

KAVLI INSTITUTE FOR THEORETICAL PHYSICS
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3rd EPIQS-TMS alliance workshop on Topological Phenomena in Quantum Materials (TPQM2019)

(Oct 21-25, 2019)

Coordinators: James Analytis, Leon Balents, Cenke Xu
Japanese Organizers: Satoshi Fujimoto, Norio Kawakami, Yoshiteru Maeno, Yuki Shiomi

Monday, Oct 21, 2019

Session Chair: Leon Balents (KITP)

8:50am	Welcome to the KITP
9:00am Joel Moore (Berkeley)	Optical response in topological semimetals
9:40am Kentaro Nomura (Tohoku U)	Spintronics functionalities of topological semimetals
10:20am	Coffee Break
10:50am Yuki Nagai (JAEA)	Non hermitian physics in strongly correlated electron systems
11:30am Kazuhiro Kimura (Kyoto U)	Interaction-driven symmetry protected exceptional torus with many-body chiral symmetry
11:50am Ella Lachman (Berkeley)	Exchange biased Anomalous Hall Effect driven by frustration in a magnetic Kagome lattice
12:10pm Presenters{posters}	Poster Previews
12:25pm	Lunch Break

Session Chair: Yuki Shiomi (U Tokyo)

2:00pm Toshimasa Fujisawa (TUT)	Non-equilibrium states in quantum Hall edge channels
2:40pm Koji Muraki (NTT BRL)	Spin-orbit interaction and topological phase transition in 2D quantum wells
3:20pm	Coffee Break
4:00pm Norio Kawakami (Kyoto U)	Correlation effects in non-Hermitian fermionic systems
4:40pm Takase Shimizu (U of Tokyo)	Landau-Zener mixing of spin-resolved quantum Hall edge channels
5:00pm Jong Yeon Lee (Harvard)	Flat Band Physics in Twisted Double Bilayer Graphene

5:20pm

SHUTTLE TO BWSCI**Tuesday, Oct 22, 2019****Session Chair: Cenke Xu (UCSB)**

- 9:00am Yukio Tanaka (Nagoya U) Odd-Frequency Pairing in Topological superconductor
- 9:40am Takafumi Sato (Tohoku U) Exotic nodal fermions studied by ARPES
- 10:20am **Coffee Break**
- 10:50am Kate Ross (Colo State) Partial Helical Order and Possible Skyrmion-like Topological Defects in Fe₃PO₄O₃
- 11:30am Shuntaro Sumita (Kyoto U) Classification theory of topological crystalline gapless superconductivity
- 11:50am Kazuki Yamamoto (Kyoto U) Non-Hermitian fermionic superfluidity in dissipative ultracold atoms
- 12:10pm **Lunch Break**

Session Chair: Joel Moore (Berkeley)

- 2:00pm David Mandrus (U Tennessee) New Kitaev Materials
- 2:40pm Subir Sachdev (Harvard) Thermal Hall effect in correlated materials
- 3:20pm **Coffee Break**
- 3:50pm Amir Yacoby (Harvard U) Phase Controlled Topological Superconductivity
- 4:40pm POSTER SESSION
- 5:30pm **COCKTAIL RECEPTION**
- 6:00pm **DINNER**
- 8:00pm **SHUTTLE TO BWSCI**

Wednesday, Oct 23, 2019**Session Chair: Subir Sachdev (Harvard U)**

- 9:00am Hae-Young Kee (U Toronto) Exploring topology in van der Waals Mott insulators
- 9:40am Masahito Ueda (U Tokyo) Nonequilibrium many-body dynamics under measurement
- 10:20am **Coffee Break**
- 10:50am Nuh Gedik (MIT) Time resolved probing of photoinduced phase transitions in charge density waves

- 11:30am Kazuaki Takasan (Berkeley) Dielectric breakdown of strongly correlated insulators in one dimension
- 11:50am Cécile Repellin (MIT) Ferromagnetism in narrow bands of moiré superlattices
- 12:10pm **Lunch Break**

Session Chair: Hae-Young Kee (U Toronto)

- 2:00pm Jairo Sinova (U of Mainz) The crystal Hall effect and topological spintronics in antiferromagnets
- 2:40pm Atsushi Tsukazaki (Tohoku U) Thin film devices based on topological materials
- 3:20pm **Coffee Break**
- 3:50pm Ryutaro Yoshimi (RIKEN) Transport properties in MBE-grown (Sn_{1-x}Pb_x)_{1-y}In_yTe thin films
- 4:30pm Makoto Kohda (Tohoku U) Spin orbit interaction in Rashba two dimensional system
- 5:10pm **SHUTTLE TO BWSCI**

Thursday, Oct 24, 2019

Session Chair: Masahito Ueda (U Tokyo)

- 9:00am Takeshi Mizushima (Osaka U) Fingerprints of Nematic and Weyl Superconductors
- 9:40am Liang Fu (MIT) Majorana in iron superconductors
- 10:20am **Coffee Break**
- 10:50am Yoichi Yanase (Kyoto U) Topological superconductivity in UTe₂ and UCoGe
- 11:30am Andreas Schnyder (MPI-FKF) Accidental and symmetry-enforced band crossings in topological materials
- 12:10pm **Lunch Break**

Session Chair: Liang Fu (MIT)

- 2:00pm Taylor Hughes (U Illinois) Higher Order Topological Insulators
- 2:40pm Joji Nasu (Yokohama U) Magnetic-field effect and transport properties in Kitaev spin liquids
- 3:20pm **Coffee Break**
- 4:00pm Margaret Murnane (U Colorado) Ultrafast Electron Calorimetry: Uncovering New States and Phases in Quantum Materials
- 4:40pm POSTER SESSION

5:30pm

COCKTAIL RECEPTION

6:00pm

DINNER

8:00pm

SHUTTLE TO BWSCI**Friday, Oct 25, 2019****Session Chair: Yoshiteru Maeno (Kyoto U)**

9:00am John Pierre Paglione (UMD)

Observation of topological
superconductivity in UTe₂

9:40am Taketomo Nakamura (U Tokyo)

The Josephson effect on the multiterminal
junctions of InAs two-dimensional electron
systems

10:20am

Coffee Break

10:50am Vidya Madhavan (U Illinois)

Observation of Chiral edge modes in
superconducting UTe₂

11:30am Andrea Young (UCSB)

Twisted bilayer graphene (placeholder title)

12:10pm

Lunch Break**Session Chair: Satoshi Fujimoto (Osaka U)**

2:00pm Philip Kim (Harvard U)

Superconducting proximity in quantum Hall
edge states

2:40pm Masatoshi Sato (Kyoto U)

A unified view of non-Hermitian topological
physics

3:20pm

Organizers-wrap up

3:40pm

SHUTTLE BACK TO BWSCI