

# Jiajie Chen

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Applied and Comput. Math  
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**Research** Partial differential equations, Probability

**Interests**

**Education** **California Institute of Technology** Pasadena, California  
Ph.D. Candidate in Applied and Comput. Math Aug 2017 – Present  
Advisor: Prof. Thomas Y. Hou

**Peking University** Beijing, China  
B.S. in Mathematics, Minor in Economics Sep 2013 – July 2017  
Undergrad research advisors: Profs. Pingwen Zhang, Zhifei Zhang

**The Affiliated High School of SCNU** Guangzhou, China  
Middle School and High School Sep 2007 – June 2013

**Honors and Scholarships**

- Outstanding Undergraduate, Peking Univ. and Beijing 2017
- Innovation Prize, Peking University 2016
- National Scholarship, Peking University 2014
- Chinese Mathematical Olympiad (CMO), Gold Medal (Full Score) 2013
- Chinese Mathematical Olympiad (CMO), Silver Medal 2012

**Publications** J. Chen. On the regularity of the De Gregorio model for the 3D Euler equations. *arXiv preprint arXiv:2107.04777*, 2021.

J. Chen, T. Y. Hou, & D. Huang. Asymptotically self-similar blowup of the Hou-Luo model for the 3D Euler equations. *arXiv preprint arXiv:2106.05422*, 2021.

J. Chen. On the Slightly Perturbed De Gregorio Model on  $S^1$ . *Arch. Rational Mech. Anal.* 241, 1843–1869, 2021.

J. Chen, & T. Y. Hou. Finite time blowup of 2D Boussinesq and 3D Euler equations with  $C^{1,\alpha}$  velocity and boundary. *Comm. Math. Phys.* 383(3), 1559–1667, 2021.

J. Chen. Singularity formation and global well-posedness for the generalized Constantin–Lax–Majda equation with dissipation. *Nonlinearity*, 33(5), 2502, 2020.

J. Chen, T. Y. Hou, & D. Huang. On the finite time blowup of the De Gregorio model for the 3D Euler equation. *Comm. Pure Appl. Math.* 74(6), 1282–1350, 2021.

J. Chen, A. Hou, & T. Y. Hou. A pseudo knockoff filter for correlated features. *Inf. Inference* 8, no. 2, 313–341, 2019.

J. Chen, A. Hou, & T. Y. Hou. A Prototype Knockoff Filter for Group Selection with FDR Control. *Inf. Inference* 9 (2020), no. 2, 271–288, 2020.

J. Chen, P. Zhang, & Z. Zhang. Local minimizer and De Giorgi's type conjecture for the isotropic–nematic interface problem. *Calc. Var. Partial Differential Equations* 57, no. 5, Paper No. 129, 19 pp, 2018.

## Teaching Experience

### Teaching assistant at Caltech

- ACM 109. Mathematical Modelling. Spring 2021
- ACM 217. Advanced Topics in Stochastic Analysis. Winter 2021
- ACM 204. Randomized algorithms for linear algebra. Winter 2020
- CMS/ACM 117. Probability Theory and Stochastic Processes. Fall 2019, Fall 2020
- ACM 95/100b. Introductory Methods of Applied Mathematics. Spring 2019, Spring 2020
- ACM 106b. Introductory Methods of Computational Mathematics. Winter 2019
- ACM 106a. Introductory Methods of Computational Mathematics. Fall 2018

## Presentations

- CMX Student and Postdoc Seminar, Caltech, Oct 2021.
- Applied Math Seminar, University of New Mexico (online), Sep 2021.
- Computational and Applied Math Ph.D. Students Workshop, Peking University (online), Sep 2021 .
- PDE Seminar, Seoul National University (online), Aug 2021.
- Chinese Webinar on Analysis & PDE, Aug 2021.
- Student-Run Analysis & PDE, University of California, Davis (online), Jan 2021.
- Analysis seminar, Korea Institute for Advanced Study (online), Dec 2020.
- PDE Seminar, University of Minnesota (online), Nov 2020.
- Mathematical Research Seminar, Duke Kunshan (online), Nov 2020.
- Differential Equations seminar, University of Michigan, Jan 2020.
- Workshop on Mathematics of Fluid Motion III: Theory and Computation, Korea Institute for Advanced Study, Dec 2019.
- PDE Seminar, Nonlinear PDE Center, Chung-Ang University, Korea, Dec 2019.
- Analysis and PDE Seminar, University of California, San Diego, Nov 2019.
- Analysis and PDE Seminar, Peking University, Beijing, China, Sep 2019.
- Workshop on “Towards a 3D Euler singularity”, AIM, San Jose, CA, Aug 2019.
- Workshop on Fluid turbulence and Singularities of the Euler/ Navier Stokes equations, Harvard University, Mar 2019.
- Workshop on Multiscale Problems in Materials Science and Biology: Analysis and Computation, Tsinghua Sanya International Mathematics Forum, Jan 2018.

## Service

Co-organizer of the CMX Student / Postdoc Seminar at Caltech. Oct 2020 – Mar 2021, Oct 2021 – Present

## Languages

English (fluent), Cantonese (native), Chinese (native).