Tongrui Wang

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Research Interests

Differential Geometry, Geometric Analysis

Education

2017 – 2022 **Nanjing University**, Mathematics, Ph.D.
Advisor: *Prof. Gang Tian*

2018 – 2022 **Beijing International Center for Mathematical Research**, Visiting Program
Supervisor: *Prof. Gang Tian*

2013 – 2017 **Nanjing University**, Mathematics and Applied Mathematics, Bachelor of Science

Work Experience

2024 – Now **Shanghai Jiao Tong University**, *Tenure-track Associate Professor*.

2022 – 2024 **Westlake University**, *Postdoctoral Fellow*.

2023.02 – 08 **Cornell University**, *Visiting Scholar*.

Publications

Journal Articles

1. T. Wang, Generic density of equivariant min-max hypersurfaces, accepted by Journal of Functional Analysis, (2025).
2. L. Mazurowski and T. Wang, Curvature estimates for stable free boundary minimal hypersurfaces in locally wedge-shaped manifolds, *International Mathematical Research Notices*, (2024), no.18, 12530–12555.
3. Equivariant min-max hypersurface in G-manifolds with positive Ricci curvature, *Pacific Journal of Mathematics*, 331 (2024), no. 1, 149–185.
4. T. Wang, Min-max theory for free boundary G-invariant minimal hypersurfaces, *Advances in Mathematics*, 425 (2023), 109087.
5. T. Wang, Equivariant Morse index of min-max G-invariant minimal hypersurfaces, *Mathematische Annalen*, (2023), 1–39.
6. T. Wang and Z. Wu, The existence of G-invariant constant mean curvature hypersurfaces, *Calculus of Variations and Partial Differential Equations* 61(2022), no. 4, 1–27.

7. T. Wang, Min-Max Theory for G-Invariant Minimal Hypersurfaces, *The Journal of Geometric Analysis* 32(2022), no. 9, 1–53.

Surveys

1. T. Wang and X. Zhou, Recent progress on geometric variational theory, *SCIENTIA SINICA Mathematica* 53 (2023), no. 10, 1287-1302.

Preprints

1. L. Mazurowski and T. Wang, Min-max theory for free boundary minimal hypersurfaces in locally wedge-shaped manifolds, arXiv:2307.12953, 2023.
2. T. Wang and X. Yao, Generalized S^1-stability theorem, arXiv:2309.13865, 2023.
3. T. Wang and X. Yao, Improved Hebey-Vaugon conjecture on equivariant Yamabe invariants in dimension 3, arXiv:2309.13861, 2023.
4. X. Li, T. Wang, and X. Yao, Minimal surfaces of low genus in lens spaces, arXiv:2406.12584, 2024.
5. L. Mazurowski, T. Wang, and X. Yao, On the topology of manifolds with positive intermediate curvature, arXiv:2503.13815, 2025.

Research Talks

2024.12 The 9th Japan-China Geometry Conference, Tokushima, Japan.
Talk on *Minimal surfaces of low genus in lens spaces*.

2024.10 Geometric Analysis Seminar, East China Normal University, Shanghai, China.
Talk on *Minimal surfaces of low genus in lens spaces*.

2024.10 Geometric Analysis Seminar, NJU-SJTU, Nanjing, China.
Talk on *Minimal surfaces of low genus in lens spaces*.

2024.10 Seminar on minimal surfaces, Capital Normal University, Beijing, China.
Talk on *Minimal surfaces of low genus in lens spaces*.

2024.07 Workshop on Minimal Surfaces and Mean Curvature Flow 2024, Beijing International Center for Mathematical Research, China.
Talk on *Minimal surfaces of low genus in lens spaces*.

2024.06 Conference on Geometry and Nonlinear PDEs, Dongbei University of Finances and Economics, China.
Talk on *Free boundary minimal hypersurfaces in locally wedge-shaped manifolds*.

2024.04 Conference on Differential Geometry, Guangxi Normal University, China.
Talk on *Free boundary minimal hypersurfaces in locally wedge-shaped manifolds*.

2024.03 Geometric Analysis Seminar, Zhejiang University, China.
Talk on *Free boundary minimal hypersurfaces in locally wedge-shaped manifolds*.

2024.01 Forum on Differential Geometry, Shanghai Center for Mathematical Sciences, China.
Talk on *Free boundary minimal hypersurfaces in locally wedge-shaped manifolds*.

2023.10 Beijing Geometry Day, China.
Talk on *Free boundary minimal hypersurfaces in locally wedge-shaped manifolds*.

2023.10 Differential Geometry Seminar, National Center for Theoretical Sciences (Taiwan), China.
Talk on *Free boundary minimal hypersurfaces in locally wedge-shaped manifolds*.

2023.05 Geometric Analysis Seminar, University of Chicago, US.
Talk on *Equivariant Min-max Theory and its Applications*.

2023.03 Analysis and Geometric Analysis Seminar, Cornell University, US.
Talk on *Equivariant Min-max Theory and its Applications*.

2022.12 Differential Geometry Seminar, University of Electronic Science and Technology of China, China.
Talk on *Equivariant min-max theory and Morse index estimates*.

2022.09 Westlake Math Colloquium, Westlake University, China.
Talk on *Almgren-Pitts min-max theory and its applications*.

2022.06 Colloquia & Seminars, Academy of Mathematics and Systems Science, CAS, China.
Talk on *Equivariant Almgren-Pitts min-max theory and its applications*.

2022.06 International Conferece on PDEs and Geometric Analysis, Shanghai Jiao Tong University, China.
Talk on *The existence of G-invariant constant mean curvature hypersurfaces*.

2021.05 International Conference on Geometric Analysis, China.
Talk on *Equivariant min-max theory under the setting of Almgren-Pitts*.

2020.08 Differential Geometry Seminar, Beijing International Center for Mathematical Research, China.
Talk on *Min–max theory for G-invariant minimal hypersurfaces*.

Teaching

Fall 2017 Calculus, Nanjing University, Assistant Instructor.

Fall 2024 Calculus, Shanghai Jiao Tong University, Assistant Instructor.

Grants

2022 – 2024 China Postdoctoral Science Foundation 2022M722844.

2024 – 2027 Shanghai Jiao Tong University Start-up Foundation.