量子物理学・ナノサイエンス第 104 回特別セミナー

Causality and Stability from the Acoustic Metric

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場所　：　本館地下 B61 物理学系輪講室

概　要

I will discuss the acoustic metric for the propagation of scalar perturbation in scalar-tensor theories of gravity for general background configurations, illustrating with concrete examples. I will show how the acoustic metric encodes all the necessary information regarding causality and stability of these backgrounds: hyperbolicity and causal evolution, and whether the background is free of ghosts. I will discuss choosing a good Cauchy surface and how predictivity appears to fail when a bad one is selected, as well as the appearance of Čerenkov radiation in transonic flows. I will contrast this approach with the more common Hamiltonian picture, showing how they are equivalent.

連絡教員　　須山　輝明（内線 2748）