

# The Eigenstate Thermalization Hypothesis

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## **Abstract**

A quantum generic Hamiltonian, that does not have a large number of symmetry and has no many-body localization, has generic properties for its eigenfunctions. This in turn implies that matrix elements of operators have also a universal form, with a large element of randomness in them. The characterization of this has been generalized completed: the solution uncovers the important role of Free Probability, a generalization of probability to noncommuting variables.