XUKAI YAN

Contact Information:

Address: School of Mathematics
Georgia Institute of Technology
686 Cherry Street
Atlanta, GA 30332-0160 USA

Telephone: 7324913584.
Email: xukai.yan@math.gatech.edu
Webpage: http://www.math.gatech.edu/∼xyan33

Education:

PhD in Mathematics, Rutgers University, 2017.

B.S. in Mathematics and Applied Mathematics, University of Science and Technology of China, 2010.

Employment history

Hale Assistant Professor, Georgia Institute of Technology, 2017-now.

Research Interest:

Nonlinear partial differential equations and applications, and analysis of fluid equations.

Research work:

L. Li, Y. Y. Li and X. Yan, Homogeneous solutions of stationary Navier-Stokes equations with isolated singularities on the unit sphere. I. One singularity, *Arch. Ration. Mech. Anal.* 227 (2018), 1091-1161.

L. Li, Y. Y. Li and X. Yan, Homogeneous solutions of stationary Navier-Stokes equations with isolated singularities on the unit sphere. II. Classification of axisymmetric no-swirl solutions, *Journal of Differential Equations* 264 (2018), 6082-6108.

L. Li, Y. Y. Li and X. Yan, Vanishing viscosity limit for homogeneous axisymmetric no-swirl solutions of stationary Navier-Stokes equations, *Journal of Functional Analysis* 227 (2019), 3599-3652.

L. Li, Y. Y. Li and X. Yan, Homogeneous solutions of stationary Navier-Stokes equations with isolated singularities on the unit sphere. III. Two Singularities, *Discrete and Continuous Dynamical Systems - Series A*, 39 (2019), 7163-7211.

M. G. Delgadino, X. Yan and Y. Yao, Uniqueness and non-uniqueness of steady states of aggregation-diffusion equations, submitted, preprint on arXiv: 1908.09782 [math.AP].

Y. Y. Li, X. Yan and Y. Yao, Symmetry of hypersurfaces with ordered mean curvature in one direction, submitted, arXiv:1910.04348 [math.AP].

Y. Y. Li and X. Yan, Asymptotic stability of homogeneous solutions to the Navier-Stokes equations in $\mathbf{R}^3$, preprint, arXiv:1911.03002 [math.AP].

L. Li, Y.Y. Li and X. Yan, Isolated line singularities for homogeneous solutions of stationary Navier-Stokes equations, in preparation.

Y. Y. Li and X. Yan, On a Hardy-type inequality with mixed norms, in preparation.

Grants and Awards:

- AMS-Simons Travel Grant, 2018-2020.
- AWM-NSF Travel Grant 1642548.
- Scholarship for Outstanding Student, University of Science and Technology of China, 2006-2009.

Invited talks:

- AMS Fall Southeastern Sectional Meeting, Special Session: Analysis of Geometric and Evolutionary Partial Differential Equations, Gainesville, Florida, November 2-3, 2019.
- SIAM SEAS 2019 Annual Meeting, Special Session: Recent Development in Nonlocal PDEs in Fluids and Other Applications, September 20-22, 2019.
- The 1st Annual Meeting of SIAM Texas-Louisiana Section, Mini Symposium: Nonlinear Conservation Laws and Applications, Louisiana State University, October 5-7, 2018.
- The 12th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Special Session SS83: Recent Advances in the Analysis of Nonlinear Phenomena, Taipei, Taiwan, July 5-9, 2018.
- The 12th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Special Session SS140: Classical and Geophysical Fluid Dynamics: Modeling, Analysis and Reduction, Taipei, Taiwan, July 5-9, 2018.
- SIAM APDE 2017, Special Session: Recent Development of the Mathematical Theory in Complex Fluids, December 11, 2017.
- PDE seminar, Georgia Institute of Technology, March 28, 2017.
- Seminar on Pure Math, Hong Kong University of Science and Technology, January 9, 2017.
- Complex Fluids Seminar, Pennsylvania State University, December 6, 2016.
- PDE/Applied Math Seminar, Indiana University Bloomington, November 14, 2016.
- Nonlinear Analysis Seminar, Rutgers University, November 8, 2016.

- AMS Fall Central Sectional Meeting, Special Session: Mathematics and Physics of Tornado Modeling, Minneapolis, Minnesota, October 29, 2016.
- PDE seminar, Brown University, September 23, 2016.
- The 14th Nonlinear PDE Summer School and Conference, Harbin, China, July 13, 2016.
- Afternoon Sessions, 2016 EWM-EMS Summer School on "Geometric and Physical aspects of Trudinger-Moser type inequalities", Institute Mittag-Leffler, Djursholm, Sweden, June 27, 2016.
- Student Research glimpse in Pre-enrollment program, Department of Mathematics, Rutgers University, August 21, 2015.

Teaching Experience:

- Lecture Instructor, Integrable Calculus, Georgia Institute of Technology, Fall 2019.
- Lecture Instructor, Multivariable Calculus, Georgia Institute of Technology, Spring 2019.
- Lecture Instructor, Differential Calculus, Georgia Institute of Technology, Fall 2018 and Fall 2017.
- Lecture Instructor, Introduction to Linear Algebra, Georgia Institute of Technology, Spring 2018.
- Recitation Instructor, Advanced Calculus, Rutgers University, Fall 2015.
- Recitation Instructor, Elementary Differential Equations, Rutgers University, Spring 2015.
- Recitation Instructor, Calculus I, Rutgers University, Fall 2014.
- Lecture Instructor, Elementary Differential Equations, Rutgers University, Summer 2014.
- Recitation and Workshop Leader, Calculus II Mathematical and Physics Science, Rutgers University, Spring 2012, Spring 2013, Spring 2014.
- Recitation and Workshop Leader, Calculus I for Mathematical and Physics Science, Rutgers University, Fall 2011, Fall 2012, Fall 2013, Spring 2016.
- Grader, Advanced Calculus for Engineering, Rutgers University, Fall 2010, Spring 2011.

Service:

Co-organizing the PDE seminar of Georgia Institute of Technology, 2018-now.

Membership:

American Mathematical Society, 2011-present.

Association for Women in Mathematics, 2011-present.