

CATHERINE WOLFRAM

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Last updated: August 10, 2025

EMPLOYMENT

ETH Zurich , Zurich, Switzerland Research postdoc	July 2025-July 2026
Yale University , New Haven, CT NSF Postdoctoral Fellow and Gibbs Assistant Professor	July 2024 - Present (on leave July 2025-July 2026)

EDUCATION

Massachusetts Institute of Technology , Cambridge, MA PhD in Mathematics Advisor: Scott Sheffield Thesis title: <i>Random geometry in two and three dimensions</i>	August 2019 - May 2024
University of Chicago , Chicago, IL B.A. in Mathematics with Honors Dean's list, 2015-2019	September 2015 - June 2019
Stanford University Online High School	September 2011 - June 2015

ARTICLES

The multinomial dimer model, with Richard Kenyon. ArXiv preprint 2506.12171.

Epstein curves and holography of the Schwarzian action, with Franco Vargas Pallete and Yilin Wang. ArXiv preprint 2503.05690.

Large deviations for the 3D dimer model, with Nishant Chandgotia and Scott Sheffield. ArXiv preprint 2304.08468.

Circle homeomorphisms with square summable diamond shears, with Dragomir Šarić and Yilin Wang. *Int. Math. Res. Not. (IMRN)* Vol. 2024, 17 (2024).

AWARDS

NSF Postdoctoral Fellowship	Fall 2024-Spring 2028
Baddoo Community Buidling Award MIT math department award	May 2024
Phyllis Ruby Block Fellowship MIT math department fellowship	Spring 2024

TEACHING

Recitation Instructor at MIT for four terms:

- Probability and random variables (18.600) Fall 2021, Spring 2022, Fall 2023
Instructor: Jonathan Kelner (2021), Scott Sheffield (2022, 2023)
- Multivariable calculus (18.02A) January 2023
Instructor: Bill Minicozzi

TA for Cornell Probability Summer School

August 2022

Teaching assistant for course “Loewner energy and Large Deviations of SLEs” taught by Yilin Wang.

Grader at the University of Chicago:

- Grader for one quarter of Honors Calculus (Math 162) January 2019 - March 2019
- Course assistant (VCA) for full year of Calculus (Math 151-152-153) September 2016 - June 2017

MENTORSHIP AND PROFESSIONAL EXPERIENCE

Referee for journal articles

Periodic

Annals of Probability, Transactions of the American Mathematical Society

Defense committee member for graduate students

Raphael de Marreiros (PhD February 2025)

Mentor for undergraduates

June Lee (Yale, summer 2025), MIT undergraduates through the directed reading program (2020-2024).

Mentor for Research Science Institute (RSI) hosted by MIT (summer 2020)

SERVICE AND ORGANIZATION

Co-organizer of the Friday Morning Seminar at Yale

September 2024 - May 2025

Informal weekly seminar with some invited speakers and some informal discussions on topics in geometry, probability, combinatorics, dynamics, etc.

Informal reading group at Yale

Spring 2025

Organized an informal seminar group for PhD students to present on papers, topics included probability and combinatorics, random conformal geometry, and conformal field theory.

Co-organizer and mentor, MIT Directed Reading Program (DRP) October 2022 - May 2024

Evaluated applications, paired undergraduate students with mentors, and arranged events. The program has about 100 student per year.

Co-organizer of PuMaGraSS at MIT

September 2020 - May 2021

Weekly, casual seminar for MIT math graduate students to give talks to their peers, name stands for “Pure Math Graduate Student Seminar.”

Manager of the Math Learning Center (MLC) at MIT

August 2020 - May 2021

Ran the math department’s peer-tutoring center, managing 10-12 undergraduate tutors.

TALKS

Past and upcoming talks as of now, listed in reverse chronological order.

1. Vienna probability seminar November 2025
2. Universal Teichmüller theory workshop, Aussois, France August 2025
3. CIRM perfectly matched perspectives on statistical mechanics, combinatorics and geometry June 2025
4. AMS sectional meeting session on Probability and Combinatorics April 2025
5. University of Michigan probability seminar February 2025
6. Princeton probability seminar November 2024
7. Columbia probability seminar October 2024

8. AdS geometry reading group (two expository talks)	October 2024
9. Northwestern probability seminar	September 2024
10. 11th World Congress on Probability and Statistics, Bochum, Germany	August 2024
11. Workshop on Probabilistic Field Theories, Aalto University	June 2024
12. Statistical physics and random surfaces, Oberwolfach	May 2024
13. IPAM workshop “Statistical Mechanics Beyond 2D”	May 2024
14. Seed seminar of Mathematics and Physics (online)	April 2024
15. PuMaGraSS seminar at MIT (expository talk) <i>SLE curves, large deviations, and geometry</i>	March 2024
16. KPZ meets KPZ workshop	March 2024
17. University of Edinburgh probability seminar (online)	January 2024
18. MIT probability seminar	November 2023
19. University of Chicago probability and statistical physics seminar	November 2023
20. Brown combinatorics seminar	November 2023
21. Informal seminar: dynamics, geometry, and moduli spaces at Harvard	November 2023
22. Probability and geometry in, on and of non-Euclidean spaces at CIRM (lightning talk)	October 2023
23. ICERM workshop “Asymptotic Limits of Discrete Random Structures”	September 2023
24. Harvard CMSA probability seminar	September 2023
25. MIT integrable probability seminar	September 2023
26. dimers2023 conference, Sorbonne Universite	July 2023
27. Percolation today (online)	June 2023
28. LA probability forum (joint between Caltech, UCLA, and USC)	May 2023
29. Informal analysis and probability seminar at IHES	April 2023
30. Courant probability and mathematical physics seminar	March 2023
31. Rutgers geometry/topology seminar (online)	March 2023
32. Informal seminar: dynamics, geometry, and moduli spaces at Harvard	February 2023
33. CUNY Hyperbolic geometry seminar	February 2023
34. Random Geometry and Statistical Physics Workshop, University of Pennsylvania	October 2022
35. Probability and Mathematical Physics conference in Helsinki, Finland	July 2022
36. PuMaGraSS seminar at MIT (expository talk) <i>Gluing polygons, Wick’s formula, and moduli spaces</i>	April 2022
37. Reading group on the dimer model at MIT (expository talk) <i>Kasteleyn theory on the torus</i>	March 2022
38. PuMaGraSS seminar at MIT (expository talk) <i>The dimer model in 2D and 3D, local moves, and topology</i>	April 2021

39. AWM Women in Math Symposium, University of Chicago
Recursive derivation of $2n$ -gon topologies.

February 2017

ACADEMIC VISITS

Institute for Advanced Study, Princeton, NJ September 2022 - December 2022
Visiting graduate student while my advisor was there as a visiting professor.

Institut des Hautes Études Scientifiques, Bures sur Yvette, France April - May 2023; June 2024
Invited researcher visiting Prof. Yilin Wang.

CONFERENCES AND SUMMER SCHOOLS

A more complete list of conferences, summer schools, and workshops I've attended or plan to attend as of now, in reverse chronological order.

Universal Teichmüller theory workshop, Aussois, France August 2025

CIRM perfectly matched perspectives on statistical mechanics, combinatorics and geometry June 2025

AMS sectional meeting session on Probability and Combinatorics April 2025

Complex Faces, Venice, Italy April 2025

Northeast Probability Seminar, New York, NY November 2024

11th World Congress on Probability and Statistics, Bochum, Germany August 2024

Workshop on Probabilistic Field Theories, Aalto University, Espoo, Finland June 2024

Statistical physics and random surfaces, Oberwolfach, Germany May 2024

Statistical mechanics beyond 2D, IPAM, Los Angeles, CA May 2024

KPZ meets KPZ workshop, Fields Institute, Toronto, Canada March 2024

Probability and geometry in, on and of non-Euclidean spaces, CIRM, Marseille, France October 2023

Asymptotic limits of discrete random structures, ICERM, Providence, RI September 2023

dimers2023 conference, Sorbonne Universite, Paris, France July 2023

Three facets of gravity workshop, Humboldt University, Berlin, Germany May 2023

Random Geometry and Statistical Physics Workshop, University of Pennsylvania, Philadelphia, PA
October 2022

Cornell Probability Summer School (as a TA), Cornell University, Ithaca, NY August 2022

Probability and Mathematical Physics conference, Helsinki, Finland July 2022

The Analysis and Geometry of Random Spaces, MSRI, Berkeley, CA March 2022
Program associate for two weeks of the semester program (including the one week workshop)

Random Geometry conference, CIRM, Marseille, France January 2022

Random Conformal Geometry Summer School, MSRI, Berkeley, CA (virtual) July 2021

OTHER

Citizenships: United States, United Kingdom