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**On the hydrodynamic description of holographic viscoelastic models.** (English)

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Summary: We show that the correct dual hydrodynamic description of homogeneous holographic models with spontaneously broken translations must include the so-called “strain pressure” – a novel transport coefficient proposed recently. Taking this new ingredient into account, we investigate the near-equilibrium dynamics of a large class of holographic models and faithfully reproduce all the hydrodynamic modes present in the quasinormal mode spectrum. Moreover, while strain pressure is characteristic of equilibrium configurations which do not minimise the free energy, we argue and show that it also affects models with no background strain, through its temperature derivatives. In summary, we provide a first complete matching between the holographic models with spontaneously broken translations and their effective hydrodynamic description.

**MSC:**

**83F05** Relativistic cosmology

**83C55** Macroscopic interaction of the gravitational field with matter (hydrodynamics, etc.)

**76E20** Stability and instability of geophysical and astrophysical flows

**81R40** Symmetry breaking in quantum theory

**Full Text:** [DOI](#) [arXiv](#)

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