Contribution ID: **35** Type: **Poster Presentation**

Quality Control and Beam Test of GEM Detectors for Future Upgrades of the CMS Muon High Rate Region at the LHC

Thursday 11 September 2014 14:00 (1h 40m)

Gas Electron Multipliers (GEM) are a proven position sensitive gas detector technology which nowadays is becoming more widely used in High Energy Physics. GEMs offer an excellent spatial resolution and a high particle rate capability, with a close to 100% detection efficiency. In view of the high luminosity phase of the CERN Large Hadron Collider, these aforementioned features make GEMs suitable candidates for the future upgrades of the Compact Muon Solenoid (CMS) detector. In particular, the CMS GEM Collaboration proposes to cover the high-eta region of the muon system with large-area triple-GEM detectors, which have the ability to provide robust and redundant tracking and triggering functions. In this contribution, after a general introduction and overview of the project, the construction of full-size trapezoidal triple-GEM prototypes will be described in more detail. The procedures for the quality control of the GEM foils, including gain uniformity measurements with an x-ray source will be presented. In the past few years, several CMS triple-GEM prototype detectors were operated with test beams at the CERN SPS. The results of these test beam campaigns will be summarised.

Author: SALVA DIBLEN, Sinem (Ghent University (BE))

Presenter: SALVA DIBLEN, Sinem (Ghent University (BE))

Session Classification: Session 13: Posters 2 (Astrophysics, Synchroton and other Applications)

Track Classification: Gas-based detection methods