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Performance of CMS Endcap Muon Chambers VICTOR BARASHKO, University of Florida, CMS COLLABORATION — In the Compact Muon Solenoid (CMS) Experiment, muon detection in the forward direction is accomplished by the Endcap Muon System comprised of 468 Cathode Strip Chambers (CSC). These detectors also provide fast muon trigger and give a precise measurement of the muon trajectory. We present results of the detector performance analysis based on the cosmic ray data collected by the CMS experiment in 2006, with about 8% of the full system (36 CSCs) operating for a few months. We show that CMS CSCs identify 2-dimensional trigger primitives with 99.9% efficiency. These segments, found by the CSC electronics in less than 500 ns after passing of a muon through the chambers, are the input information for the Level-1 muon trigger and, also, are a necessary condition for chamber raw data read-out by the Data Acquisition System. The spatial resolution per chamber is measured to be around 100-200 microns (CSC resolution depends on strip width, which varies for the chambers from 4 to 16 mm). In contrast to the earlier studies based on a total detector area typically limited to 0.01 sq.m. (efficiency) and 3 sq.m. (resolution), results presented in this report were obtained for many installed CSCs operating in situ over an area of 20 sq.m. (efficiency) and 60 sq.m. (spatial resolution).

Greg Landsberg
Brown University

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