Wei Li

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Education

Old Dominion University Norfolk, VA 2010 -- 2015

Ph.D. (Computational and Applied Mathematics)
Dissertation: Modeling and Simulation of Molecular Couette Flows and Related Flows

Wuhan University of Technology Wuhan, China 2004 -- 2006

M.Sc. (Applied Mathematics)
Dissertation: Several Numeric Methods for Stochastic Differential Equation and Numerical Simulation

Wuhan University of Technology Wuhan, China 2000 -- 2004

B.Sc. (Information and Computing Science)

Academic Experience

Adjunct Assistant Professor 01/2016 -- present

Department of Mathematics & Statistics, Old Dominion University, Norfolk, VA

Visiting Scholar 04/2012 -- 08/2012

Beijing Computational Science Research Center, Beijing, China

Lecturer 07/2007 -- 12/2009

Department of Mathematics and Physics, Wuyi University, Jiangmen, Guangdong, China

Mathematical Expertise

- *Proficient in mathematical modeling with differential equations, probability and stochastic processes*
- *Sophisticated in numerical methods for differential equations, integral equations and linear algebra*
- *Abundant programming experiences in high performance computing for partial differential equations and integral equations*

Computer skills

- *Linux, Windows*
- *Fortran, C/C++, Python, MPI, OpenMP*
- *Matlab, R, MySQL, Lammps*

Research Interests

- *Kinetic theory based computational fluid dynamics (CFD) methods*
- *Spectral collocation methods for integral equations*
- *Higher order methods for hyperbolic and parabolic PDEs*
- *Dynamics simulation of many-body systems*
- *Numerical solution to SDEs*

Awards

Philip R. Wohl Scholarship (Dean's list) 2013

Awarded by Old Dominion University, Norfolk, VA

Academic Certificate in Modeling and Simulation 2012

Awarded by Old Dominion University, Norfolk, VA

Second Prize in the National Postgraduates Mathematical Contest In Modeling 2005

Awarded by the Committee of the National Postgraduates Mathematical Contest In Modeling, China

Second Prize in China Undergraduate Mathematical Contest in Modeling 2002

Awarded by the Department of higher education of the Ministry of education of the people's Republic of China and China Society for Industrial and Applied Mathematics, China

Journal Publications

1. **Wei Li**, Li-Shi Luo and Jie Shen. Accurate Solution and Approximations of the Linearized BGK Equation for Steady Couette Flow. *Computers & Fluids*, **111**(16): 18--32 (2015).
2. **Wei Li**, Zhaoli Guo and Li-Shi Luo. Modeling of Gas-Wall Interactions in Molecular Gas Flows in Micro-Channel. *Submitted to Physical Review Letters*.
3. **Wei Li**, Shidong Jiang and Li-Shi Luo. High precision solutions to arbitrary accommodation ratio steady Couette flows. *in preparation*.
4. **Wei Li**, Shidong Jiang and Li-Shi Luo. High precision solutions to arbitrary accommodation ratio steady Planar Poiseuille flows. *in preparation*.
5. **Wei Li**, Ashlee R. Edwards and Richard D. Noren. A High Order Method for Volterra Integro-diffusion Equation. *in preparation*.
6. **Wei Li**. A collocation method for Abramowitz function. *in preparation*.
7. **Wei Li**. Strong Local Order One Runge-Kutta Methods for Non-commutative Multidimensional Autonomous SDEs. *Journal of Chifeng University(Chinese)* (natural science edition), **25**(6): 001--002 (2009).
8. **Wei Li**. Symplectic Runge-Kutta Methords for Separable Hamiltonian Systems with Additive Noise. *Science and Technology Innovation Herald(Chinese)*, **108**(36): 101--102 (2008).
9. **Wei Li**. Particle Swarm Optimization Algorithm Combined Implicit Euler-Taylor Method. *Journal of Wuyi University(Chinese)* (natural science edition), **22**(4): 016--019 (2008).
10. Zhangcan Huang, **Wei Li**. An Improved Evolutionary Algorithm for Solving Multimodal Function Global Optimization Problem on a Bounded Area. *Journal of Wuhan University(Chinese)* (natural science edition), **53**(1): 055--058 (2007).

Conference Presentations

1. **Wei Li**. High Precision Solution Of Couette Flow With Arbitrary Accommodation Ratio. *Old Dominion University SIAM Student Chapter, Norfolk, VA, April, 2015*
2. **Wei Li**, Li-Shi Luo. Accurate Solution to the Integral Equation for the Steady Couette Flow. *The Eleventh International Conference for Mesocopic Methods in Engineering and Sciences, New York, NY, July 14--18, 2014*
3. **Wei Li**. Modeling two dimensional molecular Couette flows in a nano-scale channel. *Old Dominion University Student Capstone Conference, Portsmouth, VA, April, 2013*
4. **Wei Li**. Equivalent Fredholm equation to the BGK Equation for isothermal planar flows with arbitrary accommodation ratio at boundaries. *Old Dominion University SIAM Student Chapter, Norfolk, VA, April, 2013*

Teaching Experience

Math 211: Calculus I Summer 2016
Math 163: Pre-Calculus II Spring 2016
Math 211: Calculus I
Math 307: Ordinary Differential Equations
Math 103: College Algebra Fall 2015
Math 103: College Algebra(two sections) Fall 2014
Department of Mathematics & Statistics, Old Dominion University, Norfolk, VA, USA

Probability and Statistics Fall 2009
Operation Research
Multivariable Statistical Analysis(graduate course)
Probability and Statistics Summer 2009
Calculus I and II Spring 2009
Probability and Statistics
Mathematical Modeling
Linear Algebra
Calculus III Fall 2008
Probability and Statistics
Calculus I and II Spring 2008
Probability and Statistics
Probability and Statistics(two sections) Fall 2007
Department of Mathematics and Physics, Wuyi University, Jiangmen, Guangdong, China