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Type: **Talk**

Simulating non-equilibrium dynamics of Rydberg atom arrays

Wednesday, 8 May 2024 10:00 (30 minutes)

Experiments with Rydberg atom arrays open up new possibilities to investigate two-dimensional interacting quantum systems away from equilibrium and they call for us to push also numerical simulations in this regime. I will discuss how combining the time-dependent variational principle with two families of ansatz for the variational wave function —artificial neural networks and tree tensor networks —allows us to address some of the challenges. Thereby, we gain insights into the dynamics across a quantum phase transition and of ferromagnetic domain interfaces in the two-dimensional quantum Ising model that is experimentally realized in Rydberg quantum simulators.

Abstract category

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Session Classification: Talks