

OpenQMBP2023: New perspectives in the out-of-equilibrium dynamics of open many-body quantum systems



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Comparing bipartite entropy growth in open-system matrix product simulation methods

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In this talk I will discuss the “entanglement” entropy growth dynamics in open spin models, comparing different matrix product representations of the many-body density matrix. Recently we discovered mechanisms behind a logarithmic growth of operator entanglement (OE) in XXZ model dynamics subjected to dephasing [1]. I will contrast this behavior to the growth of trajectory entanglement (TE), when the density matrix is unravelled into quantum trajectories [2]. I will further discuss latest advances into entanglement optimized trajectory methods.

[1] Phys. Rev. Lett. 129, 170401 (2022)

[2] <https://arxiv.org/abs/2303.09426>

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