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Validation and performance results of the first CMS GEM GE2/1 muon production chambers

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The CMS upgrade for the High Luminosity phase of the LHC involves the installation of three GEM stations: GE1/1, GE2/1, and ME0. While GE1/1 has been operational since Run-3's onset, only two GE2/1 chambers are in place as of early 2024. ME0's installation is slated for LHC Long Shutdown 3, with GE2/1 chamber installation resuming post ME0 completion.

These GEM stations, coupled with improved Resistive Plate Chambers (iRPC) detectors, are pivotal for sustaining optimal muon triggering and reconstruction. This presentation delves into the production, validation, and performance of the initial two GE2/1 detectors at CERN GEM lab, showcasing impressive average efficiencies of 98.5% and 99% measured with a six-layer cosmic stand.

Alternate track

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Yes

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