

## AGENDA OF THE WORKSHOP

### Helmholtz Quantum: Roadmap to the Future

February 12, 2021 ■ 10:00 – 18:00

→ Please register for participation via Zoom, or follow the YouTube channel:  
<https://www.youtube.com/channel/UC9wEpu7IW9KbYwAH9QghVrA>

#### 10:00 AM // INTRODUCTION

10:00 AM	<i>Otmar Wiestler</i>	Greeting
10:15 AM	<i>Wolfgang Marquardt</i>	Helmholtz Quantum

#### 10:30 AM // MATERIALS

10:30 AM	<i>Maria Roser Valentí</i>	Quantum materials' design
11:00 AM	<i>Catherine Dubourdieu</i>	Quantum materials for future technologies
11:15 AM	<i>Thomas Schäpers</i>	Hybrid structures based on semiconductor nanowires and topological insulators for quantum circuits
11:30 AM	<i>Toni Helm</i>	The FIB approach to quantum materials for experiments under challenging conditions

#### 11:45 AM // BREAK

#### 12:15 PM // SIMULATION

12:15 PM	<i>Ignacio Cirac</i>	Solving quantum many-body problems with quantum computers
12:45 PM	<i>Jens Eisert</i>	Quantum approximate optimization for real-world planning problems
13:00 PM	<i>Tobias Stollenwerk</i>	Quantum computer based on the trapped ion platform
13:15 PM	<i>Kristel Michielsen</i>	Quantum classical hybrid computing models in modular HPC systems

#### 13:30 PM // COMMUNICATION

13:30 PM	<i>Christine Silberhorn</i>	Quantum networks with integrated optics and pulsed light
14:00 PM	<i>Yonder Berencen</i>	Telecom single photon emitters in silicon for fiber-based quantum communications
14:15 PM	<i>Christoph Marquardt</i>	Securing infrastructure with quantum communication
14:30 PM	<i>David Hunger</i>	Quantum repeaters for long distance quantum communication

#### 14:45 PM // SENSING/METROLOGY

14:45 PM	<i>Piet Schmidt</i>	Overview quantum metrology
15:15 PM	<i>Jörg Wrachtrup</i>	Overview quantum sensing
15:30 PM	<i>Oliver Ambacher</i>	Quantum magnetometry
15:45 PM	<i>Boris Naydenov</i>	Quantum sensing with color centers in diamond
16:00 PM	<i>Georgy Astakhov</i>	Integrated quantum sensors based on the SiC platform

#### 16:15 PM // BREAK

#### 16:30 PM // COMPUTING

16:30 PM	<i>Stefan Filipp</i>	Overview quantum computing with focus on superconducting Qubits
17:00 PM	<i>Hendrik Bluhm</i>	Quanten computing with semiconductors
17:15 PM	<i>Ferdinand Schmidt-Kaler</i>	Quantum computer based on the trapped ion platform
17:30 PM	<i>Helmut Schultheiß</i>	Magnonics as interface for qubits

#### 17:45 PM // CONCLUSION

17:45 PM	<i>Tommaso Calarco</i>	Helmholtz Quantum Technology roadmap process
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