Contribution ID: **202** Type: **Recorded Presentation**

Pixelated Resistive Micromegas for High-Rate Environment

Driven by future upgrades of existing experiments at high-luminosity LHC and for applications at future accelerators, we are developing the Micromegas (MM) technology to increase its rate capability and reach a stable and efficient operation up to particle fluxes of 10 MHz/cm2, three order of magnitudes higher than current applications.
The miniaturization of the readout elements and the optimization of the spark protection system, as well as the stability and robustness under operation, are the primary challenges of the project.
Several MM detectors have been built with pixelised, high-granularity readout plane, with 1x3 mm2 pads, implementing different resistive protection schemes, consisting on a pad-patterned structure or uniform DLC layers. Different production techniques have been pursued, and different values of resistivity used and compared.
Thorough characterization studies have been carried out on all the detectors, aiming at optimizing the layout for improved rate capability, performance, and stability. Results will be reported, with their dependence on the gas mixture and operating conditions. Preliminary results will be shown also from recent tests carried out with high energy muon beams at the Gamma Irradiation Facility (GIF++) at CERN, for studies of precision tracking under different conditions of background irradiation.

Primary experiment

rd51

Authors: DI DONATO, Camilla (Universita e sezione INFN di Napoli (IT)); SEKHNIAIDZE, Givi (Universita e sezione INFN di Napoli (IT)); SESSA, Marco (Universita e INFN Roma Tre (IT)); ALVIGGI, Mariagrazia (Naples University and INFN); CAMERLINGO, Maria Teresa (Universita e INFN Roma Tre (IT)); D'AMICO, Valerio (Università e INFN Roma Tre (IT)); DELLA PIETRA, Massimo (Universita e sezione INFN di Napoli (IT)); DI NARDO, Roberto (Università e INFN Roma Tre (IT)); IENGO, Paolo (CERN); IODICE, Mauro (INFN - Sezione di Roma Tre); PETRUCCI, Fabrizio (Universita e INFN Roma Tre (IT))

Presenter: ALVIGGI, Mariagrazia (Universita e sezione INFN di Napoli (IT))

Track Classification: Gaseous Detectors