Zhichao Peng

CONTACT INFORMATION

Department of Mathematical Sciences
Rensselaer Polytechnic Institute
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EDUCATION

Department of Mathematical Sciences, Rensselaer Polytechnic Institute, Troy, NY, USA

Ph.D. Candidate, Applied Mathematics, 08/2015-05/2020 (expected)

- Advisor: Professor Fengyan Li

School of Mathematical Sciences, Peking University, Beijing, P.R.China

B.S. in Mathematics, 09/2011 - 07/2015

RESEARCH INTERESTS

- Finite element methods: discontinuous Galerkin (DG) method, discontinuous Petrov-Galerkin (DPG) method
- Structure preserving methods: asymptotic preserving, positivity preserving, energy stable
- Numerical methods for multi-scale kinetic transport models, Maxwell's equations in nonlinear media

RESEARCH EXPERIENCE

08/2015 –05/2020	Student research assisstant Advisor: Professor Fengyan Li Rensselaer Polytechnic Institute
05/2019 –08/2019	Student Intern Advisor: Dr. Xianzhu Tang Los Alamos National Laboratory

PUBLICATIONS

- Refereed journal papers:
  - Z. Peng, V. A. Bokil, Y. Cheng, F. Li, *Asymptotic and positivity preserving methods for Kerr-Debye model with Lorentz dispersion in one dimension*, Journal of Computational Physics, Volume 402, 1 February 2020, 109101
- Submitted
  - Z. Peng, Y. Cheng, J.-M. Qiu, F. Li, *Stability-enhanced AP IMEX-LDG schemes for linear kinetic transport equations under a diffusive scaling*, submitted to Journal of Computational Physics, 07/2019
  - Z. Peng, Q. Tang, X.-Z. Tang, *An adaptive discontinuous Petrov-Galerkin method for the Grad-Shafranov equation*, submitted to SIAM Journal on Scientific Computing, 01/2020
- Preprints
  - Z. Peng, Y. Cheng, J.-M. Qiu, F. Li, *Stability, asymptotic and error analysis of AP IMEX-LDG schemes for linear kinetic transport equations under a diffusive scaling*

Presentations

- Invited talks
  - RTG Seminar, Rensselaer Polytechnic Institute, Troy, NY, USA, 10/29/2019
  - Applied Math Days, Rensselaer Polytechnic Institute, Troy, NY, USA, 04/05/2019 - 04/06/2019
  - Seminar, School of Mathematical Sciences, Peking University, Beijing, China, 12/27/2018
  - Seminar, School of Mathematical Sciences, University of Science and Technology of China, Heifei, China, 12/25/2018
  - 2018 SIAM Annual Meeting, Oregon Convention Center, Portland, OR, USA, 07/09/2018 - 07/13/2018
  - The 3rd Annual Meeting of SIAM Central States Section, Colorado State University, Fort Collins, CO, USA, 09/29/2017 - 10/01/2017
- Poster presentation
  - The ICERM 2018 Topical Workshop: Computational Aspects of Time Dependent Electromagnetic Wave Problems in Complex Materials, ICERM, Providence, RI, USA, 07/25/2018 - 07/29/2018

Professional travel

- Model and Dimension Reduction in Uncertain and Dynamic Systems, ICERM, Providence, RI, USA 01/27/2020 - 05/01/2020
- Frontiers in Applied and Computational Mathematics, ICERM, Providence, RI, USA, 01/04/2017- 01/06/2017

Teaching Experience

Fall, 2019	Teaching Assistant, MATH 2400 - Introduction to Differential Equations, Rensselaer Polytechnic Institute
Fall, 2018	Teaching Assistant, MATH 4090 - Foundation of Analysis, Rensselaer Polytechnic Institute
Fall, 2017	Teaching Assistant, MATH 4200 - Mathematical Analysis I, Rensselaer Polytechnic Institute
Fall, 2017	Teaching Assistant, MATH 4090 - Foundation of Analysis, Rensselaer Polytechnic Institute
Summer, 2016	Mentoring, Undergraduate Research, Rensselaer Polytechnic Institute

Honors and Awards

2018	Founders Award of Excellence, Rensselaer Polytechnic Institute

Professional service

Reviewers for *SIAM Journal on Scientific Computing*, *Journal of Applied Mathematics and Physics*

Relevant Skills

- Fortran, C, C++, Matlab,
- MPI, PETSC, MFEM, HYPRE, Latex, Git
- English, Chinese