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Tracking Triggers for the HL-LHC

Friday 28 May 2021 08:20 (25 minutes)

he High Luminosity LHC (HL-LHC) upgrade will significantly increase the instantaneous luminosity of LHC collisions. The resulting proton-proton datasets will allow precise measurements of Higgs boson properties, searches for rare processes, and much more. However, the associated experimental environment poses significant challenges for the LHC detectors and their triggering systems, which must therefore be upgraded.

This presentation will discuss the inclusion of hardware-based track reconstruction in the CMS and ATLAS triggering systems for the HL-LHC, with particular focus on the track trigger capability of the upgraded CMS experiment. The presentation will describe the challenges and opportunities of this novel capability, review the alternative implementations that were considered, and discuss its expected performance.

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