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sPHENIX TPC in the 2023 commissioning run

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The sPHENIX experiment at RHIC was fully assembled and started its first commissioning run in the summer of 2023. This experiment will further investigate the microscopic nature of sQGP through precision measurements of jet, upsilon, and open heavy flavor probes over a broad p_T range. The Time Projection Chamber (TPC) is one of the main tracking detectors in the sPHENIX detector. It is designed for operation in a 1.4 T magnetic field and high luminosity collisions to provide a rapidity coverage of $|\eta| < 1.1$ and over the full azimuth.

Amplification in the TPC is provided by the quadruple-GEM stack. The signals are collected with zigzag patterned readout pads, and processed with the SAMPA ASIC. The stability of the GEM performance is controlled with the fast trip protection system. Two laser systems are tested and installed to calibrate the static and dynamic distortions.

In this talk, we will present the highlights of the first months of operation of sPHENIX TPC in the commissioning run.

Early Career

Yes

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