Abstract Submitted
for the APR20 Meeting of
The American Physical Society

Triple-GEM (GE1/1) Muon System for the CMS Phase II Upgrade: Commissioning and Prospects HYUNYONG KIM, Texas AM University, CMS COLLABORATION — The CMS Collaboration has been developing a Gas Electron Multiplier (GEM) detector in the endcap regions of the CMS muon system to maintain the high level of performance achieved during Run 2 in the challenging environment of the high luminosity LHC collider (HL-LHC). The GEM chambers at endcap station 1 (GE1/1) are being installed in the second long shutdown. The technical and operational challenges of large-area GEM chambers have been identified during the commissioning of five GEM supper chambers (slice test) in Run 2. This lead to a modification in its system design. A test with cosmic-ray muons is the final stage of quality control before the full-scale installation in CMS. We review the performance of muon detection in the slice test, an improvement of the readout system, commissioning status, and prospects for the muon trigger for Run 3.

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Date submitted: 07 Jan 2020 Electronic form version 1.4