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Fluid/Gravity Duality for Viscoelastic Crystals

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In the absence of dislocations, the hydrodynamics of two-dimensional crystals can be accounted for by considering a set of 1-form global symmetries. In thermal equilibrium, the holographic dual to such a crystal is an AdS black brane charged under 2-form gauge fields. By extending the fluid-gravity correspondence to such backgrounds we obtain both dissipative and non-dissipative transport coefficients. We also consider the spectrum of hydrodynamical modes and find instabilities for a certain range of our theory's parameters.

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