Laura Cui

Cambridge, MA 02139
(240) 381-6689
lcui @ caltech.edu

Education

Ph.D. in Physics, *California Institute of Technology* STARTING SEPT 2023

- Affiliation: Division of Physics, Mathematics, and Astronomy
- Intended subfield: quantum information theory

B.S. Physics and Mathematics, *Massachusetts Institute of Technology* SEPT 2019 - JUNE 2023

- GPA: 4.88/5.0
- Thesis: "Probing Local Many-Body Dynamics with Random Quantum Circuits"
- Selected coursework: Quantum Information Science (8.370, 8.371, 8.372), Quantum Field Theory (Harvard PHYS 253A, 253B), Statistical Field Theory (8.334), Mathematical Physics (Harvard PHYS 216), Abstract Algebra (18.701), Functional Analysis (18.102), Differential Forms (18.952)

Undergraduate Research

MIT Center for Theoretical Physics JAN 2022 - PRESENT
Undergraduate Researcher

- Advisor: Aram Harrow, with Daniel Ranard
- Title: "Random Quantum Circuits as a Model for the Classification of Topological Phases" (TBA)

Caltech Institute for Quantum Information and Matter JUNE 2021 - AUG 2021
Visiting Undergraduat Researcher

- Advisor: John Preskill, with Alexander Dalzell and Hsin-Yuan "Robert" Huang
- Title: "Local Information Scrambling in Random Quantum Circuits"

MIT Research Laboratory of Electronics JUNE 2020 - AUG 2020
Undergraduate Researcher

- Advisors: Dirk Englund, Carlos Errando Herranz
- Title: "Bond-Orbital Description of Strain-Enhanced Nonlinearities in Lithium Niobate"

Awards and Honors

2023 **Sigma Pi Sigma Inductee**
Invited for outstanding scholarship in physics at MIT

2023 **NSF Graduate Research Fellowship Program Honorable Mention**
Received one of 825 honorable mentions

2022 **MIT Goldwater Scholarship Nomination**
Selected as one of two nominees from the MIT School of Science

2019 **Regeneron Science Talent Search Scholar**
Awarded for work with near-threshold doubly heavy tetraquark states

Teaching Positions

Massachusetts Institute of Technology

Undergraduate Teaching Assistant, *6.1200: Mathematics for Computer Science* — SPRING 2023
Lecturer and Head Grader, *18.S097: Proof-Writing Workshop* — JAN 2021
Undergraduate Teaching Assistant, *8.02: Electricity and Magnetism* — FALL 2020

Other

Mentor, *MIT Physics Mentorship Program* — SEPT 2021 - MAY 2023
Residential Counselor, *MathROOTS @ MIT* — JUNE 2022 - JULY 2022
Teaching Assistant, *Art of Problem Solving Academy Gaithersburg* — NOV 2017 - JULY 2020

Other

Interuniversity Institute for Marine Sciences, *Research Assistant* — JUNE 2023 - AUG 2023

- Supervisor: Derya Akkaynak

MIT Mathematics Directed Reading Program, *Mentee* — JAN 2023

- Read about and present on Lie groups, Lie algebras, and representation theory in physics

MIT Physics Directed Reading Program, *Mentee* — JAN 2021

- Read about and present on the black hole information problem

J.P. Morgan Chase & Co., *Quantitative Research Intern* — JAN 2020

- Team: Rates Data Analytics
- Developed and implemented predictive models for fixed income trading

University of Maryland Joint Quantum Institute, *Research Assistant* — JUNE 2019 - AUG 2019

- Advisors: Jacob M. Taylor, Daniel Carney
- Title: "Decoherence from Wave Packet Scattering with Long-Range Interactions"

University of Maryland Center for Fundamental Physics, *Visitor* — JUNE 2018 - AUG 2018

- Advisor: Thomas D. Cohen
- Title: "Near-Threshold Doubly Heavy Tetraquark States"

blair3sat, *Co-founder, Optical Mission Lead* — SEPT 2017 - JUNE 2019

- With Ryan Tse, Patrick Kim, Sujay Swain, Benjamin Cohen, and Gautom Das
- Title: "Space-based Ionosonde Receiver and Visible Limb-viewing Airglow Sensor (SIRVLAS): A CubeSat Instrument Suite for Enhanced Ionospheric Charge Density Measurements"

Naval Research Laboratory, *Science and Engineering Apprenticeship Program* — JUNE 2017 - AUG 2017

- Affiliation: Space Science Division
- Title: "Retrieving Instantaneous Field of View and Geophysical Information for Atmospheric Limb Sounding with USGNC Near Real-Time Orbit Data"

Activities and Community Service

MIT Physics Values Committee, Undergraduate Representative — FALL 2021 - SPRING 2023
MIT Undergraduate Society for Women in Mathematics, President — SUMMER 2022 - SPRING 2023
MIT Society of Physics Students, Executive Board Member — SUMMER 2021 - SPRING 2023
MIT Educational Studies Program, Active Member — FALL 2019 - FALL 2022

Additional Skills

- Proficient in Python, Java, MATLAB, and Mathematica
- Experience with data science libraries and machine learning