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The CMS RPC Detector Status and Operation at LHC

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The CMS experiment, located at the CERN Large Hadron Collider, has a redundant muon system composed by three different detector technologies: Cathode Strip Chambers (in the forward regions), Drift Tubes (in the central region), and Resistive Plate Chambers (both its central and forward regions). All three are used for muon reconstruction and triggering. The CMS RPC system confers robustness and redundancy to the muon trigger.

The detector operation in the challenging background and pileup conditions of the LHC environment is presented together with the problems encountered and their corresponding solutions. The CMS RPC collaboration has exploited data samples collected during 2017 at 13 TeV for detector and trigger performance studies. The overall performance results at 13 TeV, plans for the consolidation of the CMS RPC system, in view of the increased luminosity expected in HL-LHC, development status about new RPC data automation utility for the fast withdrawal of RPC condition data to eliminate the necessity of constantly decreasing manpower to run various tools, are reported.

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