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Development of transverse flow for small and large systems in conformal kinetic theory

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We employ an effective kinetic description to study the space-time dynamics and development of transverse flow of small and large collision systems. By combining analytical insights in the few interactions limit with numerical simulations at higher opacity, we are able to describe the development of transverse flow from very small to very large opacities, realised in small and large collision systems. Surprisingly, we find that deviations between kinetic theory and hydrodynamics persist even in the limit of very large interaction rates, which can be attributed to the presence of the early pre-equilibrium phase. We discuss implications for the phenomenological description of heavy-ion collisions and the applicability of viscous hydrodynamics to describe small and large collision systems.

[1] V.Ambrus, S.Schlichting, C.Werthmann arXiv:2109.03290

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