3rd QMA retreat

12th - 14th October 2022

Friedrichroda

ct.qmat

Complexity and Topology
in Quantum Matter

Retreat program

Wednesday 12.10	
-12:00	Arrival
12:00 - 13:30	Lunch
13:40 - 14:00	Welcome and introduction to the QMA by Kerstin Brankatschk
Session 1 (Chair: Philipp Kagerer)	
14:00 - 14:25	Tatiana Aureliia Uaman Svetikova, HZDR *Nonlinear dynamics of Dirac fermions in topological HgTe structures*
14:25 - 14:50	Gabriele Naselli, IFW Dresden *Nontrivial gapless electronic states at the stacking faults of weak topological insulators*
14:50 - 15:15	Leonid Bovkun, JMU Würzburg *Investigating the transition from 2D to 3D topological insulators in magneto-optics*
15:15 - 15:40	Philipp Eck, JMU Würzburg *Obstruction on the triangular lattice*
15:40 - 16:00	Coffee break

Wednesday 12.10	
Session 2 (Chair: Bernhard Frank)	
16:00 - 16:25	Marc Straßheim, HZDR *Magnetocaloric effect in $(La,Ce)(Fe,Si,Mn)_{13}$ with tunable, low transition temperature*
16:25 - 16:50	Janik Potten, JMU Würzburg *Frequency-resolved functional renormalization group for quantum magnetic systems*
16:50 - 17:15	Wilhelm Krüger, TU Dresden *Triple-Q order in $Na_2Co_2TeO_6$ from proximity to hidden-SU(2)-symmetric point*
17:15 - 17:30	Poster pitches (odd)
17:30 - 19:00	Icebreaker
19:00 - 20:30	Dinner
20:30 - open end	Poster session (odd)

Thursday 13.10	
7:00 - 9:00	Breakfast
Session 3 (Chair: Michel Miranda)	
9:00 - 9:25	Zihong Liu, JMU Würzburg *Phase diagram of a Kondo heterostructure*
9:25 - 9:50	Bernhard Frank, TU Dresden *Marginal Fermi Liquid in Kondo heterostructures*
9:50 - 10:15	Christopher Fuchs, JMU Würzburg *Kondo interaction of quantum spin Hall edge channels with charge puddles*
10:15 - 10:40	Adam McRoberts, MPI-PKS Dresden *An intermediate-scale theory for electrons coupled to frustrated local-moments*
10:40 - 11:00	Coffee break
Session 4 (Chair: Lorenzo Crippa)	
11:00 - 11:25	Markus Leisegang, JMU Würzburg *Spin polarized ballistic transport: MONA on the Rashba-split $BiAg_2$ surface alloy*

Thursday 13.10	
11:25 - 11:50	Artem Odobesko, JMU Würzburg *Interference of superconducting quasiparticles observed by STM with extra- spatial and energy resolution*
11:50 - 12:15	Pratyay Ghosh, JMU Würzburg *Magnetization of the Exact Dimer Ground State in the Maple Leaf Model: interactions, correlated hopping, and bound states*
12:15 - 13:45	Lunch
13:45 - 13:50	Group photo
13:50 - 18:00	Riddles and more - Outdoor
18:00 - 20:30	Free time and dinner
20:30 - 21:00	Poster pitches (even)
21:00 - open end	Poster session (even)

Friday 14.10	
7:00 - 9:00	Breakfast
Session 5 (Chair: Adam McRoberts)	
9:00 - 9:25	Moritz Dorband, JMU Würzburg *On the emergence of geometry in a quantum system*
9:25 - 9:50	Viktor Könye, IFW Dresden *Horizon physics of quasi-one-dimensional tilted Weyl cones on a lattice*
9:50 - 10:15	Lotte Mertens, IFW Dresden *Thermalization by a synthetic horizon*
10:15 - 10:45	Coffee break
Session 6 (Chair: Artem Odobesko)	
10:45 - 11:10	Philipp Kagerer, JMU Würzburg *Disentangling the Emerging Physics in Topological van-der-Waals Heterostructures*
11:10 - 11:35	Hendrik Hohmann, JMU Würzburg *Observation of cnoidal wave localization in non-linear topolectric circuits*
11:35 - 12:00	Niklas Wagner, JMU Würzburg *Mott insulators with boundary zeros*

Friday 14.10	
12:00 -13:30	Lunch
13:30 - 13:45	Closing remarks

List of posters

P01	Florian Bärtl *NMR investigations of the 2D Heisenberg system CuPOF under pressure*
P02	Nicolas Bauer *Quench-Probe Setup as an Analyzer of Fractionalized Entanglement Spreading*
P03	Eduardo Carrillo-Aravena *Symmetry, Structural and Electronic Correlations in a Family of Bismuth-based Layered Materials*
P05	Maria Herz *Finite and Infinite Chains of an Iron Analogue of Heavy Atom Clusters*
P06	Johannes Heßdörfer *Bismuth-rich Stacked Topological Insulator Candidates: Structural and Electronical Properties*
P07	Freya Husstedt *Band structure and effective masses of the topological semimetal PdGa*
P09	Florian Keller *Doping of 1D topologically protected edge states on the (001) surface of the topological crystalline* insulator (Pb,Sn)Se
P12	Changan Li *Phase transitions in the two-dimensional Su-Schrieffer-Heeger model*

P13	Eduard Naichuk *Bose–Einstein Condensation in non-Hermitian dilute Bose gas*
P14	Timo Niehoff *Magnetocaloric effect in Tb_3Ni studied in high magnetic fields for cryogenic applications*
P15	Ihor Nimyi *Landau level collapse in graphene in the presence of in-plane radial electric and perpendicular magnetic fields*
P16	Kyrylo Ochkan *Observation of non-Hermitian topology in a multi-terminal quantum Hall device*
P17	Burak Özer *2D van-der-Waals Heterostructures*
P18	David Riegler *Zoology of charge orders in the electron-doped cuprates*
P19	Cedric Schmitt *Protecting quantum spin Hall insulator (QSHI) from air via intercalation into graphene/SiC*
P20	Jakub Schusser *Unveiling non-trivial topology in Weyl semimetals by photoemission*
P21	Valentin Schwarze *Fermi-surface investigation of CaCdGe and CaCdSn*

P22	Manuel Seitz *Quantum transport on anisotropic surfaces revealed by MONA*
P23	Vira Shyta *Frozen deconfined quantum criticality*
P24	Philippe Suchsland *Dynamical correlations and domain wall relocalisation in transverse field Ising chains*
P26	Yanick Thurn *Relative entropy in neural networks*
P28	Yu Wang *Observation of YSR bound states on 4f-atoms on Clean Nb (110)*
P29	Anna-Lena Weigel *Wormholes from Berry phases in AdS_3/CFT_2*
P30	Zhuo-Yu Xian *Hall viscosity and hydrodynamic inverse Nernst effect in graphene*