

# Jincheng Yang

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## CONTACT INFORMATION

Department of Mathematics  
College of Natural Science  
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## RESEARCH INTERESTS

Analysis, dynamical systems, partial differential equations, and their application in fluid dynamics, plasma physics, optimal mass transportation.

## EDUCATION

**The University of Texas at Austin**, Austin, Texas USA

Ph.D. Candidate in Mathematics (Pure) Aug. 2017 – Present  
Advisor: Luis A. Caffarelli and Alexis F. Vasseur

**Xi'an Jiaotong University (XJTU)**, Xi'an, Shaanxi China

B.Sc. in Mathematics and Applied Mathematics (Elite Class) Aug. 2013 – July 2017  
Thesis: *Linear Inviscid Damping of a Shear Flow in a Half-Space and a Finite Channel*  
Advisor: Dongsheng Li and Zhiwu Lin

## HONORS AND AWARDS

<b>University Graduate Continuing Fellowship</b> , UT Austin	Mar 2021
<b>Frank Gerth III Teaching Excellence Award</b> , UT Austin	June 2020
<b>Senate of College Council's TA of the Year</b> , UT Austin	Apr 2019
<b>Frank Gerth III Graduate Excellence Award</b> , UT Austin	June 2018
<b>Outstanding Student</b> (The highest honor on campus, $10/30000$ ), XJTU	Oct 2016
<b>National Scholarship</b> , Ministry of Education, China	Sept 2016

## PUBLICATIONS

### Journal Articles

- Alexis Vasseur, Jincheng Yang. *Second Derivatives Estimate of Suitable Solutions to the 3D Navier–Stokes Equations*, Arch. Ration. Mech. Anal., **241**: 683–727. (2021)
- Zhiwu Lin, Jincheng Yang, Hao Zhu. *Barotropic Instability of Shear Flows*, Stud. Appl. Math., **144**: 289–326. (2020)
- Jincheng Yang, Zhiwu Lin. *Linear Inviscid Damping for Couette Flow in Stratified Fluid*, J. Math. Fluid Mech., **20**: 445–472. (2018)

### Preprints

- Rui Gao, Jincheng Yang, Luhao Zhang. *Robust Policy Optimization for Feature-Based News vendor*, submitted (2021)
- Jincheng Yang. *Construction of Maximal Functions associated with Skewed Cylinders Generated by Incompressible Flows and Applications*, to appear in Ann. Inst. H. Poincaré Anal. Non Linéaire, arXiv:2008.05588 (2021)

## ACADEMIC EXPERIENCE

### Visiting

- *Georgia Institute of Technology*, Atlanta, GA 2016 – 2017
- *Columbia University in the City of New York*, New York City, NY 2015

### Conferences and Workshops

- *Mathematical Sciences Research Institute*, Virtual Summer Graduate School: Introduction to Water Waves July 2020

- *Northwestern University*, Summer School in Semiclassical Analysis July 2019
- *Instituto de Ciencias Matemáticas*, Summer School on Fluid Mechanics at the ICMAT June 2019
- *Columbia University*, Workshop on Free Boundary Problems May 2019
- *The University of Texas at Austin*, On Nonlinear PDEs and their Applications Mar 2019

#### Invited Talks

- American Mathematical Society, *Spring Western Sectional Meeting*
  - Special Session on Nonlinear PDEs and Fluid Dynamics May 2021
- American Mathematical Society, *Spring Eastern Sectional Meeting*
  - Contributed Paper Session Mar 2021

#### Seminar Talks

- Junior Analysis Seminar, *Shapley Extension and Application* Apr 2021
- Junior Analysis Seminar, *Distributionally Robust Optimization* Oct 2020
- Junior Analysis Seminar, *Oscillatory Integrals and Decay of Dispersive Equation* Apr 2020
- ★ Ph.D. Candidacy Talk, *A New Covering Lemma and its Application in 3D Incompressible Navier–Stokes Equations* Mar 2020
- Harmonic Analysis Reading Seminar, *Introduction to Hardy Space* Nov 2019
- Junior Analysis Seminar, *A Covering Lemma for Fluid Equations and its Application to Navier–Stokes Equation* Nov 2019
- Stochastic Calculus in Manifold Reading Seminar, *Manifold-valued Semimartingales and their Quadratic Variation* Oct 2019
- Junior Analysis Seminar, *Regularity for a Local-Nonlocal Transmission Problem* Apr 2019
- Sophex Seminar, *An Introduction to Stochastic Integrals* Apr 2018
- Sophex Seminar, *Stability and instability of shear flow in a rotating system* Sept 2017
- Fluid Mechanics Seminar, *Inviscid Damping of Couette Flow in a Stratified Fluid* Apr 2017

#### Journal Refereeing

- SIAM Journal on Mathematical Analysis

#### TEACHING

##### Teaching Assistant

- M383D | *Methods of Applied Mathematics II* Spring 2021
- M427J | *Differential Equations with Linear Algebra* Spring 2019 – Fall 2020
- M427L | *Advanced Calculus for Applications II* Fall 2018
- M408D | *Sequences, Series, and Multivariable Calculus* Spring 2018
- M408K | *Differential Calculus* Fall 2017

#### OUTREACH

##### Mentoring of Undergraduate Students

- Yongqi Pang, *on the topic of Statistics and Data Analysis* Spring 2020
- Trey Minor, *on the topic of Differential Equations and Dynamical Systems* Spring 2019
- Yan Cheng, *on the topic of Probability and Martingales* Spring 2018