

QMA Retreat

Topological Quantum Matter 2023

September 25 - 27, 2023

Penta Hotel in Leipzig



ct.qmat

**Complexity and Topology
in Quantum Matter**

Monday, September 25	
11:00 - 12:00	Arrival
12:00 - 14:00	Lunch
14:00 - 14:10	Welcome note from organisers
14:10 - 14:30	Introduction to QMA/ct.qmat by Matthias Bode
14:30 - 15:30	Manfred Sigrist “ <i>Unconventional Superconductivity - Aspects of Symmetry and Topology</i> ”
15:30 - 15:50	Coffee Break
Session 1: Topology	
15:50 - 16:10	Jonas Erhardt, JMU Würzburg “ <i>Bulk Signatures of Topology in a QSH Insulator Probed by Circular Dichroism in ARPES</i> ”
16:10 - 16:30	Maximilian Ünzelmann, JMU Würzburg “ <i>Tomography of Orbital Pseudospin Vortex Lines in a Topological Semimetal</i> ”
16:30 - 16:50	Alexander Fritzsche, JMU Würzburg “ <i>Strain Induced Curvature in a Driven Photonic Topological Insulator</i> ”
16:50 - 17:45	Ice Breaker Activity
18:30 - 19:30	Dinner
19:30 –	Fire-Place Chat with Jan Budich (TU Dresden) and Louis Veyrat (IFW Dresden)

Tuesday, September 26	
07:00 - 08:30	Breakfast
Session 2: Quantum Materials	
08:30 - 08:50	Kristian Tyn Kai Chung, MPI-PKS Dresden “ <i>2-Form $U(1)$ Spin Liquids: Classical Model and Quantum Considerations</i> ”
08:50 - 09:10	Matteo Dürrnagel, JMU Würzburg “ <i>From Ab-Initio Bandstructures to Correlated Phases of Matter: Renormalization Group Approaches to Interacting Electron Systems</i> ”
09:10 - 09:30	Georgia Fragkopolou, TU Dresden “ <i>Bond Disorder in the High-Field Eegime of Extended Heisenberg-Kitaev Models</i> ”
09:30 - 09:45	Coffee Break
09:45 - 10:45	Wolf Widdra “ <i>Electron-Phonon Coupling at Perovskite Oxide Interfaces</i> ”
10:45 - 11:00	Break

Session 3: Quantum Materials	
11:00 - 11:20	Gohil Takhur, TU Dresden “ <i>Pb₉Cu(PO₄)₆O</i> : Superconducting or Not?”
11:20 - 11:40	Nora Taufertshöfer, JMU Würzburg “ <i>Competing Phases in AlAs Quantum Wells</i> ”
11:40 - 12:30	Poster Teaser Presentations
12:30 - 14:00	Lunch
14:00 - 14:10	Group Photo Session
14:10 - 18:30	Social Activities
18:30 - 20:00	Dinner
20:00 –	Poster Session

Wednesday, September 27	
07:00 - 08:30	Breakfast
Session 4: Topology	
08:30 - 08:50	Haipeng Sun, JMU Würzburg “ <i>Magnetic Topological Transistor Exploiting Layer-Selective Transport</i> ”
08:50 - 09:10	Viktor Könye, IFW Dresden “ <i>Effective Non-Hermitian Topology in Multi-Terminal Devices</i> ”
09:10 - 09:30	Niklas Wagner, JMU Würzburg “ <i>Green’s Function Zeros, Spinons and Topology</i> ”
09:30 - 09:45	Coffee Break
Session 5: Hall-Effect	
09:45 - 10:05	Christopher Fuchs, JMU Würzburg “ <i>Limits of the Early Onset Quantum Hall Effect in Paramagnetic (Hg,Mn)Te Quantum Wells</i> ”
10:05 - 10:25	Evgenii Maltsev, IFW Dresden “ <i>Anomalous Hall Effect in EuSn₂As₂ Thin Flakes</i> ”
10:25 - 10:45	Leonid Bovkun, JMU Würzburg “ <i>Tuning the Band Structure for Narrowgap HgTe QWs with Cd-Doping</i> ”
10:45 - 11:00	Break
11:00 - 12:00	Election for QMA Representatives, Evaluation of the Poster Award, Evaluation of the Talk Award, Closing Remarks
12:00 - 14:00	Lunch