

The 4th International Workshop on Quantum Matter – Quantum Many-body Dynamics

August 22 – 26, 2022

INVITED SPEAKERS:

Jens Bardarson	KTH Royal Institute of Technology
Yuao Chen	University of Science and Technology of China
Hao Chu	Shanghai Jiao Tong University
Pengcheng Dai	Rice University
Keshav M. Dani	OIST Graduate University
Wenxin Ding	Anhui University
Stefan Kaiser	Max Planck Institute for Solid State Research
Wei Ku	Tsung-Dao Lee Institute, SJTU
Jose Lado	Aalto University
Yuan Li	Peking University
Haijun Liao	Institute of Physics, CAS
Xuerong Liu	Shanghai Tech University
Ziyang Meng	The University of Hongkong
Hu Miao	Oak Ridge National Laboratory
Farokh Mivehvar	Universitat Innsbruck
Sergej Moroz	Karlstad University
Kazuhiro Nawa	Tohoku University
Yingying Peng	Peking University
Yang Qi	Fudan University
Zhida Song	Peking University
Oleg Tchernyshyov	Johns Hopkins University
Alexander A. Tsirlin	University of Augsburg
Ziqiang Wang	Tsinghua University
Jinsheng Wen	Nanjing University
Tao Wu	University of Science and Technology of China
Long Zhang	University of Chinese Academy of Sciences
Qingming Zhang	Lanzhou University
Sijie Zhang	Peking University
Wentao Zhang	Shanghai Jiao Tong University
Shuyun Zhou	Tsinghua University
Xiaobo Zhu	University of Science and Technology of China
Alfred Zong	University of California, Berkeley

ORGANIZING COMMITTEE:

Gang Chen	The University of Hong Kong
Qingdong Jiang	Shanghai Jiao Tong University
Nanlin Wang	Peking University
Jianda Wu	Shanghai Jiao Tong University
Chi Ming Yim	Shanghai Jiao Tong University
Rong Yu	Renmin University of China

LOCATION:

Meeting Room N602, Tsung-Dao Lee Institute
(Zoom link will be provided for registered participants)

INFORMATION:



Event webpage



Registration page

For further inquiry please contact our Workshop
Secretary Ms. Yang. Email address: jlyang@sjtu.edu.cn



李政道研究所
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Program for the 4th International Workshop on Quantum Matter – Quantum Many-body Dynamics

ZOOM Meeting ID: 698 8658 4812 Password: 492957

Venue: Meeting Room N602

August 22 (Monday)	
09:30 – 09:40	Opening remark by Wei Ku
Session A: Many body dynamics I Chair: Jianda Wu	
09:40 - 10:20	Yuao Chen Second sound attenuation near quantum criticality
10:20 - 11:00	Hao Chu Fano interference of the superconducting amplitude fluctuations of cuprate high-Tc superconductors
11:00 - 11:20	Tea Break
11:20 - 12:00	Long Zhang Spectroscopic feature of quantum many-body scar states
12:00 - 12:40	Wenxin Ding Algebraic-dynamical theory for quantum many-body Hamiltonians: a formalized approach to strongly interacting systems
12:40 - 14:00	Lunch
Session B: Quantum Computation and Superconductivity Chair: Qingdong Jiang	
14:00 - 14:40	Xiaobo Zhu Superconducting quantum computing
14:40 - 15:20	Tao Wu Competing electronic orders in a kagome superconductor CsV_3Sb_5
15:20 - 16:00	Tea Break
16:00 - 16:40	Wei Ku Transport in the emergent Bose liquid: Bad metal, strange metal, and weak insulator, all in one system
16:40 - 17:20	Farokh Mivehvar Simulating and exploring many-body physics via cavity-QED settings

Note: The program time is based on Beijing Time (UTC+8).

August 23 (Tuesday)

Session C: Quantum Magnetism		Chair: Yang Qi
09:40 - 10:20	Oleg Tchernyshyov Quantum statistics of vortices from a dual theory of the XY ferromagnet	
10:20 - 11:00	Yuan Li Unusual quantum ground states and excitations in layered cobalt-oxide honeycomb magnets	
11:00 - 11:20	Tea Break	
11:20 - 12:00	Jinsheng Wen Coexistence of and interplay between local moments and itinerant electrons in a van der Waals Metallic Ferromagnet $\text{Fe}_{3-x}\text{GeTe}_2$	
12:00 - 12:40	Alfred Zong Coherent amplification of gigahertz rotational oscillators by antiferromagnetic order	
12:40 - 14:00	Lunch	
Session D: Spin Dynamics and Excitations		Chair: Rong Yu
14:00 - 14:40	Stefan Kaiser TBA	
14:40 - 15:20	Yang Qi Spin dynamics near Berezinskii-Kosterlitz-Thouless transitions	
15:20 - 16:00	Tea Break	
16:00 - 16:40	Haijun Liao Spin excitation spectra of the spin-1/2 triangular Heisenberg antiferromagnets	
16:40 - 17:20	Sergej Moroz Emergent constraints and ergodicity breaking in spin chains: gauge theory perspective	

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August 24 (Wednesday)

Session E: Many body dynamics II Chair: Long Zhang

09:40 - 10:20	Xuerong Liu The evolution of the spins in Sr_2IrO_4 upon laser pumping
10:20 - 11:00	Sijie Zhang Out-of-plane nonlinear optical responses of high-T _c superconducting cuprates detected by time-resolved Terahertz spectroscopy
11:00 - 11:20	Tea Break
11:20 - 12:00	Ziyang Meng A Sport and a pastime: model design and computation in quantum many-body dynamics
12:00 - 12:40	Zhida Song Anderson critical metal protected by C2T
12:40 - 14:00	Lunch

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August 25 (Thursday)

Session F: Kagome Physics		Chair: Chi Ming Yim
09:40 - 10:20	Hu Miao Nature of intertwined electronic states in kagome superconductor AV_3Sb_5	
10:20 - 11:00	Pengcheng Dai Discovery of charge density wave in a kagome lattice antiferromagnet	
11:00 - 11:20	Tea Break	
11:20 - 12:00	Qingming Zhang A rare-earth based Kitaev family	
12:00 - 12:40	Ziqiang Wang Physics of Kagome Metals and Superconductors	
12:40 - 14:00	Lunch	
Session G: Kitaev and Topology		Chair: Gang Chen
14:00 - 14:40	Yingying Peng Time-resolved resonant x-ray study of magnetic dynamics in one candidate Kitaev material	
14:40 - 15:20	Alexander A. Tsirlin Electron dynamics in AV_3Sb_5 kagome superconductors at ambient and applied pressure	
15:20 - 16:00	Tea Break	
16:00 - 16:40	Jose Lado Engineering topological and nodal superconductivity in van der Waals materials	
16:40 - 17:20	Jens Bardarson Non-Hermitian topology in monitored quantum circuits	

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August 26 (Friday)

Session H: Ultrafast spectroscopy Chair: Xuerong Liu	
09:40 - 10:20	Keshav M. Dani Imaging excited state phenomena in Momentum Space
10:20 - 11:00	Wentao Zhang Ultrafast electronic dynamics in quantum materials by time-resolved ARPES
11:00 - 11:20	Tea Break
11:20 - 12:00	Kazuhiro Nawa Magnetic excitations in the spin-1/2 anisotropic triangular lattice antiferromagnet $\text{Ca}_3\text{ReO}_5\text{Cl}_2$
12:00 - 12:40	Shuyun Zhou sub-100 fs TrARPES with tunable VUV probe and ultrafast dynamics of 3D Dirac semimetal
12:40 - 14:00	Lunch

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