

PROGRAMME

Day 1 (December 12, Monday)

Opening and Welcome speech

Chaired by Dongkeun Ki (The University of Hong Kong, Conference chair)

09:00 - 09:10 Welcome speech

Wang Yao (Acting director, HKU-UCAS Joint Institute; Conference co-chair)

Morning session 1

Chaired by Fuchun Zhang (KITS, UCAS)

09:10 - 09:40 Dipole Ladders with Giant Hubbard U in a Moiré Exciton Lattice

Xiaodong Xu (University of Washington)

09:40 - 10:10 Moiré Luttinger Liquids in Two Dimensions

Sanfeng Wu (Princeton University)

10:10 - 10:40 Intelligent sensing enabled by tunable moiré quantum geometry

Fengnian Xia (Yale University)

10:40 - 11:00 Break

Morning session 2

Chaired by Xiaobo Yin (The University of Hong Kong)

11:00 - 11:30 Atomic Lego for future computing

Feng Miao (Nanjing University)

11:30 - 12:00 Low-voltage transistors and diodes; Extending the road beyond CMOS

Sungjae Cho (KAIST)

12:00 - 12:30 Piezoelectric response of 2D layered nanosheets and devices

Jianhua Hao (The Hong Kong Polytechnic University)

12:30 - 14:00 Lunch

Afternoon session 3

Chaired by Chenjie Wang (The University of Hong Kong)

14:00 - 14:30 Interaction-driven quantum anomalous Hall states and Josephson junctions in moire materials

Kam Tuen Law (Hong Kong University of Science and Technology)

14:30 - 15:00 New twists of twisted TMD homo-bilayers: from valley-resolved moiré superlattices to quasicrystals

Chih-Kang Shih (The University of Texas at Austin)

15:00 - 15:30 Domain wall networks in marginally twisted bilayers of transition metal dichalcogenides

Vladimir Fal'ko (National Graphene Institute)

15:30 - 16:00 Break

Afternoon session 4

Chaired by Tran Trung Luu (The University of Hong Kong)

16:00 - 16:30 Polariton valley Hall effect in monolayer WS₂ on plasmonic metasurface

Wen-Hao Chang (Academia Sinica)

16:30 - 17:00 Strong light-matter interaction in 2D materials

Vinod Menon (City University of New York)

17:00 - 17:30 Photoluminescence study on exciton of monolayer TMD

Xiaodong Cui (The University of Hong Kong)

Day 2 (December 13, Tuesday)**Morning session 5***Chaired by Wendi Li (The University of Hong Kong)*

- 09:00 - 09:30 The Resurrection of Tellurium as an Elemental van der Waals Semiconductor
Peide Ye (Purdue University)
- 09:30 - 10:00 Spin waves and magnetic fluctuations in atomically thin MnBi₂Te₄
Xiaoqin Li (The University of Texas at Austin)
- 10:00 - 10:30 Bioinspired in-sensor computing with 2D semiconductors
Yang Chai (The Hong Kong Polytechnic University)
- 10:30 - 11:00 Break

Morning session 6*Chaired by Gang Chen (The University of Hong Kong)*

- 11:00 - 11:30 TBD
Xiangfeng Duan (University of California, Los Angeles)
- 11:30 - 12:00 Quantum anomalous Hall effect in MnBi₂Te₄
Yuanbo Zhang (Fudan University)
- 12:00 - 12:30 Non-reciprocal charge transport and spin switch in an intrinsic magnetic topological insulator MnBi₂Te₄
Wei-Bo Gao (Nanyang Technological University)
- 12:30 - 14:00 Lunch

Afternoon session 7*Chaired by Zi Yang Meng (The University of Hong Kong)*

- 14:00 - 14:30 Steady Floquet–Andreev states in graphene Josephson junctions
Gil-Ho Lee (POSTECH)
- 14:30 - 15:00 Bulk-Boundary-Transport Correspondence of Higher-Order Topological Insulators
Jian Wang (Shenzhen University)
- 15:00 - 15:30 Symmetry Engineering and Nonlinear Transport in Nanostructures of Transition Metal Dichalcogenides
Yoshihiro Iwasa (University of Tokyo & RIKEN)
- 15:30 - 16:00 Break

Afternoon session 8*Chaired by Dong-Keun Ki (The University of Hong Kong)*

- 16:00 - 16:30 Probing 2D magnets with transport in nanodevices
Alberto Morpurgo (University of Geneva)
- 16:30 - 17:00 Quantum Transport and Topological Phases in van der Waals Heterostructures
Jeanie Lau (The Ohio State University)
- 17:00 - 17:30 Correlated electrons in twisted bilayer graphene: superconductivity to strange metal behavior
Marc Bockrath (The Ohio State University)

Day 3 (December 14, Wednesday)**[Break in the morning]****Afternoon session 9**

Chaired by Jiannong Wang (Hong Kong University of Science and Technology)

- 14:00 - 14:30 New progresses in topological insulator/superconductor hetero-structures
Jinfeng Jia (SUSTECH and Shanghai Jiaotong University)
- 14:30 - 15:00 Berry phase and topological effect in superconductors
Qian Niu (University of Science and Technology of China)
- 15:00 - 15:30 Intertwined orders and vortex structures of cuprates
Ting-Kuo Lee (National Tsing Hua University)
- 15:30 - 16:00 Break

Afternoon session 10

Chaired by Sen Yang (Hong Kong University of Science and Technology)

- 16:00 - 16:30 Half-quantized Transport in Axion Insulators
Xincheng Xie (Peking University)
- 16:30 - 17:00 Excitations, Spin-Charge Separation, and Correlation Function
Hai-Qing Lin (Zhejiang University)
- 17:00 - 17:30 Half Quantum Hall Effect in Metal
Shunqing Shen (The University of Hong Kong)

Day 4 (December 15, Thursday)**Morning session 11***Chaired by Yi Yang (The University of Hong Kong)*

- 09:00 - 09:30 Tuning polaritons in 2D semiconductor-photonic crystals
Hui Deng (University of Michigan)
- 09:30 - 10:00 Light-Matter Interaction in Flatland: Excitonic Physics in 2D
Su-Fei Shi (Rensselaer Polytechnic Institute)
- 10:00 - 10:30 Van der Waals Interface for Highly Efficient Spin Readout as well as Recent Nonlinear Hall effect study on MoTe₂
Kian Ping Loh (The Hong Kong Polytechnic University)
- 10:30 - 11:00 Break

Morning session 12*Chaired by Tran Trung Luu (The University of Hong Kong)*

- 11:00 - 11:30 Tunable phonon magnetic moment in bilayer graphene
Di Xiao (University of Washington)
- 11:30 - 12:00 Competing mechanisms of high-T_c superconductivity and topological superconductivity in systems of varying dimensionality
Zhenyu Zhang (University of Science and Technology of China)
- 12:00 – 12:30 TBD
Nicolas Fang (The University of Hong Kong)
- 12:30 - 14:00 Lunch

Afternoon session 13*Chaired by Dong-Keun Ki (The University of Hong Kong)*

- 14:00 - 14:30 Plasmonic nanocavity enhanced interaction of light and low-dimensional materials systems
Dangyuan Lei (City University of Hong Kong)
- 14:30 - 15:00 Engineering Polariton Condensate Lattices and Networks for Quantum Applications
Qihua Xiong (Tsinghua University)
- 15:00 - 15:30 TBD
Jianbin Xu (The Chinese University of Hong Kong)
- 15:30 - 16:00 Break

Afternoon session 14*Chaired by Chenjie Wang (The University of Hong Kong)*

- 16:00 - 16:30 Two-dimensional semiconductor tungsten disulphide: fundamental properties and potential applications
Ting Yu (Wuhan University)
- 16:30 - 17:00 Polynomial Sign Problem and Topological Mott Insulator emerging from Twisted Bilayer Graphene
Zi Yang Meng (The University of Hong Kong)
- 17:00 – 17:30 Van der Waals integration of ultrahigh-k dielectrics into 2D transistors
Lain-Jong (Lance) Li (The University of Hong Kong)
- 17:30 - 17:50 Closing Speech, by Dong-Keun Ki (Conference chair)