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Elliptic flow of strange hadrons in Au+Au collisions at E_{lab} = 35˜A GeV using the PHSD model

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Strange hadrons have smaller interaction cross-sections compared to light hadrons. The freeze-out temperatures of strange hadrons are close to the quark-hadron transition temperature as predicted by lattice Quantum Chromodynamics (lQCD). Therefore, they serve as an excellent probe for understanding the dynamics of QCD matter and the onset of the partonic stage in relativistic heavy-ion collisions.
In this work, we will present results on elliptic flow (v_2) of K^0_s, Λ, $\bar{\Lambda}$, Ξ^-, $\bar{\Xi}^+$, Ω^-, and $\bar{\Omega}^+$ for Au + Au collisions at E_{lab} = 35˜A GeV from Parton Hadron String Dynamics (PHSD) transport model. PHSD is a microscopic off-shell transport approach that describes the strongly interacting partonic and hadronic matter in and out-of equilibrium.
We have analyzed ∼20 million minimum bias events for Au + Au collisions at E_{lab} = 35˜A GeV from the PHSD model. Measurements are made in the central rapidity region ($|y| < 1.0$) and different centrality intervals, which cover central to peripheral collisions.
We will present the dependence of v_2 on centrality, rapidity (y), and transverse momentum (p_T). In order to investigate the collectivity in Au + Au collisions, we have also measured the ratio of v_2 scaled by the participant eccentricity (ε_2). We will discuss the number of constituent quark (NCQ) scaling of the measured v_2 in these collisions. We will show comparison of our measurements to the published experimental results.

Session

Heavy Ions and QCD

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