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Relativistic Hydrodynamics under Rotation: Prospects & Limitations from a Holographic Perspective

The AdS/CFT correspondence, or holography, has provided numerous important insights into the behavior of strongly-coupled many-body systems. Crucially, it has provided a testing ground for the construction of new effective field theories, especially those in the low frequency, long wavelength limit known as hydrodynamics. We review the study of strongly-coupled rotating fluids using holography, and we examine the hydrodynamics emerging from the study of rotating Myers-Perry black holes. We describe techniques to obtain hydrodynamic and non-hydrodynamic modes, and we compute the radius of convergence for the hydrodynamic description, also discussing other limitations of hydrodynamics under rotation.

Category

Theory

Collaboration (if applicable)

AdS4CME

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