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New Resistive Micromegas structures for future detectors

The developments of next-generation Micromegas detectors with new resistive structures and fine granularity pad readout comply with the ECFA detector R&D themes on gaseous detectors for particle tracking at rates up to $O(10)$ MHz/cm² with a spatial resolution of $O(100)$ μ m.

The talk focuses on test of detectors with uniform or segmented resistive planes with results on rate capability, robustness, dependence on the irradiated area, tracking efficiency and energy and spatial resolution. Several of the tested detectors exploit the Diamon-Like-Carbon (DLC) as resistive protection structures.

The results show that small-pad resistive Micromegas detectors can efficiently operate at $O(10^4)$ gain factors in high-rate environments and are valid candidates for future accelerator experiments. New studies are planned to also investigate and improve the timing performances.

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