Tong Wu

Contact Information

Department of Mathematics (504)982-2315
North Carolina State University twu18@ncsu.edu

Research Interests

Nonlinear Partial Differential Equations, Shallow Water System, Adaptive Moving Mesh, Numerical Analysis, Finite Volume Methods, Algorithm to design Social Networks.

Education

North Carolina State University

Postdoctoral Research Scholar, Mathematics, August 2016-present

Mentor: Zhilin Li, Alina Chertock

Tulane University

Ph.D. Mathematics, August 2011-August 2016

Advisor: Alexander Kurganov

Xi'an Jiaotong University

B.S. Mathematics and Applied Mathematics, August 2007-June 2011

Honors and Awards

2013–2015	Summer Research Support, Tulane University
2015 Aug	SIAM Travel Support for ICIAM2015
2015–2016	NSF Research Assistantship (supported by Professor Alexander Kurganov) Tulane University

Publications and Preprints

On a Three-Layer Approximation of Two-Layer Shallow Water Equations, with Alina Chertock, Alexander Kurganov and Zhuolin Qu, Mathematical Modelling and Analysis, 18 (2013), 675-693.

Well-Balanced Positivity Preserving Central-Upwind Scheme for the Shallow Water System with Friction Terms, with Alina Chertock, Shumo Cui and Alexander Kurganov, International Journal for Numerical Methods in Fluids, 78 (2015), 355-383.

Steady State and Sign Preserving Semi-Implicit Runge-Kutta Methods for ODEs with Stiff Damping Term, with Alina Chertock, Shumo Cui, and Alexander Kurganov, SIAM Journal on Numerical Analysis, 53 (2015), 2008-2029.

Second-Order Fully Discrete Central-Upwind Scheme for Two-Dimensional Hyperbolic Systems of Conservation Laws, with Alexander Kurganov and Martina Prugger, to appear in SIAM Journal on Scientific Computing. (2017)

Generating Bipartite Networks with a Prescribed Joint Degree Distribution, with Asma Boroojeni, Jeremy Dewar and James Hyman, submitted to Journal of Complex Networks. (2017)

Adaptive Moving Mesh Central-Upwind Schemes for Hyperbolic System of PDEs. Applications to Compressible Euler Equations and Granular Hydrodynamics, with Alexander Kurganov, Zhuolin Qu and Olga S. Rozanova submitted to Communications in Computational Physics. (2017)

Modeling Shallow Water Flows through Solid Obstacles with Windows, with Suncica Canic, Alina Chertock, Shumo Cui, Alexander Kurganov, Abdolmajid Mohammadian and Xin Liu, in preparation. (2017)

Adaptive Moving Mesh Central-Upwind Schemes for Shallow Water Equations, with Alexander Kurganov and Zhuolin Qu, in preparation. (2017)

Conferences and presentations

Seminar talk, Applied Mathematics and Plasma Physics Seminar, Center for Nonlinear Studies, Los Alamos National Lab, Los Alamos, NM, USA. (July 2017)

Poster presentation, International Conference on Current Trends and Challenges in Numerical Solution of Partial Differential Equations, Purdue University, West Lafayette, IN, USA. (July 2017)

Participation, NIMBioS Tutorial: Uncertainty Quantification for Biological Models, University of Tennessee, Knoxville, TN, USA. (June 2017)

Participation, Clifford Lecture, Tulane University, New Orleans, LA, USA. (April 2017)

Participation, Young Researchers Workshop: Stochastic and deterministic methods in kinetic theory, Duke University, Durham, NC, USA. (Nov 2016)

Conference talk, SIAM Conference on Analysis of Partial Differential Equations, Scottsdale, AZ, USA. (Dec 2015)

Poster presentation, Collective Dynamics in Biological and Social Systems, Duke University, Durham, NC, USA. (Nov 2015)

Conference talk, The International Congress on Industrial and Applied Mathematics (ICIAM 2015), Beijing, China. (August 2015)

Conference talk, The Ninth IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena, Georgia Center for Continuing Education University of Georgia, Athens, GA, USA. (April 2015)

Conference talk, SCALA 2015 : Scientific Computing Around Louisiana, Tulane University, New Orleans, LA, USA. (March 2015)

Participation, Theory and Numerics of PDEs, Bethesda, MD, USA. (April 2014)

Participation, Clifford Lecture, Tulane University, New Orleans, LA, USA. (Nov 2013)

Academic Experience

2017 Summer	Visiting the Los Alamos National Lab
2015 Summer	Visiting the Institute of Mathematics in Bordeaux and Inria
2013 Summer	Visiting the Institute of Natural Sciences, Shanghai Jiaotong University
2012 Summer	Visiting the Institute of Natural Sciences, Shanghai Jiaotong University

Teaching Experience

Instructor

2017 Fall	Calculus I
2017 Spring	Calculus III
2016 Fall	Calculus II
2014 Spring	Calculus
2013 Fall	Statistics for Business

Teaching Assistant

2014 Fall	Calculus
2013 Spring	Introduction to Applied Mathematics
2012 Fall	Introduction to Applied Mathematics, Linear Algebra
2012 Spring	Linear Algebra
2011 Fall	Calculus, Statistics for Business

Relevant Skills

Language:	English, Mandarin
Computer:	Fortran, Python, C++, MATLAB, Mathematica