



HOME DIRECTORY ACTIVITIES PROPOSE ACTIVITY APPLY FOR VISITORS TALKS, WIKIS & PAPERS OUTREACH

KITP Conference: Order, Fluctuations, and Strong Correlations: New Platforms and Developments

(Jul 31 - Aug 4, 2017)

Coordinators: Erez Berg, Rafael Fernandes, Eun-Ah Kim, and Steven A. Kivelson
Scientific Advisors: James Analytis and Brad Ramshaw

Monday, Jul 31, 2017

Intertwined order I – Nematicity and Superconductivity, Chair: Robert Birgeneau (Berkeley)

8:50am Lars Bildsten (KITP)	Welcome
9:00am Robert Birgeneau (Berkeley)	Opening remarks
9:10am Anna Boehmer (Ames Lab)	FeSe under pressure -- Towards universality of phase diagrams in iron-based superconductors?.
9:40am Abhay Pasupathy (Columbia)	Interplay between superconductivity and nematic fluctuations in the pnictides
10:25am	Morning Break

Nematicity and Superconductivity

11:00am Maxim Kohdas (Hebrew U)	Interplay and competition between the magnetism, superconductivity and orbital order in Fe-based superconductors
11:45am Steven White (Irvine)	Striped Ground states in the Hubbard model.
12:30pm	Lunch Break

Intertwined order II – Pseudogap and Order, Chair: Chandra Varma (UC Riverside)

2:00pm Chandra Varma (UC Riverside)	Opening remarks
2:10pm Makoto Hashimoto (Stanford)	Concomitant and rapid growth of pseudogap, superconductivity, and electron-phonon coupling near the critical doping in Bi2212.
2:40pm Louis Taillefer (Sherbrooke)	Thermodynamic signature of quantum criticality in cuprates
3:25pm	Afternoon Break
4:00pm Greg Boebinger (Mag Lab)	An overview of evidence for a quantum critical point underlying the high-temperature superconducting dome.
4:45pm David Hsieh (Caltech)	Signatures of a Multipolar Nematic Fluid in Cd ₂ Re ₂ O ₇

Tuesday, Aug 01, 2017

Novel Engineered Structures, Chair: Dung-Hai Lee (Berkeley)

9:00am Dung-Hai Lee (Berkeley)	Opening remarks
9:10am Jian Kang (Minnesota)	Interplay Between Nematicity and Superconductivity in Bulk and Thin Films of FeSe.
9:40am Hong Yao (Tsinghua)	Sign-problem-free QMC studies of the cuprates, FeSe/STO, and interacting topological superconductors.
10:25am	Morning Break
11:00am Yoshi Iwasa (Tokyo)	Highly crystalline 2D superconductivity induced by ionic gating
11:45am Yi-Ting Hsu (Cornell)	Topological superconductivity in monolayer transition metal dichalcogenides.
12:15pm	Lunch Break

Nematic Phases, Chair: Eduardo Fradkin (UIUC)

2:00pm Eduardo Fradkin (UIUC)	Opening Remarks
2:10pm Yuji Matsuda (Kyuto U)	Thermodynamic evidence for a nematic phase transition at the onset of the pseudogap in Y123 and Hg1201
2:55pm Kyungmin Lee (OSU)	Pomeranchuk instability of composite Fermi liquid.
3:25pm Laimei Nie (Stanford)	Vestigial nematicity from charge and/or spin order in the cuprates
3:55pm	Afternoon Break
4:15pm Mellika Randeria (Princeton)	Imaging Landau orbits to observe a nematic quantum Hall phase

4:45pm Hari Manoharan (Stanford) Flatbands in Designer Quantum Matter

5:30pm

RECEPTION

6:00pm

SPECIAL EVENTS DINNER

8:00pm

SHUTTLE TO BWSCI

Wednesday, Aug 02, 2017

Metallic Quantum Criticality, Chair: Andrey Chubukov (Minnesota)

9:00am Andrey Chubukov (Minnesota) Opening Remarks

9:10am Ian Hayes (Berkeley)

The Hall effect in the Non-Fermi Liquid Phenomenology of Ba-122.

9:40am Sung-Sik Lee (McMaster)

Exact critical exponents for the antiferromagnetic quantum critical metal in two dimensions

10:25am

Morning Break

11:00am Yoni Schattner (Weizmann)

Quantum Monte Carlo studies of quantum critical metals.

POSTER SESSION

12:15pm

Lunch Break

3:00pm

SHUTTLE AVAILABLE TO BWSCI

Thursday, Aug 03, 2017

Spin Liquids, Chair: Senthil Todadri (MIT)

9:00am Senthil Todadri (MIT)

Opening Remarks

9:10am Lucile Savary (MIT)

Superconductivity in spin-orbit coupled semimetals

9:40am Young Lee (Stanford)

Two studies in two-dimensional quantum magnets: spin liquids and intertwined order

10:30am

Morning Break

11:00am Liang Fu (MIT)

Topology of Decaying Quasiparticles in Semimetals and Cuprates.

11:45am Hidenori Takagi (MPI-Stuttgart)

Quantum spin liquid on honeycomb lattice

12:00pm

Lunch Break

Unconventional Quantum Fluids and criticality, Chair: Joerg Schmalian (karlsruhe)

2:00pm Joerg Schmalian (Karlsruhe)

Opening Remarks

2:10pm Nick Breznay (Berkeley)

Particle-hole symmetry in the metallic phase of disordered 2D superconductors

2:40pm Sri Raghu (Stanford)

Self-duality and metallic phases near the 2d superconductor-insulator transition

3:25pm

Afternoon Break

4:00pm Sean Hartnoll (Stanford)

An upper bound on transport

4:45pm Gilbert Lozarich (Cambridge)

Electron pairing near ferromagnetic and ferroelectric quantum phase transitions

5:30pm

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SHUTTLE TO BWSCI

Friday, Aug 04, 2017

Unconventional Transport Regimes, Chair: Subir Sachdev (Harvard)

9:00am Subir Sachdev (Harvard)

Opening Remarks

9:10am Philip Kim (Harvard)

Unusual Quasiparticle Correlation in Graphene

9:55am Ivan Bozovic (BNL)

Rotational-symmetry-breaking transport in cuprates

10:40am

Morning Break

11:00am Kamran Behnia (CNRS)

Metallicity in absence of well-defined quasi-particles in strontium titanate.

11:45am Gabi Kotliar (Rutgers)

Shining light on the transport properties of correlated electron systems.

12:30pm

Lunch Break

Intertwined order III – Density waves and SC, Chair: John Tranquada (BNL)

2:00pm John Tranquada (BNL)

Opening Remarks

- 2:10pm Steven Edkins (Cornell) Discovery of a Cooper-Pair Density Wave in Cuprates.
2:40pm Johan Chang (Zurich) Three-dimensional competition between superconductivity and charge-density-wave order in YBCO.
- 3:25pm **Afternoon Break**
- 4:00pm Tom Devereaux (Stanford) Numerical evidence of fluctuating stripes in the Hubbard model
4:45pm Philip Moll (MPIPKS) Emergent one-dimensionality in three-dimensional heavy fermion metals: The extreme transport anisotropy in CeRhIn5 and CeIrIn5
- 5:30pm **SHUTTLE TO BWSCI*Also available to SB Airport and SB Airbus, Goleta location. (See Registration Desk before Friday to sign up.)**