

Space-charge distortions in the ALICE TPC in RUN 2

The Time Projection Chamber (TPC) is the main tracking and particle identification detector of the ALICE experiment at the CERN LHC. With the advent of high luminosity data of LHC RUN 2, unexpectedly large local distortions of the drift paths of ionization electrons are observed at the edges of specific readout chambers. These distortions are caused by ions which leak from the amplification region of the readout chambers, leading to local space-charge accumulation in the drift volume of the TPC. A dedicated correction procedure that was initially developed for the high-rate TPC operation in RUN 3 and beyond has been implemented into the current detector calibration framework to correct the distortions with sufficient precision. The observed distortions will be shown as well as results of the investigation of their origin. Moreover, the correction procedure and its performance will be presented.

Preferred Track

Future Experimental Facilities, Upgrades, and Instrumentation

Collaboration

ALICE

Primary author: HELLBAR, Ernst (Johann-Wolfgang-Goethe Univ. (DE))

Presenter: HELLBAR, Ernst (Johann-Wolfgang-Goethe Univ. (DE))

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