Reaction Plane Correlated Triangular Flow in Au+Au Collisions at $\sqrt{s_{NN}} = 3$ GeV from STAR

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Abstract

Directed and elliptic flow have been extensively studied in heavy-ion collisions while triangular flow (v_3) could be further explored. v_3 could prove very useful as a signal for Quark-Gluon Plasma (QGP) formation due to its sensitivity to QGP viscosity and the possibility that it is less affected by transport dynamics at very low energies [1]. In this talk, we will present the current progress of v_3 for π, p, d, and t at the fixed target energy of $\sqrt{s_{NN}} = 3.0$ GeV, which is the lowest in phase-II of the Beam Energy Scan at STAR. The results show a positive correlation between v_3 and the first-order event plane and a significant rapidity-odd v_3 for p. Model comparisons are also made to investigate whether a mean-field potential is required to develop this triangular flow.

References

[1] J. Auvinen and H. Petersen. Evolution of elliptic and triangular flow as a function of $\sqrt{s_{NN}}$ in a hybrid model. *Phys. Rev. C*, 88:064908, 2013.