



International Conference on Low-dimensional Quantum Materials



March 10 –14, 2018, Snowbird, Utah, USA



Welcome

The goal of this international conference is to provide a forum for leading scientists around the world working in the related fields of low-dimensional quantum materials to have fun together by presenting the latest research results, exchanging the newest ideas and sharing the futurest visions. Our goal is also to generate plenty of excitement not only inside the meeting room but also outside on the ski slopes. We will cherish on our old friendships while building the new ones. The conference will be held at Snowbird nearby Salt Lake City, one of the most premier ski resorts in North America. The time will be March 10-14 (Saturday-Wednesday), right after APS March meeting in Los Angeles.

Organizer

Prof. Feng Liu

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Program Schedule (Primrose B, Cliff Lodge)

March 10 (Saturday)	
03:00 pm-09:00 pm	Welcome table
March 11 (Sunday)	
03:00 pm - 05:00 pm	Welcome table (Primrose B)
05:00 pm - 07:00 pm	Dinner at Snowbird, Aerie Mtn Private Dining Rm
Session S1 (Chair: Feng Liu)	
08:00 pm - 08:30 pm	Semiconductor Nanomembrane Sandbox Max G. Lagally, University of Wisconsin-Madison, USA
08:30 pm - 09:00 pm	Discrete scale invariance and Log-B periodic quantum oscillation in topological semimetals Xincheng Xie, Peking University, China
09:00 pm - 09:30 pm	Functional Coordination Nanosheets Hiroshi Nishihara, University of Tokyo, Japan
March 12 (Monday)	
Session M1 (Chair: Christoph Deneke)	
08:00 am - 08:30 am	Quantum control of spins in silicon Mark Eriksson, University of Wisconsin-Madison, USA
08:30 am - 09:00 am	Quantum control of spins in solids and its applications Jiangfeng Du, University of Science and Technology of China
09:00 am - 09:30 am	Sources of magnetic fluctuation on surface of qubits Ruqian Wu, University of California, Irvine, USA
09:30 am - 09:45 am	Coffee break
Session M2 (Chair: Mark Eriksson)	
09:45 am - 10:15 am	2D nanomembranes as substrates for the growth of semiconductor nanostructures Christoph Deneke, Universidade Estadual de Campinas (Unicamp), Centro Nacional de Pesquisa em Energia e Materiais, Brazil
10:15 am - 10:45 am	Isotopically Programmed Quasi-1D Systems Oussama Moutanabbir, École Polytechnique de Montréal, Canada



Program Schedule (Primrose B, Cliff Lodge)

March 12 (Monday)	
10:45 am - 11:15 am	Geometric effects in impurity states Ji Feng, Peking University, China
11:15 am - 11:45 am	Laser ARPES on High Temperature Superconductors and Topological Materials Xingjiang Zhou, Chinese Academy of Sciences
Session M3 (Chair: Jiangfeng Du)	
01:30 pm - 02:00 pm	Water: Soft in Nature, Hard in Science Enge Wang, Peking University, China
02:00 pm - 02:30 pm	Metal Islands Embedded at the Surface of Graphite Pat Thiel, Ames Laboratory and Iowa State University, USA
02:30 pm - 03:00 pm	Crossing over from three-dimensional nonequilibrium growth to two-dimensional van der Waals epitaxy Zhenyu Zhang, University of Science and Technology of China
03:00 pm - 03:30 pm	Nucleation and growth kinetics for intercalated islands in layered materials with surface defect portals Jim Evans, Iowa State University, USA
03:30 pm - 03:45 pm	Coffee break
04:00 pm - 05:30 pm	Tram ride for Group Picture
Bus will leave the Cliff Lodge at 6:15 pm	
07:00 pm - 09:30 pm	Dinner at La Caille
March 13 (Tuesday)	
Session T1 (Chair: Oliver G Schmidt)	
08:00 am - 08:30 am	Mosaicity, Strain and Polymorphism in Graphene on Metals Michael Altman, Hong Kong University of Science and Technology
08:30 am - 09:00 am	Germanene: the germanium analogue of graphene H.J.W. Zandvliet, University of Twente, Netherlands
09:00 am - 09:30 am	Surface-mediated anisotropic synthesis of semiconducting graphene nanoribbons via CVD on Ge(001) Michael S. Arnold, University of Wisconsin-Madison, USA
09:30 am - 09:45 am	Coffee break



Program Schedule (Primrose B, Cliff Lodge)

March 13 (Tuesday)

Session T2 (Chair: Pat Thiel)

09:45 am - 10:15 am	Quantum dot quantum light sources Oliver G Schmidt, Leibniz IFW Dresden, Germany
10:15 am - 10:45 am	Group IV chalcogenide semiconductors: Growth, electronic properties, nanoscale light-matter interactions Peter Sutter, University of Nebraska-Lincoln, USA
10:45 am - 11:15 am	Design of New Materials in Solution: Insights from In-Situ Electron Microscopy Eli Sutter, University of Nebraska-Lincoln, USA
11:15 am - 11:45 am	Data-driven discovery of functional 2D materials utilizing a 2D electronic structure database Qimin Yan, Temple University, USA

Session T3 (Chair: Michael Altman)

01:30 pm - 02:00 pm	Topological Excitonic Insulator In Electron-Hole Bilayers Rui-Rui Du, Rice University / Peking University
02:00 pm - 02:30 pm	Magnetic functionalization of 2D materials Peter Kratzer, University Duisburg-Essen, Germany
02:30 pm - 03:00 pm	Derive Topological States with Honeycomb Structure Xiao Hu, National Institute for Materials Science, Japan
03:00 pm - 03:30 pm	First Principles Prediction of Valley Polarized Chern Insulator in Ferrimagnetic Honeycomb Lattice Jian Zhou, Massachusetts Institute of Technology, USA
03:30 pm - 03:45 pm	Coffee break

Session T4 (Chair: Rui-Rui Du)

03:45 pm - 04:15 pm	Epitaxial Growth of Two-Dimensional Stanene and Artificial topological superconductors Jin-feng Jia, Shanghai Jiao Tong University, China
04:15 pm - 04:45 pm	Fractionalized Spin Excitations and Topological Magnons in Correlated Electron Systems Jian-Xin Li, Nanjing University, China
04:45 pm - 05:15 pm	Potential for unconventional superconductivity on a silicon platform Hanno Weitering, University of Tennessee, USA
05:15 pm - 05:45 pm	Black Phosphorus and Beyond Li Yang, Washington University in St Louis, USA



Program Schedule (Primrose B, Cliff Lodge)

March 13 (Tuesday)	
Bus will leave the Cliff Lodge at 6:15 pm	
07:30 pm - 09:30 pm	Dinner at Dim Sum
March 14 (Wednesday)	
Session W1 (Chair: Jian Wang)	
08:00 am - 08:30 am	Geometrodynamics of Bloch electrons Qian Niu, University of Texas at Austin, USA
08:30 am - 09:00 am	Weyl Phonons Zhong Fang, Chinese Academy of Sciences
09:00 am - 09:30 am	All-in-one spintronics: Manipulating electronic phase separation in complex oxides J. Shen, Fudan University, China
09:30 am - 09:45 am	Coffee break
Session W2 (Chair: C. K. Shih)	
09:45 am - 10:15 am	High Temperature Superconductivity and Quantum Phase Transitions in crystalline 2D Superconductors Jian Wang, Peking University, China
10:15 am - 10:45 am	Novel Quantum Spin Hall Paradigm in 2D Honeycomb Layers: Bismuthene Jörg Schäfer, University of Würzburg, Germany
10:45 am - 11:15 am	Low-dimensional ternary transition metal chalcogenides Zhiqiang Mao, Tulane University, USA
11:15 am - 11:45 am	Spin Dependent Chemisorption Interactions at Metal-Organic Semiconductor Interfaces Daniel B. Dougherty, North Carolina State University, USA
Session W3 (Chair: Zhenyu Zhang)	
01:30 pm - 02:00 pm	Strong plasmon-exciton interaction in nanocavities Hongxing Xu, Wuhan University, China
02:00 pm - 02:30 pm	Conductance through point contacts formed in atomic precision Yukio Hasegawa, The University of Tokyo, Japan



Program Schedule (Primrose B, Cliff Lodge)

March 14 (Wednesday)	
02:30 pm - 03:00 pm	Creation of Single Chain of Nanoscale Skyrmion Bubbles with Record-high Temperature Stability in a Geometrically Confined Nanostripe Xi-xiang Zhang, King Abdullah University of Science and Technology, Saudi Arabia
03:00 pm - 03:30 pm	Stepping stone mechanism: carrier-free long range magnetism mediated by magnetized cation states Junyi Zhu, Chinese University of Hong Kong
03:30 pm - 03:45 pm	Coffee break
Session W4 (Chair: Qian Niu)	
03:45 pm - 04:15 pm	Atomic and electronic structures of 2D electronic materials and their heterostructures C.K. Shih, The University of Texas at Austin, USA
04:15 pm - 04:45 pm	Symmetry breaking and disorder effects on superconductivity CanLi Song, Tsinghua University, China
04:45 pm - 05:15 pm	Epitaxial Growth and Novel Electronic States of 2D Materials & Heterostructures Yeliang WANG, Chinese Academy of Sciences
Bus will leave the Cliff Lodge at 6:15 pm	
07:30 pm - 09:30 pm	Dinner at Brazilian Grill



Poster Session (Primrose B, Cliff Lodge)

March 12-14 (Mon - Wed)	
P1	Ubiquitous Ideal Spin-Orbit Coupling in a Screw Dislocation in Semiconductors Lin Hu, University of Utah / Beijing Computational Science Research Center
P2	Quantum spin Hall phase in 2D trigonal lattice Zhengfei Wang, University of Science and Technology of China
P3	Mottness Collapse in $1T\text{-TaS}_{2-x}\text{Se}_x$ Transition-Metal Dichalcogenide: An Interplay between Localized and Itinerant Orbitals Zheng Liu, Tsinghua University
P4	Theoretical Discovery of Ideal Topological Semimetals Bing Huang, Beijing Computational Science Research Center
P5	First Principle Study on the Electronic Properties of Carbon-based Antidot Lattice Xiaobin Niu, University of Electronic Science and Technology of China
P6	Ferromagnetism in Two-dimensional Molecular Lattice Bin Cui, Shandong University
P7	Spin polarization in organic multiferroic composites Shijie Xie, Shandong University
P8	Design of novel halide perovskite MPbX_3 /semiconductor architectures with enhanced structural stability and tunable optoelectronic properties Miao Zhou, Beihang University
P9	Topological Dirac-nodal-line semimetal phase in superconductor MgB_2 Kyung-Hwan Jin, University of Utah
P10	Alloy engineering of topological semimetal phase transition in $\text{MgTa}_{2-x}\text{Nb}_x\text{N}_3$ Huaqing Huang, University of Utah