

BRINGING TOGETHER QUANTUM SIMULATIONS AND MACHINE LEARNING

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What can we learn about a many-body system when we measure every constituent particle? Experiments with ultracold atoms provide snapshots of many-body states with single particle resolution. This calls for new approaches to studying quantum many-body systems with a focus on analyzing patterns and using machine learning techniques. I will present a recent application of this method to study magnetic polarons in antiferromagnetic Mott insulators. Results indicate that magnetic polarons can be described as spinon-charge pairs bound by geometric strings, in analogy to quark-antiquark bound pairs forming mesons in QCD. I will also discuss application of neural networks to compare different microscopic theories of doped Mott insulators.

FRIDAY,
05.04.2019

2:00 PM

CFEL
SEMINAR ROOMS I-III

