

# CMS muon detector and trigger performances

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During 2008 and 2009, large samples of cosmic muons were collected by the CMS Collaboration with both magnetic field on and off, with the goal of commissioning the experiment for extended operation. The performances of the CMS muon system have been studied in detail using these data. Detector and trigger results will be shown for the three independent muon detectors employed in the CMS muon spectrometer.

## **Summary (Additional text describing your work. Can be pasted here or give an URL to a PDF document):**

In the CMS experiment at the LHC proton-proton collider a key role will be played by the muon system that will be embedded inside the iron yoke used to close the magnetic flux of the CMS solenoid.

The Muon system of the CMS experiment performs three main tasks: triggering of muons, identifying muons, and assisting the central tracker in order to measure the momentum and charge of high-pt muons in the pseudo-rapidity region  $|\eta| < 2.4$ .

The system is composed by a central barrel and two closing endcaps. Three independent technologies are used to reconstruct and trigger muons: Drift Tubes (DT) in the barrel, Cathode Strips Chambers (CSC) in the endcaps and Resistive Plate Chambers (RPC) in both barrel and endcap regions. All the detectors contribute in tracking and triggering of muons.

During the end of 2008 and 2009 the CMS experiment has been commissioned with many millions of cosmic rays. Most of the data have been taken with the magnetic field on and the data collected have been fundamental to calibrate the system and to check the performance of the three sub-detectors and of the trigger response. In this talk the results in terms of the detection and trigger performance at the level of each sub-detector and at the level of the full muon system will be reported.

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