Contribution ID: **6**   Type: **Plenary**

The ATLAS Inner Detector tracking trigger at 13 TeV in LHC Run-2 and new developments on standard and unconventional tracking signatures for the upcoming LHC Run-3

Wednesday 1 June 2022 14:55 (25 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 limitations, various improvements, including machine-learning-based track seeding, have been developed.

Consider for young scientist forum (Student or postdoc speaker)

No

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