

Monte Carlo evaluation of CMS L1 muon trigger with p-p collisions using data-driven methods

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The CMS muon system consists of three gaseous detectors with complementary features: the Drift Tubes chambers (DT) in the barrel and the Cathode Strips Chambers in the endcaps provide good spatial resolution and the Resistive Plate Chambers (RPC) have an excellent time resolution. These three detectors provide muon trigger for the hardware Level-1 trigger. The informations transmitted from the three subsystems are collected by the Global Muon Trigger board and merged according to a quite sophisticated algorithm. The GMT candidates are then transmitted to the Global Trigger board which performs the final L1 decision. By exploiting the GMT features a method for evaluating the RPC system trigger efficiency with data from p – p collisions has been developed. The GMT candidates containing RPC information are used for efficiency evaluation in two ways: on one hand using bare GMT candidates and on the other hand using the GMT candidates with DT measurement as seed for the muon system tracks reconstruction. Results and foreseen developments are hereby discussed.

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