

Fei Wang

Department of Mathematics
University of Maryland
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Education:

Ph.D. Mathematics, University of Southern California, 2017

Advisor: Igor Kukavica

M.S. Mathematics, Tsinghua University, 2012

B.S. Information and Computer Science, Beijing University of Post and Telecommunication, 2009

Appointments:

Brin Postdoctoral Fellow, University of Maryland

2017–Present

Research Interest:

I am interested in the mathematical analysis of PDEs arising from fluid dynamics. Here is a list of topics I have worked on: Incompressible and compressible Navier-Stokes, Euler, Surface Quasi-Geostrophic and active scalar equations, Vlasov-Fokker-Planck equations, free surface fluid dynamics, boundary layers and inviscid limits, Landau damping, and unique continuation.

Awards:

2016: Theodore Edward Harris Graduate Teaching Prize, University of Southern California

2016: Center for Applied Mathematical Sciences, Graduate Student Prize for Research, University of Southern California

2009-2012: Tsinghua University Scholarship

2008: National Scholarship

2007: Samsung Scholarship

Publications:

1. I. Kukavica and F. Wang, Weighted decay for the surface quasi-geostrophic equation, *Communications in Mathematical Sciences*, 13 (2015), 1599–1614.
2. I. Kukavica, M. Ziane, and F. Wang, Persistence of regularity for solutions of the Boussinesq equations in Sobolev spaces, *Advances in Differential Equations*, 21 (2016), 85–108.
3. W. Hu, I. Kukavica, M. Ziane, and F. Wang, Review for Boussinesq equations with zero viscosity or zero diffusivity, *Proceedings of the workshop “Navier-Stokes equations in Venice”*, Venice, 2016.
4. I. Kukavica, A. Tuffaha, V. Vicol, and F. Wang, On the existence for the free interface 2D Euler equation with a localized vorticity condition, *Applied Mathematics and Optimization*, 73 (2016), 523–544.
5. I. Kukavica, V. Vicol, and F. Wang, On the ill-posedness of active scalar equations with odd kernels, *Conference proceedings on New Trends in Differential Equations, Control, and Optimization: Proceedings of the Eighth Congress of Romanian Mathematicians (2016)*, 185–200.
6. J. Bedrossian, V. Vicol, and F. Wang, Sobolev stability threshold for 2D shear flows near Couette, *Journal of Nonlinear Science* (2016), 1–25.
7. I. Kukavica, V. Vicol, and F. Wang, The van Dommelen and Shen singularity in the Prandtl equations, *Advances in Mathematics* 307 (2017), 288–311.
8. W. Rusin and F. Wang, On the local existence for an active scalar equation in critical regularity setting (submitted). [arXiv:1606.04525](https://arxiv.org/abs/1606.04525).

9. T. Hou, P. Liu, and F. Wang, Global regularity for a family of 3d models of the axi-symmetric navier-stokes equations, *Nonlinearity*, 31 (2018).
10. G. Camliyurt, I. Kukavica, and F. Wang, On quantitative uniqueness for elliptic equations, *Math. Z.* 291 (2019), 227 – 244.
11. G. Camliyurt, I. Kukavica and F. Wang, On localization and quantitative uniqueness for elliptic partial differential equations, Proceedings of the workshop on “Partial differential equations and fluid mechanics,” Warwick, 2017 (to appear).
12. I. Kukavica and F. Wang, Far-field regularity for the supercritical quasi-geostrophic equation, *Commun. Math. Sci.* 16 (2018), 393 – 410.
13. J. Bedrossian and F. Wang. The linearized Vlasov and Vlasov-Fokker-Planck equations in a uniform magnetic field. arXiv:1805.10756. Submitted, 2018.
14. I. Kukavica, V. Vicol, F. Wang. The inviscid limit for the Navier-Stokes equations with data analytic only near the boundary. arXiv:1904.04983. Submitted, 2019.

Talks at Conferences and Workshops:

- NSF-CBMS conference, Oklahoma State University, Oklahoma July 2014
- AMS Spring Western Sectional Meeting, University of Nevada, Nevada April 2015
- SIAM Conference on Analysis of Partial Differential Equations (PD15) Dec. 2015
- Shanks conference, Vanderbilt University May 2016
- Challenges in Statistical Physics and Fluid Dynamics, a Conference in Honor of Charlie Doering’s 60th Birthday, Brigham Young University May 2016
- Dynamics and Differential Equations, University of Minnesota (poster session) June 2016
- AMS Special Session on Analysis and Numerical Computations of PDEs in Fluid Mechanics, Indiana University Apr. 2017
- SIAM Conference on Analysis of Partial Differential Equations (PD17), Maryland Dec. 2017
- Talk at PDE seminar in University of Maryland Dec. 2017
- PDE seminar in South China University of Technology June. 2018
- PDE seminar in Capital Normal University June. 2018
- AMS Special Session on Analytical and Numerical Aspects of Turbulent Transport in University of Michigan, Ann Arbor Oct. 2018
- PDE seminar in Georgetown University Oct. 2018

Service:

- Co-organizer of a special session on the AMS Spring Western Sectional Meeting, University of Nevada, Las Vegas April 2015
- Leader of the Real Analysis sessions for graduate screening exams. 2014–2016
- Co-organizer of Graduate Analysis Seminar Fall 2016

Teaching experience:

- Math 310, Introduction to mathematical proof Fall 2017
- Math 410, Advanced Calculus Spring 2018
- Math 140, Calculus 1 Fall 2018
- Math 246, Ordinary Differential Equations Spring 2019