



Contribution ID: 17

Type: **Oral**

Tracking in Dense Environments for the HL-LHC ATLAS Detector

Wednesday, March 21, 2018 5:10 PM (15 minutes)

Tracking in dense environments, such as in the cores of high-energy jets, will be key for new physics searches as well as measurements of the Standard Model at the High Luminosity LHC (HL-LHC). The HL-LHC will operate in challenging conditions with large radiation doses and high pile-up (up to $\mu=200$). The current tracking detector will be replaced with a new all-silicon Inner Tracker for the Phase II upgrade of the ATLAS detector. In this talk, characterization of the HL-LHC tracker performance for collimated, high-density charged particles arising from high-momentum decays is presented. In such decays the charged-particle separations are of the order of the tracking detector granularity, leading to challenging reconstruction. The ability of the HL-LHC ATLAS tracker to reconstruct the tracks in such dense environments is discussed and compared to ATLAS Run-2 performance for a variety of relevant physics processes.

Primary author: CORMIER, Felix (University of British Columbia (CA))

Co-authors: DANNINGER, Matthias (University of British Columbia (CA)); STYLES, Nicholas (Deutsches Elektronen-Synchrotron (DE))

Presenter: CORMIER, Felix (University of British Columbia (CA))

Session Classification: Young Scientist Forum

Track Classification: 5: Advanced usage of tracks