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
- Relevant 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

Research Experience

JUNE 2020 - AUGUST 2020
MIT Research Laboratory of Electronics - *Undergraduate Student Researcher*

- Advised by Prof. Dirk Englund and Dr. Carlos Errando Herranz
- Develop 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

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

- Designed photometer instrument to measure total electron content in the ionosphere
- Refined satellite design and data collection integration

Awards and Honors

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

JANUARY 2021
18.S097: Proof-Writing Workshop - *Lecturer*

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

FALL 2020
8.02: Electricity and Magnetism - *Undergraduate Teaching Assistant*

- Assisted with Friday Problem Solving sessions and experiments
- Responsible for grading weekly assignments and recording attendance

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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 Educational Studies Program

2020 *Art & Publicity Director*
Coordinated outreach and event publicity efforts, as well as process of designing materials

MIT Undergraduate Mathematics Association

2020 *DEI & Outreach Committee Member*
Contributed to initiatives to support diversity and inclusion in the department

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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