

Xuanrui Feng

(+86)13632208341 • pkufengxuanrui@stu.pku.edu.cn • <https://fengxuanrui.github.io>

EDUCATION

Ph.D. Candidate in Pure Mathematics

Sep. 2024 -

Beijing International Center for Mathematical Research, Peking University, China

- **Advisor:** Prof. Zhenfu Wang

Bachelor in Mathematics and Applied 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*

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

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

- Joint work with Zhenfu Wang.

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

- Joint work with José Antonio Carrillo, Shuchen Guo, Pierre-Emmanuel Jabin and Zhenfu Wang.

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

- Joint work with Zhenfu Wang.

ACADEMIC EXPERIENCE

Zoom Online | *Speaker*

Dec. 2024

- Invited by **Stochastic Webinar**, Chinese Academy of Sciences and Beijing Institute of Technology.
- Reported on the topic of **Quantitative Propagation of Chaos for Singular First-order System on the Whole Space**.

Peking University | *Participant*

Aug. 2024

- Participated in **Summer School on Propagation of Chaos in Analysis and Probability**.

ETH Zürich | *Participant*

Jan. 2024

- Participated in **Kinetic and hydrodynamic PDEs. Conference in honour of François Golse's 60th birthday**.

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 **propagation of chaos in relative entropy for 2D viscous vortex model on the whole space**.

Peking University | *Participant of Undergraduate Discussing Class*

Oct. 2023 - Dec. 2023

- Read and discussed the book **Vorticity and Incompressible Flow** by Andrew Majda and Andrea 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**.

Peking University | *Participant of Undergraduate Discussing Class*

Sep. 2022 - Dec. 2022

- 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

Tsinghua University <i>Award</i>	Aug. 2022
<ul style="list-style-type: none">• Bronze Medal in S.-T. Yau College Student Mathematics Contest	
Peking University <i>Award</i>	Dec. 2021, 2022
<ul style="list-style-type: none">• First Prize in Beijing College Student Mathematics Contest	
Beijing <i>Honor</i>	Oct. 2024
<ul style="list-style-type: none">• Outstanding Graduate Thesis of Beijing	
Beijing <i>Honor</i>	Jun. 2024
<ul style="list-style-type: none">• Outstanding Graduate Student of Beijing	
Beijing International Center for Mathematical Research <i>Honor</i>	Jun. 2024
<ul style="list-style-type: none">• Huaixin Bachelor	
Peking University <i>Honor</i>	Dec. 2022, 2023
<ul style="list-style-type: none">• National Scholarship	
Peking University <i>Honor</i>	Dec. 2022
<ul style="list-style-type: none">• Pacemaker to Merit Student of Peking University	
Peking University <i>Honor</i>	Dec. 2023
<ul style="list-style-type: none">• Merit Student of Peking University	