

# Modelling transport properties of compressed baryonic matter

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We present a comparative study of key transport coefficients—electrical conductivity ( $\sigma$ ), thermal conductivity ( $\kappa$ ), shear viscosity ( $\eta$ ), and the Lorenz number ( $\kappa/\sigma T$ ) by using different models: Hadron Resonance Gas (HRG) model, the Nambu–Jona-Lasinio (NJL) model, and effective chiral model. By examining their dependence on temperature and net baryon density, our results capture the evolution of transport behavior across hadronic and partonic regimes. This comparative framework enhances the understanding of QCD matter over a wide range of energy scales and provides a useful baseline for interpreting heavy-ion collision experiments.

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