2nd Helmholtz Quantum Conference

Helmholtz-Zentrum Berlin für Materialien und Energie

Albert-Einstein-Str. 15, 12489 Berlin

Programme (as of 15 September 2022)

Programme - Thursday, Sep. 15th, 2022

12:00	**Arrival, Lunch snack**
13:00	**Welcome**
13:15	**Quantum Computing - Solid**
13:15	**Frank Wilhelm-Mauch** (Jülich): Development of superconducting quantum computers in research projects
13:35	**Ioan Pop** (KIT): Superconducting quantum hardware: challenges and opportunities
13:50	**Annika Bande** (HZB): (Quantum) Simulation of Electronic Processes in Quantum Dot Qubits
14:05	**Arne Wickenbrock** (HIM/U. Mainz): Diamond-based quantum sensing for neurosurgery DiaQNOS **(ONLINE)**
14:25	Discussion
14:30	**Coffee**
14:50	**Quantum Computer - Ions**
14:50	**Ferdinand Schmidt-Kaler** (HIM/U. Mainz): Ion demonstrator hardware
15:10	**Christian Melzer** (U. Mainz): Software for User Access to a Quantum Computer Including Compiler
15:30	**Quantum Communication**
15:30	**Torsten Siebert** (Fraunhofer IOF Jena/QuNET*):* QuNET – Enabling a National QKD Infrastructure
15:50	**Sven Ramelow** (HU Berlin): Sensing Applications with Mid-Infrared Entangled Photons
16:10	Discussion
16:15	**Coffee**
16:35	**Quantum Sensing**
16:35	**Steven Worm** (DESY Zeuthen/HU Berlin): Quantum Sensing at DESY
16:50	**Gopalakrishnan Balasubramanian** (XeedQ/HZDR): Small-scale room-temperature affordable mobile quantum processor based on NV centers
17:10	**Quantum Materials**
17:10	**Oliver Rader** (HZB): Topological insulators for quantum metrology
17:25	**Sergey Kovalev** (HZDR): Ultrafast coherent THz spectroscopy of quantum materials **(ONLINE)**
17:40	**Martin Beye** (DESY): Quantum Materials at DESY

17:55	**Kristof Moors** (FZJ): Majorana devices with topological insulators
18:10	**Mathieu Le Tacon** (KIT): An electronic nematic liquid in Ni-pnictides **(ONLINE)**
18:25	Discussion
18:30	**Barbeque dinner**
20:00	**Evening lecture at Humboldt University (*Newtonstr. 15, 12489 Berlin*):** Christopher Monroe (IonQ Inc./Duke Univ.): "Quantum Computing with Atoms" **Followed by panel discussion**: "How to make Germany quantum ready?" ***Panelists:*** *Christopher Monroe, Björn Schulte (BMBF), Christoph Kutter (Fraunhofer EMFT, Munich Quantum Valley), Carsten Polenz (QUTAC), Christiane Koch (FU Berlin), Robert Axmann (DLR) (tbc)* **Host:** Christian Beilmann (Helmholtz Association)

Programme - Friday, Sep. 16th, 2022

09:00	**Quantum Calculations and Simulations**
09:00	**Giovanna Morigi** (U. Saarbrücken/NiQ): NiQ - Noise in Quantum Algorithms
09:30	**Lena Funcke** (MIT): Quantum Computing in High-Energy Physics **(ONLINE)**
09:50	**Karl Jansen** (DESY): Center for Quantum Technology Applications CQTA
10:10	**Jens Eisert** (FU Berlin/HZB): Randomness in quantum simulations
10:30	**Christian Ospelkaus** (PTB/U. Hannover): Trapped ion quantum engineering
10:50	Discussion
10:55	**Coffee**
11:15	**Quantum Technology Networks**
11:15	**Christoph Kutter** (Fraunhofer EMFT): Munich Quantum Valley
11:35	**Carsten Polenz** (QUTAC, SAP): QUTAC, Strategic Outlook
11:55	**Robert Axmann** (DLR): DLR quantum computing initiative
12:15	**Tommaso Calarco** (FZJ): Education Innovation Networking - EIN Quantum NRW
12:35	**Final discussion**
12:50	Closing remarks
13:00	**End/Lunch**
13:30	Possibility to visit BESSY II