Multiplicity dependence of pion-emitting source size in p+Au and d+Au collisions at $\sqrt{s_{NN}} = 200$ GeV in STAR experiment

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Femtoscopy is a tool to measure the spatial and temporal characteristics of a system produced after a collision of two nuclei happened. Currently, it is not possible to directly measure these properties of the system, however, femtoscopy rely on a different approach to accomplish this task, it uses momentum correlations of particle pairs. Those correlations originate from quantum statistics and final state interactions of identical particles. By measuring a relative momentum distribution of two identical particles it becomes possible to extract the femtoscopic radii. The femtoscopic radii as a function of event multiplicity or a pair transverse momentum provide the information about dynamics of the system. It is also important to understand how the system size would change for different collision species.

In this work, we present the charged pion femtoscopy for p+Au and d+Au collisions at $\sqrt{s_{NN}} = 200$ GeV taken in the STAR experiment. Emitting-source radius dependence on the event multiplicity and transverse momentum of the pion pairs will be discussed.