



Many-body Physics with Synthetic Quantum Systems



April 12-14, 2023

Room 407 Jadwin Hall, Princeton University

Organizers

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Over the past few decades, synthetic quantum systems such as those made from neutral atoms, ions and photons have emerged as an important playground to study quantum many-body physics, quantum statistical physics and quantum information. Importantly, inspired by the unique features of synthetic quantum systems including microscopic readout and a high degree of isolation, new directions and questions have emerged concerning the behavior of isolated and driven quantum many-body systems. In addition, intimate connections between different areas, such as between exotic phases of matter and protection of quantum information, have been discovered. In light of the rapid developments in controlling synthetic systems and the rising interest in quantum science, this workshop will be centered on exploring the frontiers of many-body physics using these systems. The workshop aims to consolidate collaboration and foster new connections between experimentalists and theorists, with a focus on identifying current and upcoming topics of interest, including thermalization and its breakdown, quantum chaos, unconventional hydrodynamics, projective measurements in many-body systems, and exotic phases.

Free but required registration is now open on the PCTS website or scan the QR code.

<https://forms.gle/Sy9woJCmdbuacLkL6>

Speakers

Monika Aidelsburger
Vedika Khemani
Paola Capellaro
Norm Yao
Misha Lukin
Wolfgang Ketterle
Wenwei Ho
Ben Lev

Soonwon Choi
Michael Gullans
Ehud Altman
Matthew Fisher
Christian Roos
Immanuel Bloch
David Weiss
Giulia Semeghini

Antoine Browaeys
Martin Zwierlein
Hans Peter Buchler
Xinyu Luo
Jon Simon
Pedram Roushan
Andrew Potter
Markus Greiner

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