



Contribution ID: 503

Type: Parallel Talk

The performance of the ATLAS Inner Detector tracking trigger in high pileup collisions at 13 TeV at the Large Hadron Collider (Run-2) and plans for Run-3

Saturday, 9 July 2022 10:10 (18 minutes)

The performance of the Inner Detector tracking trigger of the ATLAS experiment at the LHC is evaluated for the data taking period of Run-2 (2015-2018). The Inner Detector tracking was used for the muon, electron, tau and b-jet triggers, and its high performance is essential for a wide variety of ATLAS physics programs such as many precision measurements of the Standard Model and searches for new physics. The detailed efficiencies and resolutions of the trigger in a wide range of physics signatures are presented for the Run 2 data. From the upcoming Run-3, starting in 2022, the application of Inner Detector tracking in the trigger is planned to be significantly expanded, in particular full-detector tracking will be utilized for hadronic signatures (such as jets and missing transverse energy triggers) for the first time. To meet computing resource limitation, various improvements, including machine-learning based track seeding, have been developed.

In-person participation

Yes

Primary authors: KIRK, Julie (Rutherford Appleton Laboratory); ILIC, Nikolina (University of Toronto); NAGANO, Kunihiro; SIMPSON, Harry

Presenter: SIMPSON, Harry

Session Classification: Operation, Performance and Upgrade (Incl. HL-LHC) of Present Detectors

Track Classification: Operation, Performance and Upgrade (Incl. HL-LHC) of Present Detectors