

CURRICULUM VITAE

Wei WANG

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Personal Data

Date of Birth: February 29th, 2000

Gender: Male

Nationality: Chinese

Education

- **Ph. D. in Theoretical Mathematics**, Peking University, Beijing, P. R. China, September 2022 – Present
 - **Advisor:** Prof. Zhifei Zhang
- **Summer Research Program**, The Hong Kong University of Science and Technology, Hong Kong, P. R. China, June 2021 – September 2021
 - **Advisor:** Prof. Tianling Jin
 - **Topics:** Properties of regional fractional Laplacian operators
- **B. Sc. in Mathematics and Applied Mathematics**, Zhejiang University, Hangzhou, Zhejiang, P. R. China, September 2018 – June 2022
 - **Advisor:** Prof. Ting Zhang
 - **Thesis Title:** Homogenization Problem of Second Order Elliptic Systems with Lower Order Terms

Research Interests

- **Research Areas:** Calculus of variations, geometric measure theory, elliptic equations, and parabolic equations
- **Specific Topics:** Homogenization theory, semilinear elliptic and parabolic equations, harmonic maps, liquid crystal theory, and nonlocal Laplacian operators

Publications and Preprints

1. Fine structure of rupture set for semilinear elliptic equations with singular nonlinearity
W. Wang and Z. Zhang, *arXiv preprint arXiv:2411.16048*
2. Quantitative stratification and sharp regularity estimates for supercritical semilinear elliptic equations
H. Fu, W. Wang, and Z. Zhang, *arXiv preprint arXiv:2408.06726*

3. Landau-de Gennes model with sextic potentials: asymptotic behavior of minimizers
W. Wang and Z. Zhang, *arXiv preprint arXiv:2404.00677*
4. On the sharp constants in the regional fractional Sobolev inequalities
R.L. Frank, T. Jin, and W. Wang, *arXiv preprint arXiv:2403.00357*
To appear on *Partial Differential Equations and Applications*
5. Uniform estimates of resolvents in homogenization theory of elliptic systems
W. Wang, *Journal of Differential Equations*, **370** (2023), 1-65
6. Homogenization theory of elliptic systems with lower order terms in dimension two,
W. Wang and T. Zhang, *Communications on Pure and Applied Analysis*, **22** (2023), 787-824

Honors and Awards

- Nomination for Top 10 Teaching Assistants, School of Mathematical Sciences, Peking University, January 2025
- Third Prize, Graduate Research Exhibition, School of Mathematical Sciences, Peking University, April 2024
- The Program of Excellent Mathematics Graduate Student, Peking University, October 2023
- Nomination Award, ICCM Creative Undergraduate Thesis, August 2022
- Outstanding Graduate Student, Zhejiang University, June 2022
- Honored Degree, Chu Kochen College, Zhejiang University, June 2022
- Second Prize, Exhibition of the Colloquium on “Questions and Conjectures,” November 2021

Seminars Organized

- **Reading Seminar on Minimal Surfaces**, Peking University, Spring 2025
Topics: Classical and recent progress of minimal surfaces and their applications
- **Reading Seminar on Geometric Measure Theory**, Peking University, Fall 2024
Topics: Studying results presented in “Introduction to geometric measure theory” by L. Simon
- **Reading Seminar on Geometric Measure Theory and PDEs**, Peking University, Fall 2023
Topics: Recent results on liquid crystal theory and related PDEs problems
- **Reading Seminar on Papers about Harmonic Maps**, Peking University, Spring 2023
Topics: Classical and recent developments in the theory of harmonic maps
- **Reading Seminar on Elliptic Free Boundary Problems**, Peking University, Fall 2022
Topics: Theory of free boundary problems of elliptic equations

Talks and Presentations of the Research

- **Year-End Seminar of PDEs Group**, December 29th, 2024
Peking University, Beijing, P. R. China
Title: Semilinear Elliptic Equation with Singular Nonlinearity: Regularity and Singularity
- **Seminar on Geometric Measure Theory and PDEs**, December 3rd, 2024
Wuhan University, Wuhan, Hubei, P. R. China
Title: Stratification Results for Some Semilinear Elliptic Equations

- **Graduate Research Exhibition in Theoretical Mathematics**, April 12th, 2024
Peking University, Beijing, P. R. China
Title: Landau-de Gennes model with sextic potentials: asymptotic behavior of minimizers
- **ICCM Creative Undergraduate Thesis Program**, August 2nd, 2022
Southeast University, Nanjing, Jiangsu, P. R. China
Title: Homogenization Problem of Second Order Elliptic Systems with Lower Order Terms

Teaching and Teaching Assistant Experience

- **TA**, Advanced Mathematics (B) (II), Peking University, Spring 2025
- **TA**, Advanced Mathematics (A) (I), Peking University, Fall 2024
- **TA**, Advanced Mathematics (B) (II), Peking University, Spring 2024
- **TA**, Harmonic Analysis, Peking University, Fall 2023
- **TA**, Functional Analysis (I), Peking University, Spring 2023
- **TA**, Advanced Mathematics (C) (I), Peking University, Fall 2022
- **TA**, Mathematical Analysis (II), Zhejiang University, Spring 2022
- **TA**, Mathematical Analysis (I), Zhejiang University, Fall 2021