
Laura Cui

Pasadena, CA 91125
lcui (at) caltech.edu

EDUCATION

Ph.D. Physics, <i>California Institute of Technology</i>	SEPT 2023 - PRESENT
⊗ Advised by John Preskill and Fernando Brandão	
S.B. Physics and Mathematics, <i>Massachusetts Institute of Technology</i>	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 <i>Invited for outstanding scholarship in physics at MIT</i>	2023
NSF Graduate Research Fellowship Program Honorable Mention <i>Received one of 825 honorable mentions</i>	2023
MIT Goldwater Scholarship Nomination <i>Selected as one of two nominees from the MIT School of Science</i>	2022
Regeneron Science Talent Search Scholar <i>Awarded for work on near-threshold doubly heavy tetraquark states</i>	2019

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

INVITED SCHOOLS & WORKSHOPS

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

TEACHING EXPERIENCE

California Institute of Technology

Teaching Assistant, *Ph 129b: Analytic Techniques in Mathematical Methods of Physics*
Teaching Assistant, *Ph 12: Waves, Quantum Physics, and Statistical Mechanics*

WINTER 2025
WINTER 2024 - FALL 2024

Massachusetts Institute of Technology

Undergraduate Teaching Assistant, *6.S200: Mathematics for Computer Science*
Lecturer and Head Grader, *18.S097: Proof-Writing Workshop*
Undergraduate Teaching Assistant, *8.02: Electricity and Magnetism*

SPRING 2023
WINTER 2021
FALL 2020

Other

Mentor, *MIT Physics Mentorship Program*
Residential Counselor, *MathROOTS @ MIT*
Teaching Assistant, *Art of Problem Solving Academy Gaithersburg*

FALL 2021 - SPRING 2023
JUNE 2022 - JULY 2022
NOV 2017 - JULY 2020

OTHER PUBLICATIONS & MANUSCRIPTS

* denotes first or co-first authors

- [2] **Laura Cui**, Rubi Gonzalez,* *A conversation with Angie Drobnić 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*
Supervised by Derya Akkaynak

JUNE 2023 - AUG 2023

MIT Center for Theoretical Physics, *Research Assistant*
Supervised by Aram Harrow, Daniel Ranard

JAN 2022 - JAN 2024

Caltech Institute for Quantum Information and Matter, *Research Assistant*
Supervised by John Preskill, Alexander Dalzell, Hsin-Yuan (Robert) Huang

JUNE 2021 - AUG 2021

MIT Research Laboratory of Electronics, *Research Assistant*
Supervised by Dirk Englund, Carlos Errando Herranz

JUNE 2020 - AUG 2020

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

JAN 2020

University of Maryland Joint Quantum Institute, *Research Assistant*
Supervised by Jacob M. Taylor, Daniel Carney

JUNE 2019 - AUG 2019

University of Maryland Center for Fundamental Physics, *Visitor*
Supervised by Thomas D. Cohen

JUNE 2018 - AUG 2018

blair3sat, *Co-founder, Optical Mission Lead*
With Ryan Tse, Patrick Kim, Sujay Swain, Benjamin Cohen, and Gautom Das

SEPT 2017 - JUNE 2019

Naval Research Laboratory, *Science and Engineering Apprenticeship Program*
Space Science Division

JUNE 2017 - AUG 2017

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