

**KAVLI INSTITUTE FOR THEORETICAL PHYSICS**  
**www.kitp.ucsb.edu**

**KITP Conference: Topological Quantum Matter**

(Oct 17-21, 2016)

**Coordinators: Ignacio Cirac, Lukasz Fidkowski, Ashvin Vishwanath, and Cenke Xu**  
**Scientific Advisors: Anton Kapustin and T. Senthil**

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**Monday, Oct 17, 2016**

**Session (Theory Overview), Chair: Cenke Xu (UCSB)**

8:50am	Lars Bildsten (KITP)	Welcome
9:00am	T. Senthil (MIT)	Topological, Gapless, and Critical Matter: More and the Same
9:45am	Nathan Seiberg (IAS, Princeton)	2+1d duality
10:30am		<b>Morning Break</b>
11:00am	Duncan Haldane (Princeton)	Quantum geometry and Composite Fermi liquid states in a partially filled Landau Level
11:45am	Jason Alicea (Caltech)	Milestones Toward Majorana-based Quantum Computing
12:30pm		<b>Lunch Break</b>

**Session (Topological Semimetals), Chair: Jason Alicea (Caltech)**

2:00pm	Dima Pesin (University of Utah)	Chiral Magnetic Effect and Natural Optical Activity in Metals With or Without Weyl Points
2:45pm	Elena Hassinger (Max Planck Institute)	Fermi Surface Topology and Chirality in Weyl Semimetals
3:30pm		<b>Afternoon Break</b>
4:00pm	Nai Phuan Ong (Princeton)	The Chiral Anomaly in the Dirac Semimetal Na <sub>3</sub> Bi and in the Half Heusler GdPtBi
4:45pm	Jen Cano (Princeton)	Beyond Weyl and Dirac Fermions
5:30pm		<b>SHUTTLE TO BWSCI</b>

**Tuesday, Oct 18, 2016**

**Session (Dualities and Half Filled Landau Level), Chair: Ashvin Vishwanath (Harvard)**

9:00am	Andrea Young (UCSB)	Gapped and Gapless Phases of the Half-Filled Landau Level in Bilayer Graphene
9:45am	Max Metlitski (Perimeter Institute)	Particle-Vortex Duality of 2d Dirac Fermion from Electric-Magnetic
10:30am		<b>Morning Break</b>
11:00am	Chong Wang (Harvard)	Revisiting composite fermi liquids
11:45am	Lesik Motrunich (Caltech)	Numerical studies of composite Fermi liquid at $\nu=1/2$
12:30pm		<b>Lunch Break</b>

**Session (theory and experiments), Chair: Eun-Ah Kim (Cornell)**

- 2:00pm Liang Fu (MIT) Fracton Topological Orders  
 2:45pm Jonathan Simon (U. of Chicago) Photonic Landau Levels in Curved Space  
 3:30pm **Afternoon Break**
- 4:00pm Leon Balents (KITP) TBD  
 4:45pm Hae-Young Kee (U. of Toronto) Topological Phases in Correlated Materials with Spin-Orbit Coupling  
 5:30pm **RECEPTION**
- 6:00pm **SPECIAL EVENTS DINNER**
- 8:00pm **SHUTTLE TO BWSCI**

**Wednesday, Oct 19, 2016****Session (Theory), Chair: Xie Chen (Caltech)**

- 9:00am Anton Kapustin (Caltech) Fermionic Phases of Matter and Spin Structures  
 9:45am Dan Freed (U. of Texas) Unitary Invertible Field Theories and Short-Range Entangled Phases  
 10:30am **Morning Break**
- 11:00am Fiona Burnell (U. of Minnesota) Topological Phases Enhanced by Global Anyon-Permuting Symmetries: Constructing Solvable Lattice Models  
 11:45am Maissam Barkeshli (U. of Maryland) Time Reversal and Reflection Symmetry in 2+1 Dimensional SETs  
 12:30pm **Lunch Break**

**Session (Theory and Numerics), Chair: Donna Sheng (CSUN)**

- 2:00pm Andreas Lauchli (University of Innsbruck) Spectroscopy of Conventional and Unconventional Quantum critical Points in 2+1D  
 2:45pm Nohbert Schuch (Max Planck Institute) Tensor Network States for the Study of Strongly Correlated Quantum Systems  
**POSTER SESSION**
- 5:30pm **SHUTTLE TO BWSCI**

**Thursday, Oct 20, 2016****Session (Theory), Chair: Fiona Burnell (U. of Minnesota)**

- 9:00am Masaki Oshikawa (ISSP, U. of Tokyo) Polarization, Gauge Invariance, and Quantum Hall Effect on Lattice  
 9:45am Meng Cheng (Yale) Loop Braiding Statistics and (3+1)d Interacting SPT Phases of Fermions  
 10:30am **Morning Break**
- 11:00am Xie Chen (Caltech) Twisted Gauge Theories in 3D Walker-Wang Models  
 11:45am Michael Hermele (U. of Colorado Boulder) Topological Phases Protected by Point Group Symmetry

12:30pm

**Lunch Break****Session (Numerics)**

2:00pm Yin Chen He (Harvard)

Kagome Spin Liquid, Symmetry Protected  
Topological Phase and Deconfined Criticality

2:45pm Frank Verstraete (University of Vienna)

Matrix Product Operator Representations of Tensor  
Fusion Categories

3:30pm

**Afternoon Break**

4:00pm Mike Zaletel (Princeton)

TBD

4:45pm Donna Sheng (CSUN)

Identifying and Characterizing Topological States by  
Entanglement Information using DMRG

5:30pm

**RECEPTION**

6:00pm

**SPECIAL EVENTS DINNER**

8:00pm

**SHUTTLE TO BWSCI****Friday, Oct 21, 2016****Session (Theory)**9:00am Erez Berg (Weizmann Institute of Science) Beyond Parafermions: Statistics of Defects in  
Non-Abelian Phases

9:45am Andrew Potter (U. of Texas)

Non-Equilibrium Topological Phases in Driven  
Quantum Systems

10:30am

**Morning Break**

11:00am Chetan Nayak (Station Q)

Time Crystal

11:45am Vedika Khemani (Harvard)

Driven Phases of Quantum Matter

12:30pm

**Lunch Break****Session (Theory), Chair: Lukasz Fidkowski (Stony Brook)**

2:00pm Yi-Zhuang You (Harvard)

Bosonic Symmetry Protected Topological States:  
Theory, Numerics, and Experimental Platform

2:45pm Michael Levin (U. of Chicago)

Detecting anomalies in 2D topological phases

3:30pm **CONFERENCE ENDS- SHUTTLE TO BWSCI \*Also available to SB Airport and SB Airbus, Goleta  
location (See Registration Desk to sign up.)**