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CMS Muon System

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In response to the High Luminosity upgrade of the Large Hadron Collider (HL-LHC), which is expected to deliver an instantaneous luminosity up to 7 times higher with respect to the nominal value, the muon system of the CMS experiment will undergo specific upgrades targeting both the electronics and detectors. The goal is to cope with the new challenging data-taking conditions, maintaining and improving the present tracking and triggering performance. The original configuration of the CMS muon system included Drift Tubes (DTs) in the barrel and Cathode Strip Chambers (CSCs) in the endcap for tracking purposes. Resistive Plate Chambers (RPCs) were then installed in both regions, with triggering functions. The upgrade of the muon system foresees then interventions on the existing detectors, for example designing new on-board electronics for DT (OBDT), which is currently being tested and validated in CMS in a dedicated slice-test demonstrator. Most of the CSC electronics upgrade has been instead completed in Long Shutdown 2 (LS2). On the other hand, new detectors stations, based on different technologies, are being installed: during LS2 the GE1/1 station, composed of 144 Triple-GEM detectors has been implemented in the endcap region, covering the pseudo-rapidity range $1.55 < |\eta| < 2.18$. Two additional GEM-based stations are foreseen in the future (GE2/1 and ME0), to improve the muon reconstruction capabilities and to extend the coverage of the muon system up to $|\eta| \tilde{} 2.8$. Improved-RPCs (iRPCs) will also be installed in the region $1.8 < |\eta| < 2.4$ of the 3rd and 4th endcap stations. The presentation will give an overview of the current CMS muon system performance. Moreover, the upgrade plans will be discussed, together with the present status of each project.

Is this abstract from experiment?

Yes

Name of experiment and experimental site

CMS

Is the speaker for that presentation defined?

Yes

Details

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Internet talk

Yes

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