



Contribution ID: 1126

Type: **Parallel session talk**

# Performance of high-granularity resistive Micromegas at high particle rates and future developments

*Monday 26 July 2021 17:15 (15 minutes)*

We present the latest performance studies of high-granularity resistive Micromegas detectors for tracking applications in high-rate environment.

With the aim of developing resistive Micromegas able to efficiently and reliably work in HEP experiments where particle fluxes as high as  $10 \text{ MHz/cm}^2$  are expected, we have built and characterised several prototypes with high-granularity readout plane, with  $3 \text{ mm}^2$  size pads, and different resistive protection schemas exploiting a pad-patterned layer or two uniform DLC layers.

We will present the latest results on the detector performance at high rate obtained with tests in laboratory and with particle beams, with a detailed comparison of the resistive schemas and assessment of their potential. The next step of the project is to make the routing of the readout channels simpler, allowing the construction of larger detectors while keeping the construction process affordable. We are addressing this challenge by the integration of the readout electronics on the back side of the Micromegas board, which leads to a highly integrated device. Preliminary results obtained with the first prototype with embedded APV chip will be presented.

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## Collaboration / Activity

Detector R&amp;D

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**Session Classification:** T12: Detector R&D and Data Handling

**Track Classification:** Detector R&D and Data Handling