

Bowen Hou

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Education

Yale University

- **Ph.D** in Engineering & Applied Science (Material Science)
Advisor: Prof. Diana Y. Qiu
Research Area: Computational and Theoretical Condensed Matter Physics

New Haven, CT, USA

Sep 2021 - Present

Fudan University

- **B. E.** in Optical Science and Engineering
Highest Honors for Undergraduate Students (Graduation Star), Fudan
- Awarded to top 10/3300 graduates of 2021 class

Shanghai, China

Sep 2016 – Jun 2021

University of Texas at Austin

- **Visiting Student**

Austin, TX, USA

Aug 2018 – Dec 2018

Selected Honors and Awards

- Graduation Star, Fudan 2021
- Robert E. Apfel Fellowship, Yale 2021
- Wang-Dao Scholars, Fudan 2021
- KLA-Tencor Scholarship, Fudan 2020
- Thermo Fisher Scholarship, Fudan 2018

Service

- **Journal Referee:** *Crystal, Solid State Communications, Computational Materials Science*

Publications in Journals

(Publication Metrics from [Google Scholar](https://scholar.google.com/): Published 10 journal papers including first author in *PRL, JPCL* and *npj Computational Materials*. Cited 157 times, h-index 5)

*=equal contribution

- [1] S. Stolz, **B. Hou**, *et al*, “Spin-Stabilization by Coulomb Blockade in a Vanadium Dimer in WSe₂”, *ACS Nano* (2023)
- [2] **B. Hou**, D. Wang, B. A. Barker and D. Y. Qiu, “Exchange-Driven Intermixing of Bulk and Topological Surface State by Chiral Excitons in Bi₂Se₃”, *Physical Review Letters* 130, 216402 (2023)
- [3] Y. Cen, C. Ma, **B. Hou**, *et al*, “High anisotropy in titanium trisulfide monolayer: Ultrahigh carrier mobilities and large excitonic absorption”, *Chemical Physics* 556, 111796 (2023)
- [4] Y. Zhang, **B. Hou**, *et al*, “Towards high-temperature electron-hole condensate phases in monolayer tetrel metal halides: Ultra-long excitonic lifetimes, phase diagram and exciton dynamics”, *Materials Today Physics* 22, 100604 (2022)
- [5] Y. Wu*, **B. Hou***, *et al*, “Strong electron-phonon coupling influences carrier transport and thermoelectric performances in group-IV/V elemental monolayers”, *npj Computational Materials* 7 (1), 145 (2021)
- [6] X. Zhang, K. Xu, C. Liu, X. Song, **B. Hou**, *et al*, “Gauge-dependent topology in non-reciprocal hopping systems with pseudo-Hermitian symmetry”, *Communications Physics* 4 (1), 166 (2021)
- [7] Y. Chen, Y. Wu, **B. Hou**, *et al*, “Renormalized thermoelectric figure of merit in a band-convergent Sb₂Te₂Se monolayer: full electron-phonon interactions and selection rules”, *Journal of Materials Chemistry A* 9 (29), 16108-16118 (2021)
- [8] Y. Wu, **B. Hou**, *et al*, “Thermoelectric performance of 2D materials: The band-convergence strategy and strong intervalley scatterings”, *Materials Horizons* 8 (4), 1253-1263 (2021)
- [9] B. Peng, H. Zhang, W. Chen, **B. Hou**, *et al*, “Sub-picosecond photo-induced displacive phase transition in two-dimensional MoTe₂”, *npj 2D Materials and Applications* 4 (1), 14 (2020)

- [10] Y. Wu, Y. Chen, C. Ma, Z. Lu, H. Zhang, B. Mortazavi, **B. Hou**, *et al*, “Monolayer C₇N₆: Room-temperature excitons with large binding energies and high thermal conductivities”, *Physical Review Materials* 4 (6), 064001 (2020)
- [11] **B. Hou**, Y. Zhang, *et al*, “Room temperature bound excitons and strain-tunable carrier mobilities in janus monolayer transition-metal dichalcogenides”, *The journal of physical chemistry letters* 11 (8), 3116-3128 (2020)

Invited Talks at International Conferences

2023

- APS March Meeting, “Exchange-Driven Intermixing of Bulk and Topological Surface State by Chiral Excitons in Bi₂Se₃” Las Vegas, USA

2022

- APS March Meeting, “Ab initio study of quasiparticle band structure and chiral exciton in the topological insulator Bi₂Se₃”. Chicago, USA

Seminars and Workshop

2023

- BerkeleyGW Workshop (Instructor) Oakland, USA

2022

- Center for Computational Study of Excited-State Phenomena in Energy Materials (C2SEPEM), “Long-Lived Chiral Excitons in the 3D Topological Insulator Bi₂Se₃” Virtual Meeting
- PRACE meeting, Virtually, “Exchange-Driven Intermixing of Bulk and Topological Surface State by Chiral Excitons in Bi₂Se₃” Virtual Meeting

2020

- The 20th Anniversary Celebration Department of Optical Science, “Exciton Behavior and Tunable Mobilities in JTMDs” Shanghai, China

Teaching Assistant

- ENAS 775 Electronic and Optical Properties of Energy Materials (Yale) Spring 2023
- MENG 211 Thermodynamics for Mechanical Engineers (Yale) Fall 2022
- PHYS 130107 Quantum Mechanics I (Fudan) Spring 2020
- PHYS 130107 Quantum Mechanics I (Fudan) Spring 2019