Wu, Yue (吴越)

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EDUCATION

Ph.D. Student in Applied Mathematics 09/2023–Present
Division of Applied Mathematics, Brown University

B.S. in Information & Computational Science 09/2019–06/2023
School of the Gifted Young (SGY), University of Science and Technology of China (USTC)

- Overall GPA: 3.96 / 4.30 (91.77 / 100.00) (rank in the major: 1st / 40)
- Thesis: Discontinuous Galerkin Methods for the p-Laplacian Equation; Supervisor: Prof. Yan Xu
- Coursework: Real/Complex/Functional Analysis, Probability, Differential Equations I/II (undergrad/grad), Numerical Analysis, Numerical PDE (grad), FEM (grad), CFD (grad; audit), etc.

RESEARCH INTERESTS

- **High-Order Numerical Methods for PDEs**: discontinuous Galerkin, finite element, spectral methods
- **Scientific Computing**: parallel solvers, GPU acceleration

RESEARCH EXPERIENCE

Numerical Simulation of Plasma Equilibrium Evolution in Nuclear Fusion 06/2021–05/2022
USTC; Supervisor: Prof. Mengping Zhang

- Developed a parallel hybrid finite difference-pseudo spectral code for resistive MHD in toroidal geometry
- 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 06/2022–08/2022
Purdue University (remote); Supervisor: Prof. Xiangxiong Zhang

- 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 12/2022–06/2023
USTC; Supervisor: Prof. Yan Xu

- Proved an a priori error estimate for an LDG scheme for the p-Laplacian equation
- Developed and implemented a preconditioned gradient descent method which provides hk-independent convergence

TEACHING EXPERIENCE

- TA, Computational Methods B (001511.07), USTC (Instructor: Prof. Jingrun Chen) Fall 2022

HONORS AND AWARDS

- USTC Outstanding Undergraduate Award 06/2023

- "Chia-Chiao Lin" Gold Medal (top 1), the 14th S.-T. Yau College Student Mathematics Contest, Applied and Computational Mathematics track 06/2023
- Team Silver Medal, the 14th S.-T. Yau College Student Mathematics Contest 06/2023
- Excellence Prize, the 14th S.-T. Yau College Student Mathematics Contest, Analysis and PDEs track 06/2023
- Gold Prize, USTC Outstanding Student Scholarship 10/2022
- Excellence Prize, the 13th S.-T. Yau College Student Mathematics Contest, Analysis and PDEs track 08/2022
- China National Scholarship (top 3%) 12/2021
- Second Prize, the 13th Chinese Mathematics Competitions (CMC) 12/2021
- China National Scholarship (top 3%) 12/2020
- Third Prize, USTC Freshman Scholarship 09/2019

PROFESSIONAL SKILLS

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

EXTRACURRICULAR ACTIVITY

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