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

2017	**"Building crystalline topological phases from lower-dimensional states"** , Sheng-Jie Huang, Hao Song, **Yi-Ping Huang** and Michael Hermele	*arXiv:1705.09243*
2017	**"Theory of quantum Kagome ice and vison zero modes"**, **Yi-Ping Huang** and Michael Hermele	*Phys. Rev. B.* ***95****, 075130*
2015	**"High-energy electronic excitations in Sr_2IrO_4 observed by Raman scattering"** , Jhih-An Yang, **Yi-Ping Huang**, 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"**, **Yi-Ping Huang**, 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"**, **Yi-Ping Huang** 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	*Dresden, Germany*
2017	**Max Planck Institute for the Physics of Complex Systems**, Korrelationstage 2017	*Dresden, Germany*
2017	**Kavli institute for theoretical physics**, Order, Fluctuations, and Strong Correlations: New Platforms and Developments	*Santa Barbara, USA*
2017	**Gordon research conference**, Topological and Correlated Matter: From Fundamentals to New Discoveries	*Hong-Kong, PRC*
2017	**Aspen winter conference**, Quantum Dynamics: From Models to Materials	*Aspen, USA*
2015	**The Center for Emergent Materials**, Spin-orbit coupling and magnetism in correlated transition metal oxides workshop	*Columbus, USA*
2009	**International centre for theoretical physics**, Research frontiers in ultracold atoms	*Trieste, Italy*

Skills

Theoretical physics	• Physics of correlated materials • Ultracold atoms • Effective theory • Group theory • Field theory • Gauge theory • Bosonization
Programming	• C/C++(boost graph library, intel Math Kernel Library, HDF5) • Python • Mathematica
Other Tools	• Git • GNU make • Inkscape • Basic parallel computation
Operation System	• Windows • Linux(Ubuntu and RHEL)
Languages	• 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