



QUANTUM
ALLIANCE



MATTER AND LIGHT FOR QUANTUM COMPUTING

10ST INTEGRATED QUANTUM SCIENCE AND TECHNOLOGY

PhoenixD

Photonics · Optics · Engineering
Innovation Across Disciplines
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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.

Contact

info@quantum-alliance.de



QUANTUM ALLIANCE

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.

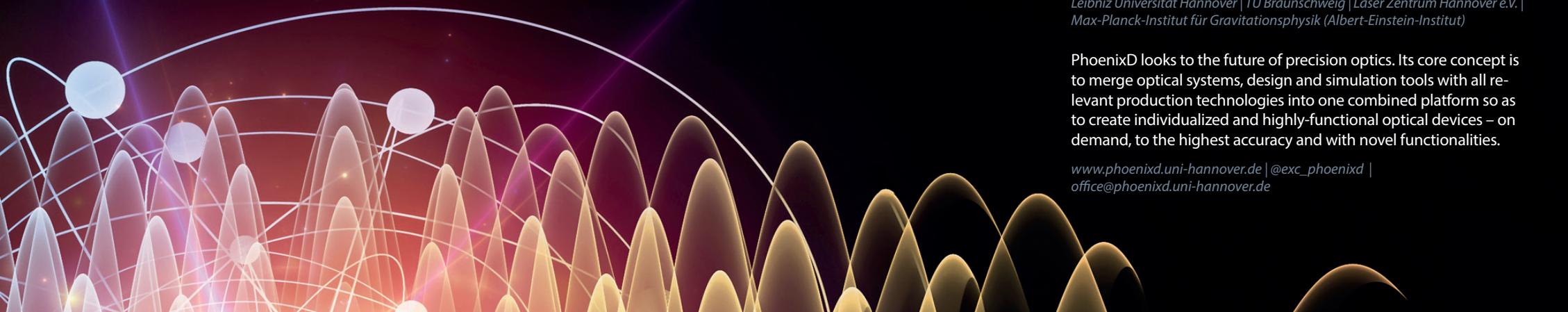
www.cui-advanced.uni-hamburg.de | @cui_unihh |
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Leibniz Universität Hannover | TU Braunschweig | Physikalisch-Technische Bundesanstalt | Max-Planck-Institut für Gravitationsphysik (Albert-Einstein-Institut) | Laser Zentrum Hannover e.V. | University of Bremen, ZARM

The mission of Quantum Frontiers is to merge quantum metrology and nanometrology, in order to advance to the next level of unprecedented sensitivity and precision, and to push the bounds of knowledge at the largest and smallest dimensions: from gravitational wave astronomy to the manipulation of light and matter on the quantum level.

www.quantumfrontiers.de | office@quantumfrontiers.uni-hannover.de



ML⁴Q MATTER AND LIGHT FOR QUANTUM COMPUTING

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

The aim of ML4Q is to develop new computing and networking architectures using the principles of quantum mechanics. Computing and networking power beyond anything classically imaginable would make quantum computers powerful tools in key areas such as materials design, pharmaceutics, or artificial intelligence. Quantum communication could be made effectively secure.

www.ml4q.de | @ML4Q_cluster | ml4q-office@uni-koeln.de



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 phenomena 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.

www.ctqmat.de | @ct_qmat | ao.ct.qmat@physik.uni-wuerzburg.de



University of Stuttgart | Ulm University | 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.

www.iqst.org | @IQSTpress | iqst@iqst.org

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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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