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Quantum computing for lattice supersymmetry

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Quantum computing allows for the study of real-time dynamics of non-perturbative quantum field theories while avoiding the sign problem in conventional lattice approaches. Current and near-future quantum devices are severely limited by noise, making investigations of simple low-dimensional lattice systems ideal testbeds for algorithm development. Considering simple supersymmetric systems, such as supersymmetric quantum mechanics with different superpotentials, allows for the analysis of phenomena like dynamical supersymmetry breaking. I will present ongoing work applying quantum computing techniques to study such theories, targeting real-time dynamics and supersymmetry breaking effects.

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Session Classification: Algorithms (including Machine Learning, Quantum Computing, Tensor Networks)

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