Shi Feng

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Education

The Ohio State University (OSU) **Columbus, OH, USA**
Ph.D in Physics *2020–Present*
- Condensed Matter Theory
- Advisor: Nandini Trivedi (Dept. of Physics, OSU)
- Expected Completion: 2024

OSU **Columbus, OH, USA**
M.S. in Physics *2018–2020*
- Condensed Matter Theory
- Advisor: Nandini Trivedi

Xi'an Jiaotong University (XJTU) **Xi'an, Shaanxi, China**
B.S. in Physics *2014–2018*
- Honors Science Program (Physics), Qian Xuesen College
- Visiting Student in UCR, 2016

Research Experience

OSU **Columbus, OH, USA**
Graduate Research Assistant *2020–Present*
Advisor: Nandini Trivedi (Dept. of Physics, OSU)
1. Spin and heat transport in quantum spin liquids
   - Spin and energy transport in Kitaev's honeycomb model using exact diagonalization (ED) and density matrix renormalization group (DMRG)
2. Magnetic phase transition in a quantum spin orbital liquid
   - Spin and orbital correlations of a superexchange model with spin S=1 and orbital L=1 relevant for $5d^4$ transition metal Mott insulators.
   - Identified the gapless to gapless quantum phase transition at Uimin-Lai-Sutherland point.

XJTU **Xi'an, Shaanxi, China**
Undergraduate Research Assistant *2017 - 2018*
Advisor: Guanghao Lu (Frontier Institute of Science and Technology, XJTU)
1. Absorption and charge transport in semiconductor/insulator polymers
   - Optimization of organic photovoltaic devices with sub-layer stacking by transfer matrix method
   - in-situ reconstruction of tomography of nanowires buried in conjugated polymers

UCLA **Los Angeles, CA, USA**
Undergraduate Research Assistant *Summer 2017*
Cross-disciplinary Scholars in Science and Technology
Advisor: Hongwen Jiang (Dept. of Physics, UCLA)
1. Reduction of charge defects in MOS quantum dot qubit device
   - Electron beam induced defects in SiO_2 using Monte Carlo simulation
   - Fabrication of MOS quantum dots by nano-imprint lithography that mitigates E-beam induced defects

UCR **Riverside, CA, USA**
Undergraduate Research Assistant *Fall 2016*
Advisor: Marc Bockrath (Dept. of Physics, UCR)
1. Electronic transport in twisted bilayer graphene
   - Fabrication of twisted bilayer graphene and analysis of the Landau Fan diagram of the resistivity.
   - Wrote graphical interface by Mathematica for systematic data analysis in resistivity data.

Publications

[2]: **Shi Feng**, Gonzalo Alvarez, Nandini Trivedi. "Gapless to gapless phase transitions in quantum spin chains". *arXiv:2012.00700*

[3]: **Shi Feng**, Niravkumar D. Patel, Panjin Kim, Jung Hoon Han, Nandini Trivedi. "Magnetic phase transitions in quantum spin-orbital liquids". *Phys. Rev. B*, 101:155112 (2020)

[4]: Dongfan Li, Shengtao Li, Wanlong Lu, **Shi Feng**, Peng Wei, Yupeng Hu, Xudong Wang, Guanghao Lu. "Rapidly measuring charge carrier mobility of organic semiconductor films upon a point-contact four-probes Method". *JEDS*.2018.2872714

[5]: Laju Bu, Shuang Gao, Weichen Wang, Ling Zhou, **Shi Feng**, Xin Chen, Demei Yu, Shengtao Li, Guanghao Lu. "Film-depth-dependent light absorption and chargetransport for polymer electronics". *Adv. Electron. Mater*, 2:1600359 (2016)

Conferences and Workshops

Mar, 2021: **APS March Meeting**, American Physical Society

Aug, 2020: **Ultra Quantum Matter**, Perimeter Institute for Theoretical Physics, Waterloo, Canada

Jun, 2020: **Condensed Matter Physics in all Cities**, University of Kent Canterbury, Kent, UK

Honors and Awards

2018: **Siyuan Scholarship**, *XJTU*, Xi'an, Shaanxi, China

2017: **CSST Scholarship**, *UCLA*, Los Angeles, CA, USA

• Awarded in CSST program – Cross-disciplinary Scholars in Science and Technology

2016: **Meritorious Winner** of Interdisciplinary Contest in Modelling, Bedford, MA, USA

2016: **1st Place Award** of China Mathematical Contest in Modelling, Xi'an, Shaanxi, China

2013: **2nd Place Award** of Chinese Physics Olympiad, Xi'an, Shaanxi, China

Teaching Experience

OSU **Columbus, OH, USA**

Graduate Teaching Assistant *2019 - 2020*

- Description:
  - Conducted recitation class to review relevant concepts and problems
  - Conducted Lab sessions
  - Graded homeworks and exams
  - Attended weekly training sessions on teaching method
- Courses:
  - Introductory Physics – Electromagnetism, Optics, Modern Physics (Spring 2020)
  - Introductory Physics – – Mechanics, Thermal Physics, Waves (Fall 2019)
  - Introductory Physics – Mechanics, Kinematics, Fluids, Waves (Spring 2019)

Technical Skills

Programming:

- Languages: C++, Python, Julia, Perl, Haskell, Matlab, Mathematica, Bash
- Libraries: Eigen, Numpy, Scipy, Matplotlib, DMRG++, HDF5, OpenGL, Blas, Lapack

OS and Clusters:

- OS: Windows, Linux (Ubuntu), High Performance Computing (HPC) environments
- Clusters: Unity and Ohio Supercomputer Center (OSC)

Languages

Chinese: Native

English: Fluent