Wumaier Maimaitiyiming

Contact Information	Department of Mathematics and Statistics Missouri University of Science and Technology 400 W. 12th St Rolla, MO 65409-USA Email: wmaimaitiyiming@mst.edu

Education

Iowa State University, Ames, IA   Aug 2015–May 2020
Ph.D. Applied Mathematics
Advisor: Prof. Hailiang Liu
Dissertation: *Positive and energy stable schemes for Poisson-Nernst-Planck equations and related models*

Idaho State University, Pocatello, ID   Aug 2013 – May 2015
DA in Mathematics(transferred to Iowa State)

Xinjiang University, Urumqi, XJ, China   Aug 2002 – May 2010
M.Sc. in Computational Mathematics
B.Sc. in Computational Mathematics
Advisor: Prof. Abudurexiti Abuduwaili

Professional Experience

Missouri University of Science and Technology, Rolla, MO,
Assistant Teaching Professor   August 2023–present

University of California Los Angeles, Los Angeles, CA,
Adjunct Assistant Professor(Postdoctoral scholar)   July 2020–June 2023

Xinjiang University of Finance and Economics, Urumqi, XJ, China,
Instructor   Aug 2010–May 2013

Research Interests

Numerical Analysis and Scientific Computation
Numerical Analysis, Scientific Computing, Optimization, Optimal Transport, Numerical Solutions for Partial Differential Equations, Finite volume method, Discontinues Galerkin method, structure-preserving efficient numerical schemes for nonlinear nonlocal equations with gradient flow structure (Poisson-Nernst-Planck equations, Fokker-Planck equations, Patlak-Keller-Segel system, Aggregation equations).

Teaching Experience

Missouri University of Science and Technology

Math Math1210–Calculus IA (Instructor, 70 students)	Fall 2023
Math Math1214–Calculus I (Instructor, 200 students, two sections)	Fall 2023

University of California Los Angeles

Math 151B: Applied Numerical Methods (Instructor, 70 students)	Spring 2023
Math 151B: Applied Numerical Methods (Instructor, 120 students)	Winter 2023
Math 151B: Applied Numerical Methods (Instructor, 45 students)	Fall 2022
Math 31A: Calculus I (Instructor, 220 students)	Fall 2022

Math 33B: Differential Equations (Instructor, 200 students)	Spring 2022
Math 151A: Applied Numerical Methods (Instructor, 85 students)	Winter 2022
Math 31AL: Calculus I (Instructor, 200 students)	Fall 2021
Math 31A: Calculus I (Instructor, 210 students)	Fall 2021
Math 151A: Applied Numerical Methods (Instructor, 80 students, online)	Winter 2021
Math 151A: Applied Numerical Methods (Instructor, 40 students, online)	Fall 2020
Math 31A: Calculus I (Instructor, 210 students, online)	Fall 2020

Iowa State University

Math 145: Applied Trigonometry (Instructor, 20 students)	Summer 2019
Math 267: Elementary Diff. Eqs. (Teaching Assistant)	Spring 2019, Fall 2019
Math 414: Intro. Real Analysis (Grader)	Summer 2018
Math 385: Partial Differential Equations (Grader)	Spring 2018
Math 519: Applied Analysis I (Grader)	Fall 2017
Math 166: Calculus II (Teaching Assistant)	Spring 2017
Math 165: Calculus I (Teaching Assistant)	Fall 2016, Fall 2018
Math 160: Pre Calculus (Teaching Assistant)	Spring 2016
Math 140: Linear Algebra (Teaching Assistant)	Fall 2015

Idaho State University

MATH 1108: Intermediate Algebra (Instructor)	Summer 2014, Fall 2014

Xinjiang University of Finance and Economics

Numerical Analysis (Instructor)	Fall 2011, Spring 2012

PROFESSIONAL
DEVELOPMENT

1. Building Blocks Workshop: Center for Advancing Faculty Excellence (CAFE) at Missouri S&T, Rolla, MO, June 2023

2. Kern Entrepreneurial Engineering Network (KEEN) workshop: College of Engineering and Computing at Missouri S&T, Rolla, MO, Jan 11-12, 2024

HONORS AND
AWARDS

1. Robert J. Lambert Applied Mathematics Research Award, $1000   Fall 2019
   Iowa State University, Department of Mathematics.
   Awarded to two graduate students for research excellence

2. Graduate College Teaching Excellence Award, $250   Fall 2017
   Iowa State University, Graduate College.
   Awarded to the top 10% of the graduate students involved in teaching

3. Outstanding Student of the Year Award, $300   Fall 2006
   Xinjiang University, Department of Mathematics

4. Outstanding Student of the Year Award, $150   Fall 2005
   Xinjiang University, Department of Mathematics

5. Outstanding Student of the Year Award, $300   Fall 2004
   Xinjiang University, Department of Mathematics

6. Outstanding Student of the Year Award, $300   Fall 2003
   Xinjiang University, Department of Mathematics

PUBLICATIONS

1. H. Liu and **W. Maimaitiyiming**, A dynamic mass transport method for Poisson-Nernst-Planck equations, *J. Comp. Physics* (2023)

2. H. Liu and **W. Maimaitiyiming**, Efficient, positive, and energy stable schemes for multi-D Poisson-Nernst-Planck systems. *J. Sci. Comput* (Volume 87, Article number: 92, 2021)

3. H. Liu and **W. Maimaitiyiming**, Positive and free energy satisfying schemes for diffusion with interaction potentials. *J. Comp. Physics* (Volume 419, 109483, 2020)

4. H. Liu and **W. Maimaitiyiming**, Unconditional positivity-preserving and energy stable schemes for a reduced Poisson-Nernst-Planck system. *Comm. in Comp. Physics.*, 7(5): 1505–1529, 2020.

5. **W. Maimaitiyiming**, Nuermaimaiti and K. Reheman, Fourth-Order Finite Difference Approach for Numerical Solution of Burgers Equation. *2010 International Conference on Multimedia Information Networking and Security*, 1 Nov. (2010)

CONFERENCE TALKS

1. *Positive and free energy satisfying second order schemes for Poisson-Nernst-Planck Equations* at The 5th Annual Meeting of SIAM Central States Section, Iowa State University, IA. October 2019

2. *Positivity-preserving Schemes for Poisson-Nernst-Planck Equations* at SIAM Conference on Computational Science and Engineering, Spokane, WA. February 2019

3. *Positive and free energy satisfying schemes for diffusion with interaction potentials* at The 4th Annual Meeting of SIAM Central States Section, University of Oklahoma, OK. October 2018

4. *A free energy satisfying discontinues Galerkin method for one-dimensional Poisson-Nernst-Planck systems* at The Midwest Numerical Analysis Day 2017, University of Nebraska, NE. April 2017

SEMINAR TALKS

1. *A dynamic mass transport method for Poisson-Nernst-Planck equations* at Optimal transport and mean field games seminar at University of California Los Angeles, CA, September 2021

2. *Efficient, positive, and energy stable schemes for multi-D Poisson-Nernst-Planck systems* at CAM seminar at Iowa State University, IA, October 2020

3. *Fisher information regularization schemes for Wasserstein Gradient Flows* at Analysis Seminar, Iowa State University, IA, September 2019

4. *Positive and free energy satisfying schemes for diffusion with interaction potentials* at SIAM Seminar, Iowa State University, IA, November 2018

5. *Positive and energy stable schemes for gradient flow structure* at CAM seminar at Iowa State University, IA. March 2018

WORKSHOP PARTICIPANT

1. Young Researchers Workshop: Kinetic models in biology and social sciences at Arizona State University, Tempe, AZ. February 2018

Conference
Attendance

1. SIAM Conference on Analysis of Partial Differential Equations, La Quinta, CA, Dec 2019

2. The 5th Annual Meeting of SIAM Central States Section, Iowa State University, IA. Oct 2019

3. The Midwest Numerical Analysis Day 2019, Illinois Institute of Technology, IL. April 2019

4. SIAM Conference on Computational Science and Engineering, Spokane, WA. February 2019

5. The 4th Annual Meeting of SIAM Central States Section, University of Oklahoma, OK. Oct 2018

6. The Midwest Numerical Analysis Day 2018, University of Kansas, KS. April 2018

7. Recent Advances and Challenges in Discontinues Gallerkin Methods and Related Approaches, University of Minnesota, MN. June 2017

8. The Midwest Numerical Analysis Day 2017, University of Nebraska, NE. April 2017

9. Kinetic Disciptin of Chemical and biological Systems: Models, Analysis and Numerics, Iowa State University, IA. March 2017

Programming   Matlab, Python, Fortran, Latex

Membership   American Mathematical Society
Mathematical Association of America
Society for Industrial and Applied Mathematics