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Transport coefficients of anisotropic quark matter

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We investigate the transport properties of quark matter under conditions of momentum anisotropy using the Polyakov chiral quark mean-field (PCQMF) model. Momentum anisotropy naturally arises in systems out of equilibrium, such as the early stages of relativistic heavy-ion collisions or the interior of compact stars. Understanding the impact of such anisotropy on transport coefficients is essential for accurately describing the evolution of these systems. We focus on calculating the shear viscosity and electrical conductivity, which are crucial for characterizing the dissipative dynamics of the medium. The PCQMF model, incorporating features of chiral symmetry breaking, confinement, and the Polyakov loop, is employed to evaluate these viscous coefficients at finite temperature and chemical potential.

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