

Madelyn Leembruggen

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EDUCATION

Harvard University, Cambridge, MA

May 2024

PhD in Theoretical Physics

Dissertation Title: Buckling, wrinkling, and crumpling of simulated thin sheets

Ford Pre-Doctoral Fellow | NSF Graduate Research Fellow | Ashford Fellow

University of Cincinnati, Cincinnati, OH

April 2018

Triple major in Physics, Astrophysics, Mathematics

Goldwater Scholar | Phi Beta Kappa | Louis Stokes Alliance for Minority Participation Scholar

SKILLS

Communication: Video hosting, public speaking, science writing (lay/technical), curriculum design

Media: Premiere Pro, Photoshop, Lightroom, camera/sound/lighting, set direction, post-production

Technical: Python, C++, Mathematica, LaTeX, literature reviews, theoretical research methods

SCIENCE COMMUNICATION

SciShow Editorial Team

Complexly, Missoula, MT

Script Editor

December 2025-present

- Pitching and editing two video scripts per week, with deep literature dives across a range of sciences.
- Regularly collaborating with post-production team, both as a video host and editorial team member.

SciShow Resident

April 2025-August 2025

- Pitched, wrote, storyboarded, and hosted 10 videos with cumulative 2.6M views.

Freelance Script Writer

May 2024-December 2025

- Wrote scripts on physics, astronomy, math, and materials science, gaining 7.7M views over 14 videos.

Senior Programmer

2025

Climate Film Festival, NYC, NY

- Responsible for viewing 100s of submissions in short- and long-form documentary categories to program seven doc shorts sessions for the 3-day festival.

Jackson Wild Media Lab Fellow

2023

Jackson Wild, Jackson, WY

- Produced a 5-minute documentary from brief to premiere in 5 days, coordinating clients, interviewees, a small production team, and a composer.
- Annually invited to serve as a judge for the Jackson Wild Media Awards.

Curriculum Developer

June 2022-May 2025

Galactic Polymath, Minneapolis, MN

- Designed interdisciplinary STEM-based units for G6-12 based on cutting-edge research initiatives.
- Collaborated with liaisons from Indigenous communities to build culture-forward science lessons.
- Aligned educational material to national educational standards such as NGSS and Common Core.
- Wrote, produced, and edited cross-platform multimedia content to support lessons.

Freelance Science Speaker

2021-present

- TEDx speaker and guest scientist expert on podcasts, YouTube videos, and public lectures.

President, Co-Founder

2020-present

A World of Women in STEM, Cambridge, MA

- Conceptualized, designed, and launched an online learning platform dedicated to G7-10 which garnered 65,000+ website hits and 1M video views throughout three years of organic growth.
- Led a team of 30+ contributors split into multiple working groups to develop up to 8 pieces of media per month. Supervising the teams from idea conception to final production.
- Filming videos and editing in Premiere Pro and Audition, with additional photography and editing skills in Photoshop and Lightroom.

RESEARCH AND TEACHING EXPERIENCE

Physics Department Teaching Fellow

2021-2023

Harvard University, Cambridge, MA

- Received the White Prize for Excellence in Teaching in 2021 and 2024.
- Taught two intro level undergraduate courses (50+ students) surveying theoretical physics, and one advanced graduate level course (10 students) about specialized topics in condensed matter physics.

Graduate Researcher, Computational Soft Condensed Matter

2019-2024

Harvard University, Cambridge, MA | Advisor: Chris H. Rycroft (University of Wisconsin-Madison)

- Lead and managed doctoral thesis research comprised of 3 projects with experimental collaborators.
- Built custom C++ libraries; processed and visualized large amounts of data in Python.
- Developed research talks from 2 to 90 minutes long for audiences from general to technical.

Undergraduate Researcher, Theoretical Cosmology

2016-2018

University of Cincinnati, Cincinnati, OH | Advisor: L.C.R. Wijewardhana

- Co-authored 7 papers probing the viability of a theoretical dark matter candidate called the axion, considering a range of proposed properties, and its potentially detectable signatures.

UNIVERSITY SERVICE

Equity & Inclusion Committee, Grad Rep

2019-2022

Harvard University, American Physical Society Inclusion, Diversity, and Equity Alliance (APS IDEA)

- Chair of subgroup to create and conduct a community engagement assessment and report.
- Key member of the Harvard Physics Statement of Values and Code of Conduct subgroups.

Women in Physics, Co-Chair

2019-2021

Harvard University, Cambridge, MA

- Led efforts to found, organize, and present a workshop on Building Inclusive Community for first year physics graduate students which serves 20-40 graduate students each year.
- Planned and hosted professional development, dinners, and socials for up to 60 attendees.

SELECTED HONORS AND AWARDS

Science Communication

SciComm Collider, Perimeter Institute

2026

SciShow Resident, Complexly

2025

Jackson Wild Media Lab Fellow

2023

Teaching and Leadership

The White Prize for Excellence in Teaching, Harvard University Physics Department

2021 & 2024

The Robbins Prize for Graduate Leadership, Harvard University Physics Department

2020

Presidential Leadership Medal of Excellence, University of Cincinnati

2018

Eleanor Hicks Outstanding Female Senior Award, University of Cincinnati College of Arts & Sciences

2018

Outstanding Tutor of the Year Award, College Reading & Learning Association

2017

Research

Leroy Apker Award finalist, American Physical Society

2018

Barry M. Goldwater Scholar

2017

Fellowships and Scholarships

Ford Foundation Pre-Doctoral Fellow, National Academy of Sciences, Engineering, and Medicine

2018

Graduate Research Fellow, National Science Foundation

2018

Ashford Fellow, Harvard University

2018

Graduate Prize Fellow, Harvard University Graduate School of Arts & Sciences

2018

Violet M. Diller Scholarship, University of Cincinnati Department of Physics

2016-2018

Cincinnati Academic Scholarship, University of Cincinnati

2014-2018

Louis Stokes Alliance for Minority Participation Scholar, National Science Foundation

2014-2018

Academic Honors

Helen Weinberger Award, University of Cincinnati Phi Beta Kappa Society

2018

Graduating Senior Award, University of Cincinnati Department of Physics

2018

Chapter Junior Award, University of Cincinnati Phi Beta Kappa Society

2017

Junior Award, University of Cincinnati Department of Physics

2017

PUBLICATIONS

- M. Leembruggen**, J. Andrejevic, A. Kudrolli, C.H. Rycroft (2024). “Bendability parameter for twisted ribbons to describe longitudinal wrinkling and delineate the near-threshold regime.” *Physical Review E Letters* 109, L053001
- M. Leembruggen**, J. Andrejevic, A. Kudrolli, C.H. Rycroft (2023). “A computational model of thin elastic ribbons”. *Physical Review E* 108, 015003
- J. Eby, **M. Leembruggen**, L. Street, P. Suranyi, L.C.R. Wijewardhana (2020). “Galactic condensates composed of multiple axion species”. *Journal of Cosmology and Astroparticle Physics*. 2020(10)020
- J. Eby, **M. Leembruggen**, P. Suranyi, L.C.R. Wijewardhana (2018). “Stability of Condensed Fuzzy Dark Matter Halos”. *Journal of Cosmology and Astroparticle Physics*. 2018(10)058
- J. Eby, **M. Leembruggen**, J. Leeney, P. Suranyi, L.C.R. Wijewardhana. (2017). “Collisions of Dark Matter Axion Stars with Astrophysical Sources”. *Journal of High Energy Physics*. 2017(4)99
- J. Eby, **M. Leembruggen**, P. Suranyi, L.C.R. Wijewardhana. (2016). “Collapse of Axion Stars”. *Journal of High Energy Physics*. 2016(12)66