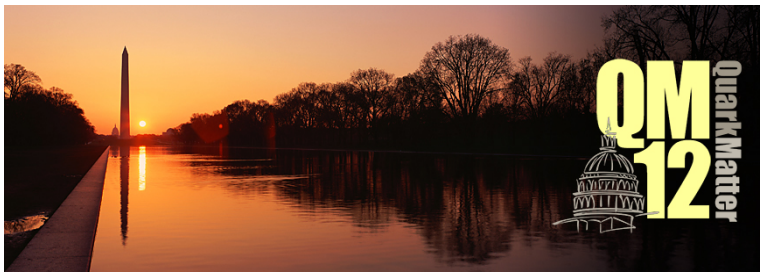

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A GEM-based continuous readout scheme for the ALICE TPC

Thursday, 16 August 2012 16:00 (2 hours)

The Time Projection Chamber (TPC) is the central tracking device of the ALICE experiment, providing momentum measurement and particle identification via the specific energy loss dE/dx. The readout rate of the TPC is presently limited by the necessity to prevent ions from the amplification region of the MWPC-based readout chambers to drift back into the drift volume, which is achieved through active ion gating by operating a dedicated Gating Grid. The relevant ion drift times limit the maximum trigger rate of the TPC to about 3.5 kHz. For future running at the LHC beyond 2019, where collision rates of 50 kHz in Pb-Pb are expected, these limitations can be overcome by replacing the present MWPC-based readout chambers by a GEM readout, which provides intrinsic ion capture capability without additional gating. In this contribution the perspectives of a GEM TPC for ALICE with continuous readout are discussed and the expected performance and status of R & D will be presented.

Primary author: ALICE, Collaboration (CERN, Geneva, Switzerland)

Co-author: APPELSHAEUSER, Harald (Johann-Wolfgang-Goethe Univ. (DE))

Presenter: GUNJI, Taku (University of Tokyo (JP))

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