Light Nuclei Production in Fixed-target Au+Au Collisions at $\sqrt{s_{\rm NN}} = 3$ GeV from STAR experiment

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Light nuclei, such as deuteron and triton, are loosely bound objects. Their yields are expected to be sensitive to the baryon density fluctuations and can be used to probe the signature of the first order phase transition and/or a critical point in heavy-ion collisions. Since 2018, RHIC has started the second phase of beam energy scan program (BES-II), focusing on the energies below 27 GeV. From 2018 to 2020, STAR experiment has taken the data of high statistics Au+Au collisions at 9.2, 11.5, 14.6, 19.6 and 27 GeV (collider mode) and 3.0 - 7.7 GeV (fixed-target mode).

In this talk, we will present measurements of light nuclei production in Au+Au collisions at $\sqrt{s_{\rm NN}} = 3$ GeV measured in 2018 by STAR experiment under Fixed-target mode. We will show the transverse momentum spectra (p_T) of proton, deuteron (d), triton (t), ^{3}He, ^{4}He at various rapidity slices. The rapidity and centrality dependence of coalescence parameters $B_2(d)$, $B_3(t)$ and $B_3(^3\mathrm{He})$, particle ratios (d/p, t/p, t/d, ^{3}He/p and ^{4}He/p), and yield ratios of N_pN_t/N_d^2, $N_{^4He}N_p/N_{^3He}N_d$ and $N_{^4He}N_tN_p^2/N_{^3He}N_d^3$ will be also presented. Their physics implications will be discussed.