

## CMS Moun System

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**Abstract.** Muon detection is a powerful tool for recognizing signatures of interesting physics processes over the high background rates at the Large Hadron Collider (LHC). The muon detector system in the Compact Muon Solenoid (CMS) experiment has 3 primary functions: muon triggering, identification, and momentum measurement. The excellent muon momentum resolution is ensured by the high spatial resolution of the detector and the high magnetic field of the superconducting solenoid. The CMS detector uses 3 types of gas-ionization particle detectors for muon registration – drift tubes, resistive plate chambers and cathode strip chambers. The three muon sub-detectors are independently operating units, which are assembled into the overall muon detector system of CMS. The talk presents principle of operation of CMS muon detectors, their performance during LHC Run I and improvements made after Long shutdown I. A future upgrade is foreseen for 2023 when, the muon system will be upgraded with additional RPCs and GEMs to cover the region up to  $|\eta| < 2.1$ . Extensive R&D is ongoing.