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Radiation studies on resistive bulk-micromegas chambers at the CERN Gamma Irradiation Facility

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With the growing diffusion of resistive Micromegas detectors in HEP experiments the study of long-term aging behaviour is becoming more and more relevant.

Two resistive bulk-Micromegas detectors were installed in May 2015 at the CERN Gamma Irradiation Facility exposed to an intense gamma irradiation with the aim to study the detector behavior under high irradiation and the long-term aging.

The detectors have an active area of 10x10 2 , readout strip pitch of 400 μ m, amplification gap of 128 μ m and drift gap of 5 mm.

The desired accumulated charge of more than $0.2~\mathrm{C/cm^2}$ has been reached for one of the chambers, equivalent to 10 years of HL-LHC operation. The efficiency, amplification, and resolution of the Micromegas after this long-term irradiation period will be compared with the performance of a non irradiated detector.

In addition, the latest results of the measured particle rate as a function of the amplification voltage will be presented and compared with those obtained in 2015.

Experimental Collaboration

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