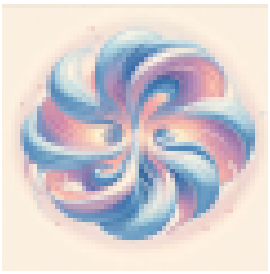

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Charge transport in strongly magnetized relativistic matter

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Using the imaginary part of the self-energy function in the Landau-level representation, we derive the fermion damping rate in a hot magnetized plasma at the leading order of coupling. The results are used to investigate the longitudinal and transverse electrical conductivities. In the relativistic regime, these conductivities exhibit a scaling behavior expressed in terms of dimensionless functions of eB/T², where T represents the temperature and B the magnetic field. We demonstrate that the underlying mechanisms governing the transverse and longitudinal conductivities differ significantly, resulting in a substantial suppression of the former compared to the latter. We also extend our analysis to a magnetized quark-gluon plasma, although the approximation has limited validity at strong coupling.

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