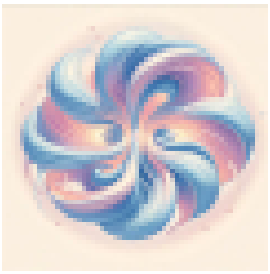

ID de Contribution: **60** Type: **Talk**

Search for the Chiral Magnetic Effect by Event Shape Engineering Differentially in Invariant Mass in Au+Au Collisions at $\sqrt{s_{NN}}$ = 200 GeV from STAR

jeudi 25 juillet 2024 17:30 (30 minutes)

Chiral Magnetic Effect (CME) is a phenomenon in which electric charge is separated by a strong magnetic field from local domains of chirality imbalance and parity violation in quantum chromodynamics (QCD). The CME-sensitive observable, charge-dependent three-particle azimuthal correlator $\Delta\gamma$, is contaminated by a major physics background proportional to the particle elliptic anisotropy (v_2). In this talk, we report a new analysis from STAR on charge separation using the Event Shape Engineering (ESE) approach [1], projecting $\Delta\gamma$ to zero v_2 to obtain the intercept $\Delta\gamma_{ESE}$ in which flow-driven background is largely suppressed. Our approach has several novel aspects: (1) we use three subevents to select dynamical fluctuations of v_2 by separating particles of interest from ESE selection; (2) we apply the ESE method differentially as a function of the pair invariant mass of particles of interest since CME is a low-p_T phenomenon and hence more sensitive to lower mass; (3) we investigate remaining nonflow contamination in the extracted intercept [2]. We report preliminary results in Au+Au collisions at $\sqrt{s_{\rm NN}} = 200$ GeV from STAR using the event plane reconstructed with the time projection chamber (TPC) and the spectator plane reconstructed with the zero-degree calorimeter (ZDC). We compare our results to Anomalous-Viscous Fluid Dynamics (AVFD) model simulations [3].

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