

# Yue WU

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## EDUCATION

**B.S. in Information & Computational Science, School of the Gifted Young, University of Science and Technology of China (USTC)** 09/2019 – 07/2023

- Overall GPA: 3.96 / 4.30 (91.77 / 100.00) (rank in the major: 1<sup>st</sup> / 40)
- Thesis: Discontinuous Galerkin Methods for the  $p$ -Laplacian Equation

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## RESEARCH INTERESTS

- **High-order numerical methods for PDEs:** discontinuous Galerkin, finite element, spectral method
- **Scientific computing:** parallel solvers

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## RESEARCH EXPERIENCE

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

- 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 from Brown University
- Surveyed and implemented DG schemes for controlling divergence of the magnetic field in ideal MHD

**Positivity-Preserving Conservative Low Rank Methods for Vlasov Dynamics** Purdue University (Online)  
Supervisor: Prof. Xiangxiong Zhang 06/2022 – 08/2022

- Developed a low-rank correction algorithm with positivity preservation and orthogonality constraints via optimization
- Used the algorithm to post-process the data generated from the dynamic low-rank solver

**Discontinuous Galerkin Methods for the  $p$ -Laplacian Equation** USTC  
Supervisor: Prof. Yan Xu 12/2022 – 06/2023

- 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

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## TEACHING EXPERIENCE

- TA, Computational Methods B, USTC (lecturer: Prof. Jingrun Chen) 02/2022 – 06/2022

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## HONORS AND AWARDS

- USTC Outstanding Undergraduate Award 06/2023
- Gold Prize, USTC Outstanding Student Scholarship 10/2022
- Excellence Prize, the 13<sup>th</sup> S.-T. Yau College Student Mathematics Contest, Analysis and PDEs track 08/2022
- China National Scholarship (top 3%) 12/2021
- Second Prize, the 13<sup>th</sup> Chinese Mathematics Competitions (CMC) 12/2021
- China National Scholarship (top 3%) 12/2020
- Promotional Ambassador for Wuxi as an Outstanding Student Representative 08/2020
- Third Prize, USTC Freshman Scholarship 09/2019

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## SELECTED COURSEWORK

- **Math:** Real Analysis, Functional Analysis, Differential Equations I/II (undergrad/grad)
- **Numerics:** Numerical Analysis, Numerical PDE (grad), FEM (grad), CFD (grad; audit)

## TECHNICAL PROFICIENCIES

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- **Computer:** C/C++, Matlab, Fortran, MPI, LaTeX, Mathematica, Python
- **Languages:** Chinese (native), English (fluent)

## STANDARDIZED TESTS

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- **TOEFL iBT:** 106 (R: 28, L: 27, S: 25, W: 26)
- **GRE General:** 327 (V: 157, Q: 170, W: 3.5)
- **GRE Subject (Mathematics):** 970 (97%)