Yue Wu

Email: yue_wu3@brown.edu
Website: https://yuewu2002.github.io/
Mail: Box F, Brown University, Providence, RI 02912-9106

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" (special issue in honor of Chi-Wang Shu's 65th birthday), submitted to *Beijing Journal of Pure and Applied Mathematics*, Nov. 2023. 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, USTC *(Instructor: Prof. Jingrun Chen)* Spring 2022

HONORS AND AWARDS

- Howard and Jan Swearer Graduate Fellowship AY 2023–2024
- 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

PROFESSIONAL MENBERSHIPS

- Society for Industrial & Applied Mathematics (SIAM) Since 01/2024
- American Mathematical Society (AMS) Since 09/2023

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: May 17, 2024