

Femtoscopic correlations in Equation of State studies

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A coherent description of nuclear matter properties at low and high baryon densities is of utmost importance. The limited number of experimental references at the region of the phase diagram corresponding to Neutron Stars (NS) and NS mergers poses major challenges for constructing a universal Equation of State (EoS). In order to constrain the EoS from heavy-ion collisions, experimental observables responsive to its changes need to be found. We investigated the sensitivity of femtoscopic correlations (FC) of protons to different EoS within one transport code UrQMD. FC is a unique tool, which exploits correlations from final state interactions such as Coulomb or strong interactions, to constrain the space-time evolution of the collision, which in turn constrains the EoS. The research was performed for collisions at the HADES experiment, Ag+Ag collisions at 1.58 AGeV where the created matter can be described with high baryon densities corresponding to NS mergers. This talk will briefly summarize the applied methods and present the first preliminary result of our studies.

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