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## Laura Cui

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### Education

#### Massachusetts Institute of Technology

*Bachelor of Science in Physics and Mathematics*

- GPA: 5.0/5.0
  - Expected graduation: June 2023
  - Selected coursework: Quantum I-III, Relativity, Quantum Information Science I-II, Graduate Statistical Mechanics I, Probability and Random Variables, Abstract Algebra I, Functional Analysis, Undergraduate String Theory
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### Research Experience

JUNE 2021 - AUGUST 2021

**Caltech Institute for Quantum Information and Matter** - *Undergraduate Research Fellow*

- Advised by Prof. John Preskill and Alexander Dalzell
- Investigate depth at which local scrambling occurs in random quantum circuits

JUNE 2020 - AUGUST 2020

**MIT Research Laboratory of Electronics** - *Undergraduate Student Researcher*

- Advised by Prof. Dirk Englund and Dr. Carlos Errando Herranz
- Applied bond-orbital model for strain-induced second order corrections to optical susceptibility in non-centrosymmetric materials

JUNE 2019 - AUGUST 2019

**University of Maryland Joint Quantum Institute** - *Undergraduate Research Assistant*

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

JUNE 2018 - AUGUST 2018

**University of Maryland Center for Fundamental Physics** - *Research Assistant*

- Advised by Prof. Thomas D. Cohen
  - Reduced doubly heavy tetraquarks to two-body system in formal heavy mass limit and used toy models with radial effective potential to solve numerically
  - Showed systems with single state are weakly bound regardless of short distance interactions
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### Awards and Honors

2019 **Regeneron Science Talent Search Scholar**

*For work with near-threshold doubly heavy tetraquark states*

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### 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*

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## Teaching

JANUARY 2021

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

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

NOVEMBER 2017 - JULY 2020

**Art of Problem Solving Academy Gaithersburg** - *Teaching Assistant*

- Assisted with High School Contest Math and Math Beasts 7-9 summer camps
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## Industry Experience

JANUARY 2020

**J.P. Morgan Chase & Co.** - *Quantitative Research Intern, Rates Data Analytics*

- Develop and implement predictive models for fixed income trading
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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 Society of Physics Students

2021 *Outreach Chair*

Coordinated outreach efforts and PRISM undergraduate physics research conference

### MIT Educational Studies Program

2021 *Community Working Group Director*

Lead discussions and efforts to build community at programs for middle and high school students, in addition to assisting with program logistics

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## Skills

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

**Daniel Harlow** - Professor of Physics

*Massachusetts Institute of Technology Center for Theoretical Physics*

harlow @ mit.edu

**Daniel Carney** - Postdoctoral Researcher

*National Institute of Standards and Technology, University of Maryland, Fermi National Accelerator Laboratory*

carney @ umd.edu