

Program Cluster Retreat 2021

WEDNESDAY, 10.03.2021

08:40 – 09:00 Retreat Essentials

09:00 – 10:30 Talk Session 1

Topic: Materials

Chair: L. Eng

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| 09:00 – 09:30 | Fundamental difference in the electronic reconstruction of infinite-layer vs. perovskite nickelate films on SrTiO ₃ (001) | R. Pentcheva (Uni. Duisburg-Essen) |
| 09:30 – 09:50 | Spin liquids phases in perovskite systems | G. Thakur (TUD) |
| 09:50 – 10:10 | Field-induced destruction of long-range magnetic order in Cu ₂ GaBO ₅ and Cu ₂ AlBO ₅ ludwigites | D. Inosov (TUD) |
| 10:10 – 10:30 | Mesoscale experiments with Skyrmionics in FIB Microstructures | T. Helm (HZDR) |

10:30 – 11:00 Coffee Break (Mingling & Networking)

11:00 – 12:30 Talk Session 2

Topic: Quantum Transport

Chair: J. Erdmenger

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| 11:00 – 11:30 | Parity anomaly related effects in topological materials | E. Hankiewicz (JMU) |
| 11:30 – 11:50 | Super-resonant transport of topological surface states subjected to in-plane magnetic fields | S. Zhang (JMU) |
| 11:50 – 12:10 | Turbulent hydrodynamics in strongly correlated Kagome metals | R. Meyer (JMU) |
| 12:10 – 12:30 | Anisotropic magnetotransport in LaTiO ₃ on SrTiO ₃ thin films | L. Veyrat (JMU) |

12:30 – 13:30 Lunch Break (Music & Networking)

13:30 – 15:00 Poster Session 1

Presenter: Odd Posternumbers

13:30 – 14:00 Poster Pitches
14:00 – 15:00 Poster Session

15:00 – 16:00 Talk Session 3

Topic: Photonics 1

Chair: S. Höfling

15:00 – 15:20	Probing IR-to-THz Anisotropic Dispersion at Nanometer Length Scales	S. Kehr (TUD)
15:20 – 15:40	Topological Mirror	C. Fulga (IFW)
15:40 – 16:00	Characterization of optical Berry phase and topological state in photonic devices	L. Ma (IFW)

16:00 – 16:30 Coffee Break (Physiotherapy & Networking)

16:30 – 18:00 Talk Session 4

Topic: Photonics 2

Chair: O. Schmidt

16:30 – 17:00	Topological insulator lasers	M. Segev (Technion)
17:00 – 17:20	Implementation of topological lasers in coupled microcavities	S. Klemmt (JMU)
17:20 – 17:40	Breakdown of Bulk Boundary Correspondence in an electric circuit network	T. Helbig (JMU)
17:40 – 18:00	1D topology in microcavities	A. Palatnik (TUD)

18:00 – 18:30 Fireplace Chat

Topic: Academic careers in USA

Moderator: J. Erdmenger

Guest: S. Stemmer (University of California Santa Barbara)

18:00 – 19:00 SAB + Spokespersons Meeting (Introduction into ct.qmat)

18:30 – 19:30 Pub Quiz & Networking

THURSDAY, 11.03.2021

09:00 – 10:30 Talk Session 5

Topic: Quantum Criticality

Chair: R. Moessner

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|---------------|---|--------------------------------|
| 09:00 – 09:30 | Thermodynamic description of topological phase transitions | C. Morais-Smith (Utrecht Uni.) |
| 09:30 – 09:50 | Fractionalized fermionic quantum criticality from field theory beyond leading order | S. Ray (TUD) |
| 09:50 – 10:10 | Gross-Neveu-SO(3) Quantum Critical Point | Z. Liu (JMU) |
| 10:10 – 10:30 | Domain-driven quantum phase transitions in easy-axis Ferromagnets | H. Eisenlohr (TUD) |

10:30 – 11:00 Coffee Break (Mingling & Networking)

10:30 – 11:00 Internal Coffee Break SAB

11:00 – 12:10 Talk Session 6

Topic: Quantum Hall

Chair: H. Buhmann

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|---------------|---|---------------------|
| 11:00 – 11:30 | Quantum Hall physics in 3D metals | J. Gooth (MPI CPfS) |
| 11:30 – 11:50 | Emergent quantum Hall effect below 50 mT in two-dimensional topological insulator | S. Shamim (JMU) |
| 11:50 – 12:10 | Design and realization of a triangular quantum spin Hall insulator: Indene on SiC(0001) | P. Eck (JMU) |

12:10 – 13:15 Lunch Break (Music & Networking)

13:15 – 15:00 Poster Session 2

Presenter: Even Posternumbers

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| 13:15 – 14:45 | Poster Pitches |
| 14:45 – 15:00 | Poster Session |

15:00 – 15:40 Talk Session 7

Topic: Photoemission

Chair: B. Büchner

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| 15:00 – 15:20 | Topological surface and bulk phenomena in quantum Materials probed by photoelectron spectroscopy | H. Bentmann (JMU) |
| 15:20 – 15:40 | New aspects of electronic structure of old bismuth tellurides from ARPES | S. Borisenko (IFW) |

15:40 – 16:10 Coffee Break (Physiotherapy & Networking)

16:10 – 16:50 Talk Session 8

Topic: Magnetic Topological Insulator

Chair: C. Felser

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| 16:10 – 16:30 | Local magnetic and electronic properties of the intrinsic magnetic topological insulator Mn Bi ₆ Te ₁₀ | A. Tcakaev (JMU) |
| 16:30 – 16:50 | Finite temperature fluctuation-induced order and responses in magnetic topological insulators | F. Nogueira (IFW) |

16:50 – 17:30 Talk Session 9

Topic: Superconductivity

Chair: C. Felser

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| 16:50 – 17:10 | Anisotropic vortices on superconducting Nb(110) | A. Odobesko (JMU) |
| 17:10 – 17:30 | Distortional weak-coupling instability of Bogoliubov Fermi surfaces | C. Timm (TUD) |

17:30 – 17:45 Closing & Announcement of the poster award

17:45 – 18:45 SAB + Steering Committee Meeting (Feedback)