

Fanxin Wu

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Education

PhD in Mathematics

Rutgers University, May 2026

University of Illinois at Chicago, August 2021-May 2022

MS in Mathematics

University of Illinois Urbana-Champaign, May 2021

BS in Pure and Applied Mathematics

Beijing Normal University, May 2019

Exchange study at University of Helsinki, Fall 2018

Research Interests

I am primarily interested in set theory, more specifically infinite combinatorics. I am also interested in descriptive set theory and its relation to other fields, especially geometry and topology.

Publications

- *Fundamental groups and descriptive set theory*, to appear in Proceedings of the American Mathematical Society
- *Two-cardinal Kurepa Hypotheses*, submitted
- *Diamond principles and Tukey-top ultrafilters on a countable set*, with Tom Benhamou, *Topology and its Applications* **381**, 15 (2026)

Talks

- *Two-cardinal Kurepa Hypotheses*. UPenn Logic and Computation Seminar, November 2025
- *Two-cardinal Kurepa Hypotheses*. MAMLS conference, lightning talk session, September 2025
- *Diamond on Omega*. Rutgers Logic Seminar, March 2024
- *Calculus IV*. UIC Louise Hay Logic Seminar, March 2022
- *Weak Mordell Theorem*. UIC Graduate Number Theory Seminar, December 2021

Teaching Experience

Lecturer

Rutgers University, Summer 2024

Lecturer for Calculus III. Created own course notes, quizzes and exams.

Teaching Assistant

Rutgers University, 2022-2025

Recitation instructor for the following courses.

- Calculus I for the life and social sciences
- Calculus II for the Mathematical and Physical Sciences
- Differential Equations for Engineering and Physics

Teaching Assistant

University of Illinois at Chicago, 2021-2022

Led discussion sessions helped design course material for the following courses.

- College Algebra
- Calculus I

Graduate Student Tutor

University of Illinois Urbana-Champaign, 2019 - 2020

Volunteer tutor. Helped students who were affected by the online teaching format during the COVID-19 pandemic with their coursework.

Mentoring

Mentored undergraduate students at Rutgers University in reading or research projects.

Independent Study

mentee: Sean LeClair, Spring 2025

ω_1 -Random Graphs

Directed Reading Program

mentee: Sean LeClair, Spring 2024

The Undecidability of Hilbert's Tenth Problem

Directed Reading Program

mentee: Hasan Kunukcu, Spring 2023

An Overview of Kaplansky's Set Theory and Metric Spaces

Other Service

Rutgers Graduate Student Pizza Seminar, organizer

Fall 2023 - Spring 2024

Graduate Operated Set Theory Seminar, organizer

Fall 2023 - Spring 2024