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Strange hadron production in d+Au collisions at $\sqrt{s_{NN}} = 200$ GeV using the STAR detector

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Strangeness production has been suggested as a sensitive probe to the early dynamics of the deconfined matter created in heavy-ion collisions. Ratios of particle yields involving strange particles are often utilized to study freeze-out properties of the nuclear matter, such as the strangeness chemical potential and the chemical freeze-out temperature. The $d+Au$ collisions connect between $Au+Au$ and pp collisions, and supply the baseline for the study of strangeness enhancement in the deconfined matter. The study of nuclear modification factors for strange hadrons in $d+Au$ collisions can also help to understand Cronin-like effects.

In this work, we will present new measurements on the production of strange hadrons (K_S^0 , Λ , Ξ , Ω) for different rapidity intervals in $d+Au$ collisions at $\sqrt{s_{NN}} = 200$ GeV, recorded by the STAR experiment in 2016. We will report transverse momentum (p_T) spectra, p_T integrated yield dN/dy , average transverse momentum, yield ratios, nuclear modification factors, and rapidity asymmetry (Y_{asym}) for those strange hadrons. The physics implications of the measurement on the collision dynamics will be discussed.

Session

Heavy Ions and QCD

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