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## The CMS Muon System Upgrade for High Luminosity LHC

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To address the demanding conditions of increased luminosity and higher pileup expected during the high-luminosity phase of the LHC (HL-LHC), the muon spectrometer of the CMS experiment will undergo significant upgrades. These enhancements aim to ensure robust operation under challenging data-taking conditions while improving the tracking and triggering performance of the system.

The electronics upgrades will target the Drift Tubes (DT) in the barrel, Cathode Strip Chambers (CSC) in the endcaps, and Resistive Plate Chambers (RPC) across the barrel and endcaps of the current muon system. Additionally, new detector stations will be deployed in the endcaps, where background rates are anticipated to be higher. These new stations will utilize advanced technologies, including triple Gas Electron Multiplier (GEM) and improved RPC (iRPC) detectors, which provide superior timing, spatial resolution, and enhanced rate capabilities.

This presentation will provide an overview of the CMS Muon System upgrades, highlighting ongoing activities, progress, and future plans as we prepare for HL-LHC operations.

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