

Program Cluster Retreat 2022

WEDNESDAY, 23.03.2022

08:00 – 12:30 Arrival

11:30 – 13:30 Lunch Break

13:30 – 13:40 Welcome/Retreat Essentials

13:40 – 15:00 Talk Session 1

Chair: B. Trauzettel

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| 13:40 – 14:00 | Unconventional superconductivity in the Hubbard model on the pyrochlore lattice | C. Timm (TUD) |
| 14:00 – 14:20 | Twistronics of high temperature superconductors | N. Poccia (IFW) |
| 14:20 – 14:40 | Intrinsic emergence of Majorana modes in Luttinger $j = 3/2$ systems | E. Hankiewicz (JMU) |
| 14:40 – 15:00 | Bogoliubov-Fermi surfaces in non-centrosymmetric multi-component superconductors | J. Link (TUD) |

15:00 – 16:00 Coffee Break & Check in

16:00 – 17:30 Talk Session 2

Chair: L. Janssen

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| 16:00 – 16:30 | Nonlinear Photonic Topological Insulators | A. Szameit (U Rostock) |
| 16:30 – 16:50 | Topological Lasers | S. Klemmt (JMU) |
| 16:50 – 17:10 | Atomically-thin photonic materials | A. Chernikov (TUD) |
| 17:10 – 17:30 | THz-Light Canalization by Phonon Polaritons in van der Waals Materials | M. Obst (TUD) |

17:30 – 19:00 Poster Session 1

Presenters: Odd poster numbers

Moderator: M. Leisegang

17:30 – 18:00 Poster Pitches

18:00 – 19:00 Poster Session

19:00 – 20:30 Dinner

20:30 – 21:30 Research Data Management in Solid State Physics

Best Practice Examples and Discussion

Moderator: J. van den Brink

Guests: S. Brockhauser (FAIRmat consortium, Humboldt University Berlin) & O. Janson (IFW)

21:30 – 23:00 Poster Session 1 (open end extension) & Networking

Presenters: Odd poster numbers

THURSDAY, 24.03.2022

08:00 – 09:00 Breakfast

09:00 – 10:30 Talk Session 3

Chair: V. Dyakonov

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| 09:00 – 09:30 | Majorana bound states in topological insulators without a vortex | J. Klinovaja (U Basel) |
| 09:30 – 09:50 | Intrinsic Magnetic Topological Insulators | P. Kagerer (JMU) |
| 09:50 – 10:10 | Selective equilibration of counter-propagating edge channels in a topological insulator HgTe | L. Wang (JMU) |
| 10:10 – 10:30 | Plasmonic Su-Schrieffer-Heeger chains based on gold nano-blocks | B. Schurr (JMU) |

10:30 – 11:00 Coffee Break

11:00 – 12:20 Talk Session 4

Chair: J. Wosnitza

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| 11:00 – 11:20 | Chirality and topology | C. Felser (MPI CPfS) |
| 11:20 – 11:40 | Fermi surfaces of topological semimetals | V. Schwarz (HZDR) |
| 11:40 – 12:00 | Random flux driven metal to higher-order topological insulator transition | S. Zhang (UZH) |
| 12:00 – 12:20 | Quantized electrochemical transport in Weyl semimetals | R. A. Flores Calderon (MPI PKS) |

12:20 – 14:00 Lunch Break

14:00 – 15:30 Poster Session 2

Presenter: Even poster numbers

Moderator: L. T. Corredor Bohorquez

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| 14:00 – 14:30 | Poster Pitches |
| 14:30 – 15:30 | Poster Session |

15:30 – 16:00 Coffee Break

16:00 – 16:30 Group Picture

16:30 – 18:30 Talk Session 5

Chair: G. Sangiovanni

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| 16:30 – 16:50 | Signature of PT-symmetric non-Hermitian superconductivity in an angle-resolved photoelectron fluctuation spectroscopy | V. Kornich (JMU) |
| 16:50 – 17:10 | Non-Hermitian physics without gain or loss: the skin effect of reflected waves | C. Fulga (IFW) |
| 17:10 – 17:30 | Strong correlation and non-hermitian phenomena: the role of symmetries | L. Crippa (JMU) |
| 17:30 – 17:50 | Nematic quantum criticality in Dirac systems | J. Schwab (JMU) |
| 17:50 – 18:10 | Fixed-point structure and critical behavior of generalized Gross-Neveu models in 2+1 dimensions | K. Ladovrechis (TUD) |
| 18:10 – 18:30 | Quantum Criticality in Mixed Dimensions: 2d Spin-Density Waves and 3d Electrons | B. Frank (TUD) |

18:30 – 20:00 Dinner

20:00 – 20:45 Steering Committee Meeting

20:00 – 21:00 Social Event

20:30 – 23:00 Poster Session 2 (open end extension) & Poster Voting

Presenters: Even poster numbers

FRIDAY, 25.03.2022

08:00 – 09:00 Breakfast

09:00 – 10:20 Talk Session 6

Chair: D. Inosov

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| 09:00 – 09:20 | Colossal linear magnetoresistance in LaTiO ₃ thin films on SrTiO ₃ | T. Tschirner (IFW) |
| 09:20 – 09:40 | Frustration model and spin excitations in the helimagnet FeP | A. Sukhanov (TUD) |
| 09:40 – 10:00 | Topology, colossal magnetoresistance, and complex magnetic domain structure in non-symmorphic Eu ₅ In ₂ Sb ₆ | M. Rahn (TUD) |
| 10:00 – 10:20 | Hot electron surface transport in a Rashba system studied on a few-nanometer length scale | M. Leisegang (JMU) |

10:20 – 11:00 Coffee Break

11:00 – 12:20 Talk Session 7

Chair: S. Höfling

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| 11:00 – 11:20 | The Huygens Principle of Angle-Resolved Photoemission - detection of orbital angular momentum | S. Moser (JMU) |
| 11:20 – 11:40 | Momentum-space imaging of Berry curvature monopoles using dichroic ARPES | M. Ünzelmann (JMU) |
| 11:40 – 12:00 | Berry phases and wormholes | M. Dorband (JMU) |
| 12:00 – 12:20 | Towards explicit discrete holography: aperiodic spin chains from hyperbolic tessellations | G. Di Giulio (JMU) |

12:20 – 14:00 Lunch Break

14:00 – 14:40 Talk Session 8

Chair: M. Vojta

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| 14:00 – 14:20 | Anomalous Dynamics and Equilibration in the Heisenberg Chain | A. McRoberts (MPI PKS) |
| 14:20 – 14:40 | Probing the Floquet bulk winding number through Bloch sub-oscillations | L. K. Upreti (JMU) |

14:40 – 15:00 Closing Remarks & Announcement of the poster award