

# Baseline Fluctuation Studies for the sPHENIX TPC Readout

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## **Abstract**

The sPHENIX TPC readout will use an array of quadruple-stacked gas electron multiplier (GEM) modules to amplify signals from the chamber in order to perform precise tracking measurements. The performance of the system may be affected by a shift in the readout baseline due to event-by-event fluctuations. These fluctuations are a result of the common-mode noise generated in the induction gap of the readout as well as the ion tails on the signals caused by capacitive coupling between the bottom GEM and pad plane of each module. It is important for this baseline shift to be well understood and accounted for to avoid degradation in the tracking performance of the TPC. We will present studies done to investigate the baseline shift of the sPHENIX TPC readout along with the methods used to correct for it.