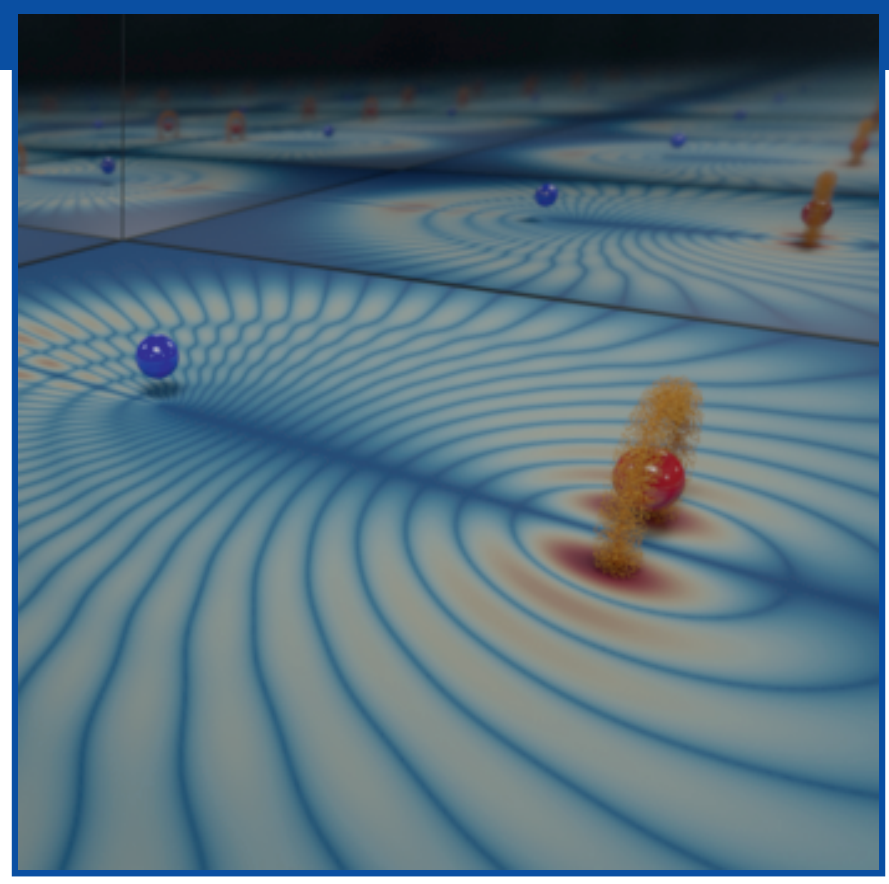
Max Planck Institute for the Physics of Complex Systems

mpipks

School for Master Students: From Quantum Matter to Quantum Computers

4 - 7 October 2022



Fascinated by quantum technologies and wondering if a career in quantum research might be for you? This school will help you find your answer. Get introduced to the fast-moving field of quantum matter, focusing on many-body systems ranging from exotic states of matter to quantum computers. Connect to students and to physicists of all career stages - sharing their passion for quantum research with you.

To make up for the recent lack of in-person interactions due to the Covid-19 pandemic, this school invites you and all master students considering a Ph.D. in quantum research to experience the broader community of quantum research.

You will:

- **Discover the field of quantum matter** through introductory lectures on e.g. quantum simulation and computing, topological states of matter, experimental realizations of quantum materials, numerical and deep learning techniques for quantum systems. Presentations will range from overview talks by world-leading researchers to short talks on recent research by graduate students.

- **Get to know how research is done** under the supervision of active scientists: Program quantum computers in an interactive challenge, bring your own laptop for a hands-on coding session on numerical methods for strongly-correlated many-body physics, or discover the manufacturing of quantum materials at a lab tour.

- **Enrich your network** beyond the classroom by participating in scientific discussions with your peers or with a panel of world-renowned scientists. Talk physics, share ideas, and connect informally with researchers from starting Ph.D. students to the directors of the Max Planck Institutes (PKS and CPfS) on a trip to Saxon Switzerland or over a barbecue.

No previous research experience is required, just a basic knowledge of quantum mechanics and a strong drive to learn more!

Topics:

- Quantum Simulation
- Quantum Matter
- Topology in Physics
- Nonequilibrium Physics
- Machine Learning and Numerical Methods in Quantum Physics

Invited speakers:

Marin Bukov
(Sofia University)

Maia G. Vergniory
(MPI-CPfS)

Johannes Hauschild
(TU Munich)

Christopher Laumann
(Boston University)

Andrew Mackenzie
(MPI-CPfS)

Kevin Miao
(Google Quantum AI)

Roderich Moessner
(MPI-PKS)

..and several more.

Scientific coordinators:

Pieter Claeys
(Cambridge University)

Marin Bukov
(Sofia University)

Alexander-C. Heinrich
(junge DPG)

Roderich Moessner
(MPI-PKS)

Organisation:

Anna Burger & Kristin Paske
MPI-PKS

The event takes place in cooperation with the junge DPG. The junge DPG is a working group of the German Physical Society (DPG).

Applications received before August 1st, 2022 are considered preferentially.

We plan for an **on-site school**. The registration fee is 80 Euro; costs for accommodation, and meals will be covered by the Max Planck Institute. Limited funding is available to partially cover travel expenses.

For further information please contact:
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We also offer individual fellowships (phd, postdoc, sabbatical). Applications are accepted continuously. For details, please check www.pks.mpg.de/visitors