

Abstract Submitted
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Pre-equilibrium evolution effects on heavy-ion collision observables JIA LIU, Ohio State Univ - Columbus, CHUN SHEN¹, McGill University, Montreal, Canada, ULRICH HEINZ, Ohio State Univ - Columbus — Pre-equilibrium dynamics has a non-negligible influence on the final observables of heavy-ion collisions. We take free-streaming, the weak interaction limit of pre-equilibrium, to model the evolution of MC-KLN and MC-Glb initial conditions. The free streamed matter is matched to a viscous hydrodynamic evolution model by imposing Landau matching at a variable switching time. We consider the switching time, the shear viscosity during hydrodynamic evolution and the decoupling temperature as free parameters and perform a parameter search to find the preferable parameter space, by assessing the fit of mean transverse momenta for pions, kaons, and protons and the charged hadron elliptic and triangular flow between simulated results and experimental data. This parameter search is implemented on both types of initial conditions, with or without pre-equilibrium evolution. The result shows MC-KLN initial conditions prefer a smaller switching time and larger shear viscosity than MC-Glb. And MC-KLN initial conditions require a smaller switching time if it goes through a pre-equilibrium stage, while MC-Glb allows a larger range of switching time.

¹Affiliated with Ohio State Univ - Columbus when working on this project.

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