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Frustration and ground state entanglement in 2D lattices ARTUR GARCIA, C. N. Yang Institute for Theoretical Physics, USA, JOSE I. LATORRE, Universitat de Barcelona, Spain — We investigate frustrated 2D lattice systems with an Ising-type interaction using exact diagonalization and Tensor Network techniques. The geometric frustration in these systems is controlled by the couplings of the Hamiltonian. We study the ground state entanglement for the combination of model parameters inducing a higher degree of frustrated interactions, showing relations between the frustration and the amount of quantum correlations present along different partitions of the lattice. Using the connection between ground state entanglement and the classical simulation of quantum systems, these results point to scenarios where simulating local systems is supposed to be hard.

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