

ELIO J. KÖNIG

Curriculum Vitae - February 23, 2023

PERSONAL AND CONTACT INFORMATION

Full name: Elio Johannes König-Tarasevich,
Date and place of birth: January 31st, 1985
in Karlsruhe, Germany
Sex: male
Marital status: married
Citizenship: German
Fluent in German, Italian, English, French, Russian

Max-Planck-Institute
for Solid State Research
Heisenbergstraße 1
70569 Stuttgart
Germany
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RESEARCH INTERESTS

Theoretical condensed matter physics with an emphasis on transport and quantum materials, emergent complex order, highly entangled states of matter, and quantum criticality in disordered, correlated, and topological systems.

Quantum information theory and quantum sensing applied to solid state physics.

Recent focus: Topological Qbits, quantum spin liquids, fractionalization, unconventional superconductivity, twistronics, Weyl semimetals, linear and non-linear optical and electronic responses in Berry curved materials.

EMPLOYMENT HISTORY

Aug. 15th, 2020 – present

Research group leader

topics: strongly correlated quantum materials, condensed matter theory for quantum information science

Dept. for Quantum Many-Body Theory,
Max-Planck-Institute for Solid State Research,
Stuttgart, Germany
(Dept. head: Walter Metzner)

Feb. 21st, 2017 – July 31st, 2020

Postdoctoral researcher

topics: iron-based superconductors, magic-angle semimetals, spinor Bose gases

Department of Physics and Astronomy,
Rutgers University, Piscataway (NJ) USA
(supervisor: Piers Coleman)

Sep. 1st, 2015 – Feb. 20th, 2017

Research Associate

topics: anomalous quantum transport and optics

Physics Department, University of
Wisconsin-Madison, Madison (WI) USA
(supervisor: Alex Levchenko)

July 1st, 2011 – Aug. 31st, 2015

PhD student (later: research staff)

topics: Anderson localization, topological insulators, disordered superconductors

Institute for Condensed Matter Theory,
and Institute for Nanotechnology, Karlsruhe
Institute of Technology, Germany
(supervisor: Alexander D. Mirlin)

ACADEMIC EDUCATION

July 1st, 2011 – July 14th, 2014	PhD in physics Karlsruhe Institute of Technology (KIT), Germany <i>Supervisor:</i> Prof. Alexander D. Mirlin <i>Thesis title:</i> Interaction and disorder effects in topological insulators
Oct 1st, 2005 – June 14th, 2011	Diplom in physics Karlsruhe Institute of Technology (KIT), Germany <i>Thesis advisor:</i> Prof. Alexander D. Mirlin <i>Thesis title:</i> Metal-Insulator Transition in 2D Disordered Bipartite Systems
Apr. 1st, 2007 – Dec. 7th, 2010	Studium generale Karlsruhe Institute of Technology (KIT), Germany
Sep 1st, 2008 – Aug. 31st, 2009	Erasmus exchange student Università di Bologna, Italy

PUBLICATIONS

google scholar: [Elio König](#) (605 citations, h-index 15), ResearcherID: [N-1375-2018](#) (420 citations, h-index 13).

Preprints

41. “Triplet pairing, orbital selectivity and correlations in Iron-based superconductors”
Y. Komijani, E.J. Koenig, P. Coleman,
arXiv:2302.09702 (2023).
40. “Mott insulators with boundary zeros”
N. Wagner, L. Crippa, A. Amaricci, P. Hansmann, M. Klett, E.J. König,
T. Schäfer, D. Di Sante, J. Cano, A. Millis, A. Georges, G. Sangiovanni,
arXiv:2301.05588 (2023).
39. “Fluctuation-driven excess noise near superconducting phase transition”
J. Kwak, E. Pellett, E.J. König, A. Levchenko,
arXiv:2212.13692 (2022).
38. “Quasiperiodic circuit quantum electrodynamics.”
T. Herrig, J.H. Pixley, E.J. König, R.P. Riwar,
arXiv:2212.12382 (2022).
37. “Lifshitz transition in the phase diagram of two-leg t-J ladder systems at low filling.”
S. Bollmann, A. Osterkorn, E. J. König, S. R. Manmana,
arXiv:2211.13065 (2022).
36. “Drag resistance mediated by quantum spin liquids.”
R. Mazzilli, A. Levchenko, E. J. König,
arXiv:2211.08421 (2022).
35. “Exact solution of the topological symplectic Kondo problem.”
E.J. König, A.M. Tsvelik,
arXiv:2211.00034 (2022).
34. “Topological symplectic Kondo effect.”

Guangjie Li, E.J. König*, J.I. Väyrynen*,
arXiv:2210.16614 (2022).

Peer-reviewed publications

33. “The low energy excitation spectrum of magic-angle semimetals.”
Jinjing Yi, E.J. König, J. H. Pixley,
Physical Review B 106, 195123 (2022).
32. “Interplay of charge and spin fluctuations in a Hund’s coupled impurity”
V. Drouin-Touchette, E. J. König, Y. Komijani, P. Coleman,
Phys. Rev. Research 4, L042011 (2022).
31. “Topologically enabled superconductivity.”
M. A Rampp, E. J. König, J. Schmalian,
Phys. Rev. Lett. 129, 077001 (2022).
30. “Interaction-induced velocity renormalization in magic-angle twisted multilayer graphene”
L. Classen, J. H. Pixley, E. J. König,
2D Materials 9 (3), 031001 (2022).
29. “Berry curvature-induced local spin polarisation in gated graphene/WTe heterostructures.”
L. Powalla, J. Kiemle, E.J. König, A. P. Schnyder, J. Knolle, K. Kern,
A. Holleitner, C. Kastl, M. Burghard,
Nature Communications 13, 3152 (2022).
28. “Triplet resonating valence bond theory and transition metal chalcogenides”
E. J. König, Y. Komijani, P. Coleman,
Physical Review B 105, 075142 (2022).
27. “Resistance of 2D superconducting films.”
E.J. König, I.V. Protopopov, A. Levchenko, I.V. Gornyi, A.D. Mirlin,
Phys. Rev. B 104, L100507 (2021).
26. “Frustrated Kondo impurity triad: A toy model of deconfinement.”
E.J. König, P. Coleman, Y. Komijani,
Phys. Rev. B 104, 115103 (2021) [Editor’s suggestion].
25. “Quantum kinetics of anomalous and nonlinear Hall effects in topological semimetals.”
E.J. König, A. Levchenko,
Annals of Physics 435, 168492 (2021).
24. “Emergent moments in a Hund’s impurity.”
V. Drouin-Touchette, E.J. König, Y. Komijani, P. Coleman,
Physical Review B 103, 205147 (2021).
23. “Visualizing the multifractal wavefunctions of a disordered two-dimensional electron gas.”
B. Jäck, F. Zinser, E. J. König, S. N. P. Wissing, A. B. Schmidt, M. Donath,
K. Kern, C. R. Ast,
Phys. Rev. Research 3, 013022 (2021).
22. “Tunneling spectroscopy of quantum spin liquids.”
E.J. König, M.T. Randeria, B. Jäck,
Phys. Rev. Lett. 125, 267206 (2020).
21. “Spin magnetometry as a probe of stripe superconductivity in twisted bilayer graphene.”
E.J. König, P. Coleman, A.M. Tsvelik,
Phys. Rev. B 102, 104514 (2020).
20. “Soluble limit and criticality of fermions in Z2 gauge theories.”

- E.J. König, P. Coleman, A.M. Tsvelik,
Phys. Rev. B 102, 155143 (2020).
19. “Magic-angle semimetals.”
Y. Fu*, E. J. König*, J. H. Wilson*, Y. Z. Chou, J. H. Pixley,
npj Quantum Materials 5, 71 (2020).
 18. “The triplet resonating valence bond state and superconductivity in Hund’s metals.”
P. Coleman*, Y. Komijani*, E. J. König*,
Phys. Rev. Lett. 125, 077001 (2020).
 17. “Magic-angle semimetals with Chiral Symmetry.”
Y. Z. Chou, Y. Fu, J. H. Wilson, E. J. König, J. H. Pixley,
Phys. Rev. B 101 (23), 235121 (2020) [Editor’s suggestion].
 16. “Strongly interacting spin-orbit coupled Bose-Einstein condensates in one dimension.”
S. Saha, E. J. König, J. Lee, J. H. Pixley,
Phys. Rev. Research 2, 013252 (2020).
 15. “Crystalline symmetry protected helical Majorana modes in the iron pnictides.”
E. J. König, P. Coleman,
Phys. Rev. Lett. 122, 207001 (2019).
 14. “Engineering Topological Superlattices and Phase Diagrams.”
P. P. Shibayev*, E. J. König*, M. Salehi, J. Moon, M. G. Han, S. Oh,
Nano Letters 19, 716-721 (2019).
 13. “Gyrotropic Hall effect in Berry-curved materials.”
E. J. König, M. Dzero, A. Levchenko and D. A. Pesin,
Phys. Rev. B 99, 155404 (2019).
 12. “The Coulomb problem in iron based superconductors.”
E. J. König and P. Coleman,
Phys. Rev. B 99, 144522 (2019).
 11. “Renormalization group analysis for the quasi-1D superconductor BaFe₂S₃.”
E. J. König, A. M. Tsvelik and P. Coleman,
Phys. Rev. B 98, 184517 (2018).
 10. “Quantum field theory of nematic transitions in spin orbit coupled spin-1 polar bosons.”
E. J. König and J. H. Pixley,
Phys. Rev. Lett. 121, 083402 (2018).
 9. “Photogalvanic effect in Weyl semimetals.”
E. J. König, H.-Y. Xie, D. A. Pesin, and A. Levchenko,
Phys. Rev. B 96, 075123 (2017).
 8. “Kerr effect from diffractive skew-scattering in chiral $p_x \pm ip_y$ superconductors.”
E. J. König and A. Levchenko,
Phys. Rev. Lett. 118, 027001 (2017).
 7. “Anomalous Hall Effect on the surface of topological Kondo insulators”
E. J. König, P. M. Ostrovsky, M. Dzero, A. Levchenko,
Phys. Rev. B 94, 041403 (R) (2016).
 6. “Universal fidelity near quantum and topological phase transitions in finite 1D systems”
E. J. König, A. Levchenko, N. Sedlmayr,
Phys. Rev. B 93, 235160 (2016).
 5. “Berezinskii-Kosterlitz-Thouless transition in homogeneously disordered superconducting films”
E. J. König, A. Levchenko, I. V. Protopopov, I. V. Gornyi, I. S. Burmistrov,
and A. D. Mirlin,
Phys. Rev. B 92, 214503 (2015) [Editor’s suggestion].

4. “Half-integer quantum Hall effect of disordered Dirac fermions at a topological insulator surface”
E. J. König, P. M. Ostrovsky, I. V. Protopopov, I. V. Gornyi, I. S. Burmistrov, and A. D. Mirlin,
Phys. Rev. B 90, 165435 (2014).
3. “Density of states in a two-dimensional chiral metal with vacancies”
P. M. Ostrovsky, I. V. Protopopov, E.J. König, I. V. Gornyi, A. D. Mirlin, and M. A. Skvortsov,
Phys. Rev. Lett. 113, 186803 (2014).
2. “Interaction and disorder effects in 3D topological insulator thin films”,
E. J. König, P. M. Ostrovsky, I. V. Protopopov, I. V. Gornyi, I. S. Burmistrov, and A. D. Mirlin,
Phys. Rev. B 88, 035106 (2013).
1. “Metal-insulator transition in two-dimensional random fermion systems of chiral symmetry classes”
E. J. König, P. M. Ostrovsky, I. V. Protopopov, and A. D. Mirlin,
Phys. Rev. B 85, 195130 (2012).

Theses

- “Interaction and disorder effects in topological insulators”
E. J. König, PhD Thesis at KIT, Germany (2014).
Supervisor: A. D. Mirlin.
- “Metal-Insulator Transition in 2D Disordered Bipartite Systems”,
E. J. König, Diploma Thesis at KIT, Germany (2011).
Supervisor: A. D. Mirlin

[*equally contributing coauthors]

AWARDS, HONORS, SCHOLARSHIPS, GRANTS

2021	ICAM Support for theory conference at MPI FKF Stuttgart (jointly organized with Th. Schäfer, \$20000)
2018	ICAM QuantEmX junior travel award (\$ 2500)
2014	PhD awarded <i>summa cum laude</i>
2012	Deutscher Akademischer Austauschdienst (short travel award, 2000 €)
2011	Diplom final grade <i>1.0 with distinction</i>
2008-2009	Erasmus (exchange student scholarship, 3000 €)
2004	Abitur final grade <i>1.0</i>

REFERENCES

Piers Coleman	Materials Theory Group, Dept. of Physics and Astronomy Rutgers University 136 Frelinghuysen Road Piscataway, NJ 08854, USA +1 (848) 445-9033 coleman@physics.rutgers.edu
Alex Levchenko	Physics Department 5324 Chamberlin Hall

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Upton, NY 11973-5000, USA
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SERVICE TO THE SCIENTIFIC COMMUNITY

Conference Organization

- 2023 “Strange Metals in Quantum Materials and Quantum Emulators”, Physikzentrum Bad Honnef (Germany) (jointly with Q. Si and C. Pépin)
- 2023 “Correlations in Novel Quantum Materials 2023”, MPI FKF Stuttgart (jointly with L. Classen and Th. Schäfer).
- 2022 “Correlations in Novel Quantum Materials 2022”, MPI FKF Stuttgart (jointly with Th. Schäfer).
- 2021 “Correlations in Novel Quantum Materials 2021”, MPI FKF Stuttgart (on Zoom, jointly with Th. Schäfer).

Refereeing

2021-	Nature Physics
2021-	Science
2019-	Nature Communications
2017-	Physical Review Letters
2016-	Physical Review B
<i>Grant Reviews</i>	
2023-	von Humboldt foundation
2023-	Isreal Science foundation

RECENT AND ONGOING COLLABORATIONS

Theory (this list only includes faculty.)

Piers Coleman,	Rutgers University
Maxim Dzero,	Kent State University
Johannes Knolle,	Technical University Munich
Yashar Komijani,	University of Cincinnati
Alexander Levchenko,	University of Wisconsin-Madison
Alexander Mirlin,	Karlsruhe Institute of Technology
Dmytro Pesin,	University of Virginia
Jedediah Pixley,	Rutgers University
Jörg Schmalian,	Karlsruhe Institute of Technology
Alexei Tsvelik,	Brookhaven National Laboratory
Jukka Väyrynen,	Purdue University
Justin Wilson,	Louisiana State University

Experiment (this list only includes faculty.)

Alexander Holleitner,	Technical University Munich
Berthold Jäck,	Hongkong University of Science and Technology
Klaus Kern,	Max-Planck Stuttgart and EPFL Lausanne
Seongshik Oh,	Rutgers University

SUPERVISION OF STUDENTS

2022-	Kaustubh Roy [Research intern, undergraduate student at IISc Bangalore, 1 draft in preparation]
2021-	Steffen Bollmann [PhD student, 1 joint preprint]
2021-	Raffaele Mazzilli [PhD student, 1 joint preprint]

CO-SUPERVISION OF GRADUATE STUDENTS

2021-	Guangjie Li [w. J. Väyrynen, 1 joint preprint]
2021-	Michael Rampp [w J. Schmalian, 1 joint publication, official Master thesis co-supervisor]
2019-	Jinjing Yi [w J. Pixley, 1 joint preprint]
2018-	Victor Drouin-Touchette [w P. Coleman, 2 joint publications]
2018-2020	Yixing Fu [w J. Pixley, 2 joint publications]
2018-2019	Siddhartha Saha [w J. Pixley, 1 joint publication]

TEACHING EXPERIENCE

Standard curriculum course

<i>University Stuttgart</i>	
Spring term '23	Solid State Theory (together with Dr. Th. Schäfer)
Spring term '22	Solid State Theory (together with Dr. Th. Schäfer)

Specialized lecture courses

<i>Max-Planck-Institute for Solid State Research</i>	
Spring '22	(Symmetry protected) topological order (<i>4 lectures</i>)
Spring term '21	Field Theories of Disordered Condensed Matter Systems (<i>10 lectures</i>)

Teaching of selected lectures within a course

<i>University of Wisconsin-Madison</i>	
Spring term '16	Statistical Mechanics (in substitution of A. Levchenko)
Spring term '16	Classical Mechanics (in substitution of A. Levchenko)

<i>Karlsruhe Institute of Technology</i>	
Summer semester '14	Condensed matter theory II (field theory) (in substitution of A.D. Mirlin)
Summer semester '13	Condensed matter theory II (field theory) (in substitution of A.D. Mirlin)

Organization of assignments and supervision of an exercise class (German “Übungsleiter”)

<i>Karlsruhe Institute of Technology</i>	
Winter semester '14/15	Condensed matter theory I (jointly with N. Kainaris and I.V. Gornyi)
Summer semester '13	Condensed matter theory II (jointly with U. Briskot and I.V. Protopopov)

Teaching assistant (German “Tutor”)

<i>Karlsruhe Institute of Technology</i>	
Winter semester '13/'14	Modern theoretical physics II (Quantum mechanics II)
Winter semester '12/'13	Classical theoretical physics III (Electromagnetism)
Winter semester '11/'12	Classical physics I (Solid state physics)
Winter semester '10/'11	Classical theoretical physics I (Analytical Mechanics I)

ADDITIONAL PROFESSIONAL EXPERIENCE

<i>Extended research visits</i>	
2018	MPI CPfS Dresden (2 weeks)
2015-2016	Long term visitor at Michigan State University (East-Lansing) and University of Michigan (Ann Arbor)
2012	Landau Institute, Moscow, Russia (6 weeks)

<i>Internship</i>	
2005	Institut für Meteorologie und Klimaforschung, Forschungszentrum Karlsruhe, Germany (1 month)

<i>Community Service</i>	
2004-2005	School for physically disabled children Langensteinbach, Germany

INVITED SEMINAR, SUMMER SCHOOL & CONFERENCE TALKS

Feb. 7th, 2023 “Emergence of Quantum Order”	Colloquium, University of Houston (TX), USA,
Feb. 2nd, 2023 “Emergence of Quantum Order”	Condensed Matter Theory Seminar, University of Wisconsin-Madison, USA,
Dec. 15th, 2022	Condensed Matter Theory Seminar, Ruhr University Bochum, Germany, “Strong quantum fluctuations in triplet superconductors”
Dec. 8th, 2022	Scientific talk in occasion of the director’s board meeting, Max-Planck-Institute for Solid State Research, Stuttgart, Germany, “Emergence of Quantum Order”
Dec. 1st, 2022	Condensed Matter Theory Seminar, Max-Planck-Institute for the Physics of Complex Systems, Dresden, Germany, “Symplectic Topological Kondo effect.”
Nov. 18th, 2022	Internal conference of the Max-Planck-Institute for Solid State Research, Ringberg, Germany, “Symplectic Topological Kondo effect.”
Nov. 8th, 2022	Condensed Matter Theory seminar, University of Luxembourg, “Symplectic Topological Kondo effect.”
Nov. 3rd, 2022	International conference on “frontiers in physics of disordered and interacting quantum systems”, Karlsruhe Germany, “Symplectic Topological Kondo effect.”
July 18th, 2022	Seminar, Imperial College, London, UK, “Quantum Materials: Topology and Entanglement”
July 11th, 2022	Condensed Matter Theory seminar, U Leipzig, Germany “Entanglement and topology in triplet superconductors”
June 13-17th, 2022	International conference “Condensed Matter in the City 2022”, London, UK “Topological order and quantum materials” “Entanglement and topology in triplet superconductors”
June 7th, 2022	Summer school of SFB 1143 “Correlated Magnetism: From Frustration to Topology”, Klingenberg, Germany “Topological Order and Quantum Materials”
May 12th, 2022	Asian-European workshop on “SU(N) physics in condensed matter and cold atoms” (Kyoto/Zoom) “Quantum order in SU(N) impurity models”
May 6th, 2022	FruMag colloquium and Theoretical Physics Seminar, TU Dresden, Germany “Detecting and destroying quantum spin liquids with metallic leads”

Jan. 26th, 2022	Theoretical Physics Seminar, University of Manchester, UK
Dec. 17th, 2021	“Topological (non-)linear transport and optics.” Condensed Matter Theory Seminar, LMU Munich, Germany
Nov. 22nd, 2021	“Detecting and destroying quantum spin liquids with metallic leads” Internal conference of the Max-Planck-Institute for Solid State Research, Ringberg, Germany
Oct. 7th, 2021	“Interaction induced velocity renormalization in magic-angle twisted trilayer graphene” Young researchers workshop: Topology in modern condensed matter physics and beyond, TU Munich, Germany
Sep. 14th, 2021	“Topological non-linear transport and optics” Summer School: Emergent Phenomena in Quantum Many-Body Systems, SPICE (University Mainz), Germany
Apr. 26th, 2021	“Topological Order and Quantum Materials” Condensed matter theory seminar, TU Munich, Germany
Dec. 17th, 2020	“Frustration and superconductivity in three orbital models” Condensed matter theory seminar, Karlsruhe Institute of Technology, Germany
Dec. 15th, 2020	“Soluble limit and criticality of fermions in Z2 gauge theories” Condensed Matter Physics seminar, University Lublin, Poland
Apr. 10th, 2020	“Magic-angle Semimetals” Landau Institute for Theoretical Physics, Chernogolovka, Russia
Feb. 21st, 2020	“Soluble limit and criticality of fermions in Z2 gauge theories” Harvard Quantum Initiative Seminar, Harvard University, USA
Jan. 26th, 2020	“Magic-angle Semimetals” Condensed Matter Seminar, Technion, Haifa, Israel
Jan. 22nd, 2020	“Macroscopic entanglement in strongly correlated superconductors” Condensed Matter Seminar, Ben Gurion University, Be’er Sheva, Israel
Jan. 21st, 2020	“Macroscopic entanglement in strongly correlated superconductors” Condensed Matter Seminar, Hebrew University, Jerusalem, Israel
Jan. 19th, 2020	“Macroscopic entanglement in strongly correlated superconductors” Condensed Matter Seminar, Weizmann Institute, Rehovot, Israel

Jan. 16th, 2020	“Macroscopic entanglement in strongly correlated superconductors” Condensed Matter Seminar, Tel Aviv University, Israel
Sep. 30th, 2019	“Macroscopic entanglement in strongly correlated superconductors” Condensed Matter Seminar, Kent State University, USA
Sep. 26th, 2019	“Magic-angle Semimetals” Symposium on “theory of novel materials”, MPI-FKF Stuttgart, Germany
Mar. 21st, 2019	“Magic-angle Semimetals” Condensed matter theory seminar, Karlsruhe Institute of Technology, Germany
Dec. 19th, 2018	“Magic-angle semimetals” Condensed matter theory seminar, ETH Zurich, Switzerland
June 14th, 2018	“Magic-angle semimetals” Quantum optics and statistics theory seminar, University Freiburg, Germany
June 12th, 2018	“Quantum field theory of nematic transitions in spin orbit coupled spin-1 polar bosons” Condensed matter theory seminar of the Max-Planck institute for solid state research, Stuttgart, Germany
June 6th, 2018	“Anomalous transport in topological materials” Condensed matter theory seminar, Free University of Berlin, Germany
May 24th, 2018	“Quantum field theory of nematic transitions in spin orbit coupled spin-1 polar bosons” Theory seminar of the BEC center, University of Trento, Italy
May 18th, 2018	“Quantum field theory of nematic transitions in spin orbit coupled spin-1 polar bosons” Condensed matter theory seminar, University of Cologne, Germany
May 14th, 2018	“Quantum field theory of nematic transitions in spin orbit coupled spin-1 polar bosons” Theory seminar, University of Wuerzburg, Germany
May 4th, 2018	“Anomalous transport in topological materials” Special LASSP theory seminar, Cornell University, Ithaca, USA
Apr. 26th, 2018	“Quantum field theory of nematic transitions in spin orbit coupled spin-1 polar bosons” R.G. Herb Condensed matter seminar, University of Wisconsin-Madison, USA
Mar. 2nd, 2017	“Quantum field theory of nematic transitions in spin orbit coupled spin-1 polar bosons” Condensed matter seminar, University of Iowa, USA
Nov. 9th 2016	“Vortices in dirty superconducting films” Condensed matter theory seminar, University Leiden, Netherlands

- Sep. 20th, 2016 “Anomalous Hall effect in topological insulators and superconductors”
Condensed matter theory seminar, University Basel, Switzerland
- June 24th, 2016 “Anomalous Hall effect in topological insulators and superconductors”
Condensed matter theory seminar, University of Cologne, Germany
- Feb. 26th, 2016 “Anomalous Hall effect in topological insulators and superconductors”
Seminar of the computational condensed matter group, University of Michigan, USA
- Dec. 10th, 2014 “Universal fidelity near quantum and topological phase transitions in finite 1D systems”
Seminar in the department of Quantum Mesoscopics, Landau institute for theoretical physics, Chernogolovka, Russia
- July 2nd, 2014 “Half-integer quantum Hall effect of disordered Dirac fermions at a topological insulator surface”
Hard Condensed Matter Theory Seminar, University Mainz, Germany
- Nov 2013 “Disordered surfaces of 3D topological insulators: interactions and/or strong magnetic field”
Condensed matter seminar of CEA and CNRS, Grenoble, France
- May 14th, 2013 “Half-integer quantum Hall effect of a single disordered Dirac fermion”
Mesoscopic physics seminar, University Wuerzburg, Germany,
- July 25th, 2012 “Interaction and disorder effects in 3D topological insulators”
Condensed matter theory seminar of the Max-Planck institute for solid state research, Stuttgart, Germany
- Oct. 8th, 2012 “Interaction and disorder effects in 3D topological insulator thin films”
BMBF Workshop “Topological Materials for Nano-electronics”, MPI-FKF Stuttgart
- June 7th, 2012 “Interaction and disorder effects in topological insulator thin films”
Condensed matter seminar of the Landau institute for theoretical physics held at the Kapitsa institute for physical problems, Moscow,
- Mar. 21st, 2012 “Interaction and disorder effects in 3D topological insulator thin films”
Interdisciplinary Workshop on Topological States of Matter, Freiburg
- Mar. 2nd, 2012 “Metal-insulator transition in 2D random fermion systems of chiral symmetry classes”
Seminar in the department of Quantum Mesoscopics, Landau institute for theoretical physics, Chernogolovka, Russia

“Metal-insulator transition in 2D random fermion systems of chiral symmetry classes”

CONFERENCE CONTRIBUTIONS

Talks

- Mar. 17th, 2022 APS March Meeting, Chicago (IL)
“Interaction induced velocity renormalization in magic-angle twisted trilayer graphene”
- Apr. 16th, 2021 Korrelationstage 2021, MPI PKS Dresden (*virtual conference*)
“Detecting and destroying quantum spin liquids with metallic leads”
- Mar. 15th, 2021 March meeting of the American Physical Society (*virtual conference*)
“Tunneling spectroscopy of quantum spin liquids”
- Aug. 16th, 2019 Workshop on “Quantum Criticality and Topology in Correlated Electron Systems” at MPI PKS Dresden, Germany.
“Spin-orbit coupled spin-1 polar bosons”
- Aug. 6th, 2019 Workshop on “Quantum Criticality and Topology in Correlated Electron Systems” at MPI PKS Dresden, Germany.
“Crystalline symmetry protected helical Majorana modes in the iron pnictides”
- Mar. 6th, 2019 March meeting of the American Physical Society, Boston, USA.
“Mixed phase of iron based Dirac superconductors.”
- Mar. 5th, 2018 March meeting of the American Physical Society, Los Angeles, USA.
“L.S pairing for the iron based superconductors.”
- Mar. 13th, 2017 March meeting of the American Physical Society, New Orleans, USA.
“Kerr effect from diffractive skew scattering in chiral px+ipy superconductors”
- Mar. 15th, 2016 March meeting of the American Physical Society, Baltimore, USA.
“Anomalous Hall Effect on the surface of topological Kondo insulators”
- Mar. 28th, 2012 Spring meeting of the German Physical Society, Berlin, Germany.
“Interaction and disorder effects in 3D topological insulator thin films”
- Mar. 17th, 2011 Spring meeting of the German Physical Society, Dresden, Germany.
“Metal-insulator transition in 2D disordered bipartite systems”

Posters

- Aug. 6th-10th, 2018 ICTP workshop on correlations in Electron systems
“Orbital physics in low-dimensional Fe-based superconductors”, Trieste, Italy.
- Jan. 14th-20th, 2018 Aspen winter conference “High temperature superconductivity”, USA.
“Orbital physics in low-dimensional Fe-based superconductors”
- July, 17th-21th, 2017 SCES 2017 Prague, Czech Republic.
“Orbital physics in low-dimensional Fe-based superconductors”
- Feb. 15th-21st, 2016 Aspen winter conference “Topological Quantum Matter”, USA
“Universal fidelity near quantum and topological phase transitions in finite 1D systems”, and “Anomalous Hall Effect on the surface of topological Kondo insulators”
- Jan. 12th-15th, 2015 International Workshop on “Non-equilibrium Dynamics of Low-dimensional Electronic Systems”, Leipzig, Germany.

- “Disordered surfaces of 3D topological insulators: interactions and/or strong magnetic field”
- Mar. 11th-14th, 2013 International Workshop on “Recent Progress and Perspectives in Scaling, Multifractality, Interactions, and Topological Effects Near Anderson Transitions”, Dresden, Germany.
- “Disordered surfaces of 3D topological insulators: interactions and/or strong magnetic field”
- Sep. 16th-20th, 2013 International Workshop on “Topology and Nonequilibrium in Low-Dimensional Electronic Systems”, Dresden, Germany.
- “Interaction and disorder effects in 3D topological insulator thin films”
- July 8th -Aug. 2nd, 2013 “Boulder summer school”, Boulder, USA.
- “Interaction and disorder effects in 3D topological insulator thin films”
- June 23rd-29th, 2012 “NanoPeter”, St. Petersburg, Russia.
- “Interaction and disorder effects in 3D topological insulator thin films”
- June 17th-23rd, 2012 “Meso2012”, Chernogolovka, Russia.
- “Interaction and disorder effects in 3D topological insulator thin films”
- Mar. 31st-Apr.3rd, 2012 “Electronic correlations and disorder in quantum matter”, Karlsruhe, Germany.
- “Interaction and disorder effects in 3D topological insulator thin films”
- Sep. 11th-14th, 2011 “CFN summer school on Nanoelectronics”, Bad Herrenalb, Germany.
- “Metal-insulator transition in 2D disordered bipartite systems”