Contribution ID: **253** Type: **not specified**

Causality Criteria from Stability Analysis at Ultra-High Boost

Thursday 28 September 2023 15:02 (18 minutes)

In this work, we have exclusively employed linear stability analysis at ultra-high boost on two well-known stable-causal theories - second-order MIS and first-order BDNK, to identify the region of parameter space over which they are frame-invariantly stable and obey causal signal propagation. It has been shown that at near-luminal boost, stability criteria alone can provide the causality constraints on transport coefficients, which are identical to the asymptotic causality conditions,
without actually going to the asymptotic limit of the theories. Thus, we present an alternative approach to derive the causality constraints, which is more appropriate for low-energy effective theories like relativistic hydrodynamics.

Summary

Primary authors: ROY, Shuvayu (NISER); Dr MITRA, Sukanya (NISER)

Presenter: ROY, Shuvayu (NISER)

Session Classification: Parallel Session Thursday: Strings / Mathematical Physics III

Track Classification: Strings & Mathematical Physics