

Anisotropic flow of (multi-)strange hadrons in Au+Au collisions at BES-II energies.

Prabhupada Dixit (for the STAR collaboration)

April 2022

One of the main goals of the STAR experiment is to map the QCD phase diagram. The flow harmonics of azimuthal anisotropy (v_2 and v_3) of particles are sensitive to the initial dynamics of the medium. The first phase of RHIC Beam Energy Scan Phase-I (BES-I) program demands a precision measurement of v_2 and v_3 specifically for ϕ mesons and multi-strange hadrons in the low energy regimes.

STAR has recently finished the data taking for Beam Energy Scan Phase-II (BES-II) program with higher statistics, improved detector condition, and wider pseudorapidity coverage compared to what was available during BES-I program. In this talk, we will present the measurements of v_2 and v_3 of strange and multi-strange hadrons (K_S^0 , $\Lambda(\bar{\Lambda})$, ϕ , $\Xi^-(\bar{\Xi}^+)$, and $\Omega^-(\bar{\Omega}^+)$) at $\sqrt{s_{NN}} = 14.6$ and 19.6 GeV. The centrality dependence, the number of constituent quark (NCQ) scaling, and baryon to anti-baryon difference in v_2 and v_3 will be presented. Finally, the physics implications of our measurements in the context of partonic collectivity will be discussed.