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Charging-up studies: the case of GEM and THGEM

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Charging-Up of the insulator surfaces in MicroPatterned Gas Detectors (MPGDs) have been pointed as one of the responsible for the difference between experimental and Monte Carlo results. In this work an iterative method to simulate the charging-Up in Gas electron Multiplier (GEM) and in the Thick-Gas Electron Multiplier (THGEM) is proposed. The method consists on the simulation of the avalanches time evolution using a dynamical step that accelerates the simulation process. Comparison with experimental results shows that charging-up plays an important role on the detectors operation, but should not be the only responsible for the difference between simulated and measured gain. In this work, simulated and experimental results for different GEM and THGEM configurations and for different applied voltages will be presented including a comparison between them.

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