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Anisotropic Hydrodynamics Expands the Domain of Applicability of Hydrodynamics

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We perform 2+1D simulations of anisotropic hydrodynamics (aHydro) under boost-invariant and conformal conditions. Comparing both aHydro and traditional hydrodynamics to kinetic theory in the relaxation-time approximation as the underlying microscopic theory, we show that aHydro provides a superior description of the evolution across a wide range of opacity, effectively extending the boundaries of the applicability of hydrodynamic modelling. Our results demonstrate aHydro’s potential for describing collective flow in small systems where traditional hydrodynamics faces challenges

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