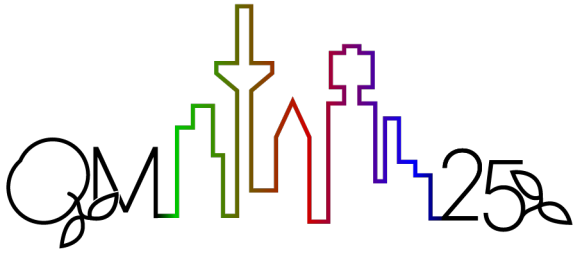

Contribution ID: **3** Type: **Oral**

Quark damping rate and conductivity of strongly magnetized QGP

The fermion damping rates of quarks and the electrical conductivity of a strongly magnetized quark-gluon plasma (QGP) are derived at leading order in the coupling constant using first-principles field-theoretical techniques. The quark damping arises from one-to-two and two-to-one scattering processes, with their rates calculated by incorporating full kinematic details and exact amplitudes. This approximation holds for sufficiently strong magnetic fields and high temperatures. Utilizing the damping rates, we investigate the longitudinal and transverse electrical conductivities. Our analysis reveals significant differences in the mechanisms governing these conductivities, leading to a pronounced suppression of the transverse conductivity compared to the longitudinal one. While the approximation may break down in the regime of strong coupling, our study offers valuable insights into the charge transport properties of strongly magnetized plasmas.

Category

Theory

Collaboration (if applicable)

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