

Mini-Workshop on “Quantum Gases of Cold Atoms and Many-body correlations”

October 12, 13, 14, 2015

In recent years, quantum physics of ultracold atoms and quantum liquids of spins and electrons has attracted much attention from theory and experiment. In such systems the particles interact with each other via either short-range or long-range forces (magnetic or electric), which drastically changes the nature of quantum degenerate regimes. This opens wide possibilities to reveal novel many-body states. Of particular interest are Bose-Einstein condensates of bosons, superfluids of fermions, universal laws in Fermi and Luttinger liquids, topological insulators, spin-orbit coupling phenomena, and nonconventional transport in disordered systems etc. Actually, ultracold atoms with large spin symmetries present another “hot topic” in the field of quantum gases, together with correlated atoms in optical lattices and Fermi mixtures. The underlying key idea is to study various types of quantum phase transitions, quantum magnetism, critical phenomena, and/or make quantum simulators of complex solid state systems.

This mini-workshop aims to focus on recent theoretical and experimental developments of ultracold atoms and condensed matter physics. We shall also discuss current experimental developments with cold atoms, matter waveguides and few atom collisions at WIPM. The workshop will consist of 12 lectures on these topics. 45 minutes for each talk and 15 minutes for questions.

Invited Speakers: (According to the program)

Yupeng Wang (Institute of Physics, CAS, China)

Henrik Johannesson (University of Gothenburg, Sweden)

Augusto Smerzi (QSTAR, INO-CNR and LENS, Italy)

Zhenhua Yu (Tsinghua University, China)

Lin Zhou (WIPM, CAS, China)

Masaki Oshikawa (University of Tokyo, Japan)

Shizhong Zhang (The University of Hong Kong, China)

Han Pu (Rice University, USA)

Xiaolin Cui (Institute of Physics, CAS, China)

Peng Xu (WIPM, CAS, China)

Zhen-Sheng Yuan (University of Science and Technology of China)

Mang Feng (WIPM, CAS, China)

Weidong Li (Shanxi University, China)

Organizers: Xiwen Guan, Kaijun Jiang, Zong-Chao Yan, Xiaojun Liu, Xiaoming Cai, Lijuan Liu

Advisors: Mingjin Zhang, Mingsheng Zhan, Hai-Qing Lin

Venue: Room 410, Pinbiao Building

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