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Advances in micro-Resistive WELL (μ-RWELL) detectors

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In this work we present the advances performed on the micro-Resistive WELL (μ-RWELL) detector technology. The μ-RWELL is a compact spark-protected single amplification stage Micro-Pattern Gas Detector (MPGD). The detector amplification stage, realized with a structure very similar to a GEM foil, is embedded through a resistive layer in the readout board. A cathode electrode, defining the gas conversion/drift gap, completes the detector mechanics.
The proposed structure has some characteristics in common with previous MPGDs, such as C.A.T. and WELL, developed more than ten years ago.
The new architecture, showing a fine space resolution, $\sim$60μm, is a very compact device, robust against discharges and exhibiting a large gain (>10^4), simple to construct and easy for engineering and then suitable for applications for large area tracking devices as well as huge digital calorimeters.

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