Kun Huang

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WORK EXPERIENCE

Postdoctoral Associate *August 2025 - present*

Department of Mathematics, Virginia Tech

Supervisor: Yingda Cheng and Daniel Appelö

Postdoctoral Fellow *December 2023 - July 2025*

Institute for Fusion Studies, Department of Physics, The University of Texas at Austin

Supervisor: Boris Breizman

EDUCATION

The University of Texas at Austin *August 2019 - December 2023*

Doctor of Philosophy in Computational Science, Engineering, and Mathematics (CSEM)

Oden Institute for Computational Engineering and Sciences

Advisor: Irene M. Gamba

Dissertation (with 2024 Outstanding Dissertation Award)

A Numerical and Analytical Study of Kinetic Models for Particle-Wave Interaction in Plasmas

Peking University *September 2015 - July 2019*

Bachelor of Science in Theoretical and Applied Mechanics

Department of Mechanics and Engineering Science, College of Engineering

Advisor: Shaoqiang Tang

RESEARCH INTERESTS

- Low-rank methods for high-dimensional problems
- Structure-preserving schemes for kinetic equations
- Finite element method, discontinuous Galerkin method
- Multiscale methods for Hamiltonian systems
- Kinetic simulation of magnetized plasmas
- Wellposedness of kinetic equations

PUBLICATIONS

1. **Huang, K.**, Galindo-Olarte, A., González-Hernández, R. and Gamba, I.M., 2025. A structure-preserving local discontinuous Galerkin method for the Fokker-Planck-Landau equation. arXiv preprint arXiv:2505.18321.
2. **Huang, K.**, Gamba, I.M. and Shu, C.W., 2025. A structure-preserving multiscale solver for particle-wave interaction in non-uniform magnetized plasmas. arXiv preprint arXiv:2505.20210. (submitted)
3. Porteous, W., Gamba, I.M. and **Huang, K.**, 2025. Existence and Regularizing Effects of a Nonlinear Diffusion Model for Plasma Instabilities. arXiv preprint arXiv:2503.13922.
4. **Huang, K.** and Gamba, I.M., 2023. Weak solutions for weak turbulence models in electrostatic plasmas. arXiv e-prints, pp.arXiv-2304. (submitted)

5. **Huang, K.**, Abdelmalik, M., Breizman, B. and Gamba, I.M., 2023. A conservative Galerkin solver for the quasilinear diffusion model in magnetized plasmas. Journal of Computational Physics, 488, p.112220.

RESEARCH EXPERIENCE

Research Member *August 2025 - present*
Simons Laufer Mathematical Sciences Institute

Research Assistant *August 2020 - December 2023*
The University of Texas at Austin
Supervisor: Irene M Gamba

Research Intern *Summer 2022*
Brown University
Mentor: Chi-Wang Shu

Undergraduate Research Training Project *2017 - 2018*
Peking University
Mentor: Shaoqiang Tang

TEACHING EXPERIENCE

Teaching Assistant *Spring 2023*
The University of Texas at Austin
Math 372K: Partial Differential Equations and Applications

Student Tutor *Spring 2018*
Peking University
Mathematical Analysis II

ACADEMIC SERVICES

- Referee, Multiscale Modeling & Simulation
- Reviewer, Journal of Computational Physics

HONORS & AWARDS

- Outstanding Dissertation Award, Oden Institute for Computational Engineering and Sciences, 2024
- Peter O'Donnell Graduate Fellowship, The University of Texas at Austin, 2019
- Outstanding Undergraduate Thesis Award, Beijing Municipal Commission of Education, 2019
- Award for Research Excellence, Peking University, 2018
- Award for Academic Diligence, Peking University, 2017
- May 4th Scholarship, Peking University, 2016
- Award for Academic Excellence, Peking University, 2016

EXPERTISE

Computer Languages	Python, C/C++, MATLAB
Tools	Latex, Linux, OpenMP, MPI, Git, Docker, Mathematica