Azimuthal anisotropy of light (anti-)nuclei in Au+Au collisions at $\sqrt{s_{NN}}$ = 14.6, 19.6, 27, and 54.4 GeV

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Abstract

The production of light nuclei in relativistic heavy-ion collisions can be explained by the coalescence of produced or transported nucleons. Since the binding energies of light nuclei are of the order of a few MeV, it is more likely that they are formed at later stages of the evolution of the fireball. The probability of coalescence of neucleons to form nuclei is related to the local nucleon density in the fireball. In the case of nucleon coalescence, the momentum space distributions of both the constituents and the products are measurable in heavy-ion collision experiments. Therefore, studying the azimuthal anisotropy of light (anti-)nuclei and comparing them with that of (anti-)proton can give insights in the particle production mechanism via coalescence in heavy-ion collisions.

In this talk, we will present the transverse momentum (p_T) and centrality dependence of elliptic flow (v_2) of d, t, and ^{3}He and their antiparticles in Au+Au collisions at $\sqrt{s_{NN}}$ = 14.6, 19.6, 27, and 54.4 GeV. $v_2(p_T)$ of light (anti-)nuclei will be compared with the AMPT+coalescence model. Mass number scaling of $v_2(p_T)$ of light (anti-)nuclei will also be shown.