Seminar/Talk

Typicality of the eigenstate thermalization hypothesis in realistic systems with local interactions

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The eigenstate thermalization hypothesis, which states that the eigenstates of quantum many-body Hamiltonians are in thermal equilibrium by themselves, is considered to be the primary mechanism behind the relaxation of isolated quantum systems to a thermal equilibrium under a unitary time evolution. A mathematical argument based on "typicality" is proposed to justify the ETH, but it is shown that this result cannot justify the ETH in realistic situations with the locality of interactions because almost all Hamiltonians considered in that argument contain highly non-local and too-many-body correlations.In this talk, we numerically verify that the eigenstate thermalization hypothesis typically holds even with the locality of interactions while the fraction of systems which does not satisfy the hypothesis is significantly larger than that proposed before.

Thursday, March 2, 2023 04:45pm - 05:45pm
Heinzel Seminar Room (I21.EG.101), Office Building West, ISTA

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