Light Nuclei v_1 and v_2 in Au+Au Collisions at $\sqrt{s_{NN}} = 3$ GeV from STAR

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Study of light nuclei production in heavy-ion collisions, which will reflect their production mechanism and the underlying collision dynamics, is of particular interest for both theoretical and experimental efforts [1]. Comprehensive measurements of light nuclei collectivity v_1 and v_2 provide valuable information on the nucleon coalescence sum rule and will lead to better understanding of light nuclei production mechanism in such collisions. Particularly, in the collision energy regime of several GeV, the relatively long passing time of the colliding two nuclei naturally leads to cross talk between the spectator matter and the fireball. The light nuclei flow pattern may be strongly affected by the spectator fragments.

In this talk, we will present new precise measurements of v_1 and v_2 for deuterons, tritons, ^{3}He, and ^{4}He in Au+Au collisions at 3 GeV by the STAR experiment at RHIC. The particle rapidity and transverse momentum dependence of v_1 and v_2 for these particles will be presented. These results will also be discussed within the framework of nucleon coalescence and compared with available model calculations.

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[1] Peter Braun-Munzinger and Benjamin Dönigus, Nuclear Physics A, **987**, 144 (2019).