**Development of a CMS GEM Alignment Algorithm with Muons
in pp Collisions in Run 2 Slice Test** TOWSIFA AKHTER, HYUNYONG KIM,
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VERSITY TEAM — The CMS muon system plays an important role in the discovery
of new physics like the Higgs boson and new particles. The next phase of the LHC is
planned to increase luminosity to improve the discovery power. The high luminosity
LHC (HL-LHC) will be a harsh environment of pp collisions and will require high-
performance muon trigger and muon track reconstruction, especially in the endcap
region. In order to maintain the performance of the CMS muon system, the CMS
collaboration has been developing a Gas Electron Multiplier (GEM) detector for the
endcap regions of the CMS muon system. The new sub-detector system requires
a new procedure of commissioning and alignment to be developed. We report the
status of the GE1/1 alignment in Run 2 slice test.

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