



BANGZHENG HAN

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🎓 EDUCATION

Xi'an Jiaotong University (XJTU), Xi'an, China Sep 2021 – Present

B.S. in Physics, expected August 2025, GPA 3.56

University of California, Berkeley, Berkeley, CA, USA Sep 2023 – Jan 2024

Exchange Program in Physics, GPA 4

Xi'an Jiaotong University (XJTU), Xi'an, China Sep 2019 – Aug 2021

Young Gifted Program as an alternative to high school, GPA 3.65

🧪 RESEARCH EXPERIENCE

Strong interface-induced spin-orbit interaction in graphene on BiSe₂O₅, XJTU Current

Individual Project, Supervised by Professor Zhe Wang, Collaborated with Haibo Xie

The project aims to stack graphene on BiSe₂O₅ to induce spin-orbit coupling, inspired by Professor Zhe Wang's work on WS₂ and WSe₂. It involves weak anti-localization effect measurements, analysis of Shubnikov-de Haas oscillations, and ab initio calculations of interface-induced SOI.

- Independently responsible for device fabrication, theoretical calculations and experimental design
- Collaborated with graduate student Haibo Xie for etching, and data measurement
- Currently measuring and collecting data from experiments

Charge Transfer Dynamics in RuCl₃/hBN/WSe₂ Heterostructures, UC Berkeley 2023 – 2024

Undergraduate Research Assistant, Supervised by Professor Feng Wang

Fabricated RuCl₃/hBN/WSe₂ heterostructure devices with top gate and contacts, and conducted absorption spectroscopy measurements and pump-probe measurements., under the mentorship of Jingxu Xie

- Mastered device fabrication techniques including preparation, transfer of 2D materials, photolithography, and metal electrode deposition
- Learned how to fine-tuned optical setups for photoelectric effect measurements
- Developed a neural network for detecting thin hBN layers on wafers, achieving a 95% accuracy

Replication of Propagation Dynamics of Truncated Vector Vortex Beams, XJTU 2022 – 2023

Research Training, Supervised by Professor Hong Gao

Focused on replicating theoretical calculations and simulations for the paper "Investigation of propagation dynamics of truncated vector vortex beams." guided by graduate students Yun Chen and Jianyi Xu

- Gained insights into Fourier optics and enhanced literature review skills.
- Discontinued further group work due to limited experimental opportunities for undergraduates and concurrent commitments to applying for exchange programs.

♡ HONORS AND AWARDS

National First Prize, Award on China Undergraduate Physics Tournament

Oct 2022

University Third-Class Scholarships

Aug 2022

📌 MISCELLANEOUS

- Languages: English - Fluent, Mandarin - Native speaker
- You can also reach me at my school-provided email: 2192314292@xjtu.edu.cn