

Yi-Ping Huang

POSTDOC FELLOW · THEORETICAL CONDENSED MATTER PHYSICS

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Research Interests

My research interests lie in the field of theoretical condensed matter physics. I am interested in the system with emergent quantum phenomena in/out of equilibrium. Emergent quantum phenomena appear mostly in strongly correlated systems including frustrated quantum magnetism, correlated electrons, and ultracold atoms. I am mostly interested in the universal understanding of in/out of equilibrium physics for different quantum phases such as topological phases protected/enriched by symmetries.

Education

University of Colorado Boulder

Boulder, Colorado, USA

DOCTOR OF PHILOSOPHY IN PHYSICS

2012 - 2017

- Dissertation: Symmetries and Topological order: realizations and signals in correlated strong spin-orbit coupled materials
- Advisor: Professor Michael Hermele

University of Colorado Boulder

Boulder, Colorado, USA

MASTER OF SCIENCE IN PHYSICS

2010 - 2012

- Advisor: Professor Michael Hermele

National Tsing-Hua University

Hsinchu, Taiwan

BACHELOR OF SCIENCE IN PHYSICS

2004 - 2008

- Project: Quantum phase diagrams of fermionic dipolar gases in a planar array of one-dimensional tubes
- Advisor: Professor Daw-Wei Wang

Position Held

Max Planck Institute for the Physics of Complex Systems

Dresden, Germany

POSTDOCTORAL ASSOCIATE

Aug. 2017 - present

- Advisor: Prof. Dr. Roderich Moessner and Dr. Markus Heyl

Publications

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| 2017 | “Building crystalline topological phases from lower-dimensional states”, Sheng-Jie Huang, Hao Song, <u>Yi-Ping Huang</u> and Michael Hermele | arXiv:1705.09243 |
| 2017 | “Theory of quantum Kagome ice and vison zero modes”, <u>Yi-Ping Huang</u> and Michael Hermele | Phys. Rev. B. 95 , 075130 |
| 2015 | “High-energy electronic excitations in Sr_2IrO_4 observed by Raman scattering”, Jhih-An Yang, <u>Yi-Ping Huang</u> , Michael Hermele, Tongfei Qi, Gang Cao and Dmitry Reznik | Phys. Rev. B. 91 , 195140 |
| 2014 | “Quantum Spin Ices and Topological Phases from Dipolar-Octupolar Doublets on the Pyrochlore Lattice”, <u>Yi-Ping Huang</u> , Gang Chen and Michael Hermele | Phys. Rev. Lett. 112 , 167203 |
| 2009 | “Quantum phase diagrams of fermionic dipolar gases in a planar array of one-dimensional tubes”, <u>Yi-Ping Huang</u> and Daw-Wei Wang | Phys. Rev. A. 80 , 053610 |

Conferences

2017	Max Planck Institute for the Physics of Complex Systems, Quantum Sensing with Quantum Correlated Systems	<i>Dresden, Germany</i>
2017	Max Planck Institute for the Physics of Complex Systems, Korrelationstage 2017	<i>Dresden, Germany</i>
2017	Kavli institute for theoretical physics, Order, Fluctuations, and Strong Correlations: New Platforms and Developments	<i>Santa Barbara, USA</i>
2017	Gordon research conference, Topological and Correlated Matter: From Fundamentals to New Discoveries	<i>Hong-Kong, PRC</i>
2017	Aspen winter conference, Quantum Dynamics: From Models to Materials	<i>Aspen, USA</i>
2015	The Center for Emergent Materials, Spin-orbit coupling and magnetism in correlated transition metal oxides workshop	<i>Columbus, USA</i>
2009	International centre for theoretical physics, Research frontiers in ultracold atoms	<i>Trieste, Italy</i>

Skills

Theoretical physics	<ul style="list-style-type: none"> • Physics of correlated materials • Ultracold atoms • Effective theory • Group theory • Field theory • Gauge theory • Bosonization
Programming	<ul style="list-style-type: none"> • C/C++(boost graph library, intel Math Kernel Library, HDF5) • Python • Mathematica
Other Tools	<ul style="list-style-type: none"> • Git • GNU make • Inkscape • Basic parallel computation
Operation System	<ul style="list-style-type: none"> • Windows • Linux(Ubuntu and RHEL)
Languages	<ul style="list-style-type: none"> • Mandarin(native speaker) • English(fluent, TOEFL iBT: 103)

Honors & Awards

- 2015-2017 **Taiwan Ministry of Education scholarship, 16000USD/year for 2 years**
- 2009 **Outstanding poster presentation, Annual Meeting of the Physics Society of Taiwan**