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Thermalization of massive partons in anisotropic medium

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At first, we exactly solve the relaxation-time approximation Boltzmann equation for a system which is transversely homogeneous and undergoing boost-invariant longitudinal expansion. We compare the resulting exact numerical solution with approximate solutions available in the anisotropic hydrodynamics and second order viscous hydrodynamics frameworks. In all cases studied, we find that the anisotropic hydrodynamics framework is a better approximation to the exact solution than traditional viscous hydrodynamical approaches. In the next step we generalize the kinetic approach to include finite parton masses and analyze their impact on the thermalization process.

The talk is partially based on the recent eprint: "Anisotropic Hydrodynamics for Rapidly Expanding Systems" by W. Florkowski, R. Ryblewski, and M. Strickland, arXiv:1304.0665

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