

**AbrahamsFest: New Horizons in Disordered and Interacting Quantum Materials  
October 11-12, 2019**

**Friday, October 11 – Physics and Astronomy Building – Room 330W**

8.30 AM Breakfast and Registration

9.00 Conference Opening

**Session 1**

**Session Chair: Piers Coleman**

9.10-9.50 Peter Wölfle (KIT)  
*Quasiparticles in Fermi systems at criticality*

9.50-10.30 Kristjan Haule (Rutgers)  
*Electronic Structure Calculations in Correlated Materials with Chemical Accuracy*

10.30-11.00 Break

**Session Chair: Doug Scalapino**

11.00-11.40 Zachary Fisk (UC Irvine)  
*The Chemistry of Superconducting Materials*

11.40-12.20 Silke Buehler Paschen (TU. Vienna)  
*New directions in heavy fermion quantum criticality*

12.20-13.00 Chandra Varma (UC Riverside)  
*Linear in  $T$  and linear in  $H$  resistivity and other mysteries in cuprates, Heavy Fermions and Fe-based compounds*

13.00-14.30 Lunch

**Session 2**

**Session Chair: Sasha Balatsky**

14.30-15.10 Frank Steglich (MPI, Dresden)  
*Unconventional superconductivity and quantum criticality in rare-earth-based heavy fermions*

15.10-15.50 Laura Greene (NHMFL, FSU)  
*Exotic Pairing in the Heavy-fermion Superconductor CeCoIn<sub>5</sub>*

15.50-16.20 Break

**Session Chair: Premi Chandra**

16.20-17.00 Dima Khmel'nitskii (Cambridge U)  
*A Critical Point of an Isomorphic Phase Transition in Solids with Disorder*

17.00-17.40 Myriam Sarachik (CUNY)  
*SURPRISE: Just because you think you're heading toward a quantum phase transition does not mean you will get there*

Evening: Informal dinner arrangements

**Saturday, October 12 - Rutgers University Inn and Conference Center**

8.30 AM Breakfast

8.50 Day 2 Opening

**Session 3**

**Session Chair: Gabi Kotliar**

9.00-9.40 Steven Kivelson (Stanford U.)  
*Anomalous metals - failed superconductors*

9.40-10.20 Vladimir Dobrosavljevic (NHMFL, FSU)  
*Landau Theory for Disorder-Driven Metal-Insulator Transitions in Deformable "Media"*

10.20-10.50 Conference Photo and Break

**Session Chair: Natan Andrei**

10.50-11.30 Srinivas Raghu (Stanford U/SLAC)  
*Fermion zero-modes and the half-filled Landau level*

11.30-12.10 Sergey Savrasov(UC Davis)  
*Topological Phase Transitions in UNiSn*

12.10-12.50 Duncan Haldane (Princeton U)  
*Quantum geometry and topology*

12.50-14.10 Lunch

**Session 4**

**Session Chair: Andrei Ruckenstein**

14.10-14.40 Gabriel Aeppli(ETH/PSI)  
*More and less localization*

14.40-15.20 Peter Littlewood(U. Chicago)  
*Elastic control of the Mott transition*

15.20-16.00 Break

**Session Chair: Qimiao Si**

16.00-16.40 Ming Yi (Rice U.)  
*Orbital physics in iron chalcogenide superconductors*

16.40-17.20 Stuart Brown (UCLA)  
*A new look at unconventional superconductivity in Sr<sub>2</sub>RuO<sub>4</sub>*

17.20-18.00 Patrick Lee (MIT)  
*Pseudo-gap as fluctuating pair density wave in under-doped Cuprates*

18.30 Cocktail Reception

19.00 Banquet in honor of Elihu Abrahams