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

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

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

Publications

Journal Articles

1. T. Wang, Min-max theory for free boundary G-invariant minimal hypersurfaces, *Advances in Mathematics*, 425 (2023), 109087.

2. T. Wang, Equivariant Morse index of min-max G-invariant minimal hypersurfaces, *Mathematische Annalen*, (2023), 1–39.

3. 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.

4. 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. L. Mazurowski and T. Wang, Curvature estimates for stable free boundary minimal hypersurfaces in locally wedge-shaped manifolds, arXiv:2307.12948, 2023.

3. T. Wang, Generic density of equivariant min-max hypersurfaces, arXiv:2309.09527, 2023.

4. T. Wang, Equivariant min-max hypersurface in G-manifolds with positive Ricci curvature, arXiv:2304.03656, 2023.

5. T. Wang and X. Yao, Generalized S^1-stability theorem, arXiv:2309.13865, 2023.

6. T. Wang and X. Yao, Improved Hebey-Vaugon conjecture on equivariant Yamabe invariants in dimension 3, arXiv:2309.13861, 2023.

Research Talks

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.

Grants

2022 – 2024   China Postdoctoral Science Foundation 2022M722844.

Honors and Awards

2018   China National Scholarship.

2017   Nanjing University Special Scholarship for New Students.

2015   Samsung Scholarship.

2014   China National Scholarship.