The elliptic flow of identified particles in Au + Au collisions at $\sqrt{s_{NN}}$ = 3.0, 3.2, 3.5, 3.9, 4.5 GeV from STAR

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The elliptic flow (v_2) in heavy-ion collisions is the second harmonic coefficient in a Fourier expansion of the azimuthal distribution of produced particles with respect to the reaction plane. It is sensitive to the strength of interactions among the constituents and serves as an effective probe of the degrees of freedom within the system. The observation that the Number of Constituent Quarks (NCQ) scaling is absent in Au + Au collisions at $\sqrt{s_{NN}}$ = 3 GeV indicates the dominance of hadronic interactions in this system.

In this poster, we will present measurements of v_2 for $\pi^{\pm}$, $K^{\pm}$, protons, K^0_S and Λ in Au + Au collisions at $\sqrt{s_{NN}}$ = 3.0, 3.2, 3.5, 3.9, 4.5 GeV from the RHIC-STAR experiment. The NCQ scaling will be tested as a function of collision energy. In addition, the p_T-integrated v_2 of identified particles will be shown as a function of energy. The inferred information related to the QCD phase structure will be discussed.