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Variational Quantum Algorithms for Non-Hermitian Systems

Tuesday, 30 July 2024 17:15 (1 hour)

In this poster, we report on our investigation of two specific systems that are hard to simulate with ordinary Monte Carlo methods: the transverse Ising model with an imaginary magnetic field (CTIM) and the quantum harmonic oscillator in a complex cubic potential (CQHO). We focus on understanding the quantum phase transition in CTIM with varying field strengths, and the PT-symmetry breaking in CQHO through a change in potential strength. Due to hardware limitations, our analysis is restricted to small systems, but see good promise for future scalability.

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