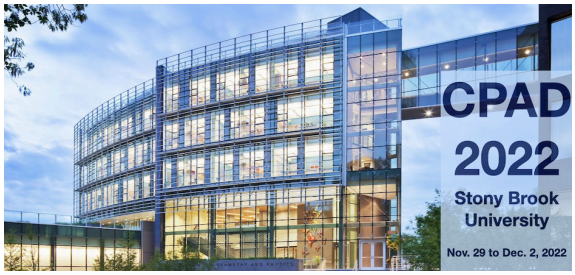

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Ion Back Flow and Energy Resolution study for Quadruple GEM detector

Tuesday, 29 November 2022 13:30 (20 minutes)

Gas Electron Multipliers are recently being used in Time Projection Chamber in ALICE and upcoming sPHENIX experiments. The backwards-drifting Ions , known as Ion Back Flow (IBF) in GEM detectors are undesirable for TPC operation because they distort the uniform electric field in the detector gas volume and hence introducing larger uncertainty in tracking charged particles. For particle identification purpose excellent energy resolution is one of the most important requirement. Both the IBF and energy resolution depends on operating voltage of GEM detectors. The studies done by our group involve optimizing the operating voltage for quadruple GEM detector using GEMs of 140 μm pitch to provide low IBF while maintaining good energy resolution along with selecting gas mixture having low space charge density.

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