

Phoenix-D
Photonics • Optics • Engineering
Innovation across Disciplines
affiliated with Quantum-Alliance.de

ML⁴Q
MATTER AND LIGHT FOR
QUANTUM COMPUTING

IQST

CLUSTER OF EXCELLENCE
CUI: ADVANCED
IMAGING OF MATTER

BERLIN QUANTUM

OF QuantumFrontiers
CLUSTER OF EXCELLENCE

ct.qmat
Complexity and Topology
in Quantum Matter

MCQST
Munich Cluster for
Quantum Science
and Technology



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We invite you to learn more about the exciting research within the Quantum Alliance and the various support programs for early career researchers and young investigators offered at our partner institutions.

Please check our websites for upcoming events for the scientific community from academia and industry as well as for the broader public.

Clusters of Excellence are funded by the German Research Foundation (Deutsche Forschungsgemeinschaft, DFG) within the Excellence Strategy of the German federal and state governments.

Contact

info@quantum-alliance.de

Quantum Alliance

is a consortium of German Clusters of Excellence and centers working in the field of quantum science and technology.

www.quantum-alliance.de

CLUSTER OF EXCELLENCE

CUI: ADVANCED

IMAGING OF MATTER

Universität Hamburg | Deutsches Elektronen-Synchrotron (DESY) |
Max Planck Institute for the Structure and Dynamics of Matter (MPSD) |
European XFEL GmbH (XFEL)

The cluster's central objective is to understand emergent phenomena of matter and – going one step further – to dynamically create new functionalities. Non-equilibrium emergence – its understanding and control – is the overarching theme of the cluster. Central to its success is the imaging of the dynamics of complex physical and chemical systems in real time, on the atomic scale.

cui-advanced.uni-hamburg.de | [linkedin.com/company/
cui-advanced-imaging-of-matter/](https://www.linkedin.com/company/cui-advanced-imaging-of-matter/) | cui.office@uni-hamburg.de



QuantumFrontiers
Cluster of Excellence

Leibniz Universität Hannover | TU Braunschweig | Physikalisch-
Technische Bundesanstalt | Max-Planck-Institut für Gravitationsphysik
(Albert-Einstein-Institut) | Laser Zentrum Hannover e.V. |
University of Bremen, ZARM

Unprecedented measurement precision at the largest and
smallest dimensions, from gravitational-wave astronomy to
the control of light and matter at the quantum level:
QuantumFrontiers brings top researchers in metrology to-
gether to push the boundaries of what can be measured and
bridge the foundations with the applications in metrology.

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office@quantumfrontiers.uni-hannover.de

ML⁴Q MATTER AND LIGHT FOR QUANTUM COMPUTING

University of Cologne | RWTH Aachen University | University of Bonn |
Forschungszentrum Jülich

ML4Q is a consortium of scientists with backgrounds in the
key disciplines of quantum computation: condensed matter
physics, quantum optics, quantum devices, and quantum
information. We aim to push the frontiers of the field by de-
veloping novel forms of quantum hard- and software: from
fundamental research on quantum matter over quantum
information devices to operation protocols and software.

ml4q.de | [linkedin.com/company/ml4q/](https://www.linkedin.com/company/ml4q/) | ml4q-office@uni-koeln.de



Munich Center for
Quantum Science
and Technology

LMU Munich | TU Munich | Max Planck Institute of Quantum Optics
(MPQ) | Walther-Meißner-Institute (WMI) | Deutsches Museum (DM)

MCQST brings together more than 60 research groups from
various disciplines to collaborate on an ambitious research
program covering all fields of quantum science and techno-
logy (QST). The main goal is to discover and understand the
novel and unifying concepts of QST, making them tangible
and practical for the development of next generation quan-
tum devices.

mcqst.de | [linkedin.com/company/mcqst/](https://www.linkedin.com/company/mcqst/) | info@mcqst.de

IQST

University of Stuttgart | Ulm University | Karlsruhe Institute of Techno-
logy (KIT) | Max Planck Institute for Solid State Research, Stuttgart

It is our main goal to establish quantum science and
technology as a new discipline across borders of traditional
research fields and to revolutionize the technology and the
principles of quantum sensing especially for applications in
life sciences, materials science and medical diagnostics.

iqst.org | [linkedin.com/company/iqst-integrated-quantum-
science-and-technology/](https://www.linkedin.com/company/iqst-integrated-quantum-science-and-technology/) | hello@iqst.org



Complexity and Topology
in Quantum Matter

Julius-Maximilians-Universität Würzburg (JMU) | Technische Universität
Dresden (TUD)

The cluster ct.qmat is a leading international center devoted
to research on topological and complex quantum matter. Our
aims are to discover and understand novel quantum pheno-
mena as well as to identify and design materials in which these
phenomena are observed in the laboratory, with the goal of
demonstrating the viability of novel applications.

ctqmat.de | [linkedin.com/company/ctqmat/](https://www.linkedin.com/company/ctqmat/) | ct.qmat@uni-wuerzburg.de

BERLIN QUANTUM

Freie Universität Berlin | Humboldt-Universität zu Berlin |
Technische Universität Berlin

BERLIN QUANTUM aims to promote Berlin as a globally
recognized, collaborative research community that stimula-
tes innovation in quantum science and technology. We see
our particular strengths in the areas of quantum photonics
implementations and quantum information theory. BERLIN
QUANTUM pursues an interdisciplinary and cross-sector vision
to make Berlin a global leader in the field of quantum tech-
nologies. The Berlin University Alliance is coordinating the
scientific related activities of the initiative.

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PhoenixD

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Innovation Across Disciplines * affiliated partner

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e.V. | Max-Planck-Institut für Gravitationsphysik (Albert-Einstein-Institut) |
Physikalisch-Technische Bundesanstalt (PTB)

PhoenixD looks to the future of precision optics. Its core concept
is to merge optical systems, design and simulation tools with all
relevant production technologies into one combined platform
so as to create individualized and highly-functional optical
devices – on demand, to the highest accuracy and with novel
functionalities.

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