

Adaptive on-the-fly calibration of TPC distortions

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The Solenoid Tracker At RHIC (STAR) experiment has observed luminosity fluctuations on time scales much shorter than expected during its design and construction. These operating conditions lead to rapid variations in distortions of data from the STAR TPC which are dependent upon the luminosity and planned techniques for calibrating these distortions became insufficient to provide high quality physics data. We present a novel method we developed to perform such calibrations event-by-event which adapts to the varying conditions on-the-fly, making the need for a pre-calibration pass unnecessary. We discuss its strengths, weaknesses and alternatives.

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