Contribution ID: **453**   Type: **Poster presentation**

The design and performance of the ATLAS Inner Detector trigger in high pileup collisions at 13 TeV at the Large Hadron Collider

Tuesday 12 June 2018 15:55 (15 minutes)

The design and performance of the ATLAS Inner Detector (ID) trigger algorithms running online on the High Level Trigger (HLT) processor farm for 13 TeV LHC collision data with high pileup are discussed. The HLT ID tracking is a vital component in all physics signatures in the ATLAS Trigger for the precise selection of the rare or interesting events necessary for physics analysis without overwhelming the offline data storage in terms of both size and rate. To cope with the high interaction rates expected in the 13 TeV LHC collisions the ID trigger was redesigned during the 2013-15 long shutdown. The performance of the ID Trigger in both the 2016 and 2017 data from 13 TeV LHC collisions has been excellent and exceeded expectations, even at the very high interaction multiplicities observed at the end of data taking in 2017. The detailed efficiencies and resolutions of the trigger in a wide range of physics signatures are presented for the Run 2 data, illustrating the superb performance of the ID trigger algorithms in these extreme pileup conditions. This demonstrates how the ID tracking continues to lie at the heart of the trigger performance which enables the ATLAS physics program, and will continue to do so in the future.

Minioral

Yes

Description

trigger

Speaker

ATLAS

Institute

CERN

Country

Switzerland

Author: BEAUCHEMIN, Pierre-Hugues (Tufts University (US))

Presenter: BEAUCHEMIN, Pierre-Hugues (Tufts University (US))

Session Classification: Poster 1

Track Classification: Trigger Systems