



CSRC

**The 6th Workshop on Quantum
Many-Body Computation**

Program

April 21-24, 2016

Beijing, China

The 6th Workshop on Quantum Many-Body Computation

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Welcome to attend **the 6th Workshop on Quantum Many-Body Computation!** The workshop is organized by the Beijing Computational Science Research Center (CSRC) at its Home Building in Zhongguancun Software Park II.

Continuing the great efforts of the five preceding meetings of this workshop series held at Chongqing University (2011), Lanzhou University (2012), Sun Yat-Sen University (2013), Hubei University (2014), and Shanghai Jiaotong University (2015), which attracted many experts, young researchers as well as graduate students, this workshop will focus on the recent progresses of quantum Monte Carlo methods, renormalization group methods, and tensor network methods, etc. The workshop aims to: 1) provide young researchers and graduate students with introductory and updated research information, 2) promote exchanges of ideas and in-depth discussions on a wide spectrum of forefront topics and enhance the interactions of researchers working in relevant areas.

Advisory Committee

Hai-Qing Lin (林海青), Beijing Computational Science Research Center

Zhong-Yi Lu (卢仲毅), Renmin University of China

Gang Su (苏刚), University of Chinese Academy of Sciences

Xiao-Qun Wang (王孝群), Shanghai Jiaotong University

Tao Xiang (向涛), The Institute of Physics, Chinese Academy of Sciences

Huan-Qiang Zhou (周焕强), Chongqing University

Organizing Committee

Hai-Qing Lin (林海青), Beijing Computational Science Research Center

Rubem Mondaini, Beijing Computational Science Research Center

Ling Wang (汪玲), Beijing Computational Science Research Center

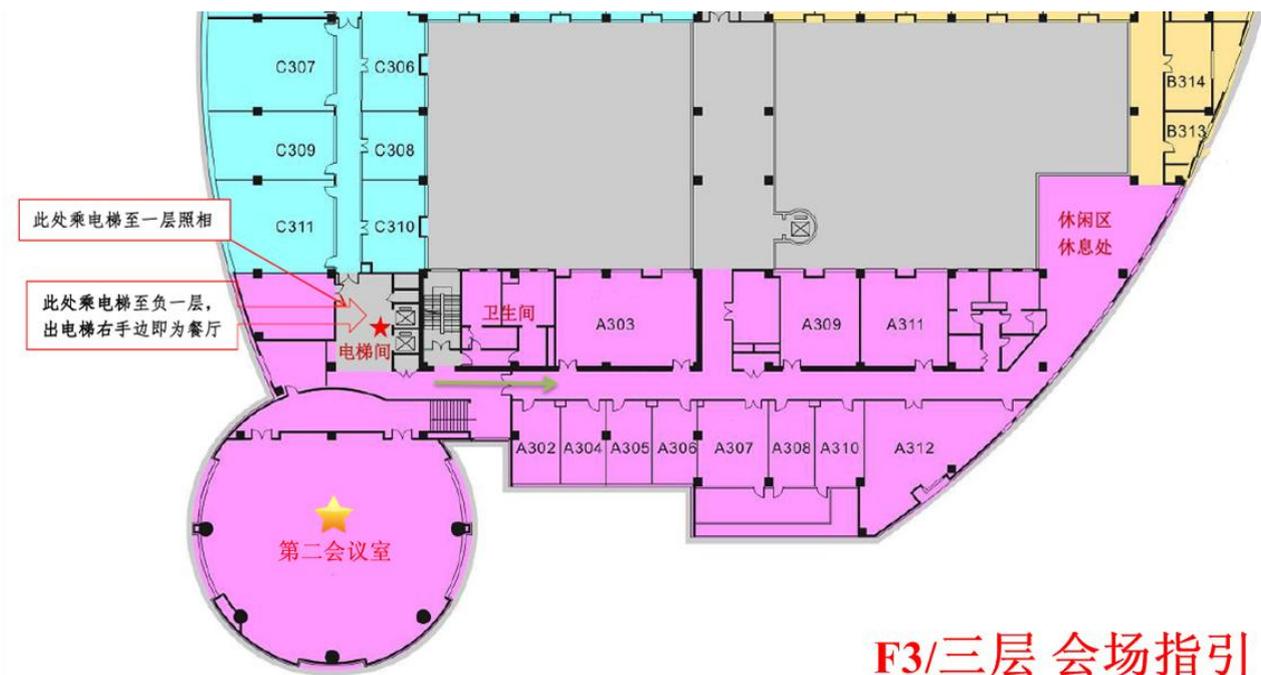
Workshop Secretary: Wei Liu (刘薇), weiliu@csrc.ac.cn

☎ 86-10-56981717 (Office); 86-13717776118 (Cell); 86-10-56981700 (Fax)

Useful Information

For your convenience, here are *Some Important Tips*:

1. CSRC Address:
 - ✧ Beijing Computational Science Research Center (CSRC), Zhongguancun Software Park II, No. 10 Dongbeiwang West Road, Haidian District, Beijing 100193, China
 - ✧ 北京市海淀区东北旺西路10号, 中关村软件园二期, 北京计算科学研究中心
2. Onsite Registration:
 - ✧ Time: 14:00~18:00 (April 21, Thursday), 08:00~17:00 (April 22, Friday)
 - ✧ Place: Outside the Conference Room II
3. Lecture/ Workshop Venue: Conference Room II, 3rd Floor (中心三层第二会议室)
4. Lunch & Dinner Place: Canteen, B1 Floor (中心地下一层餐厅)
5. Please put the **Nametag** on to enter the **Conference Room II** and bring your **Meal Tickets** to the **Canteen**.
6. Free Wi-Fi: csrc_guest, password: csrc20150308.
7. Poster Session:
 - ✧ Required Poster Size: **120cm Height * 90cm Width**
 - ✧ Poster Put-up: Thursday Afternoon (April 21), Friday Morning (April 22)
 - ✧ Place: Corridor, 3rd Floor (中心三层阳光走廊)
 - ✧ Time: 13:00~13:50 (April 22-23)
8. How to get invoice (注册费发票领取):
 - ✧ Time: April 23 (Saturday), 10:30~11:00, 15:30-15:50
 - ✧ Place: Outside the Conference Room II



F3/三层会场指引

Recommended Route



Taxi:

- 1) From Capital International Airport (首都国际机场): The cost is about 130 RMB (50mins).
- 2) From Beijing Railway Station (北京站): The cost is about 100 RMB (80 mins).
- 3) From Beijing West Railway Station (北京西站): The cost is about 70 RMB (60mins).
- 4) From Beijing South Railway Station (北京南站): The cost is about 105 RMB (90mins).

Local Bus:

Bus #205 (Software Park West Stop/软件园西区站)

Bus #333 (Houchangcun East Stop/后厂村东站)

Bus #963/#982 (Dongbeiwang West Road North Stop/东北旺西路北口站)

Subway:

Take Subway Line 13 to "SHANG DI Station(上地站)", take Exit A to catch Bus #205 to "Software Park West Stop(软件园西区站)". Enter the park and proceed toward in the north direction, CSRC will be to your right in 400 meters.

For more information, please check: <http://j.map.baidu.com/WLV80>

Recommended Hotel

◆ Yitel 和颐酒店(软件园 5 号路) *The Nearest Hotel (about 15 minutes' Walk)

Address: ZPark Building 9, No. 8 West Dongbeiwang Road, Haidian District, Beijing
北京市海淀区东北旺西路 8 号中关村软件园 9 号楼 (中关村软件园南门)

Telephone: +86-10-82826677



Zoom in



The 6th Workshop on Quantum Many-Body Computation

Venue: Conference Room II, 3rd Floor, CSRC Building

April 21, 2016 (Thursday), 14:00 ~ 20:00

Registration (14:00~18:00) <i>Dinner (17:30~18:30, Buffet, CSRC Canteen, B1 Floor)</i>	
16:00~17:30	Lecture I: Ling Wang (汪玲) , <i>Beijing Computational Science Research Center</i> Introduction to Density Matrix Renormalization Group and Matrix Product States
18:30~20:00	Lecture II: Rubem Mondaini , <i>Beijing Computational Science Research Center</i> Introduction to Auxiliary Field Quantum Monte Carlo Methods and Applications

April 22, 2016 (Friday), 08:30 ~ 12:20

08:30 ~ 08:40	<i>Opening, Miscellaneous</i>
Session I Chair: Hai-Qing Lin (林海青) , <i>Beijing Computational Science Research Center</i>	
08:40 ~ 09:10	Hong Yao (姚宏) , <i>Institute for Advanced Study, Tsinghua University</i> Fermion-Induced Quantum Critical Points: Type-II Landau-Forbidden Transitions
09:10 ~ 09:40	Fan Yang (杨帆) , <i>Beijing Institute of Technology</i> Triplet Topological Superconductivity near Type-II Van-Hove Singularity
09:40 ~ 10:10	Zi-Yang Meng (孟子杨) , <i>Institute of Physics, CAS</i> Interaction-Driven Topological Phase Transition in Correlated Symmetry Protected Topological States
10:10 ~ 10:40	<i>Tea Break/Group Photo</i>
Session II Chair: Gang Su (苏刚) , <i>University of Chinese Academy of Sciences</i>	
10:40 ~ 11:10	Wen-An Guo (郭文安) , <i>Beijing Normal University</i> Quantum Criticality with Two Length Scales
11:10 ~ 11:40	Tao Li (李涛) , <i>Renmin University of China</i> Z_2 Spin Liquid State on the Kagome Lattice: A New Saddle Point
11:40 ~ 12:00	Fa Wang (王堡) , <i>Peking University</i> Nematic Quantum Paramagnet in Spin-1 Square Lattice Models
12:00 ~ 12:20	Cheng-Xiang Ding (丁成祥) , <i>Anhui University of Technology</i> Emergent O(n) Symmetry in a Series of 3D Potts Models
12:20 ~ 14:00	<i>Lunch (Buffet, CSRC Canteen, B1 Floor)</i> <i>Posters (Corridor, 3rd Floor)</i>

The 6th Workshop on Quantum Many-Body Computation

Venue: Conference Room II, 3rd Floor, CSRC Building

April 22, 2016 (Friday), 14:00 ~ 17:30

Session III Chair: Ying-Jer Kao (高英哲), National Taiwan University	
14:00 ~ 14:30	Po-Chung Chen (陈柏中), National Tsing Hua University A Memory of Majorana Modes through Quantum Quench
14:30 ~ 15:00	Xian-Long Gao (高先龙), Zhejiang Normal University Fulde-Ferrell-Larkin-Ovchinnikov State in a One-Dimensional Optical Lattice of Short- and Long-Range Interactions
15:00 ~ 15:30	Qi-Jin Chen (陈启谨), Zhejiang University Instability of the Fulde-Ferrell-Larkin-Ovchinnikov States in Ultracold Atomic Fermi Gases in 3D Continuum
15:30 ~ 15:50	<i>Tea Break</i>
Session IV Chair: Liang-Jian Zou (邹良剑), The Institute of Solid State Physics, CAS	
15:50 ~ 16:20	Sam-Young Cho (曹三永), Chongqing University Spin Operators of Massive Particles and the Fundamentals of Spin
16:20 ~ 16:50	Qi Zhou (周琦), The Chinese University of Hong Kong Glide Reflecting a Su-Schrieffer-Heeger Chain
16:50 ~ 17:10	Han-Tao Lu (陆汉涛), Lanzhou University Nonequilibrium Optical Response in a One-Dimensional Hubbard Model
17:10 ~ 17:30	Li-Ping Yang (杨丽平), Chongqing University Fine Structure of the Entanglement Entropy in the O(2) Model
17:30 ~ 19:00	<i>Dinner (Buffet, CSRC Canteen, B1 Floor)</i>

The 6th Workshop on Quantum Many-Body Computation

Venue: Conference Room II, 3rd Floor, CSRC Building

April 23, 2016 (Saturday), 08:30 ~ 12:00

Session V Chair: Tao Xiang (向涛), Institute of Physics, CAS	
08:30 ~ 09:00	Ku Wei (顾威), Shanghai Jiao Tong University Itinerancy-Enhanced Quantum Fluctuation of Magnetic Moments in Iron-Based Superconductors
09:00 ~ 09:30	Ying-Jer Kao (高英哲), National Taiwan University Tree Tensor Network Strong Disorder Renormalization Group on a Disordered Antiferromagnetic Ising Chain in External Fields
09:30 ~ 10:00	Huan-Qiang Zhou (周焕强), Chongqing University Fidelity Mechanics
10:00 ~ 10:30	<i>Tea Break</i>
Session VI Chair: Zhong-Yi Lu (卢仲毅), Renmin University of China	
10:30 ~ 11:00	Dao-Xin Yao (姚道新), Sun Yat-Sen University From Disordered Heisenberg Chain to Amorphous Valence-Bond Solid: A Study of Quantum Monte Carlo and Strong-Disorder Renormalization Group (SDRG)
11:00 ~ 11:20	Jie Lou (娄捷), Fudan University Study of Strongly Correlated Electronic System by GMERA
11:20 ~ 11:40	Wei Li (李伟), Beihang University Thermal Tensor Networks, Symmetry Implementation, and the Applications to Investigate Quantum Magnetocaloric Materials
11:40 ~ 12:00	Zhi-Yuan Xie (谢志远), Renmin University of China Some Recent Applications of Tensor Renormalization Group
12:00 ~ 14:00	<i>Lunch (Buffet, CSRC Canteen, B1 Floor)</i> <i>Posters (Corridor, 3rd Floor)</i>

The 6th Workshop on Quantum Many-Body Computation

Venue: Conference Room II, 3rd Floor, CSRC Building

April 23, 2016 (Saturday), 14:00 ~ 17:30

Session VII Chair: Po-Chung Chen (陈柏中), National Tsing Hua University	
14:00 ~ 14:30	Liang-Jian Zou (邹良剑), The Institute of Solid State Physics, CAS Multiorbital Slave Boson Approach and Rotational Invariant Extension: Applications to Multiorbital Strongly Correlated Systems
14:30 ~ 15:00	Yu-Zhong Zhang (张宇钟), Tongji University Metal-to-Insulator Transition in Graphene on Hexagonal Boron Nitride
15:00 ~ 15:30	Zhong-Bing Huang (黄忠兵), Hubei University Effects of Off-Site Coulomb Interaction on the Electronic Structure and Magnetism in Iron-Based Superconductors
15:30 ~ 15:50	<i>Tea Break</i>
Session VIII Chair: Xiao-Qun Wang (王孝群), Shanghai Jiao Tong University	
15:50 ~ 16:10	Zheng-Xin Liu (刘正鑫), Renmin University of China Non-Abelian Chiral Spin Liquid on the Kagome Lattice
16:10 ~ 16:30	Lei Wang (王磊), Institute of Physics, CAS New Adventures in Quantum Monte Carlo Method - How Did I Earn an Erdős Number of Two?
16:30 ~ 16:50	Qian-Qian Shi (史倩倩), Chongqing University Geometric Entanglement and Quantum Phase Transitions in Two-Dimensional Quantum Lattice Systems
16:50 ~ 17:20	Hong-Gang Luo (罗洪刚), Lanzhou University Spin Susceptibility of Anderson Impurities in Arbitrary Conduction Bands
17:20 ~ 17:30	<i>Closing Remarks</i>
17:30 ~ 19:30	<i>Dinner (潇湘府-上地店, 三层宴会厅)</i>