FENG SHAO

Update: March 13, 2025
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EDUCATION

Peking University (PKU) Beijing, China
Ph.D. in Mathematics September 2021 – June 2026 (expected)
Advisors: Professors Dongyi Wei and Zhifei Zhang

University of Science and Technology of China (USTC) Hefei, China
B.S. in Mathematics (Hua Loo-Keng Talent Program in Mathematics) September 2017 – June 2021
GPA: 4.13/4.3 (Rank 1st)
Advisor: Professor Lifeng Zhao

RESEARCH INTERESTS

I am interested in nonlinear partial differential equations.

- Constructions of self-similar solutions.
- Formation of self-similar type singularities.
- Well-posedness of weak solutions to fluid PDEs.

PUBLICATIONS

11. **F. Shao**, D. Wei and Z. Zhang, Symmetric self-similar algebraic spiral vortex sheet solutions to 2-D incompressible Euler equations. In preparation.
10. T. Hao, **F. Shao**, D. Wei and Z. Zhang, Global well-poseness for Lions' 3-D semi-stationary model of compressible Navier-Stokes equations. In preparation.
9. **F. Shao**, D. Wei and Z. Zhang, Global regularity of axisymmetric Euler equations without swirl in higher dimensions. Submitted.
8. **F. Shao**, S. Wang, D. Wei and Z. Zhang, Blow-up of the 3-D compressible Navier-Stokes equations for monatomic gases. *preprint arXiv:2501.15701.*
7. T. Hao, **F. Shao**, D. Wei, P. Zhang and Z. Zhang, Global well-posedness and self-similar solution of the inhomogeneous Navier-Stokes system. *preprint arXiv:2412.00390.*
6. A. Kulikov and **F. Shao**, Fekete's lemma in Banach spaces. *preprint arXiv:2411.17380.*
5. T. Hao, **F. Shao**, D. Wei and Z. Zhang, Global well-posedness of inhomogeneous Navier-Stokes equations with bounded density. *preprint arXiv:2406.19907.*
4. T. Hao, **F. Shao**, D. Wei and Z. Zhang, On the density patch problem for the 2-D inhomogeneous Navier-Stokes equations. *preprint arXiv:2406.07984.*
3. **F. Shao**, D. Wei and Z. Zhang, On blow-up for the supercritical defocusing nonlinear wave equation. *preprint arXiv:2405.19674.*
2. **F. Shao**, D. Wei and Z. Zhang, Self-similar imploding solutions of the relativistic Euler equations. *preprint arXiv:2403.11471.*
1. **F. Shao**, D. Wei and Z. Zhang, Self-similar algebraic spiral solution of 2-D incompressible Euler equations. *preprint arXiv:2305.05182.*