution ID: 125

Type: Oral

Trigger level analysis technique in ATLAS for Run 2 and beyond

Tuesday, 5 November 2019 14:30 (15 minutes)

With the unprecedented high luminosity delivered by the LHC, detector readout and data storage limitations severely limit searches for processes with high-rate backgrounds. An example of such searches is those for mediators of the interactions between the Standard Model and dark matter, decaying to hadronic jets. Traditional signatures and data taking techniques limit these searches to masses above the TeV. In order to extend the search range to lower masses on the order of 100 GeV and probe weaker couplings, the ATLAS experiment employs a range of novel trigger and analysis strategies. One of these is the trigger-level analysis (TLA), which records only trigger-level jet objects instead of the full detector information. This strategy of using only partial event information permits the use of lower jet trigger thresholds and increased recording rates with minimal impact on the total output bandwidth. We discuss the implementation of this stream and its planned updates for Run 3 and outline its technical challenges. We also present the results of an analysis using this technique, highlighting the competitiveness and complementarity with traditional data streams.

Consider for promotion

No

Primary author: BOVEIA, Antonio (Ohio State University)

Presenter: BOVEIA, Antonio (Ohio State University)

Session Classification: Track 1 –Online and Real-time Computing

Track Classification: Track 1 –Online and Real-time Computing