

Xuanrui Feng

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EDUCATION

Ph.D. Candidate in Mathematics

Sep. 2024 -

Beijing International Center for Mathematical Research, Peking University, China

Bachelor in Mathematics

Sep. 2020 - Jul. 2024

School of Mathematical Sciences, Peking University, China

GPA: 3.892/4.0

- Selected Courses: Functions of Real Variables (100), Functional Analysis (100), Partial Differential Equations (98), Ordinary Differential Equations (Honor) (99), Theory of Functions of Complex Variables (97), Partial Differential Equation 2 (95), Probability Theory (98), Abstract Algebra (99), Introduction to Differential Manifolds (97).
- Graduate Courses: Topics in Analysis and PDE (98), Real Analysis (97), Elliptic PDE of Second Order (93), Qualitative Theory of Ordinary Differential Equations (93), Abstract Algebra II (94), Homology Theory (94), Advanced Theory of Probability (93), Functional Analysis II (87).

PUBLICATIONS & PREPRINTS

Propagation of Chaos for 2D Log Gas on the Whole Space | *Preprint*

Nov. 2024

- Joint work with Shuzhe Cai, Yun Gong and Zhenfu Wang.
- Preprint on arXiv.

Quantitative Propagation of Chaos for 2D Viscous Vortex Model with General Circulations on the Whole Space | *Preprint*

Nov. 2024

- Joint work with Zhenfu Wang.
- Preprint on arXiv.

Relative Entropy Method for Particle Approximation of the Landau Equation for Maxwellian Molecules |

Aug. 2024

- Joint work with José Antonio Carrillo, Shuchen Guo, Pierre-Emmanuel Jabin and Zhenfu Wang.
- Preprint on arXiv. Submitted to Journal of the European Mathematical Society.

Quantitative Propagation of Chaos for 2D Viscous Vortex Model on the Whole Space | *Preprint*

Oct. 2023

- Joint work with Zhenfu Wang.
- Preprint on arXiv. Submitted to Peking Mathematical Journal.

ACADEMIC EXPERIENCE

Peking University | *Participant*

Aug. 2024

- Participated in **Summer School on Propagation of Chaos in Analysis and Probability**.
- Studied mean-field theory and propagation of chaos results from over 20 speakers.

ETH Zürich | *Participant*

Jan. 2024

- Participated in **Kinetic and hydrodynamic PDEs. Conference in honour of François Golse's 60th birthday**.
- Studied kinetic and hydrodynamic theory from over 20 speakers.

Peking University | *Undergraduate Researcher (Advisor: Prof. Zhenfu Wang, BICMR)*

Jul. 2023 - Oct. 2023

- Studied mean-field limit and propagation of chaos for many particle systems.
- Proved the **entropic propagation of chaos for 2D viscous vortex model on the whole space** (preprint on arXiv).

Peking University | *Participant of Undergraduate Discussing Class*

Oct. 2023 - Dec. 2023

- Read and discussed the book **Vorticity and Incompressible Flow** by Majda and Bertozzi.
- Reported on the topic of **global existence of 2D Navier-Stokes equation**.

Peking University | *Participant of Undergraduate Discussing Class*

Mar. 2023 - Jun. 2023

- Read and discussed the notes **Lectures on Harmonic Analysis** by Thomas Wolff.
- Reported on the topic of **development of Falconer distance set conjecture**.

- Read and discussed the notes **Ergodic Theory for Stochastic PDEs** and **Convergence of Markov Processes** by Martin Hairer.
- Reported on the topic of **Hörmander condition and Malliavin analysis**.

HONORS & AWARDS

Beijing | *Award* Jun. 2024

- Outstanding Graduate Thesis of Beijing

Tsinghua University | *Award* Aug. 2022

- Bronze Medal in S.-T. Yau College Student Mathematics Contest

Peking University | *Award* Dec. 2021, 2022

- First Prize in Beijing College Student Mathematics Contest

Beijing | *Honor* Jun. 2024

- Outstanding Graduates of Beijing

Beijing International Center for Mathematical Research | *Honor* Jun. 2024

- Huaixin Bachelor

Peking University | *Honor* Dec. 2022, 2023

- National Scholarship (top 0.2% nation-wide)

Peking University | *Honor* Dec. 2022

- Pacemaker to Merit Student of Peking University

Peking University | *Honor* Dec. 2023

- Merit Student of Peking University