
Laura Cui

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Education

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

- GPA: 4.9/5.0
 - Coursework: Quantum Physics (8.04, 8.05, 8.06), Quantum Information Science (8.370, 8.371, 8.372), Quantum Field Theory (Harvard Physics 253A, 253B), Statistical Mechanics (8.044, 8.333), Mathematical Physics (Harvard Physics 216), Abstract Algebra (18.701), Functional Analysis (18.102), Differential Forms (18.952), Undergraduate String Theory (8.251)
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Research Experience

MIT Center for Theoretical Physics JAN 2022 - PRESENT
Undergraduate Researcher

- Advisor: Prof. Aram Harrow
- Investigate properties of topological entanglement entropy in random quantum circuits

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

- Advisor: Prof. John Preskill
- Defined and investigated conditions in which local scrambling occurs in random quantum circuits

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

- Advisors: Prof. Dirk Englund, Dr. Carlos Errando Herranz
- Applied bond-orbital model for second order optical response in non-centrosymmetric crystals under strain

University of Maryland Joint Quantum Institute JUNE 2019 - AUG 2019
Undergraduate Researcher

- Advisors: Prof. Jacob M. Taylor, Dr. Daniel Carney
- Investigated decoherence due to long-range interactions in tabletop quantum gravity experiment

University of Maryland Center for Fundamental Physics JUNE 2018 - AUG 2018
Undergraduate Researcher

- Advisor: Prof. Thomas D. Cohen
 - Developed toy models to show doubly heavy tetraquarks have weakly bound states in heavy mass limit
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Awards and Honors

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

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

Poster Presentations

2019 **Small Satellite Conference**, Utah State University, Logan, UT

“Space-based Ionosonde Receiver and Visible Limb-viewing Airglow Sensor (SIRVLAS): A CubeSat Instrument Suite for Enhanced Ionospheric Charge Density Measurements”

with Ryan Tse, Patrick Kim, Sujay Swain, Benjamin Cohen, and Gautom Das

Teaching

Mentor, MIT Physics Mentorship Program

FEB 2021 - PRESENT

8.04: Quantum Physics I, 8.03: Physics III Vibrations and Waves

Residential Counselor, MathROOTS @ MIT

JUNE 2022 - JULY 2022

Lecturer and Head Grader, 18.S097: Proof-Writing Workshop

JAN 2021

Undergraduate Teaching Assistant, 8.02: Electricity and Magnetism

SEPT 2020 - DEC 2020

Teaching Assistant, Art of Problem Solving Academy Gaithersburg

NOV 2017 - JULY 2020

Industry Experience

Quantitative Research Intern, J.P. Morgan Chase & Co.

JAN 2020

- Develop and implement predictive models for fixed income trading in Rates Data Analytics
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Other

Participant, MIT Physics Directed Reading Program

JAN 2021

- Read and present on black hole physics, with focus on quantum information approaches in recent literature
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Activities and Community Service

MIT Physics Values Committee, Undergraduate Representative

SEPT 2021 - PRESENT

MIT Undergraduate Society for Women in Mathematics, Co-President

JUNE 2022 - PRESENT

Previous positions: Secretary

MIT Society of Physics Students, Secretary and Treasurer

JUNE 2022 - PRESENT

Previous positions: Outreach Chair

MIT Educational Studies Program, Program Administrator

SEPT 2019 - PRESENT

Previous positions: Art Director, Publicity Director Community Working Group Director, Recruitment Czar, Secretary

MIT Undergraduate Mathematics Association, DEI & Outreach Committee

SEPT 2020 - MAY 2021

Skills

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