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Ageing studies of resistive Micromegas detectors for HL-LHC

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Resistive-anode Micromegas detectors are in development since several years, in an effort to solve the problem of sparks when working in high flux and high radiations environment like in the HL-LHC (ten times the luminosity of the LHC). They have been chosen as one of the technologies that will be part of the ATLAS New Small Wheel project (forward muon system). An ageing study is mandatory to assess their capabilities to handle the HL-LHC environment on a long-term period.
A prototype has been exposed to several types of irradiations (X-rays, cold neutrons, 60Co gammas) up to an equivalent HL-LHC time of more than five years without showing any degradation of the performances in terms of gain and energy resolution. Beam test studies are foreseen in October 2012 to assess the tracking performances (efficiency, spatial resolution, ⋯). Results of ageing studies and beam test performances are reported in this paper.

quote your primary experiment

ATLAS Micromegas Ageing

Authors: Mr PEYAUD, Alan (Irfu/CEA-Saclay); Mr GIGANON, Arnaud (Irfu/CEA-Saclay); Mr ATTIÉ, David (Irfu/CEA-Saclay); Mrs FERRER-RIBAS, Esther (Irfu/CEA-Saclay); JEANNEAU, Fabien (CEA - Centre d'Etudes de Saclay (FR)); Mr GIOMATARIS, Ioannis (Irfu/CEA-Saclay); Mr DERRÉ, Jacques (Irfu/CEA-Saclay); Mr GALAN, Javier (Irfu/CEA-Saclay); Mr SCHUNE, Philippe (Irfu/CEA-Saclay)

Presenter: GALAN LACARRA, Javier (CEA/IRFU,Centre d'etude de Saclay Gif-sur-Yvette (FR))

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