

XVII Polish Workshop on Relativistic Heavy-Ion Collisions: Phase diagram and Equation of State of strongly interacting matter



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Quasiparticle second-order hydrodynamics at finite chemical potential

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We extend the derivation of second-order relativistic viscous hydrodynamics to incorporate the effects of baryon current, a non-vanishing chemical potential, and a realistic equation of state. Starting from a microscopic quantum theory, we build a quasiparticle approximation to describe the evolution of hydrodynamic degrees of freedom, highlighting its connection to the Wigner formalism. We perform a second-order hydrodynamic expansion to derive a closed set of equations for the components of the stress-energy tensor and the baryon current.

Authors: DAHER, A.; Dr JAISWAL, Amaresh (National Institute of Science Education and Research); Dr TINTI, Leonardo (Uniwersytet Jana Kochanowskiego w Kielcach); Dr RYBLEWSKI, Radosław (Institute of Nuclear Physics PAN)

Presenter: Dr TINTI, Leonardo (Uniwersytet Jana Kochanowskiego w Kielcach)

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