



Contribution ID: 313

Type: Poster

Overview of the CMS RPC upgrade program

The Resistive Plate Chambers (RPC) system will be upgraded to sustain the harsher HL-LHC conditions and to help maintain good trigger efficiency and performance of the CMS experiment. The present RPC chambers would continue to operate and a new link system will be installed improving the timing resolutions of the RPC system up to 1.5 ns to cope with the expected higher background. The communication rate with the readout electronics will be increased to 10.24 Gbps. Readout and control electronics will also be upgraded. Boards with customized FPGA will be installed to process data from the experimental cavern and distribute it to the CMS trigger and DAQ systems. Coverage of the RPC system will be increased to a pseudorapidity of 2.4 by installing a new generation of improved RPC chambers (iRPCs), which are equipped with new electronics designed for 2-dimensional readout. The status of the RPC upgrade project will be presented.

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Session Classification: T12: Detector R&D and Data Handling

Track Classification: Detector R&D and Data Handling