

Condensed Matter Theory Seminar

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Stability of Exponentially Damped Oscillations under Perturbations of the Mori-Chain

There is an abundance of evidence that some relaxation dynamics, e.g., exponential decays, are much more common in nature than others. Recently, there have been attempts to trace this dominance back to a certain stability of the prevalent dynamics versus generic Hamiltonian perturbations [1]. In the paper at hand, we tackle this stability issue from yet another angle, namely in the framework of the recursion method. We investigate the behavior of various relaxation dynamics with respect to alterations of the so-called Lanczos coefficients. Our numerical experiments suggest the existence of stability in a larger class of relaxation dynamics consisting of exponentially damped oscillations. Further, we propose a criterion to identify pathological perturbations that lead to uncommon dynamics. [1] L. Knipschild and J. Gemmer, Phys. Rev. E 98, 062103 (2018).

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