Curriculum Vitae

Wei Wang

Center for Turbulence Research
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Education/Employment

- Postdoctoral Fellow, 06/2008-present.
  Center for Turbulence Research, **Stanford University**, Stanford, CA.
  Project Title: Efficient low dissipative high order multiblock/embedded grid solver for shock/turbulence interactions
  Mentors: H. C. Yee, Björn Sjögreen

- Ph.D. in Applied Mathematics, May 2008.
  Division of Applied Mathematics, **Brown University**, Providence, RI.
  Thesis Title: Multiscale discontinuous Galerkin methods and applications
  Advisor: Chi-Wang Shu

- M.S. in Applied Mathematics, May 2006.
  Division of Applied Mathematics, **Brown University**, Providence, RI.

- B.S. in Mathematics, June 2004.
  University of Science and Technology of China, Hefei, Anhui, P.R. China.

Research Interests

- Computational fluid dynamics, reacting flows, turbulence and shock waves, especially development of low dissipative high order accurate schemes for shock and turbulence interactions of nonequilibrium flow.

- High order numerical methods for conservation laws, especially discontinuous Galerkin method, WENO method and spectral methods.

- Discontinuous Galerkin methods for multiscale modeling of solid mechanics.

- Multiscale discontinuous Galerkin methods for quantum semiconductor device simulation.

Publications/Preprints

Published or Accepted Journal Articles

1. W. Wang, C.-W. Shu, H. C. Yee and B. Sjögreen, High order well-balanced schemes and applications to non-equilibrium flow with stiff source terms, Journal of Computational Physics, v228(2009), pp. 6682–6702.

2. W. Wang and C.-W. Shu, The WKB local discontinuous Galerkin method for the simulation of Schrödinger equation in a resonant tunneling diode, Journal of Scientific Computing, v40(2009), pp. 360-374.

3. W. Wang, X. Li and C.-W. Shu, The discontinuous Galerkin method for the multiscale modeling of dynamics of crystalline solids, Multiscale Modeling and Simulation: A SIAM Interdisciplinary Journal, v7(2008), pp. 294-320.

Submitted or In Preparation

4. W. Wang, J. Guzmán and C.-W. Shu, The multiscale discontinuous Galerkin method for solving a class of second order elliptic problems with rough coefficients, submitted to Multiscale Modeling and Simulation: A SIAM Interdisciplinary Journal.

5. W. Wang, H. C. Yee, B. Sjögreen, T. E. Magin and C.-W. Shu, Construction of low dissipative high order well-balanced filter schemes for non-equilibrium flow, to be submitted.

6. W. Wang and C.-W. Shu, The WKB local discontinuous Galerkin method for the simulation of 2D Nanoscale MOSFETs, in preparation.

Technical Reports

7. W. Wang, C.-W. Shu, H. C. Yee and B. Sjögreen, On well-balanced schemes for non-equilibrium flow with stiff source terms, Annual Research Briefs, Center for Turbulence Research, Stanford University (2008).

8. W. Wang, H. C. Yee, B. Sjögreen, T. E. Magin and C.-W. Shu, Construction of low dissipative high order well-balanced filter schemes for non-equilibrium flow, Annual Research Briefs, Center for Turbulence Research, Stanford University (2009).

Awards and Honors

- AWM-NSF Travel Grant, 2009.
- Postdoctoral Fellowship, 2008-present, Center for Turbulence Research, Stanford University.
- The Stella Dafermos Award, 2008, Division of Applied Mathematics, Brown University.
- Graduate Student Fellowship, 2004-2005, Brown University.
- Zhang Zongzhi Fellowship, 2002-2003, University of Science and Technology of China.
- Outstanding Students Scholarship, 2000-2002, 2003-2004, University of Science and Technology of China.

Teaching Experience

- Brown University, Teaching Assistant

  - APMA1210: Operations Research, Fall 2007
  - APMA0360: Methods of Applied Mathematics II, Spring 2006
  - APMA0340: Methods of Applied Mathematics I, Fall 2005
- Sheridan Center Teaching Certificate I, 2006-2007

Conferences/Workshops

- Invited Talk:
  - AMS Special Session on Mathematics of Computation, the Joint Mathematics Meetings, San Francisco, CA, January 13-16, 2010.
  - BIRS meeting on Discontinuous Galerkin Methods for Partial Differential Equations, Banff Center, Alberta, Canada, Nov 25-30, 2007.
- Contributed Talk:
  - SIAM Annual meeting, Denver, CO, July 6-10, 2009.
- Poster:
  - International Conference on Advances in Scientific Computing, Brown University, Dec 6-8, 2009.
- Participant:
  - VKI Lecture Series on Hypersonic Entry and Cruise Vehicles, Stanford University, June 30-July 3, 2008.
  - Seoul National University - Stanford University workshop on Prediction of Complex flows, Stanford University, June 19-20, 2008.
  - Advances and Challenges in the Solution of Stochastic Partial Differential Equation, Brown University, October 20-22, 2006.
  - SIAM Conference on Analysis of Partial Differential Equations, Boston, MA, July 10-12, 2006.

Professional Service

- Referee for Mathematics of Computation
- Reviewer for CTR Annual Research Briefs

Computer Experience

- Proficient in parallel computing using MPI.
- Proficient in programming in Fortran, C.

- Proficient in software Tecplot, Matlab, Mathematica, Lapack, PETSc, LaTeX, MS office etc.
- Proficient in Linux, Unix, Windows Operation Systems.

Memberships

- American Mathematical Society (AMS)
- The Association for Women in Mathematics (AWM)
- Society for Industrial and Applied Mathematics (SIAM)