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Simulations of the Hyperbolic Ising Model

Friday, 4 August 2023 10:00 (20 minutes)

In this talk we study the Ising model living on a discretization of two dimensional anti-de Sitter space. Our numerical work uses tensor network methods based on matrix product states (MPS) and matrix product operator (MPO) constructions. We use DMRG techniques to obtain the ground state and investigate its properties. For the time evolution of the model, we use the TEBD algorithm and show that the time evolution of the system exhibits the expected warping effects due to the curved background. Finally, we calculate out-of-time ordered correlators (OTOCs) for the model and evaluate the speed of information spread through the system under time evolution.

Topical area

Quantum Computing and Quantum Information

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