Contribution ID: **84** Type: **Poster**

Performance of the ATLAS Tau Trigger in Run 2

Tuesday, August 22, 2017 4:30 PM (15 minutes)

Tau leptons are used in a range of important ATLAS physics analyses, including the measurement of the SM Higgs boson coupling to fermions, searches for Higgs boson partners, and heavy resonances decaying into pairs of tau leptons. Events for these analyses are provided by a number of single and di-tau triggers, as well as triggers that require a tau lepton in combination with other objects.

The luminosity of proton-proton collisions at the LHC during Run 2 exceeds the design of 10^34cm^-2s-1. Therefore, sophisticated triggering strategies have been developed to maintain reasonably low trigger thresholds. The main developments to allow a large programme of physics analyses with tau leptons include topological selections at the first trigger level, fast tracking algorithms, and improved identification requirements.

The ATLAS tau trigger strategy and its performance during the 2015 and 2016 data taking will be presented. The investigations for further developments for future data-taking period will also be discussed.

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Session Classification: Poster Session

Track Classification: Track 2: Data Analysis - Algorithms and Tools