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

- New Lotus Award, SGY Rose Scholarship 2023   06/2024
- 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: June 22, 2024