Stanford

Hongchen Jiang

Staff Scientist, SLAC National Accelerator Laboratory

Bio

BIO

Hong-Chen Jiang

Staff Scientist

Stanford Institute for Materials and Energy Sciences (SIMES), SLAC and Stanford University

Personal website: https://sites.google.com/view/hcjiang/home

Contacts

Phone: (650)725-2189 (Office)

E-mail: hcjiang@stanford.edu; hongchen777@gmail.com

Room 360, McCullough Bldg, 476 Lomita Mall, Stanford, CA 94305-4045

Career History

2000 - 2004, Bachelor, Zhejiang University

2004 - 2009, Ph.D., Institute for Advanced Study, Tsinghua University

2009 - 2011, Postdoctoral Researcher, Microsoft Research Station Q, UCSB

2011 - 2013, Postdoctoral Researcher, Kavli Institute for Theoretical Physics, UCSB

2013 - 2014, Postdoctoral Researcher, UC Berkeley

2014 - Present, Staff Scientist, SIMES, SLAC and Stanford University

Research Interests

My research interest lies in the understanding of the properties of correlated electron systems and quantum spin systems. One major direction of my work is to search for the quantum spin liquid state in frustrated quantum magnetic systems, understanding the physics of high temperature

superconductivity and topological phases as well as their entanglement properties. In addition, I am also very interested in developing new computation tools widely used in studying various strongly correlated systems, including density matrix renormalization group and Tensor network states approaches.

Selected Publications

1. Superconductivity in the Hubbard model and its interplay with charge stripes and next-nearest hopping t', Hong-Chen Jiang, Thomas P. Devereaux, arXiv:1806.01465 (Science Accepted)

2. Superconductivity in the doped t-J model: results for four-leg cylinders, Hong-Chen Jiang, Zheng-Yu Weng, Steven A. Kivelson, Phys. Rev. B 98, 140505 (2018)

3. Holon Wigner Crystal in a Lightly Doped Kagome Quantum Spin Liquid, Hong-Chen Jiang, Thomas P. Devereaux, Steven A. Kivelson, Phys. Rev. Lett. 119, 067002 (2017)

4. Numerical evidence of fluctuating stripes in the normal state of high-Tc cuprate superconductors, Edwin W. Huang, Christian B. Mendl, Shenxiu Liu, Steve Johnston, Hong-Chen Jiang, Brian Moritz, Thomas P. Devereaux, Science 358, 1161-1164 (2017)

5. Non-Fermi-liquid d-wave metal phase of strongly interacting electrons, Hong-Chen Jiang, Matthew S. Block, Ryan V. Mishmash, James R. Garrison, D. N. Sheng, Olexei I. Motrunich, Matthew P. A. Fisher, Nature 493, 39-44 (2013)

6. Identifying Topological Order by Entanglement Entropy, Hong-Chen Jiang, Zhenghan Wang, Leon Balents, Nature Physics 8, 902-905 (2012)

7. Density Matrix Renormalization Group Numerical Study of the Kagome Antiferromagnet, Hong-Chen Jiang, Z. Y. Weng, D. N. Sheng, Phys. Rev. Lett. 101, 117203 (2008)

CURRENT ROLE AT STANFORD

Staff Scientist

INSTITUTE AFFILIATIONS

- Staff Scientist, Stanford Institute for Materials and Energy Sciences

EDUCATION AND CERTIFICATIONS

- Ph.D., Institute for Advanced Study, Tsinghua University , Theoretical condensed matter physics (2009)
- Bachelor, Zhejiang University , Physics (2004)

LINKS

- Personal website: https://sites.google.com/view/hcjiang/home

Professional

PROFESSIONAL INTERESTS

My research interest lies in the understanding of the properties of correlated electron systems and quantum spin systems. One major direction of my work is to search for the quantum spin liquid state in frustrated quantum magnetic systems, understanding the physics of high temperature superconductivity and topological phases as well as their entanglement properties. In addition, I am also very interested in developing new computation tools widely used in studying various strongly correlated systems, including density matrix renormalization group and Tensor network states approaches.

WORK EXPERIENCE

- Postdoctoral Researcher - Microsoft Research Station Q, UCSB (7/20/2009 - 7/20/2011)