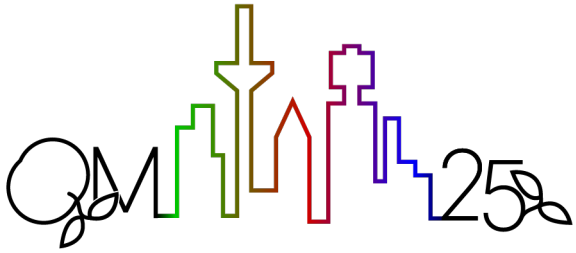

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Probing the QCD Phase Structure with Elliptic Flow in Au+Au Collisions at $\sqrt{s_{NN}}$ = 3.0-19.6 GeV at RHIC

In heavy-ion collisions, the elliptic flow (v_2) represents the second harmonic coefficient in the Fourier expansion of the azimuthal distribution relative to the reaction plane. It serves as a sensitive indicator of the interaction strength among the system's constituents and offers a valuable means to explore its degrees of freedom.

In this poster, we will present v_2 measurements for a variety of hadrons, including $\pi^{\pm}$, $K^{\pm}$, p, $\overline{p}$, K^0_S, ϕ, Λ, $\overline{\Lambda}$, $\Xi^{\pm}$ and $\Omega^{\pm}$ in Au + Au collisions, based on high-statistics datasets from the second phase of the RHIC Beam Energy Scan (BES-II) program measured by STAR. The scaling of v_2 according to the Number of Constituent Quarks (NCQ) for both particles and antiparticles will be examined. In addition, the NCQ-scaled v_2 ratios of particles such as π^+/K^+, p/K^+, π^-/K^-, $\overline{p}/K^-$, ϕ/K^-, Λ/K^0_S and $\overline{\Lambda}/K^0_S$, across the energy range $\sqrt{s_{NN}}$ = 3.0-19.6 GeV will be presented. The inferred information related to the QCD phase structure will be discussed.

Category

Experiment

Collaboration (if applicable)

RHIC-STAR

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