Contribution ID: **395** Type: **LHC experiments**

The CMS Level-1 jet and energy sum triggers for the LHC Run II

Tuesday 5 June 2018 16:00 (1h 30m)

The CMS experiment implements a sophisticated two-level triggering system composed of the Level-1, instrumented by custom-design hardware boards, and a software High Level Trigger. A new Level-1 trigger architecture with improved performance is now being used to maintain high physics efficiency for the more challenging conditions experienced during Run II. We present the performance of the upgraded L1 jet, energy sum, and missing transverse energy (MET) triggers. The upgraded trigger benefits from an enhanced granularity of the calorimeters to optimally reconstruct hadronic objects. Dedicated pile-up mitigation techniques are implemented for both jets and missing transverse energy to keep the trigger rate under control in the intense running conditions of the LHC. The performance of the new trigger system is presented, based on proton-proton collision data collected in 2017. The selection techniques used to trigger efficiently on benchmark analyses are presented, along with the strategies employed to guarantee efficient triggering for new physics.

Author: BHAL, Eshwen (University of Bristol (GB))

Presenter: BHAL, Eshwen (University of Bristol (GB))

Session Classification: Posters session