Measurements of $d$-$\Lambda$ correlations in $\sqrt{s_{\text{NN}}} = 3$ GeV Au+Au collisions at the STAR experiment

Yu Hu
(for the STAR Collaboration)

Lawrence Berkeley National Laboratory

Abstract

Heavy-ion collisions provide a unique opportunity to explore nucleon-hyperon (N-Y) interactions, through two-particle correlations. The $d$-$\Lambda$ correlations shed light on both N-Y two-body and N-N-Y three-body interactions, which is crucial for understanding neutron star properties. We present the first measurement of $d$-$\Lambda$ correlation with $\sqrt{s_{\text{NN}}} = 3$ GeV Au+Au collisions at STAR. Using the Lednicky-Lyuboshitz formalism, we characterize emission source size, the scattering length, and the effective range of $d$-$\Lambda$ interactions. The extracted parameters will be compared to those from $p$-$\Lambda$ correlations. The physics implications on final state interactions involving hyperons and the hypertriton structure will also be discussed.