

Quantum Simulation of Scattering via Hamiltonian Truncation

Friday 25 July 2025 15:40 (20 minutes)

Quantum computers can simulate highly entangled quantum systems efficiently, enabling the exploration of dynamical processes in Quantum Field Theories (QFTs), which would otherwise be impossible using classical techniques. In this talk, based on 2505.03878, I describe an alternative approach to traditional methods for simulating the real-time evolution in QFTs, employing Hamiltonian truncation (HT). Our approach is validated by preparing scattering states in scalar ϕ^4 theory. I present results obtained using real trapped ion hardware, and comment on promising future applications.

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Session Classification: Strings and Formal Quantum Field Theory