Xiong Meng

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EDUCATION

- August 2010 – August 2012: Visiting Research Fellow, Division of Applied Mathematics, Brown University
  Co-advisor: Prof. Chi-Wang Shu

- September 2008 – October 2013: Ph.D. in Applied Mathematics
  Department of Mathematics, Harbin Institute of Technology
  Thesis Title: Superconvergence and error estimates of discontinuous Galerkin methods for hyperbolic and fourth-order equations
  Advisor: Prof. Boying Wu

- September 2004 – July 2008: B. S. in Mathematics, Department of Mathematics, Harbin Institute of Technology

ACADEMIC POSITIONS

- January 2016 – : Associate Professor, Department of Mathematics and Institute for Advanced Study in Mathematics, Harbin Institute of Technology

- September 2014 – August 2016: Marie Curie Research Fellow, School of Mathematics, University of East Anglia

- October 2013 – December 2015: Assistant Professor, Department of Mathematics, Harbin Institute of Technology

RESEARCH INTERESTS

◇ High order methods for solving convection-dominated problems using:

  - Finite difference and/or finite volume weighted essentially non-oscillatory (WENO) methods
  - Discontinuous Galerkin (DG) finite element methods

◇ Numerical analysis: superconvergence of DG and LDG methods

◇ Computational fluid dynamics

ACADEMIC COMMUNICATIONS

- **Workshop organizer:** International workshop on recent advances and applications in discontinuous Galerkin methods, Harbin Institute of Technology, Harbin, China, July 18, 2017.

- **Invited conference talk:** 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, China, December 16–19, 2016.

- **Invited mini-symposia talk:** Minisymposia on "Accuracy enhancement and superconvergence of discontinuous Galerkin methods", the Mathematics of Finite Elements and Applications 2016, Brunel University London, Uxbridge, UK, June 14 – 17, 2016.

- **Invited talk:** Applied Maths Seminar, School of Mathematics, University of East Anglia, Norwich, Norfolk, UK, October 5, 2015.

- **Invited mini-symposia talk:** Minisymposia on "Discontinuous Galerkin method: recent development and applications - Part VIII of VIII", the 8th International Congress on Industrial and Applied Mathematics, China National Convention Center, Beijing, China, August 10 – 14, 2015.

- **Invited mini-symposia talk:** Minisymposia on "Recent advances in numerical methods for hyperbolic conservation laws", 26th Biennial Numerical Analysis Conference, University of Strathclyde, Glasgow, UK, June 23 – 26, 2015.

- **Invited talk:** Scientific Computing Seminar, Division of Applied Mathematics, Brown University, Providence, Rhode Island, USA, March 20, 2015.

- **Invited mini-symposia talk:** Minisymposia on "Recent Developments of DG/WENO Methods for Partial Differential Equations - Part I of II", SIAM Conference on Computational Science and Engineering, Salt Lake City, Utah, USA, March 14 – 18, 2015.

- **Poster:** Workshop on Recent Advances in Discontinuous Galerkin Methods, University of Reading, Reading, Berkshire, UK, September 11 – 12, 2014.

- **Invited talk:** The 13th Annual Meeting of Mathematics Society of Heilongjiang Province, Northeast Petroleum University, Daqing, Heilongjiang, China, July 4– 6, 2014.

- **Invited talk:** Midwest Numerical Analysis Days at University of Notre Dame, South Bend, IN, USA, May 12 – 13, 2012. *Superconvergence of discontinuous Galerkin methods for scalar nonlinear conservation laws in one space dimension*

- **Workshop:** New England Numerical Analysis Day at University of Massachusetts Amherst, MA, USA, April 21, 2012.

- **Conference:** Advances in Scientific Computing, Imaging Science and Optimization: Stan Osher's 70th Birthday Conference at IPAM, UCLA, Los Angeles, CA, USA, April 4 – April 6, 2012.

- **Workshop:** Kinetic Theory and Computation workshop at ICERM, Brown University, Providence, RI, USA, September 7 – December 9, 2011.

- **Conference:** Conference on Hyperbolic Conservation Laws and Continuum Mechanics in Honor of Constantine Dafermos' 70th Birthday, Brown University, Providence, RI, USA, May 12 – 14, 2011.

- **Summer school:** National graduate students summer school on Applied Mathematics and Statistics at Tsinghua University, Beijing, China, July 9 – July 27, 2009.

- **Summer school:** The 13th national mathematics graduate students summer school at University of Science and Technology of China, Hefei, China, July 14 – August 4, 2008.

PROGRAMMING SKILLS	Proficient in Fortran and Matlab.
TEACHING EXPERIENCE	Fall 2016: Selected advanced topics in pure and applied mathematics, Undergraduate course Spring 2017: Computational methods, Undergraduate courses Spring 2017: Mathematical experiments, Undergraduate courses Spring 2017: Numerical solution of nonlinear hyperbolic equations, Postgraduate courses

PUBLICATIONS	1. Xiong Meng, and Jennifer K. Ryan, Divided difference estimates and accuracy enhancement of discontinuous Galerkin methods for nonlinear symmetric systems of hyperbolic conservation laws, IMA Journal of Numerical Analysis, to appear, DOI: 10.1093/imanum/drw072, 31pp.

PUBLICATIONS

1. Xiong Meng, and Jennifer K. Ryan, Divided difference estimates and accuracy enhancement of discontinuous Galerkin methods for nonlinear symmetric systems of hyperbolic conservation laws, IMA Journal of Numerical Analysis, to appear, DOI: 10.1093/imanum/drw072, 31pp.

2. Xiong Meng, and Jennifer K. Ryan, Discontinuous Galerkin methods for nonlinear scalar hyperbolic conservation laws: divided difference estimates and accuracy enhancement, Numerische Mathematik, 136 (2017), pp. 27-73.

3. Yao Cheng, Xiong Meng, and Qiang Zhang, Application of generalized Gauss–Radau projections for the local discontinuous Galerkin method for linear convection-diffusion equations, Mathematics of Computation, 86 (2017), pp. 1233-1267.

4. Xiong Meng, Chi-Wang Shu, and Boying Wu, Optimal error estimates for discontinuous Galerkin methods based on upwind-biased fluxes for linear hyperbolic equations, Mathematics of Computation, 85 (2016), pp. 1225-1261.

5. Xiong Meng, Chi-Wang Shu, and Yang Yang, Superconvergence of discontinuous Galerkin methods for time-dependent partial differential equations (in Chinese), Scientia Sinica Mathematica, 45 (2015), pp.1041-1060.

6. Xiong Meng, Chi-Wang Shu, Qiang Zhang, and Boying Wu, Superconvergence of discontinuous Galerkin methods for scalar nonlinear conservation laws in one space dimension, SIAM Journal on Numerical Analysis, Volume 50 (2012), pp. 2336-2356.

7. Xiong Meng, Chi-Wang Shu, and Boying Wu, Superconvergence of the local discontinuous Galerkin method for linear fourth order time dependent problems in one space dimension, IMA Journal of Numerical Analysis, Volume 32 (2012), pp.1294-1328.

REVIEWER FOR JOURNALS

- Mathematics of Computation
- ESAIM: Mathematical Modelling and Numerical Analysis
- Journal of Scientific Computing
- Journal of Numerical Mathematics
- Communication in Computational Physics
- Science China Mathematics
- Journal of Computational Mathematics
- Numerical Methods for Partial Differential Equations
- Numerical Algorithms
- Computers and Mathematics with Applications
- International Journal of Numerical Analysis and Modeling
- Journal of Inequalities and Applications

HONORS AND AWARDS

- Talented Young Scholars, Harbin Institute of Technology, 2015.
- Excellent Doctor Dissertation, Harbin Institute of Technology, 2015.
- Marie Curie Fellow, European Commission, 2014.
- National Scholarship of Postgraduates, Ministry of Education, 2012.