

3 week KITPC mini-program on
Spin-orbit-coupled quantum gases
to be held at KITPC Beijing from August 1 to 19, 2016

Schedule of talks

for the second and third weeks of the Program (August 8 - 18)

All talks will be at the KITPC building, 6620 room
KITPC address: Zhong Guan Cun East Street 55, Beijing

Week 2

Monday, August 8th

8.55 – 9.00	Information	
9.00 – 10.30	Session 1: Driven and topological optical lattices. Chairperson Maciej Lewenstein (ICFO, Barcelona, Spain)	
9.00 – 9.40	André Eckardt (MPIKS, Dresden, Germany)	<i>Floquet Engineering in optical lattice systems</i>
9.40 – 9.45	Questions/Discussions	
9.45 – 10.25	Lih-King Lim (Tsinghua University, Beijing, China)	<i>Geometric phase in Stuckelberg interferometer with cold atoms</i>
10.25 – 10.30	Questions/Discussions	
10.30 – 11.00	Coffee Break	
11.00 – 12.30	Session 2: Synthetic gauge fields in synthetic dimensions Chairperson Fa Wang (Peking University)	
11.00 – 11.40	Sebastian Greschner (Leibniz Universität Hannover)	<i>Interaction Effects in Synthetic Dimensions</i>
11.40-11.45	Questions/Discussions	
11.45-12.25	Leonardo Mazza (ENS, Paris, France)	<i>Interacting quantum gases with synthetic gauge fields in synthetic dimension</i>
12.25-12.30	Questions/Discussions	

Tuesday, August 9th

8.55 – 9.00	Information	
9.00 – 10.30	Session 3: Spin-orbit coupled ultracold atoms: I Chairperson Boris Malomed (Tel Aviv University, Israel)	
9.00 – 9.40	Jonas Larson (Stockholm University, Sweden)	<i>Spin-orbit couplings vs conical intersections: bridging cold gases and molecular physics.</i>
9.40 – 9.45	Questions/Discussions	
9.45 – 10.25	Chuanwei Zhang (University of Texas at Dallas, USA)	<i>Spin-orbit coupled ultra-cold atomic gases</i>
10.25 – 10.30	Questions/Discussions	
10.30 – 11.00	Coffee Break	
11.00 – 12.30	Session 4: Spin-orbit coupled ultracold atoms: II Chairperson Xiong-Jun Liu (Peking University)	
11.00 – 11.40	Han Pu (Rice University, Houston, USA)	<i>Cavity-assisted spin-orbit coupling</i>
11.40-11.45	Questions/Discussions	
11.45-12.25	Xiaoling Cui (Institute of Physics, CAS, Beijing, China)	<i>Universal Three-body Correlations in Rashba Spin-Orbit Coupled Fermi Gases</i>
12.25-12.30	Questions/Discussions	

Wednesday, August 10th

8.55 – 9.00	Information	
9.00 – 10.30	Session 5: Non-linear dynamics and solitons for ultracold atoms. Chairperson Xiaoling Cui (Institute of Physics, CAS, Beijing, China)	
9.00 – 9.40	Alexander L. Fetter (Stanford University, USA)	<i>Vortex dynamics in coherently coupled BECs</i>
9.40 – 9.45	Questions/Discussions	
9.45 – 10.25	Boris A. Malomed (Tel Aviv University, Israel)	<i>Two- and one-dimensional bright solitons and solitary vortices in spin-orbit coupled condensates and their photonic counterparts</i>
10.25 – 10.30	Questions/Discussions	
10.30 – 11.00	Coffee Break	
11.00 – 12.30	Session 6: Rydberg dressed ultracold atoms. Chairperson Xiaoling Cui (Institute of Physics, CAS, Beijing, China)	
11.00 – 11.40	Daw-Wei Wang (National Tsing-Hua University, Hsinchu, Taiwan)	<i>Emergence of a Metallic Quantum Solid Phase in a Rydberg-Dressed Fermi Gas</i>
11.40-11.45	Questions/Discussions	

Thursday, August 11th

8.55 – 9.00	Information	
9.00 – 10.30	Session 7: Spin-orbit coupling in optical lattices. Chairperson Daw-Wei Wang (National Tsing-Hua University, Hsinchu, Taiwan)	
9.00 – 9.40	Xiong-Jun Liu (Peking University, Beijing, China)	<i>Spin orbit coupling and topological phases for optical Raman lattices</i>
9.40 – 9.45	Questions/Discussions	
9.45 – 10.25	Wei Zhang (Renmin University, Beijing, China)	<i>Bose-Einstein condensate in an optical lattice with Raman-assisted two-dimensional spin-orbit coupling</i>
10.25 – 10.30	Questions/Discussions	
10.30 – 11.00	Coffee Break	
11.00 – 12.30	Session 8: Interacting gauge theories. Chairperson Daw-Wei Wang (National Tsing-Hua University, Hsinchu, Taiwan)	
11.00 – 11.40	Patrik Öhberg (Heriot-Watt University, Edingurgh, UK)	<i>Interacting gauge theories: from chiral dynamics to charged black holes</i>
11.40-11.45	Questions/Discussions	

Friday, August 12th

8.55 – 9.00	Information	
9.00 – 10.30	Session 9: Higher orbital bands in optical lattices. Chairperson Han Pu (Rice University, Houston, USA)	
9.00 – 9.40	Congjun Wu (Univ. UC San Diego)	<i>Novel Orbital Phases of Cold Atoms in Optical Lattices Unconventional BEC and</i>

		<i>Itinerant Ferromagnetism</i>
9.40 – 9.45	Questions/Discussions	
9.45 – 10.25	Cristiane Morais Smith (University of Utrecht, The Netherlands)	<i>Topological Varma superfluid in optical lattices</i>
10.25 – 10.30	Questions/Discussions	
10.30 – 11.00	Coffee Break	
11.00 – 12.30	Session 10: Topological phases in solids. Chairperson Han Pu (Rice University, Houston, USA)	
11.00 – 11.40	Roland Winkler (Northern Illinois University)	<i>Effective models for topological phases</i>
11.40-11.45	Questions/Discussions	

Week 3:

Monday, August 15th

8.55 – 9.00	Information	
9.00 – 10.30	Session 11: Quantum dynamics. Chairperson Su Yi (Institute of Theoretical Physics, CAS, Beijing, China)	
9.00 – 9.40	Biao Wu (Peking University, Beijing, China)	<i>Quantum dynamical equilibration of non integrable systems: theory and experiment</i>
9.40 – 9.45	Questions/Discussions	
9.45 – 10.25	Ulrich Zuelicke (Victoria University of Wellington, New Zealand)	<i>Fragility of the fractional quantum spin Hall effect in quantum gases</i>
10.25 – 10.30	Questions/Discussions	

Tuesday, August 16th

8.55 – 9.00	Information	
9.00 – 10.30	Session 13: Spin-orbit coupling for condensed matter and cold atoms. Chairperson Biao Wu (Peking University)	
9.00 – 9.40	Erhai Zhao (George Mason University)	<i>Weyl fermions in periodic structures of superconductors/superfluids with spin-orbit coupling</i>
9.40 – 9.45	Questions/Discussions	
9.45 – 10.25	AnChun Ji (Capital Normal University, Beijing)	<i>Oscillations of Solitons in 1D Spin-Orbit Coupled Bose-Einstein Condensates</i>
10.25 – 10.30	Questions/Discussions	
10.30 – 11.00	Coffee Break	
11.00 – 12.30	Session 14: Entanglement in topological systems. Chairperson Biao Wu (Peking University)	
11.00 – 11.40	Anna Sanpera (Universitat Autònoma de Barcelona)	<i>Entanglement properties in topological spin chains</i>
11.45-11.50	Questions/Discussions	

Wednesday, August 17th

8.55 – 9.00	Information	
9.00 – 10.30	Session 15: Interacting quantum gases. Chairperson AnChun Ji (Capital Normal University, Beijing, China)	
9.00 – 9.40	Li You (Tsinghua University, Beijing, China)	<i>Highly squeezed ^{87}Rb atomic condensate through quantum phase transitions</i>
9.40 – 9.45	Questions/Discussions	

9.45 – 10.25	Peng Zhang (Renmin University, Beijing, China)	<i>Doppler Effect in Optical Control of Magnetic Feshbach Resonance</i>
10.25 – 10.30	Questions/Discussions	
10.30 – 11.00	Coffee Break	
11.00 – 12.30	Session 16: Solitons for ultracold atomic gases: Experiment. Chairperson AnChun Ji (Capital Normal University, Beijing, China)	
11.00 – 11.40	Ian B. Spielman (JQI, NIST / University of Maryland, USA)	<i>Soliton diffusion</i>
11.40-11.45	Questions/Discussions	

Thursday, August 18th

8.55 – 9.00	Information	
9.00 – 10.30	Session 17: Chairperson Wu-Ming Liu (Institute of Physics, CAS, Beijing, China)	
9.00 – 9.40	Ru-Quan Wang (Institute of Physics, CAS, Beijing, China)	<i>Synthetic spin-orbit couplings with magnetic gradient field</i>
9.40 – 9.45	Questions/Discussions	
9.45 – 10.25	Ran Qi (Renmin University, Beijing, China)	<i>Efimovian Expansion in Scale Invariant Quantum Gases</i>
10.25 – 10.30	Questions/Discussions	