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Transport and zero sound in holographic strange metals

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Abstract content

It is a challenge to describe the non-Fermi liquid behavior that appears in strongly interacting systems of fermions using traditional field theory techniques. A proposal to model the associated "strange metal" phenomenology is to use a strongly coupled critical point with non-relativistic scale invariance, dual to a Lifshitz geometry, coupled to a finite density of probe charged carriers dual to D-branes. We use this model to study the thermodynamic and transport properties of charge carriers at finite and zero temperature. At zero temperature we show that the large wavelength behavior is dominated by a single mode whose properties are similar to the zero sound of Fermi liquids.

Summary

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