
Laura Cui

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Education

Massachusetts Institute of Technology

Bachelor of Science in Physics and Mathematics

- GPA: 4.9/5.0
 - Expected graduation: June 2023
 - 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

JANUARY 2022 -

MIT Center for Theoretical Physics

- Advised by Prof. Aram Harrow
- Investigate properties of topological entanglement entropy in random quantum circuits

JUNE 2021 - AUGUST 2021

Caltech Institute for Quantum Information and Matter

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

JUNE 2019 - AUGUST 2019

University of Maryland Joint Quantum Institute

- Advised by Prof. Jacob M. Taylor
- Investigated decoherence due to long-range interactions in tabletop quantum gravity experiment

JUNE 2018 - AUGUST 2018

University of Maryland Center for Fundamental Physics

- Advised by Prof. Thomas D. Cohen
 - Developed toy models for doubly heavy tetraquarks by reducing to two-body system in heavy mass limit to show systems with single state are weakly bound, independent of exact QCD interactions
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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

JUNE 2022

MathROOTS @ MIT - *Residential Counselor*

- ☐ Coordinate camp logistics and lead recreational activities
- ☐ Provide academic or other support for students as needed

FEBRUARY 2021 - DECEMBER 2021

MIT Physics Mentorship Program - *8.04: Quantum I Mentor*

- ☐ Provide tutoring and support with course material as well as other aspects of MIT

JANUARY 2021

18.S097: Proof-Writing Workshop - *Lecturer*

- ☐ Contributed to designing curriculum material and adapting class to remote format
 - ☐ Coordinated grading of weekly assignments
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Other

JANUARY 2021

MIT Physics Directed Reading Program - *Mentee*

- ☐ 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

2021– *Undergraduate Representative*

Participate in discussions to address systemic and structural issues in department

MIT Society of Physics Students

2021– *Outreach Chair*

2022 Coordinate outreach efforts and PRISM undergraduate physics research conference

MIT Educational Studies Program

2019– *Active Member*

Contribute to program logistics, as well as discussions and efforts to build community at programs for middle and high school students

Skills

- ☐ Proficient in Python, Java, MATLAB, and Mathematica
- ☐ Experience with data science libraries and machine learning
- ☐ Fluent in English and Mandarin Chinese, working proficiency in Spanish