

RESEARCH INTERESTS

Homogenization theory, gradient flows, free boundary problems, geometric measure theory

EDUCATION

University of Utah

PhD of Mathematics

Salt Lake City, U.S.

2021–Current

- Advisor: William M. Feldman

- Expected June, 2026

Southern University of Science and Technology

Master of Mathematics

Shenzhen, China

2019–2021

- Thesis: “Topics on reaction-diffusion equations with large diffusion rate within thin components”

- Advisor: Xuefeng Wang

Southern University of Science and Technology

Bachelor of Mathematics and Applied Mathematics

Shenzhen, China

2015–2019

- Thesis: “Review of the model about fast diffusion on a road in a large field using effective boundary conditions”

- Advisor: Xuefeng Wang

PREPRINTS

1. **On the attainability of singular Wiener bound**, arXiv preprint arXiv: 2508.08208 (2025). Submitted to *SIAM Journal on Mathematical Analysis* in September 2025
2. **Homogenization of a vertical oscillating Neumann condition**, joint with William M Feldman, arXiv preprint arXiv: 2505.17298 (2025). Under revision at *Archive for Rational Mechanics and Analysis* in June 2025

PUBLICATIONS

1. **Regularity theory of a gradient degenerate Neumann problem**, joint with William M Feldman, arXiv preprint arXiv: 2406.06614 (2024). Accepted by *Journal de Mathématiques Pures et Appliquées*
2. **Is Mean Curvature Flow a Gradient Flow?** arXiv preprint arXiv: 2212.03701 (2022). Accepted by *Proceedings of American Mathematical Society* (to appear)
3. **Homogenization of Enhancing Thin Layers**, *Journal of Differential Equations*, Volume 282, 2021, Pages 330-369, ISSN 0022-0396, <https://doi.org/10.1016/j.jde.2021.02.024>.

INVITED TALKS AND SEMINARS

• Talk in Analysis Seminar in WashU

at St. Louis, MO, November 3, 2025

My Talk: Attainability of the singular Wiener bound and leaf venation patterns

Website: <https://math.wustl.edu/past-events/analysis-seminar-attainability-singular-wiener-bound-and-leaf-venation-patterns>

AMS Special Session on Geometric Variational Problems and Applications

- at St. Louis, MO, October 18-19, 2025

My Talk: Attainability of the singular Wiener bound and leaf vein patterns

Website: <https://meetings.ams.org/math/fall2025c/meetingapp.cgi/Paper/52138>

AMS Special Session on PDEs from Materials Science at Hartford, Connecticut, April 5-6 2025

- My Talk: Semilinear homogenization and rate-independent motion law in a parabolic Neumann problem

Website: <https://meetings.ams.org/math/spring2025e/meetingapp.cgi/Paper/47927>

Optimal Transport and Dynamics at CMO, Oaxaca, August 11-16 2024

- My Talk: Regularity theory of a gradient degenerate Neumann problem

Website: <https://www.birs.ca/events/2024/5-day-workshops/24w5198>

Large Deviation Principle and Optimal Transport at University of Utah, 2022

- Reference material: Optimal Transport for Applied Mathematicians

SHORT RESEARCH LEVEL COURSES

PDE Summer School at University of California, Irvine, June 23 - 27, 2025

- Website: <https://ucipde2025.github.io/2025-PDE-Summer-School-Website/>

RMMC Summer School at University of Wyoming, Laramie, June 17-20, 2025

- Website: <https://math.asu.edu/rmmcss2025>

Frontiers in Applied Analysis at Carnegie Mellon University, Pittsburgh, June 3-6, 2025

- Website: <https://events.mcs.cmu.edu/frontiers2025/>

Analysis and PDE at Montana State University, Bozeman, May 14 to May 17, 2025

- Website: <https://sites.google.com/view/apde-mt>

Geometry of Measures and Free Boundaries at UW Seattle, July 20-26 2024

- Website: <https://sites.google.com/view/gmfbseattle2024/>

Summer School on PDEs and Randomness at Max Planck Institute, Leipzig, 2023

- Website: <https://www.mis.mpg.de/calendar/conferences/2023/randompde.html>

Summer Program in Partial Differential Equations at UT Austin, 2022

- Website: <https://analysispde.ma.utexas.edu/summer-program-in-partial-differential-equations-2022/>

PIMS-IFDS-NSF Summer School on Optimal Transport at UW Seattle, 2022

- Website: <https://kantorovich.org/event/2022-optimal-transport-summer-school/>

17-th Summer School on PDEs at Jilin University, 2019

- Short Courses: fractional Laplacians, General Relativity, Special Lagrangian Equations

TEACHING EXPERIENCE

- | | |
|---|-------------|
| • Math 1050–006 College Algebra at University of Utah
<i>Primary Instructor</i> | Spring 2025 |
| • Math 1050–005 College Algebra at University of Utah
<i>Primary Instructor</i> | Spring 2024 |
| • Math 2250–014 & 015 Differential Equations and Linear Algebra at University of Utah
<i>Lab Teacher</i> | Fall 2022 |
| • Math 3140–005 & 006 Engineer Vector Calculus and PDE at University of Utah
<i>Lab Teacher</i> | Spring 2022 |
| • Math 1210–040 Calculus I at University of Utah
<i>Lab Teacher</i> | Fall 2021 |
| • Real Analysis at Southern University of Science and Technology
<i>Teaching Assistant</i> | Fall 2019 |