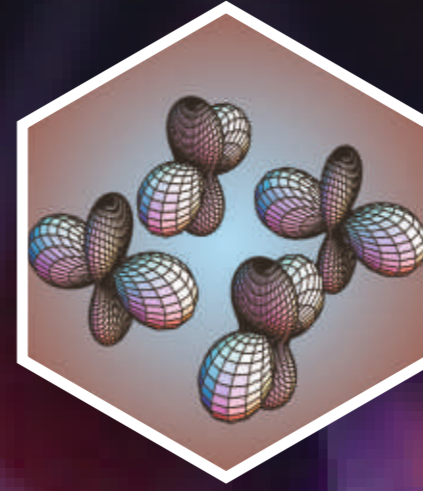
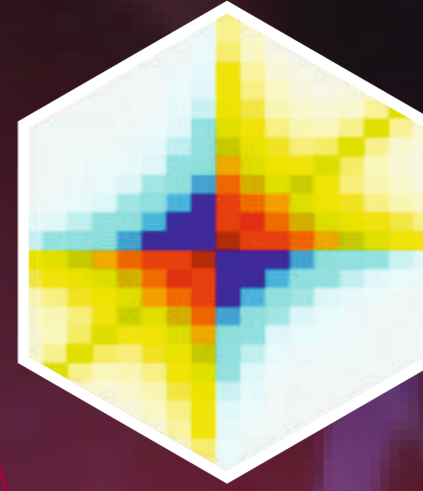


Workshop on the theory of condensed quantum matter

Correlations in Novel Quantum Materials

June 20–23, 2022 • Stuttgart, Germany

Max Planck Institute for Solid State Research



Program • Lecture Hall 2D5

Monday, June 20, 2022

CEDT AM 08:00	Registration
08:45	Thomas Schäfer and Elio König Max Planck Institute for Solid State Research, Stuttgart Welcome
Session 1 Quantum Criticality and Superconductivity	
09:00	Andrey Chubukov University of Minnesota Interplay Between Superconductivity and Non-Fermi Liquid at a QCP in a Metal
09:45	Premala Chandra Rutgers University Superconductivity in Dilute Quantum Critical Polar Metals
10:15	Coffee Break
10:45	Annica Black-Schaffer Uppsala University Nematic d-wave superconductivity in magic-angle twisted bilayer graphene from atomistic modeling
11:15	Jörg Schmalian Karlsruhe Institute of Technology Superconductivity without quasiparticles: Quantum critical Eliashberg theory and its holographic dual
11:45	Lunch Break
CEDT PM 01:15	Discussion
Session 2 Dynamical Response Functions and Vertices	
02:00	Jan von Delft Ludwig-Maximilians-Universität, Munich Computing Local Multipoint Correlators Using the Numerical Renormalization Group
02:45	Fabian Kugler Rutgers University Spectral Representations for Multipoint Correlators and the Real-Frequency Four-Point Vertex
03:15	Coffee Break
03:45	Alessandro Toschi TU Wien Fluctuation diagnostics in broken-symmetry phases: Identification of the pairing glue in d-wave superconductors
04:15	Georg Rohringer University of Hamburg Two-particle self-consistency in diagrammatic extensions of the dynamical mean field theory
04:45	Poster Ads
05:30	Poster Session

Tuesday, June 21, 2022

Session 3 Frustrated magnetism and local moment formation	
CEDT AM 09:00	Natalia Perkins University of Minnesota Disorder in the Kitaev spin liquid
09:45	Lukas Janssen TU Dresden Quantum criticality in frustrated magnets
10:15	Coffee Break
10:45	Massimo Capone International School for Advanced Studies, Trieste Hund, phonons, Hubbard U: Friends or foes?
11:15	Alexei Tsvelik Brookhaven National Laboratory A solvable 3D Kondo lattice exhibiting odd-frequency pairing and order fractionalization
11:45	Lunch Break
CEDT PM 01:15	Discussion
Session 4 Transport in Correlated Quantum Materials	
02:00	Sean Hartnoll University of Cambridge Joule Heating in Bad Metals
02:45	Alex Levchenko University of Wisconsin-Madison Thermoelectric anomaly and hydrodynamic paradox in viscous electronics
03:15	Coffee Break
03:45	Achim Rosch University of Cologne Dynamics of vortices in perturbed Kitaev models
04:15	Jedediah Pixley Rutgers University Twisting nodal superconductors
04:45	Free Discussion
06:00	Public interdisciplinary panel discussion Emergence 2.0: Philosophy, Quantum Materials, and Artificial Intelligence

Wednesday, June 22, 2022

Session 5 Numerical Approaches to Quantum Materials	
CEDT AM 09:00	Karsten Held TU Wien New developments in nickelate superconductors
09:45	Philipp Hansmann Friedrich-Alexander-Universität Erlangen-Nürnberg From three to one band models for high T_c cuprates: A closer look at single- and two particle observables
10:15	Coffee Break
10:45	Ronny Thomale University of Würzburg Kagome metals
11:15	Michel Ferrero Ecole Polytechnique, Paris Spin and charge response and pseudogap in the 2D Hubbard model
11:45	Lunch Break
CEDT PM 01:30	Poster Discussion
03:00	Departure to Excursion and Conference Dinner Meeting point in front of the main entrance
06:00	Discussion on the 'Future of Novel Quantum Materials'
07:00	Conference Dinner
09:00	Discussion

Thursday, June 23, 2022

Session 6 (Un)Conventional Superconductivity	
CEDT AM 09:00	Piers Coleman Rutgers University Order Fractionalization and Neutral Fermi Surfaces
09:45	Lilia Boeri University of Rome In-silico Synthesis of new high- T_c conventional Superconductors
10:15	Coffee Break
10:45	Michael Scherer Ruhr-Universität Bochum Chiral superconductivity with enhanced quantized Hall responses in moiré transition metal dichalcogenides
11:15	Ilya Eremin Ruhr-Universität Bochum Non-local nematicity, collective modes and non-linear dynamics in nematic unconventional superconductors
11:45	Lunch Break
CEDT PM 01:15	Discussion
Session 7 Strong Correlations in Low Dimensions	
02:00	Alexander Lichtenstein University of Hamburg Local Plaquette Physics as Key Ingredient of High-Temperature Superconductivity in Cuprates
02:45	James LeBlanc Memorial University of Newfoundland Single- and two-particle properties of the weakly interacting two-dimensional Hubbard model in proximity to the van Hove singularity
03:15	Coffee Break
03:45	Giorgio Sangiovanni University of Würzburg Mott insulators with boundary zeros
04:15	Friedrich Krien TU Wien Bosons lost in translation
04:45	Elio König and Thomas Schäfer Max Planck Institute for Solid State Research, Stuttgart Closing remarks and farewell