Xuanrui Feng

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

EDUCATION

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

Quantitative Propagation of Chaos for 2D Viscous Vortex Model on the Whole Space | *Preprint* Oct. 2023

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

Relative Entropy Method for Particle Approximation of the Landau Equation with Maxwellian Molecules | *In Preparation*

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

ACADEMIC EXPERIENCE

ETH Zürich | *Participant* Jan. 2024

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

Peking University | *Undergraduate Researcher (Advisor: Prof. Zhenfu Wang, BICMR)* Jul. 2023 - Oct. 2023

- Studied the mean-field limit and propagation of chaos of many particle systems.
- Proved the **entropic propagation of chaos for 2D viscous vortex model on the whole space** (Arxiv preprint).
- Expanded the previous result of Pierre-Emmanuel Jabin and Zhenfu Wang published on Inventiones Mathematicae 2018.

Peking University | *Participant of Undergraduate Discussing Class* Oct. 2023 - Dec. 2023

- Read and discussed the book **Vorticity and Incompressible Flow** by Majda and Bertozzi.
- Studied the basic properties of Navier-Stokes equation and Euler equation.
- Report 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.
- Studied the basic elements and important problems of harmonic analysis.
- Report 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.
- Studied the basic elements of long-time behavior of stochastic systems.
- Report 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