Yi J Zhu

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EDUCATION

Harvard University
PhD Quantum Science and Engineering — 2022–Present

University of California, Berkeley
BS Engineering Physics — 2018–2022

EXPERIENCE

Berkeley Trapped Ions Group — July 2020 – Present
Supervisors: Hartmut Häffner, Sara Mouradian

- Quantum information processing with trapped $^{40}Ca^{+}$ ions
- Simulated and optimized waveguide crossings for integrated photonics.
- Designed, characterized, and constructed a free-space optical system for single-ion addressing.
- Simulated sources of field error in trapped-ion systems via IonSim.

Ultrafast Nano-Optics Group, UC Berkeley — May 2019 - December 2019
Supervisors: Feng Wang, Tairu Lyu

- Constructed graphene-based heterostructures for detection of thermal waves.
- Reprogrammed controls for the stamping motor, thermocouple, and Peltier cooler.
- Performed Raman spectroscopy of trilayer-graphene and analyzed Raman shift.

TEACHING OUTREACH

Director, Undergraduate Labs at Berkeley, Physics & Astronomy Division
August 2019 – Present

- Lead instructor for the Undergraduate Lab at Berkeley (ULAB): a 2-semester course that seeks to make research accessible to under-supported students and students traditionally underrepresented in academia.
- Taught over 150 students and oversee over 30 members of staff conducting projects on topics in physics and astronomy.
- Designed assignments on Python, LaTeX, Statistics, and Git.
- Coordinated with advisors, faculty, postdocs, and graduate students in the physics and astronomy departments.
- Securing department funding and grants. Obtained $60,000 over 3 years as part of the Berkeley Discover Grant (PI: Eugene Chiang).

BURET Group — September 2021 - Present
Supervisors: Elisa Stone

- The Berkeley Undergraduate Research Evaluation Tool (BURET) group develops tools to evaluate the effectiveness of undergraduate research experiences.
- Performing a study of ULAB's effectiveness in promoting accessibility of undergraduate research using novel tools developed by the group.

Course Reader
Grading and correcting homework for:

- Physics C191: Quantum Information Science and Technology Fall 2021
- Physics 110A: Electromagnetism and Optics Spring 2021
- Physics 5B: Introductory Electromagnetism, Waves, and Optics Fall 2020

TALKS

Berkeley Physics Research Fair Spring 2020
- *A Scalable Approach to Ion Addressing in a Linear Paul Trap*

HONORS

Berkeley Physics Undergraduate Research Scholarship Spring 2021
- Scholarship from the Berkeley Physics department in support of my research with the Häffner group.

Edward Frank Kraft Scholarship February 2019
- Awarded to students who have attained the highest scholastic records in their first semester at UC Berkeley.

COURSEWORK

- Physics: classical mechanics, electromagnetism and optics (2 semesters), quantum mechanics (3 semesters), solid state (1 semester), quantum information science and technology, general relativity
- Math: linear algebra, real analysis, complex analysis, statistics