
Laura Cui

Pasadena, CA 91125
lcui (at) caltech.edu

EDUCATION

- Ph.D.** Physics, *California Institute of Technology* SEPT 2023 - PRESENT
⊗ Advised by John Preskill and Fernando Brandão
- S.B.** Physics and Mathematics, *Massachusetts Institute of Technology* SEPT 2019 - JUNE 2023
⊗ GPA: 4.9/5.0, Thesis: “Probing Local Many-Body Dynamics with Random Quantum Circuits”
-

SELECTED AWARDS & HONORS

- Sigma Pi Sigma Inductee** 2023
Invited for outstanding scholarship in physics at MIT
- NSF Graduate Research Fellowship Program Honorable Mention** 2023
Received one of 825 honorable mentions
- MIT Goldwater Scholarship Nomination** 2022
Selected as one of two nominees from the MIT School of Science
- Regeneron Science Talent Search Scholar** 2019
Awarded for work on near-threshold doubly heavy tetraquark states
-

SELECTED PUBLICATIONS & PREPRINTS

* denotes first or co-first authors

- [3] Liang Mao,* **Laura Cui**, Thomas Schuster, Fernando Brandão, Hsin-Yuan Huang, *Energy-conserving random unitaries*. In preparation.
- [2] **Laura Cui**,* Thomas Schuster, Liang Mao, Hsin-Yuan Huang, Fernando Brandão, *Random unitaries from Hamiltonian dynamics*. In preparation.
- [1] **Laura Cui**,* Thomas Schuster,* Fernando Brandão, Hsin-Yuan Huang, *Unitary designs in nearly optimal depth*. arXiv:2507.06216 [quant-ph] (2025).
-

RESEARCH TALKS & SEMINARS

- Stanford Institute for Theoretical Physics**, QIQC Seminar MAY 2025
“Designs and random dynamics in very low depth”
- NUS Center for Quantum Technologies**, Invited talk APR 2025
“Designs and random dynamics in very low depth”
- MIT Center for Theoretical Physics**, QIP Seminar JUNE 2023
“Random quantum circuits as a model for the classification of topological phases”
-

INVITED SCHOOLS & WORKSHOPS

- Workshop on Random Quantum Circuits NOV 2024
QuSoft and Centrum Wiskunde & Informatica, Amsterdam, Netherlands
-

TEACHING EXPERIENCE

California Institute of Technology

Teaching Assistant, *Ph 129b: Analytic Techniques in Mathematical Methods of Physics*

WINTER 2025

Teaching Assistant, *Ph 12: Waves, Quantum Physics, and Statistical Mechanics*

WINTER 2024 - FALL 2024

Massachusetts Institute of Technology

Undergraduate Teaching Assistant, *6.1200: Mathematics for Computer Science*

SPRING 2023

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

WINTER 2021

Undergraduate Teaching Assistant, *8.02: Electricity and Magnetism*

FALL 2020

Other

Mentor, *MIT Physics Mentorship Program*

FALL 2021 - SPRING 2023

Residential Counselor, *MathROOTS @ MIT*

JUNE 2022 - JULY 2022

Teaching Assistant, *Art of Problem Solving Academy Gaithersburg*

NOV 2017 - JULY 2020

OTHER PUBLICATIONS & MANUSCRIPTS

* denotes first or co-first authors

[2] **Laura Cui**, Rubi Gonzalez,* *A conversation with Angie Drobnic Holan on misinformation, fact-checking, and the modern media landscape*. MIT Science Policy Review **6**, 153-158 (2025).

[1] **Laura Cui**,* *Local information scrambling in random quantum circuits*. Based on work supervised by John Preskill, Alexander Dalzell, and Hsin-Yuan (Robert) Huang. Presented in Caltech Summer Undergraduate Research Fellowship Symposium (2021).

OTHER TECHNICAL EXPERIENCE

Interuniversity Institute for Marine Sciences, *Research Assistant*

JUNE 2023 - AUG 2023

Supervised by Derya Akkaynak

MIT Center for Theoretical Physics, *Research Assistant*

JAN 2022 - JAN 2024

Supervised by Aram Harrow, Daniel Ranard

Caltech Institute for Quantum Information and Matter, *Research Assistant*

JUNE 2021 - AUG 2021

Supervised by John Preskill, Alexander Dalzell, Hsin-Yuan (Robert) Huang

MIT Research Laboratory of Electronics, *Research Assistant*

JUNE 2020 - AUG 2020

Supervised by Dirk Englund, Carlos Errando Herranz

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

JAN 2020

Rates Data Analytics Team

University of Maryland Joint Quantum Institute, *Research Assistant*

JUNE 2019 - AUG 2019

Supervised by Jacob M. Taylor, Daniel Carney

University of Maryland Center for Fundamental Physics, *Visitor*

JUNE 2018 - AUG 2018

Supervised by Thomas D. Cohen

blair3sat, *Co-founder, Optical Mission Lead*

SEPT 2017 - JUNE 2019

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

Naval Research Laboratory, *Science and Engineering Apprenticeship Program*

JUNE 2017 - AUG 2017

Space Science Division

OUTREACH & COMMUNITY SERVICE

Caltech CUWiP 2028, Organizing Committee

PRESENT

Caltech FUTURE of Physics , Co-chair	SUMMER 2025
Caltech Gender Minorities and Women in PMA , Treasurer	FALL 2024 - PRESENT
Caltech PMA Graduate Student Advisory Board , Member	FALL 2023 - PRESENT
MIT Physics Values Committee , Undergraduate Representative	FALL 2021 - SPRING 2023
MIT Undergraduate Society for Women in Mathematics , President	SUMMER 2022 - SPRING 2023
MIT Undergraduate Womxn in Physics , Executive Board Member	SUMMER 2021 - SPRING 2023
MIT Society of Physics Students , Executive Board Member	SUMMER 2021 - SPRING 2023
MIT Educational Studies Program , Executive Board Member	FALL 2019 - FALL 2022
HMMT Education , Speaker	SPRING 2021 - FALL 2021