

Computing@PNNL SEMINAR

Quantum Simulation of Fermions

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In this talk, Dr. Whitfield will present the latest results concerning the fermion-to-spin mappings investigated in his group. His team has considered various topologically non-trivial encodings with the most recent encoding closely connected to lattice gauge simulations. However, for fermionic systems modeled with typical basis sets used in quantum chemistry, the gauge simulation performs poorly compared to typical simulations where the fermionic modes are represented directly.

Dr. Whitfield will present numerical evidence from his team's work regarding this direction, as well as showcase a broader outlook on fermionic simulations with existing and near-term quantum computers.