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Prospects for Quantum Simulations of the Strong Coupling Expansion

Tuesday 21 January 2025 13:30 (45 minutes)

We present Monte Carlo simulations for the phase diagram based on the strong coupling expansion including $\mathcal{O}(\beta^2)$ and discuss the severity of the sign problem as a function of the inverse gauge coupling β , which limits the range of validity of the strong coupling expansion. We also present the formulation of the strong coupling expansion that is suitable for quantum simulations, where the sign does not pose a problem, and explain the quantum computational requirements for such simulations.

Authors: KIM, Jangho (Bielefeld University); FROMM, Michael; Mrs PRATITEE, Pattanaik; UNGER, Wolfgang

Presenter: UNGER, Wolfgang

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