

Jacob H. Nie

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PERSONAL INFORMATION

Personal email: jacobnie2008@gmail.com (preferred)

School email: jacobhnie@ucsb.edu

Current residence: Santa Barbara, CA

Age: 19

EDUCATION

University of California, Santa Barbara

B. S., Physics, 2020–2024 (expected)

GPA: 3.98/4.00

EXPERIENCE

Undergraduate researcher, UC Santa Barbara (April 2021–Present)

PI: *Prof. Chenhao Jin*

Probing graphene and transition metal dichalcogenide (TMD) heterostructures using optical spectroscopy. Also in a collaboration with Prof. Andrea Young to detect correlated and/or topological states in TMD heterostructures using a graphene sensing layer.

Visiting student, UC Berkeley (June 2021–September 2021)

PI: *Prof. Feng Wang*

Learned techniques for fabricating 2D van der Waals heterostructures. Fabricated small-angle twisted WSe₂ heterostructures for optical detection of magnetic and correlated electronic states. Worked on developing a contact-less AC capacitive transport measurement scheme to circumvent Schottky barrier contact resistance for future measurement on TMDs.

SELECTED COURSEWORK

PHYS 13A - Honors Experimental Physics (A)

PHYS 101 - Complex Variables (in progress)

PHYS 104 - Advanced Mechanics (A+)

PHYS 110A - Electromagnetism (A+)

PHYS 123B - Topics in Condensed Matter Physics (A+)

PHYS 215A,B - Quantum Mechanics* (A+, in progress)

PHYS 223A - Condensed Matter Physics* (A+)

* *Graduate course*

SELECTED HONORS

Rudolf Ortway International Competition in Physics: First Prize, undergraduate top score, best solution award (2020)

USA Physics Olympiad National Team Training Camp Attendee (2019)

USA Physics Olympiad: Gold Medalist (2019)

Princeton University Physics Competition: Gold Medalist (2018)

SKILLS

Proficient: Python, Mathematica, \LaTeX , LabVIEW

Familiar with: MATLAB, Linux