

Performance of a fast timing micro-pattern gaseous detector for future collider experiments

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The instrumentation of large areas in experiments at future colliders will require an advancement in the present micro-pattern gaseous detector technologies, particularly focused for various applications (ranging from muon spectrometers to calorimeter readout) in sustaining higher expected pile-ups while maintaining good rate capability and space resolution. The development of the fast timing MPGD is focused at improving the time resolution of current state-of-the-art GEM-based detectors with a fully resistive structure and a multi-gap geometry. This contribution follows a timeline approach in presenting the design and performances of the first FTM prototypes realized, with details on the choice, production and coating of resistive materials, the latest results obtained with laser and cosmic tests and a perspective on the following R&D studies.

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