Curriculum

We offer an English-language curriculum comprising lecture courses, a training program in complementary skills, as well as summer and winter schools with leading international partner institutions. The curriculum includes innovative scientific and technical training in the field of quantum materials, complemented with an excellent research infrastructure in our participating institutes.

A set of high-level "Frontiers of Research" courses closely aligned with research at the partner institutes will be taught in small, interactive groups of students using a network of telepresence studios with state-of-the-art sound and visual technology.

Application & Admission

The application procedure is highly selective and includes on-site interviews for all shortlisted candidates.

Please submit your application through our online application portal.

Requirements

We are looking for highly motivated candidates who have a record of excellence in their previous studies.

The candidate should hold either a MSc or a BSc degree in physics, chemistry, mathematics or computer science and have some knowledge of solid-state science. Exceptional students with an Honors BSc degree (4 or 5 years of study) can be admitted to the PhD fast track program.

Successful candidates will receive a salary or stipend covering all living expenses.

For detailed information please see our website.

Coordination Office

Speaker: Prof. Bernhard Keimer

Coordinator: Dr. Zrinka Gattin

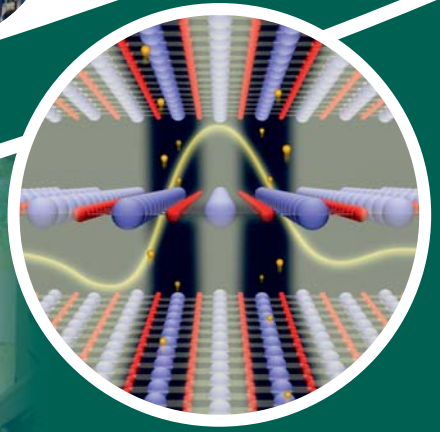
Max Planck Institute for Solid State Research
Max Planck Graduate Center for Quantum Materials
Heisenbergstraße 1 • 70569 Stuttgart • Germany

Phone: +49 711 689-1985
Email: info@quantummaterials.mpg.de

www.quantummaterials.mpg.de

Join us for your PhD

MAX PLANCK
GRADUATE CENTER
FOR QUANTUM MATERIALS



Quantum materials refers to a rapidly evolving research frontier that aims to understand, control, and ultimately design materials in which quantum physics enables novel functionalities.

The **Max Planck Graduate Center** for Quantum Materials builds on strong synergy between world-leading researchers with complementary expertise located at Max Planck Institutes (MPIs) across Germany.

More than the sum of its parts

We offer our students a truly unique research environment with access to a large number of worldclass research facilities, as well as a newly designed curriculum covering the frontiers of research on quantum materials.

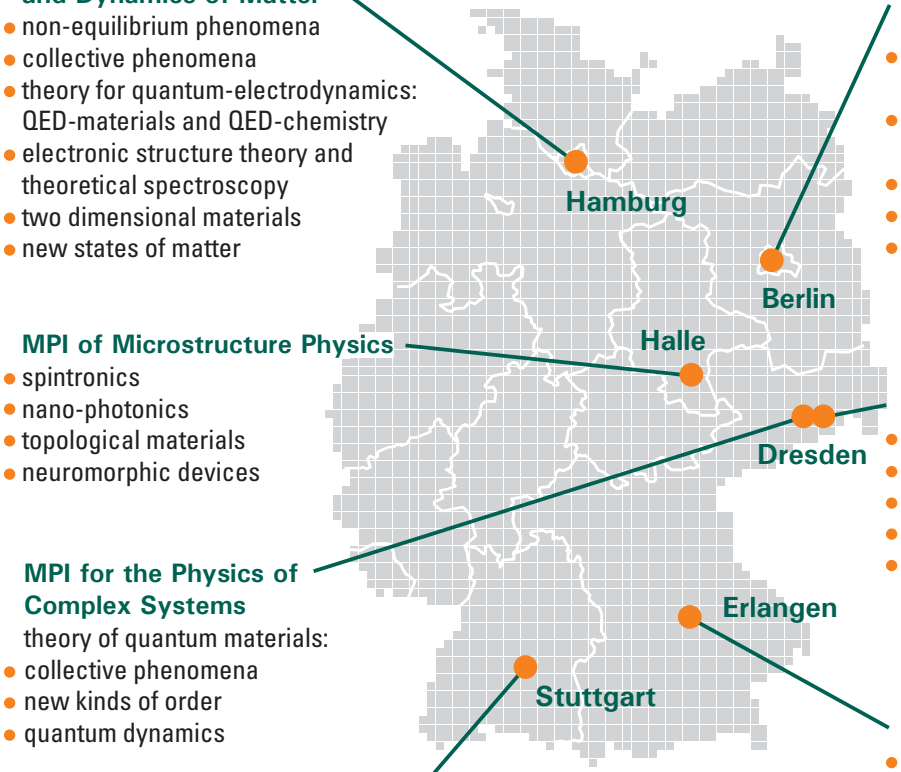
Exchange and collaboration with first-rate **international partner** institutions is encouraged and promoted through our scientific partners and affiliated institutions.

MPI for the Structure and Dynamics of Matter
- non-equilibrium phenomena
- collective phenomena
- theory for quantum-electrodynamics: QED-materials and QED-chemistry
- electronic structure theory and theoretical spectroscopy
- two dimensional materials
- new states of matter

MPI of Microstructure Physics
- spintronics
- nano-photonics
- topological materials
- neuromorphic devices

MPI for the Physics of Complex Systems
theory of quantum materials:
- collective phenomena
- new kinds of order
- quantum dynamics

MPI for Solid State Research
(coordination site)
- electronic structure theory
- exploration and design of quantum materials
- nanochemistry
- nanoscale science
- quantum many-body theory
- solid state quantum electronics
- solid state spectroscopy



Fritz Haber Institute of the Max Planck Society
- ab initio thermodynamics and statistical mechanics
- many-body electronic-structure theory and electron-phonon coupling
- electronic and thermal transport
- nuclear quantum effects in materials
- AI methods for materials science

MPI for Chemical Physics of Solids
- topology and symmetry in modern materials
- single crystal microstructuring
- strongly interacting electron fluids
- control in material synthesis
- intermetallic compounds and related materials

MPI for the Science of Light
- photon-phonon interactions in organic materials
- single-molecule quantum optics
- plasmonics
- bio-photonics

Layout: Grafik Service MPI-FKF, Photos: © MPI Halle, Hamburg, Stuttgart

www.quantummaterials.mpg.de

Join us for your PhD