



Contribution ID: 55

Type: **Oral Paper**

Physics Studies for the CMS Muon System Upgrade with Triple-GEM detectors

Tuesday 9 September 2014 12:00 (20 minutes)

The CMS collaboration considers upgrading the muon forward region with Gas Electron Multiplier (GEM) chambers, which are able to handle the extreme particle rates expected in this region along with a high spatial resolution. This allows to combine tracking and triggering capabilities, resulting in a lower trigger threshold along with improved muon identification and the track reconstruction. In the last year the GEM project took a major leap forward by integrating triple-GEM chambers in the official CMS software, allowing physics studies to be carried out. Several benchmark analyses have been studied for the impact of such detector upgrade on the physics performance. The contribution will review the status of the CMS upgrade project with the usage of GEM detector, discussing the trigger, the muon reconstruction performance and the impact on the physics analyses.

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Session Classification: Session 6: Applications in High Energy Physics

Track Classification: Applications in Particle Physics and Astrophysics