

THE HAMILTONIAN JUNGLE

Navigating the Quantum Complexity Theory of Hamiltonians

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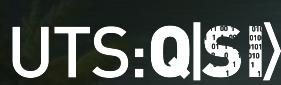
ABSTRACT

Local Hamiltonians are essential in quantum computing, with implications in quantum chemistry, simulation, and many-body physics. Key results demonstrate the intractability of approximating their ground state energies — a desirable property of many systems. Determining the complexity of physically relevant Hamiltonian instances remains a significant challenge. The Hamiltonian Jungle is an online resource, categorising the complexities of local Hamiltonians and the techniques used in these classifications. This project serves as a vital tool for researchers, enabling them to leverage existing results and explore open questions.

COMPLEXITY CLASSIFICATION OF LOCAL HAMILTONIANS



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