

Is hydrodynamic stability enough?

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It is well known that relativistic hydrodynamic theories, to be “realistic”, should be causal and stable. But stable with respect to what? The standard notion of stability one typically refers to is hydrodynamic stability, namely the requirement that on-shell perturbations away from the state of thermodynamic equilibrium remain bounded over time. I will argue that such a stability criterion is not enough to have a complete picture of the reliability of a theory and that there is a more fundamental stability principle, which relativistic fluid theories should obey.

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