



Pingwen Zhang

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Education

1988 - 1992 **Ph.D.** in mathematics, Peking University (supervised by Prof. Long-an Ying)

Appointments

2015 - **Director** of Office of Academic Development, Peking University
2018 - **Director** of National Engineering Laboratory for Big Data Analysis and Application Technology
2018 - **Director** of Center for Computational Science and Engineering
1996 - **Professor**, School of Mathematical Sciences, Peking University

Research Fields

Multiscale Modeling and Algorithm of Complex Fluids
Applied Analysis and Numerical Analysis
Moving Mesh Methods and Applications

Honors and Awards

2016 Fellow of the **World Academy of Sciences** for the advancement of science in developing countries
2015 Member of **Chinese Academy of Sciences**
2014 **National Prize** of Natural Sciences (Second-Class)
2014 Leading Scientist, **Innovative Group of NSFC**
2002 **Changjiang Professorship**
2002 Medallist of **Wu'si Youth Award**, Beijing
1999 **Feng Kang Prize** for Scientific Computing

Invited Talks

2018 **2018 International Congress of Mathematicians (ICM2018)**, Rio de Janeiro, Brazil
2014 **2014 SIAM Annual Meeting**, Chicago, USA
2011 **7th International Congress on Industrial & Applied Mathematics**, Vancouver, Canada

Professional Activities

2017 - **Director** for Tianyuan Mathematical Center in Northeast China
2016 - **President** of China Society for Industry and Applied Mathematics (CSIAM)
2006 - **Associate Director** for Scientific Committee of Computational Physics Lab, IAPCM

Selected Organized Activities

2015 The 8th International Congress on Industrial and Applied Mathematics (**ICIAM 2015**),
 Chair of Sub-Committee of Academic, Beijing
2013 **Gene Golub SIAM Summer School on Matrix Functions and Matrix Equations**,
 Fudan University, Jul. 22-Aug. 2, 2013, Shanghai
2011 **Modeling and Mathematical Theory of Phase Transitions**,
 Beijing International Center for Mathematical Research, Sept. 1-Dec. 31, 2011, Beijing

2007 **Thematic Program on Multiscale Modeling of Complex Fluids,**
Beijing International Center for Mathematical Research, Sept. 1, 2007-May 31, 2008, Beijing

Selected Extended Visits

2002 - 2004 **Visiting Research Scientist**, Applied and Computational Mathematics, Princeton University (5 months)

1995 - 1999 **Visiting Scholar**, Department of Applied Mathematics, California Institute of Technology (23 months)

Editorial Board

2014- Multiscale Modeling and Simulation
2012- Discrete and Continuous Dynamical System - B
2011- Journal of Mathematics in Industry (Coordinating Editors)
2010- Applied Mathematics and Mechanics (Associate Chief Editor since 2014)
2007- Journal of Computational Mathematics
2006- Communications in Computational Physics
2005 Communications in Mathematical Sciences

Selected Publications

1. Kai Jiang, Pingwen Zhang and An-Chang Shi, *Stability of Icosahedral Quasicrystals in a Simple Model with Two-Length Scales*, **Journal of Physics-Condensed Matter**, 29 (12), 124003, (2017).
2. Jinhae Park, Wei Wang, Pingwen Zhang and Zhifei Zhang, *On Minimizers for the Isotropic- Nematic Interface Problem*, **Calculus of Variations and Partial Differential Equations**, 56 (2), 41, (2017).
3. Kai Jiang, Jiajun Tong and Pingwen Zhang, *Stability of Soft Quasicrystals in a Coupled- Mode Swift-Hohenberg Model for Three-Component Systems*, **Communications in Computational Physics**, 19 (3), 559-581, (2016).
4. Jiequn Han, Yi Luo, Wei Wang, Pingwen Zhang and Zhifei Zhang, *From Microscopic Theory to Macroscopic Theory: a Systematic Study on Modeling for Liquid Crystals*, **Archive for Rational Mechanics and Analysis**, 215 (3), 741-809, (2015).
5. Wei Wang, Pingwen Zhang and Zhifei Zhang, *Rigorous Derivation from Landau-De Gennes Theory to Ericksen-Leslie Theory*, **SIAM Journal on Mathematical Analysis**, 47 (1), 127-158, (2015).
6. Kai Jiang, Jiajun Tong, Pingwen Zhang and An-Chang Shi, *Stability of Two-Dimensional Soft Quasicrystals in Systems with Two Length Scales*, **Physical Review E**, 92 (4), 042159, (2015).
7. Wei Wang, Pingwen Zhang and Zhifei Zhang, *The Small Deborah Number Limit of the Doi-Onsager Equation to the Ericksen-Leslie Equation*, **Communications on Pure and Applied Mathematics**, 68 (8), 1326-1398, (2015).
8. Kai Jiang and Pingwen Zhang, *Numerical Methods for Quasicrystals*, **Journal of Computational Physics**, 256, 428- 440, (2014).
9. Haoze Tan, Qi Liao and Pingwen Zhang, *Conformation of Polyelectrolytes in Poor Sol- vents: Variational Approach and Quantitative Comparison with Scaling Predictions*, **Journal of Chemical Physics**, 140 (19), 194905, (2014).
10. Weiquan Xu, Kai Jiang, Pingwen Zhang and An-Chang Shi, *A Strategy to Explore Stable and Metastable Ordered Phases of Block Copolymers*, **Journal of Physical Chemistry B**, 117 (17), 5296-5405, (2013).
11. Wei Wang, Pingwen Zhang and Zhifei Zhang, *Well-Posedness of the Ericksen-Leslie System*, **Archive for Rational Mechanics and Analysis**, 210 (3), 837-855, (2013).
12. Han Wang, Site Luigi Delle, Pingwen Zhang, *On the existence of a third-order phase transition beyond the Andrews critical point: A molecular dynamics study*, **Journal of Chemical Physics**, 135, 224506, (2011).
13. Chu Wang, Kai Jiang, Pingwen Zhang and An-Chang Shi, *Origin of epitaxies between ordered phases of block copolymers*, **Soft Matter**, 7, 10552-10555, (2011).
14. Kai Jiang, Yunqing Huang and Pingwen Zhang, *Spectral method for exploring patterns of diblock copolymers*, **Journal of Computational Physics**, 229 (20), 7796-7805, (2010).
15. Xiuyuan Cheng, Ling Lin, Weinan E, Pingwen Zhang and An-Chang Shi, *Nucleation of Ordered Phases in Block*

- Copolymers*, **Physical Review Letters**, 104 (14), 148301, (2010).
16. Ling Lin, Xiuyuan Cheng, Weinan E, An-Chang Shi and Pingwen Zhang, *A numerical method for the study of nucleation of ordered phases*, **Journal of Computational Physics**, 229 (5), 1797-1809, (2010).
 17. Pingwen Zhang* and Xinwei Zhang, *An efficient numerical method of Landau-Brazovskii model*, **Journal of Computational Physics**, 227 (11), 5859-5870, (2008).
 18. Dongzhuo Zhou, An-Chang Shi and Pingwen Zhang, *Numerical simulation of phase separation coupled with crystallization*, **Journal of Chemical Physics**, 129, 154901, (2008).
 19. Haijun Yu and Pingwen Zhang, *A kinetic-hydrodynamic simulation of microstructure of liquid crystal polymers in plane shear flow*, **Journal of Non-Newtonian Fluid Mechanics** 141 (2-3), 116-127, (2007).
 20. Tiejun Li and Pingwen Zhang, *Mathematical analysis of multi-scale models of complex fluids*, **Communications in Mathematical Sciences** 5 (1), 1-51, (2007).
 21. Dongzhuo Zhou, Pingwen Zhang and Weinan E, *Modified models of polymer phase separation*, **Physical Review E**, 73 (6), 061801, (2006).
 22. Hui Zhang and Pingwen Zhang, *Local existence for the FENE-dumbbell model of polymeric fluids*, **Archive for Rational Mechanics and Analysis**, 181 (2), 373-400, (2006).
 23. Hailiang Liu, Hui Zhang and Pingwen Zhang, *Axial symmetry and classification of stationary solutions of Doi- Onsager equation on the sphere with Maier-Saupe potential*, **Communications in Mathematical Sciences**, 3, 201-218, (2005).
 24. Chong Luo, Hui Zhang and Pingwen Zhang, *The structure of equilibrium solutions of one-dimensional Doi equation*, **Nonlinearity**, 18, 379-389, (2005).
 25. Weinan E, Pingbing Ming and Pingwen Zhang, *Analysis of the heterogeneous multiscale method for elliptic homogenization problems*, **Journal of the American Mathematical Society** 18 (1), 121-156, (2005).
 26. Yana Di, Ruo Li, Tao Tang and Pingwen Zhang, *Moving mesh finite element methods for the incompressible Navier- Stokes equations*, **SIAM Journal on Scientific Computing**, 26 (3), 1036-1056, (2005).
 27. Weinan E, Tiejun Li and Pingwen Zhang, *Well-posedness for the dumbbell model of polymeric fluids*, **Communications in Mathematical Physics**, 248 (2), 409-427, (2004).
 28. Rou Li, Tao Tang and Pingwen Zhang, *A moving mesh finite element algorithm for singular problems for two and three space dimensions*, **Journal Computational Physics**, 177, 365-393, (2002).
 29. Ruo Li, Tao Tang and Pingwen Zhang, *Moving mesh methods in multiple dimensions based on harmonic maps*, **Journal of Computational Physics**, 170, 562-588, (2001).
 30. Thomas Y. Hou and Pingwen Zhang, *A New Stability Technique for Boundary Integral Methods of Water Waves*, **Mathematics of Computation** 70, 951-976 (2001).
 31. Long-an Ying and Pingwen Zhang, *Vanishing Curvature Viscosity for Front propagation*, **Journal of Differential Equations** 161, 289-306 (2000).
 32. Zhenhuan Teng and Pingwen Zhang, *Optimal L1 Rate of Convergence for Viscosity Method and Monotone Scheme to Piecewise Constant Solution with Shocks*, **SIAM Journal on Numerical Analysis**, 34 (3), 959-978, (1997).
 33. Thomas Y. Hou, Zhenhuan Teng and Pingwen Zhang, *Well-posedness for linearized motion of 3-D water waves far from equilibrium*, **Communications in Partial Differential Equations**, 21 (9&10), 1551-1585, (1996).
 34. Zhenhuan Teng, Long-an Ying and Pingwen Zhang, *Convergence of variable-elliptic-vortex method for Euler equations*, **SIAM Journal on Numerical Analysis**, 32 (3), 754-774, (1995).
 35. Long-an Ying and Pingwen Zhang, *Fully discrete convergence estimates for vortex methods in bounded domains*, **SIAM Journal on Numerical Analysis**, 31 (2), 344-361, (1994).