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Ion backflow and energy resolution in stacks of four GEM detectors for the

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For the upgrade of the ALICE Time Projection Chamber (TPC) at the CERN LHC, the present multiwire proportional readout chambers will be replaced by stacks of four Gas Electron Multipliers (GEMs). GEMs are able to cope with the high Pb-Pb interaction rates of 50 kHz anticipated in LHC Run3 and can be operated in continuous mode.

The main goal of optimization is the minimization of the ion backflow (IBF) to avoid space-charge distortions in the drift volume. At the same time, good energy resolution must be provided in order to retain the excellent particle identification capabilities of the TPC via dE/dx .

In this poster, the results of a detailed R&D program, aimed at the optimization of the field configurations in a stack of four GEMs, employing foils with different hole size, will be presented.

On behalf of collaboration:

ALICE

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