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Optimizing Matrix- and Tensor-Product Algorithms for Momentum-Space Hamiltonians using Quantum Entropy
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— Momentum-space formulations of local models such as the Hubbard model are hard to treat using matrix- and tensor-product-based algorithms because they contain contain non-local interactions. Quantum entropy-based measures such as the single-site and block entropies and the mutual information can be used to map the entanglement structure in order to gain physical information and to optimize algorithms. In this contribution, we will discuss the optimization of density-matrix-renormalization-group and tree-tensor-network algorithms and their application to the two-dimensional Hubbard model.

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