

Latest results of longevity studies on the present CMS Resistive Plate Chamber (RPC) system for the HL-LHC phase

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The HL-LHC phase will be a challenge for the CMS-RPC system since the expected operating conditions are much higher with respect to those for which the detectors have been designed, and could introduce non-recoverable aging effects which can alter the detector properties. A longevity test is therefore needed to estimate the impact of HL-LHC conditions on RPC detector performance. This will allow us to confirm that the RPC system will survive the harsher background conditions expected at the HL-LHC. A dedicated long term irradiation program launched in 2016 at the CERN Gamma Irradiation Facility (GIF++), where a few RPC detectors are exposed to intense gamma radiation to mimic the HL-LHC operational conditions. The main detector parameters (currents, rate, resistivity) are continuously monitored as a function of the collected integrated charge and the detector performance has been studied with muon beams. The latest results of the irradiation test are presented.

Alternate track

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