Yi-Ting Hsu

CONTACT INFORMATION

Physics Department, University of Notre Dame
312 Nieuwland Science Hall Notre Dame, IN, 46368, USA

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PROFESSIONAL EXPERIENCE

Physics Department, University of Notre Dame, IN

Assistant Professor **2020 –**

Condensed Matter Theory Center, University of Maryland, MD

Postdoctoral Research Associate **2017 – 2020**

EDUCATION

Cornell University, Ithaca, New York

Doctor of Philosophy **May 2017**

Thesis title: Topological Phases in the Real World
Advisor: Eun-Ah Kim

National Tsing-Hua University, Hsinchu, Taiwan

Bachelor of Science **May 2009**

RESEARCH INTERESTS

Theoretical Condensed Matter Physics

PUBLICATIONS

"Topological superconductivity, ferromagnetism, and valley-polarized phases in moiré systems: Renormalization group analysis for twisted double bilayer graphene"
Y.-T. Hsu, F. Wu, S. Das Sarma, Phys. Rev. B **102**, 085103 (2020). Editor's suggestion.

"Higher-Order Topological Dirac Superconductors"
R.-X. Zhang, Y.-T. Hsu, S. Das Sarma, Phys. Rev. B **102**, 094503 (2020)

"Inversion-protected topological crystalline superconductivity in monolayer WTe_2"
Y.-T. Hsu, W. S. Cole, R.-X. Zhang, J. D. Sau, Phys. Rev. Lett. **125**, 097001 (2020)

"Butterfly effect in interacting Aubry-Andre model: Thermalization, slow scrambling, and many-body localization"
S. Xu, X. Li, Y.-T. Hsu, B. Swingle, S. Das Sarma, Phys. Rev. Research **1**, 032039 (2019)

"Machine learning many-body localization: Search for the elusive nonergodic metal"
Y.-T. Hsu, X. Li, D.-L. Deng, S. Das Sarma, Phys. Rev. Lett. **121**, 245701 (2018)

"Hybridization-induced interface states in a topological insulator-magnetic metal heterostructure"
Y.-T. Hsu, K. Park, E.-A. Kim, Phys. Rev. B **96**, 235433 (2017)

"Band-structure-dependence of renormalization-group prediction on pairing channels"
Y.-T. Hsu, A. F. Rebola, C. J. Fennie, E.-A. Kim, arXiv:1701.07884 (2017)

"Topological superconductivity in monolayer transition metal dichalcogenides"
Y.-T. Hsu, A. Vaezi, M. H. Fischer, E.-A. Kim, Nat. Comm. **8**, 14985 (2017)

"Manipulating superconductivity in ruthenates through Fermi surface engineering"
Y.-T. Hsu, W. Cho, A. F. Rebola, B. Burganov, C. Adamo, K. M. Shen, D. G. Schlom, C. J. Fennie, E.-A. Kim, Phys. Rev. B **94**, 045118 (2016)

"Effects of surface-bulk hybridization in three-dimensional topological metals"
Y.-T. Hsu, M. H. Fischer, T. L. Hughes, K. Park, E.-A. Kim, Phys. Rev. B **89**, 205438 (2014)

"Field-induced long-lived supermolecules"
S.-J. Huang, Y.-T. Hsu, H. Lee, Y.-C. Chen, A. G. Volosniev, N. T. Zinner, D.-W. Wang, Phys. Rev.

A **85**, 055601 (2012)

"Interaction-induced ferroelectricity in the rotational states of polar molecules"
C.-H. Lin, Y.-T. Hsu, H. Lee, D.-W. Wang, Phys. Rev. A **81**, 031601(R) (2010)

Referee Experience

Physics Review Letter

Physics Review B

Physical Review Materials

Physica B

Selected Talks

"Inversion-protected higher-order topological superconductivity in two dimension", Leibniz Institute for Solid State and Materials Research Dresden (May 2020)

"Topological phases in the real world", Colloquium, University of Notre Dame (Oct. 2019)

"Machine-learning manybody localization", Perimeter Institute (Sep. 2019)

"Inversion-protected higher-order topological superconductivity in monolayer WTe_2", Perimeter Institute (Sep. 2019)

"Machine-learning dynamical phases: searching for the elusive non-ergodic metal", National Center for Theoretical Sciences, Hsinchu, Taiwan (July 2019)

"Inversion-protected higher-order topological superconductivity in monolayer WTe_2", Academia Sinica, Taiwan (July 2019)

"Topological superconductivity in monolayer transition metal dichalcogenides", invited talk, March meeting (Mar. 2018)

"Topological superconductivity in monolayer transition metal dichalcogenides", KITP (Aug. 2017)

Teaching Experience

University of Notre Dame, Notre Dame, In

Assistant Professor, Phys 80501 Solid state physics — **Fall 2020**

Cornell University, Ithaca, NY

Grader, Phys 7636: Advanced Solid State Physics — **Spring 2014**

Teaching Assistant, Phys 2208: Fundamentals of Physics II — **Sping 2013**

Teaching Assistant, Phys 2218: Waves and Thermodynamics — **Fall 2012**

Teaching Assistant, Phys 6562: Statistical Physics I — **Spring 2012**

Teaching Assistant, Phys 2218: Waves and Thermodynamics — **Fall 2011**

Teaching Assistant, Phys 2208: Fundamentals of Physics II — **Spring 2011**

Teaching Assistant, Phys 2207: Fundamentals of Physics I — **Fall 2010**

Recent Workshops

Spin and heat transport in quantum and topological materials, KITP (4-22 Nov. 2019)

Machine-learning for Many-body Physics, KITP (28 Jan.-22 Feb. 2019)

Intertwined Order and Fluctuation in Quantum Materials, KITP (17 July-25 Aug. 2017)

Synthetic Quantum Matter, KITP (17 Oct.-10 Nov. 2016)