

RESEARCH INTERESTS

Partial Differential Equations—gradient flows, homogenization theory, free boundary problems

EDUCATION

University of Utah

PhD of Pure Mathematics

Salt Lake City, U.S.

2021–Current

- Advisor: William M. Feldman
- Expected July, 2026

Southern University of Science and Technology

Master of Pure 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. **Homogenization of a vertical oscillating Neumann condition**, joint with William M Feldman, arXiv preprint arXiv: 2505.17298 (2025)
2. **Regularity theory of a gradient degenerate Neumann problem**, joint with William M Feldman, arXiv preprint arXiv: 2406.06614 (2024)
3. **Is Mean Curvature Flow a Gradient Flow?** arXiv preprint arXiv: 2212.03701 (2022). (to appear on: *Proc. of AMS*)

PUBLICATIONS

1. **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>.

PRESENTATIONS

- **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>

SEMINARS AND SHORT COURSES

- **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/>
- **Large Deviation Principle and Optimal Transport** at U, 2022
Reference materials:
- **17-th Summer School on PDEs** at Jilin University, 2019
Short Courses: fractional Laplacians, General Relativity, Special Lagrangian Equations

TEACHING EXPERIENCE

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|---|-------------|
| • Instructor at University of Utah
<i>Math 1050-006 College Algebra</i> | Spring 2025 |
| • Instructor at University of Utah
<i>Math 1050-005 College Algebra</i> | Spring 2024 |