Jiajie Chen

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Applied and Comput. Math
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Research Interests

Partial differential equations, Probability

Education

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

Peking University — Beijing, China
BA in Mathematics
Minor in Economics — Sep 2013 – July 2017

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 Slightly Perturbed De Gregorio Model on S^1. *arXiv preprint arXiv:2010.12700,* 2020.

J. Chen, & T. Y. Hou. Finite time blowup of 2D Boussinesq and 3D Euler equations with $C^{1,\alpha}$ velocity and boundary. *arXiv preprint arXiv:1910.00173,* 2019.

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. *arXiv preprint arXiv:1905.06387,* 2019. To appear in CPAM.

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 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

Invited Talks

- 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 – Present

Languages

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