Contribution ID: **307** Type: **Poster**

Performance studies under high irradiation and ageing properties of resistive bulk-micromegas chambers at the CERN Gamma Irradiation Facility

Resistive bulk-micromegas chambers produced at the CERN have been installed at the new CERN Gamma Irradiation Facility (GIF++) in order to study the ageing effects on the chambers performance and evaluate the detector behaviour under high irradiation.

The chambers have an active area of 10 x 10 cm2, strip pitch of 400 μm, amplification gap of 128μm, and the possibility to adjust the width of the drift gap as needed.

We will present the detector performance as function of the photon rate up to 130 MHz/cm2. The ageing properties will be showed as function of the integrated charge, as well as studies of the current intensity and its stability with time. Finally, the experimental results will be compared with GEANT simulations in particular for the determination of the detector sensitivity to photons from 137Cs.

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Track Classification: Gaseous Detectors