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CMS RPC L1 Trigger primitives in HL-LHC

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This talk delves into the crucial enhancements of the RPC system as part of the comprehensive upgrades to the CMS Level-1 Trigger, tailored to address the increased luminosity challenges at the HL-LHC. The revised Level-1 architecture maximizes the integration and utility of the muon subsystems—CSC, DT, and particularly the RPC—to ensure superior performance and reliability under extreme operational conditions. The presentation will focus on the specific advancements and strategic role of the RPC upgrades in enhancing muon trigger efficiency and robustness. It will present a newly developed clustering algorithm, detailing the first results from cosmic and test beam evaluations of the new Trigger Primitives with upgraded backend boards.

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