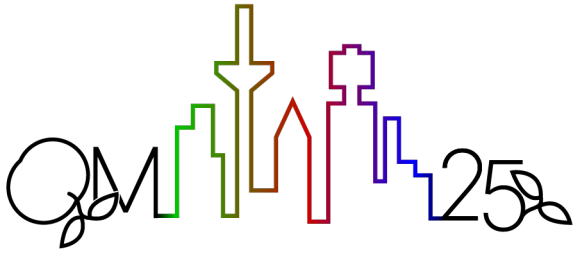

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(Anti-)Proton and Light Nuclei Production in 3 GeV Au+Au Collisions from RHIC-STAR

Light nuclei, such as deuteron and triton, are loosely bound object and their yields are expected to be sensitive to the baryon density fluctuations and may be used to probe the signature of 1st order phase transition and/or critical point in heavy-ion collisions. In the beam energy scan program at RHIC, the STAR experiment has taken the data of Au+Au collision at center of mass energy ($\sqrt{s_{\rm NN}}$) down to 3.0 GeV in fixed-target mode, extending the μ_B coverage up to 720 MeV. The measurements of light nuclei production at these fixed-target energies can provide essential insights into production mechanism of light nuclei and nuclear matter equation of state at high baryon density, where the production of light nuclei is significantly enhanced.

In this poster, we will present collision centrality and rapidity dependence of the proton and light nuclei production in Au+Au collisions at $\sqrt{s_{\rm NN}}$ = 3.0 - 4.5 GeV recorded by the STAR experiment in the fixed-target mode. The transverse momentum (p_T) spectra, coalescence parameters (B_A), particle ratios, kinetic freeze-out temperature T_{kin} and collective velocity β_T will be shown and compared with the results from collider energies $\sqrt{s_{\rm NN}}$ = 7.7 - 27 GeV.

Category

Experiment

Collaboration (if applicable)

STAR

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