Ming-Cheng Shiue

Contact Information

Department of Applied Mathematics,
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Education

Ph.D. Department of Mathematics, Indiana University-Bloomington, July, 2010.

DISSERTATION: Analysis and computation of the inviscid Primitive equations and of the shallow water equations with topography.

ADVISOR: Prof. Roger Temam.

MINOR: Scientific Computing.

M.A. Department of Mathematics, National Taiwan University, 2000.

THESIS: A boundary element method for two-dimensional linearized Poisson-Boltzmann equation.

THESIS ADVISOR: Prof. I-Liang Chern.

B.S. Department of Mathematics, National Taiwan University, 1998.

Research Interests

Numerical analysis and scientific computing

Partial differential equations

Geophysical Fluid Dynamics

Stochastic differential equations and stochastic partial differential equations

Uncertainty quantification for partial differential equations

Employment

National Chiao Tung University, Hsinchu, Taiwan, Department of Applied Mathematics

Associate Professor, 2016-present.

Assistant Professor, 2011-2016.

Indiana University, Bloomington, Department of Mathematics

Visiting Scholar, The Institute for Scientific Computing and Applied Mathematics, Jan 2016-Feburary 2016.

Visiting Research Associate, The Insitiute for Scientific Computing and Applied Mathematics, 2010-2011.

Associate Instructor, Recitations for M211 Calculus, Fall 2009.

Research Assistant, Prof. Roger Temam, The Institute for Scientific Computing and Applied Mathematics, Spring 2007, Summer 2007, Spring 2008, Summer 2008, Spring 2009, Summer 2009, Spring 2010, and Summer 2010.

Associate Instructor, Recitations for M211 Calculus, Fall 2008.

Associate Instructor, Assistant for D117 Introduction to Finite Math 2 and Grader for M571 Numerical Analysis, Fall 2007.

Associate Instructor, Grader for M513 Complex Analysis and M533 Differential Geometry , Fall 2006.

Associate Instructor, Assistant for the Calculus Webwork Lab, Spring 2006.

Academia Sinica, Institute of Astronomy and Astrophysics

Research Assistant, Prof. Chi Yuan, Academia Sinica Institute of Astronomy and Astrophysics, Taiwan, May 2002–August 2003.

Publications

The Barotropic mode for the Primitive equations, Journal of Scientific Computing, volume 45, no. 1-3, 167-199, 2010 (with Qingshan Chen and Roger Temam).

Boundary value problems for the shallow water equations with topography, Journal of Geophysical Research-Oceans, volume 116, C02015, 22 PP., 2011(with Jacques Laminie, Roger Temam and Joseph Tribbia).

Numerical approximation of the 3D inviscid Primitive equations in a limited domain, ESAIM-Mathematical Modelling and Numerical Analysis, volume 46, no. 3, 619-646, 2012 (with Qingshan Chen, Roger Temam, and Joseph Tribbia).

An initial boundary value problem for one-dimensional shallow water magnetohydrodynamics in the solar tachocline, accepted by Nonlinear Analysis Series A: Theory, Methods & Applications, volume 76, 215-228, 2013.

Boundary conditions for limited area models based on the shallow water equations, accepted by Communications in Computational Physics, volume 14, no.3, 664-702, 2013. (with Arthur Bousquet, Madalina Petcu, Roger Temam and Joseph Tribbia).

On the asymptotic stability analysis and the existence of time-periodic solutions of the Primitive equations, accepted by Indiana University Mathematics Journal, 2013 (with Chun-Hsiung Hsia).

Interior penalty discontinuous Galerkin methods with implicit time-integration techniques for nonlinear parabolic equations, accepted by Numerical Methods for Partial Differential Equations, 2013 (with Lun-Ji Song, and Gung-Min Gie).

On the asymptotic stability analysis and the existence of time-periodic solutions of the Primitive equations for large-scale moist atmosphere, Applicable Analysis,volume 94, no. 9, 1926-1963, 2015 (with Chun-Hsiung Hsia).

On time periodic solutions, asymptotic stability and bifurcations of Navier-Stokes equations, Numerische Mathematik, to appear, 2016 (with Chun-Hsiung Hsia, C.Y. Jung and T.B. Nguyen).

Invited and Contributed Talks

Colloquium, Institute of Computaional and Modeling Sciences, National Tsing Hua University, Taiwan, December 28, 2016.

Mathematical Conference and annual meeting of the Taiwan Mathematical Society, NDHU, Taiwan, December 10 to December 11, 2016.

SIAM: East Asian Section Conference 2016, University of Macau, Macau, June 20-22 2016.

Colloquium, Department of Mathematics, National Cheng Kung University, Taiwan, March 24, 2016.

Seminar, Department of Mathematics, National Chung Cheng University, Taiwan, January 12, 2016.

Colloquium, Department of Mathematics, National Central University, Taiwan, January 7, 2016.

PARC-SINICA meeting, Academia Sinica, Taipei, Taiwan, January 5, 2016.

NCTS on PDE seminar, National Taiwan University, Taipei, Taiwan, December 24, 2015.

International Conference on Nonlinear Analysis: Kinetic Theory and Related Topics, Academia Sinica, Taipei, Taiwan, October 30 to Novermber 2, 2015.

2015 Cross-Strait Conference on Integrable Systems and Related Topics, Huaqiao University, Xiamen, China, October 23 to October 27, 2015.

NCTS on Computational Mathematics for young scholars, National Chiao-Tung University, Hsinchu, Taiwan, May 15 to May 16, 2015.

Mini-Workshop on spherical designs and numerical analysis, Shanghai Jiao Tong University, China, April21 to April 24, 2015

Recent development of conservation laws and mathematical fluid dynamics , NIMS, Korea, March 25 to March 27, 2015.

Mathematical Conference and annual meeting of the Taiwan Mathematical Society, NCKU, Taiwan, December 6 to December 7, 2014.

10th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Madrid, Spain, Jul 7 to July 11, 2014.

10th Taiwan-Philippine Symposium, Kaohsiung, Taiwan, March 31, 2014.

Cross-Strait Joint Conference on Integrable Systems and Related Topics, Academia Sinica, Taipei, October 27, 2013.

POSTECH-NCTS Joint Workshop on PDEs, Pohang, Korea, October 18, 2013.

The Workshop of Some Challenge Problems on PDEs, NCTS and NCU, Taiwan, December 20, 2012.

Nonlinear and Dispersive Partial Differential Equations during the 9th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Orlando, Florida, Jul 1to July 5, 2012.

Advances in Classical and Geophysical Fluid Dynamics during the 9th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Orlando, Florida, Jul 1to July 5, 2012.

Seminar, Department of Applied Mathematics, National Chung-Hsing University, January 9th, 2012.

Semnar, Department of Financial and Computational Mathematics, Providence University, January 4th, 2012.

Seminar, Department of Applied mathematics, National Chiao Tung University, Taiwan, December 20th, 2011

Taiwan-Japan joint workshop on Numerical Analysis and Scientific Computation, Taipei, Taiwan, November 11, 2011.

Mini-symposium, the SIAM Computational Science and Engineering conference, Reno, Nevada, March 2nd, 2011.

Seminar, Department of Applied mathematics, National Chiao Tung University, Taiwan, January 4th, 2011.

Seminar, Department of Mathematics, National Tsing Hua University, Taiwan, January 3rd, 2011.

Seminar, Department of Applied Mathematics, National Sun Yat-sen University, Taiwan, December 30th, 2010.

Seminar, Department of Applied Mathematics, National University of Kaohsiung, Taiwan, December 29th, 2010.

Seminar, Department of Mathematics, National Cheng Kung University, Taiwan, December 24th, 2010.

Seminar, Department of Mathematics, National Chung Cheng University, Taiwan, December 22th, 2010.

Seminar, Department of Mathematics, National Taiwan University, Taiwan, December 16th, 2010.

Mathematical Conference and annual meeting of the Taiwan Mathematical Society, Taiwan, December 12th, 2010.

Colloquium, Department of Mathematics, National Central University, Taiwan, December 9th, 2010.

Institute seminar, the Institute for Scientific Computing and Applied Mathematics, Indiana University, October 23rd, 2009

Professional Activities

Professional Memberships

Society for Industrial Applied mathematics 2012-present.

Taiwan Society for Industrial Applied Mathematics 2012-present.

Conferences and Workshops Attended

A derivative-free tamed Milstein scheme for commutative stochastic differential equations with nonglobally Lipschitz continuous coefficients , Proceedings of 10th Philppines-Taiwan Symposium on Analysis, to appear , 2014 (with Yu-Cheng Chang).

An application of Serrin's method, Proceedings of 9th Philppines-Taiwan Symposium on Analysis, vol. 34, No. 1-2, 46-55, 2011 (with Chun-Hsiung Hsia).

Minisymposium, SIAM Conference on Mathematical and Computational Issues in the Geosciences, "Modeling, Analysis and Simulation of Oceanic flows", Long Beach, CA, March 21–24, 2011.

AMS Spring Central Sectional Meeting on special session on Numerical Analysis and Scientific Computing Iowa City, IA, March 18–20, 2011.

AMS Spring Central Sectional Meeting on Nonlinear Partial Differential Equations and Applications, III, University of Illinois at Urbana-Champaign, March 27–29, 2009.

AMS Spring Central Sectional Meeting on Recent Advances in Classical and Geophysical Fluid Dynamics, Indiana University-Bloomington, April 5–6, 2008.

Poster Presentation, Gas dynamics in NGC 5248: Theory vs. Observations, with Chao-Chin Yang, and Chix Yang, CAST Annual Meeting, April 18–19, 2003.

Honors, Research Grants & Awards

NSC-104-2115-M-009-012-MY2 (PI, single investigator), Analysis and computation of the related mathematical problems in the atmospheric and oceanic dynamics, NTD 1,562, 429, 2015-2017.

NSC 102-2115-M-009-015-MY2 (PI, single investigator), Numerical computation and analysis of the mathematical problems in geophysical fluid mechanics, NTD 1,013, 000, 2013-2015.

Young Scholar Outstanding Research Award, College of Science, National Chiao Tung University, 2013.

NSC 100-2115-M-009 -009 MY2 (PI, single investigator), Boundary value probelms for the shallow water equations of the atmosphere with moisture and Convection, NTD 1,025, 000, 2011-2013.

Government scholarship by the Ministry of Education, Taiwan, 2003.

Golden Medal in Calculus, Taiwan Undergraduate Student Achievement Test in Mathematics and Statistics, 1998.

Presidential award, National Taiwan University, Taipei, Taiwan, 1996–1997.

Miscellaneous

Computer Skills

Fortran, C, Linux, Matlab, and LaTeX.

Last updated: February 12, 2017