

# Curriculum Vitae

## Qi Tao

Applied and Computational Mathematics Division  
Beijing Computational Science Research Center  
Beijing 100193, P.R. China

Email: taoqi@csrc.ac.cn  
Tel: 86-10-56981913  
URL: <https://qitao01.github.io/index.html>

## Education

- **Postdoctor**, 07/2020 – 08/2022 (expected)  
Applied and Computational Mathematics Division,  
Beijing Computational Science Research Center, Beijing 100193, P.R. China  
*Advisors*: Professor Zhiming Zhang
- **Ph.D. in Mathematics**, 09/2015 – 06/2020  
School of Mathematical Sciences,  
University of Science and Technology of China, Hefei, Anhui 230026, P.R. China  
*Advisors*: Professor Chi-Wang Shu & Professor Yan Xu
- **B.S. in Mathematics**, 09/2011 – 07/2015  
School of Mathematics and Statistics, Northwest Normal Universtiy,  
Lanzhou, Gansu 130024, P.R. China

## Professional Experience

- **Visiting Student**, 09/2018 – 06/2020  
Division of Applied Mathematics, Brown University, Providence, RI 02912, USA  
*Advisor*: Professor Chi-Wang Shu

## Research Interests

- Discontinuous Galerkin (DG) finite element methods
- Post-processing of DG methods
- Superconvergence of DG methods

## Publications/Preprints

- Journal Publications
  1. **Qi Tao** and Yinhua Xia, *Error estimates and post-processing of local discontinuous Galerkin method for Schrödinger equations*, Journal of Computational and Applied Mathematics, v356 (2019), pp.198-218.
  2. **Qi Tao** and Yan Xu, *Superconvergence of arbitrary Lagrangian-Eulerian discontinuous Galerkin methods for linear hyperbolic equations*, SIAM Journal on Numerical Analysis, v57 (2019), pp.2142-2165.

3. Yong Liu, **Qi Tao** and Chi-Wang Shu, *Analysis of optimal superconvergence of an ultraweak-local discontinuous Galerkin method for time dependent fourth-order equation*, ESAIM: Mathematical Modelling and Numerical Analysis ( $M^2AN$ ), v54 (2020), pp.1797-1820.
  4. **Qi Tao**, Yan Xu and Chi-Wang Shu, *An ultraweak-local discontinuous Galerkin method for PDEs with high order spatial derivatives*, Mathematics of Computation, v89 (2020), pp.2753-2783.
  5. **Qi Tao**, Yan Xu and Chi-Wang Shu, *A discontinuous Galerkin method and its error estimate for nonlinear fourth-order wave equations*, Journal of Computational and Applied Mathematics, v386 (2021), 113230.
  6. **Qi Tao**, Waixiang Cao and Zhimin Zhang, *Superconvergence analysis of the ultra-weak local discontinuous Galerkin method for one dimensional linear fifth order equations*, Journal of Scientific Computing, v88 (2021), 63.
  7. **Qi Tao**, Yan Xu and Xiaozhou Li, *Negative norm estimate of arbitrary Lagrangian-Eulerian discontinuous Galerkin methods for nonlinear hyperbolic equations*, Communications on Applied Mathematics and Computation, to appear.
- Preprints
    1. Yong Liu, Jianfang Lu, **Qi Tao** and Yinhua Xia, *A well-balanced oscillation-free discontinuous Galerkin method for solving the shallow water equations*, submitted to Journal of Computational Physics.
    2. Haijin Wang, Anping Xu and **Qi Tao**, *Analysis of ultra-weak discontinuous Galerkin methods with implicit-explicit time-marching for convection-diffusion problems*, submitted to Journal of Computational Mathematics.
    3. **Qi Tao**, Yong Liu, Yan Jiang and Jianfang Lu, *An oscillation-free local discontinuous Galerkin method for nonlinear degenerate parabolic equations*, submitted to Numerical Algorithm.

## Awards and Honors

- National Scholarship for Graduate Students, 2014, Northwest Normal University.
- Ya Yang Scholarship for Graduate Students, 2015, University of Science and Technology of China.
- Chiang Chen Scholarship, 2016, University of Science and Technology of China.
- Joint Ph. D student in Brown University, Sept. 2018- Sept. 2020, China Scholarship Council.
- Qiu Shi Graduate Student Scholarship, 2019, Qiu Shi Science & Technologies Foundation

## Conferences/Workshops

- Participant
  - The Third International Workshop on Development and Application of High-order Numerical Methods: in honor of Professor Chi-Wang Shu on his 60th birthday, University of Science and Technology of China, Hefei, Anhui, China (Dec. 2016)
  - The Fourth International Workshop on the Development and Application of High-order Numerical Methods, Nanjing University, Nanjing, Jiangsu, China (May 2018)
  - Celebrating 75 Years of Mathematics of Computation, ICERM, Providence, RI, USA (Nov. 2018)
  - The 18th Annual Meeting of the Chinese Society of Industrial and Applied Mathematics, Changsha, Hunan, China (Nov. 2020)
  - The 19th Annual Meeting of the Chinese Society of Industrial and Applied Mathematics, Hefei, Anhui, China (Oct. 2021)

## Teaching Experience

- Teaching Assistant: *Multivariable Calculus*, USTC, Spring 2017, 2018
- Teaching Assistant: *Mathematical Analysis*, USTC, Spring 2016, Fall 2016, 2017

## Computer skills

- Programming: Fortran, Mathematica, Matlab, C
- Software: Mathematica, Matlab, LaTeX, Tecplot, etc.