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First look at the detection efficiences of Triple-GEM Detectors in pp Collision at CMS with 2023 data.

The CMS muon system is being upgraded with the GE1/1 station of Gas Electron Multiplier (GEM) detectors to handle the increased muon flux in the very forward eta region. This work analyzes muon detection efficiency with the GE1/1 station using p-p collision data with center of mass energy of 13.6 TeV. A dataset enriched with muons from Z-decay, with a total integrated luminosity of ˜ 6 fb−1, has been utilized. A standalone muon algorithm is used to reconstruct muons and to measure the detection efficiency of the GE1/1 station. Tracks are back-propagated to the GE1/1 detector modules to identify the most compatible GEM hits. The detector modules are operated between 680 - 690 μA of equivalent divider current, slightly below the current of ˜ 700 μA expected for the bias voltage working point.

Field of contribution

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