

The Vienna Center for Quantum Science and Technology
VCQ

invites you to a

COLLOQUIUM TALK

by

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Many-body physics with ultracold gases of atoms and molecules

Understanding emergent behaviors in strongly interacting quantum systems is a frontier area of condensed matter physics. However, simulations of quantum many-body systems on classical computers are not scalable beyond a few dozen particles. This motivates the development of quantum simulators, highly controllable analog quantum computers specifically designed to study certain types of problems in condensed matter physics. I will present an overview of quantum simulation with ultracold gases of atoms and molecules, discussing examples relevant for understanding phenomena that occur in real materials, and others that explore completely novel regimes inaccessible in the solid-state. In particular, I will focus on advances enabled by the introduction of microscopy techniques that probe ultracold gases at the single-particle level and reveal the rich quantum correlations present in these systems.

Monday, 27 May 2024

at Helmut Rauch Lecture Hall
Atominstytut Wien, Stadionallee 2, 1020 Vienna

17:00 Get-together with coffee and snacks!

17:30 VCQ Student Talk
Stephan Roschinski

Towards deterministic entanglement generation in a new atom-cavity setup

17:45 VCQ Colloquium Talk

Host: Julian Leonard