

Tentative schedule of scientific program on second TMS-PKU alliance workshop in Beijing

title of the workshop: 'topological materials and quantum materials'

period: 2018, 25th Sept. - 28th Sept. (only morning)

Organizers : Yuji Matsuda, Norio Kawakami, Guo-Qing Zheng (TMS or Japan side)
, Xin-Cheng Xie, Yuan Li, Ryuichi Shindou (PKU side)

September 25th Tuesday

Morning Session: topological phases in condensed matters (opening and/or chair: Ryuichi Shindou and Junren Shi (PKU))

8:40-9:10 Yuji Matsuda (Kyoto Univ.):

Fractional quantum Hall effect in an insulating quantum spin liquid

9:10 - 9:40 Qinglin He (PKU): Quantization of chiral Majorana fermions

9:40-10:10 Suk Bum Chung (University of Seoul): Sr₂RuO₄ heterostructure

10:10 - 10:35 Jun He (RIKEN): charge and spin transport properties induced by Majorana fermions in topological superconductors

(coffee break 25 minutes)

11:00 - 11:30 Masatoshi Sato (Kyoto Univ.) : TBA

11:30 - 12:00 Mircea Trif (Tsinghua Univ.) : Majorana fermions signatures in a cavity QED setup

12:00 - 12:30 Xiong-Jun Liu (PKU): Non-equilibrium classification of topological quantum phases

(lunch break) 12:30 - 14:30

Afternoon Session : Weyl and Dirac nodal semimetals (chair : Ji Feng (PKU))

14:30 - 15:00 Shuang Jia (PKU): design and characterization of new topological semimetal

15:00 - 15:30 Yoshihiko Okamoto (Nagoya Univ.): Calcium Silver Pnictide as a Candidate Nodal-Line Semimetal

15:30 - 16:00 Dong Sun (PKU): optical response in 2D layered topological semimetals
(coffee break 30 minutes)

16:30 - 17:00 Takahiro Tomita (ISSP, Univ. of Tokyo): Magnetic Weyl Fermions in

Topological Magnet Mn_3Sn

17:00 - 17:30 Michi-To Suzuki (Tohoku Univ.): Topology and multipole inducing intrinsic anomalous Hall effect in antiferromagnets

(17:30 gathering at the workshop venue;

invited speakers can have dinner at Shaoyuan with local faculties Wei Han, Dong Sun, Qinglin He, Xiongjun Liu, and Shuang Jia (?) from 18:00-)

September 26th Wednesday

Morning Session: Spintronics: spin superfluidity, and spin mechatronics (chair: Mircea Trif (Tsinghua University))

9:00 - 9:30 (Chun Ning) Jeanie Lau (Ohio State University): Long-Distance Spin Transport Through a Graphene Quantum Hall Antiferromagnet

9:30 - 10:00 Edouard Sonin (Hebrew University of Jerusalem) : Superfluid spin transport in ferro and antiferromagnets

10:00 - 10:30 Miguel A. Cazalilla (National Tsing Hua University) : Aspects of classical and quantum spin transport in weakly disordered two-dimensional materials.
(coffee break 30 minutes)

11:00 - 11:30 Yaroslav Tserkovnyak (UCLA): Hydrodynamics and Topological Spin Currents in Amorphous Magnets

11:30 - 12:00 Wei Han (PKU): Spin Current: a Novel Probe for Quantum Materials

12:00 - 12:30 TBA

Lunch break (12:30 - 14:30)

Afternoon Session: semiconductors and semimetals under magnetic field (chair: Xi Lin (PKU))

14:30 - 15:00 Yang Liu (PKU): Wigner Crystal of Interacting Electrons in the Flatland

15:00 - 15:30 Hiroshi Yaguchi (Tokyo University of Science)
High-magnetic-field-induced density-wave-like state in graphite

(coffee break 30 minutes)

16:00 - 16:30 Jian Wang (PKU): Discovery of Log-periodic Quantum Oscillations

16:30 - 17:00 Zengwei Zhu (HUST/Wuhan National High Magnetic Field):

Peculiarities of 3D electrons under High Magnetic Field: The cases of Graphite and Bismuth

17:00 - 17:30 Ryuichi Shindou (PKU): Possible three-dimensional topological excitonic insulator in graphite under high magnetic field

(gathering at 17:30 at the workshop venue:

invited speaker can have dinner at Shaoyuan with local faculties Wei Han (?), Jian Wang, Yang Liu, and Yuan Li from 18:00-)

September 27th Thursday

Morning Session: exotic non-equilibrium phenomena (chair: Masatoshi Sato (Kyoto))

9:00 - 9:30 Chanchal Sow (Kyoto Univ.):

Current-induced giant diamagnetism and Mott semimetal behavior in Ca_2RuO_4

9:30 - 10:00 Shuta Nakajima (Kyoto Univ.): Topological Thouless Pumping in a One-Dimensional Optical Superlattice

10:00- 10:30 Takahiro Morimoto (UC.Berkley): Floquet topological phases protected by dynamical symmetry

(coffee break 30 minutes)

11:00 - 11:30 Norio Kawakami (Kyoto Univ.): Floquet Topological Phase Transition in correlated systems

11:30 - 12:00 Toshiya Ideue (University of Tokyo) : Topological aspects of nonlinear transport in van der Waals crystals

12:00 - 12:30 Hideaki Obuse (Hokkaido Univ.): Topological phases on PT symmetric non-unitary quantum walks

Lunch break (12:30- 14:30)

Afternoon Session: Exotic Orders and Excitations in Correlated Electron Systems (chair: Eun-Gook Moon (KAIST))

14:30 - 15:00 Fa Wang (PKU): Magnetic interactions and possible quantum paraelectricity in spin liquid candidate $\text{H}_3\text{LiIr}_2\text{O}_6$

15:00 - 15:30 Yoichi Yanase (Kyoto Univ.): Topological superconductivity by multipole fluctuation

(coffee break 30 minutes)

16:00 - 16:30 Yuan Li (PKU): Topological magnon Dirac points in a three-dimensional antiferromagnet

16:30 - 17:00 Nanlin Wang (PKU):

Photo-induced new collective modes and metastable states in cuprate superconductors

(17:00 - 17:30 free discussion and meeting)

17:30 gathering at the workshop venue;

18:00 Banquet at Yiyuan at Zhongguanxinyuan

September 28th Friday

Morning Session : Exotic Quantum Magnetism and Quantum Spintronics (chair: Yuan Li (PKU))

9:00 - 9:30 Eun-Gook Moon (KAIST): vestiges of Topological phase

9:30 - 10:00 Joji Nasu (Tokyo Institute of Technology): Majorana topological transition driven by a magnetic field in the Kitaev model

10:00 -10:30 Gang Chen (Fudan): Emergent criticality from spin-orbital entanglement in d^8 Mott insulators

(coffee break 30 minutes)

11:00 - 11:30 Shiyun Li (Fudan): Heat Transport Study of Quantum Spin Liquid Candidates

11:30 - 12:00 So Takei (CUNY): Equilibrium and Nonequilibrium Spin Current Fluctuations in Quantum Paramagnets

12:00 - 12:30 Mamoru Matsuo (Kavli Institute for Theoretical Science, UCAS, Beijing): Spin current noise at magnetic interfaces

(lunch break 12:30 - 14:30)

14:30 - 17:30 : free discussion and meetings

(gathering at 17:30 at the workshop venue:

invited speaker can have dinner with Wei Han, Ryuichi Shindou, and more from 18:00-)