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Triggering for Hadronically Decaying Tau Leptons at CMS in the Super-LHC Era MICHAEL MASON, ALEXEI SAFONOV, Texas A&M University — Signals involving hadronically decaying taus in the final state will remain very important for physics reach of the Large Hadron Collider in the SUPER-LHC era. Greatly increased instantaneous luminosity will lead to an average of up to 200-400 pile-up events per bunch crossing making triggering extremely challenging. To address these challenges, we study various options for extending existing CMS Level-1 tau trigger setup to achieve acceptable trigger rates while preserving high triggering efficiency in the high pile-up environment. We use simulations to evaluate performance of the extended algorithms and compare it to the existing schema. We also discuss potential improvements to trigger performance if tracking capabilities were to become available in the upgraded CMS Level 1 trigger.

James Pivarski
Texas A&M University

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