Yue Wu

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EDUCATION

Ph.D. Student in Applied Mathematics   09/2023–Present
Division of Applied Mathematics, Brown University
- Coursework: Real/Functional Analysis, PDE, Numerical PDE, Probability

B.Sc. in Information & Computational Science   09/2019–06/2023
School of the Gifted Young, University of Science and Technology of China
- GPA: 3.96 / 4.30 (91.77 / 100.00) (Rank 1st / 40 in the major)
- Coursework: Real/Complex/Functional Analysis, Probability, PDE, Numerical Analysis, Numerical PDE, Finite Element Methods

RESEARCH INTERESTS

- **High-Order Numerical Methods for PDEs**: discontinuous Galerkin, finite element
- **Scientific Computing**: parallel PDE solvers, iterative methods

PREPRINTS

1. **Y. Wu** and Y. Xu, A high-order local discontinuous Galerkin method for the p-Laplace equation, *Beijing J. of Pure and Appl. Math.*, to appear. arXiv:2311.09119.

RESEARCH EXPERIENCES

Numerical Simulation of Plasma Equilibrium Evolution in Nuclear Fusion
Supervisor: Prof. Mengping Zhang   USTC undergraduate research project, 06/2021–05/2022
- Developed a parallel hybrid finite difference-pseudo spectral code for resistive MHD in toroidal geometry, and performed long-time simulation of resistive tearing mode instability in tokamaks
- Checked the results with researchers from the Institute of Plasma Physics, CAS, and against those from existing open-source codes
- Discussed the methodology and results with Prof. Chi-Wang Shu

Positivity-Preserving Conservative Low Rank Methods for Vlasov Dynamics
Supervisor: Prof. Xiangxiong Zhang   Purdue University (remote), 06/2022–08/2022
- Developed a low-rank correction algorithm with positivity preservation and orthogonality constraints via optimization, which can post-process data from a dynamic low-rank solver

Discontinuous Galerkin Methods for the p-Laplacian Equation
Supervisor: Prof. Yan Xu   Bachelor's thesis at USTC, 12/2022–06/2023
- Proved an a priori error estimate for an LDG scheme for the p-Laplacian equation
- Developed and implemented an efficient preconditioned gradient descent method

TEACHING EXPERIENCES

- TA, Computational Methods B *(by Prof. Jingrun Chen)*, USTC   Spring 2022
- TA, Operations Research: Deterministic Models *(by Dr. Amalia V. Culiuc)*, Brown   Fall 2024

HONORS AND AWARDS

- New Lotus Award, the 2023 SGY Rose Scholarship   06/2024
- USTC Outstanding Undergraduate Award   06/2023

- "Chia-Chiao Lin" Gold Medal (Top 1 in China), the 14th S.-T. Yau College Student Math Contest, Applied and Computational Math track   06/2023
- Team Silver Medal, the 14th S.-T. Yau College Student Math Contest   06/2023
- Excellence Prize, the 14th S.-T. Yau College Student Math Contest, Analysis and PDEs track   06/2023
- Gold Prize, USTC Outstanding Student Scholarship   10/2022
- Excellence Prize, the 13th S.-T. Yau College Student Math Contest, Analysis and PDEs track   08/2022
- China National Scholarship   12/2021
- Second Prize, the 13th Chinese Math Competitions   12/2021
- China National Scholarship   12/2020
- Third Prize, USTC Freshman Scholarship   09/2019

PROFESSIONAL SKILLS

- **Programming:** C/C++, Matlab, Fortran, Python, MPI, LaTeX
- **Language:** Mandarin Chinese, English

POSTERS AND PRESENTATIONS

- Poster session, the 2024 International Congress of Basic Science (ICBS), Beijing, China 07/2024

EXTRACURRICULAR ACTIVITIES

- Road cycling racing team member, USTC   09/2019–06/2023
- Monitor of class 2019-3 for math-majored students, SGY, USTC   03/2022–06/2023

Updated: September 4, 2024