

Pingwen Zhang

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Education

- 1988 - 1992 **Ph.D.** Department of Mathematics, Peking University, Beijing, China
supervised by Prof. Longan Ying
- 1984 - 1988 **B.S.** Department of Mathematics, Peking University, Beijing, China

Working Experience

- 2023 - Dean of Institute for Math & AI Wuhan, Wuhan University, China
- 2022 - President of Wuhan University, China
- 2022 - Professor of Wuhan University, China
- 2020 - 2022 President of Institute of Scientific and Technological Innovation, Peking University, China
- 2019 - 2022 Vice President, Peking University, China
- 2018 - Director of National Engineering Laboratory for Big Data Analysis and Applications,
China
- 2019 - 2021 Director of Center for Data Science of Peking University, China
- 2018 - 2019 Director of Center for Computational Science and Engineering, China
- 2015 - 2019 Director of Office of Academic Development, Peking University, China
- 2013 - 2015 Executive Vice Dean of School of Mathematical Sciences, Peking University, China
- 2010 - 2017 Director of Laboratory of Mathematics and Applications, Peking University, China
- 2008 - 2012 Vice Dean of School of Mathematical Sciences, Peking University, China
- 2008 - 2012 Deputy Director of Institute of Mathematics, Peking University, China
- 2008 - 2010 Deputy Director of Laboratory of Mathematics and Applications, Peking University, China
- 2001 - 2018 Executive Deputy Director for Center for Computational Science and Engineering,
Peking University, China
- 1999 - 2008 Director for Department of Scientific& Engineering Computing, School of Mathematical
Sciences, Peking University, China
- 1996 - 2022 Professor in School of Mathematical Sciences, Peking University, China
- 1994 - 1996 Associate Professor in School of Mathematical Sciences, Peking University, China
- 1992 - 1994 Lecturer in School of Mathematics, Peking University, China

Research Interests

- Modeling and Simulation of Soft Matter (Complex Fluids)
- Applied Analysis and Numerical Analysis

- Big Data Analysis and Applications

Honors and Awards

2021	Science and Technology Progress Award by Ho Leung Ho Lee Foundation
2020	Fellow of China Society for Industrial and Applied Mathematics
2020	Fellow of Society for Industrial and Applied Mathematics
2018	Invited Speaker, International Congress of Mathematicians
2016	Fellow of The World Academy of Sciences for the advancement of science in developing countries
2015	Academician of Chinese Academy of Sciences
2015	Chair of Sub-Committee of Academic, 8th International Congress on Industrial and Applied Mathematics
2014	National Prize of Natural Sciences (Second-prize)
2014	Academic leader of Science Fund for creative research groups of the National Natural Science Foundation of China
2014	Invited Speaker, Society for Industrial and Applied Mathematics
2011	Invited Speaker, 7th International Congress on Industrial & Applied Mathematics
2010	Model of Teachers' Morality, Beijing
2007	The First-Class Prize of Natural Sciences, Higher Education Institutions of MOE
2002	National Science Foundation for Distinguished Young Scholars
2002	Changjiang distinguished professor
1999	Feng Kang Prize of Scientific Computing

Professional Activities

2022 -	Boya Chair Professor of Peking University
2022 -	President of Chinese Society of Educational Development Strategy Educational Assistance Special Committee
2022 -	Chief scientist of PKU-Changsha Institute for Computing and Digital Economy
2021 -	Chief scientist of Chongqing Research Institute of Big Data, Peking University
2018 -	Director of the National Engineering Laboratory of Big Data Analysis and Applied Applications, Peking University
2016 -	President of China Society for Industry and Applied Mathematics (CSIAM)
2004 - 2016	Vice President, Director for Scientific Committee of China Society for Industry and Applied Mathematics (CSIAM)
2015 -	Associate Director for Scientific Committee of National Lab in Large Scale Scientific Computing
2006 -	Associate Director for Scientific Committee of Computational Physics Lab, Institute of Applied Physics and Computational Mathematics
2001 - 2006	Associate Director for Scientific Committee of National Lab in Large Scale Scientific Computing
2010 - 2014	Vice President of Chinese Computational Mathematics Society

2002 - 2006	Vice President of Chinese Computational Mathematics Society
2005 -	Visiting Professor, research collaborator, Jilin University
2004 -	Visiting Professor, research collaborator, Xiangtan University
2004 -	Visiting Professor, research advisor, Suzhou University
1999 - 2001	Visiting Professor, research advisor, Tsinghua University

Editorial Board

2020 -	CSIAM Transactions on Applied Mathematics (Editor in Chief)
2014 -	Multiscale Modeling & Simulation, A SIAM Interdisciplinary Journal
2013 -	Science China Mathematics
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
2006 -	International Journal of Nonlinear Science
2005 -	Communication in Mathematical Sciences
2005 -	Journal of Information and Computational Science
2005 - 2013	SIAM Journal on Numerical Analysis
2002 -	Applied Mathematical Research Express (AMRX)
2010 -	Advances in Mathematics
2007 -	Journal of Engineering Mathematics (China)
2006 -	Journal of Mathematics (China)
2004 -	Journal of Computational Mathematics (China)
2004 -	Journal of Computational Physics (China)
2004 -	Northeast Mathematical Journal (China)

Invited Talks

- 2025 World Digital Education Conference, Wuhan, 2025.5.15.
- ACM Turing Award Celebration Conference China 2024, Changsha, 2024.7.5-11.
- 2024 Conference on Digital Development in Higher Education, Hangzhou, 2024.4.19-22.
- 2022 Global Digital Economy Conference Data Elements Summit, Beijing, 2022.7.29.
- AI for Science Series Academic Lectures, Beijing, 2022.5.25.
- 2018 International Congress of Mathematicians (ICM2018), Rio De Janeiro, 2018.
- The 9th International Conference on Computational Physics, Singapore, 2015.1.7-11.
- International Conference on Optimization, Sparsity and Adaptive Data Analysis, Beijing, 2015.3.18-21.
- The 2014 SIAM Annual Meeting (AN14), Chicago, Illinois, USA, 2014.7.7-11.
- Robust Discretization and Faster Solvers for Computable Multi-Physics Models, ICERM, Brown University, 2014.5.12-16.
- The 5th International Conference on Scientific Computing and PDEs, Hong Kong, 2014.12.8-12.
- International Conference on PDE, Guangzhou, 2013.12.6-10.

- 2013 Northeastern Asian Symposium on Methods and Modeling for High Performance Scientific Computing, Chengdu, 2013.9.22-25.
- 2013 International Conference on Mathematical Modeling and Computation, Wuhan, 2013.5.15-19.
- Nonlinear analysis of continuum theories: statics and dynamics, Oxford, 2013.4.8-12.
- Symmetry, bifurcation and order parameters, Cambridge, 2013.1.7-11.
- Multiscale Modeling, Simulation, Analysis and applications, Singapore, 2012.1.9-13.
- International Conference on Scientific Computing, Hong Kong, 2012.1.4-7.
- 7th International Congress on Industrial and Applied Mathematics, Vancouver, 2011.7.18-22.
- International Conference on Interdisciplinary Applied Mathematics and Computational Mathematics, Zhejiang, 2011.6.17-21.
- Sino-French Workshop on Contemporary Applied Mathematics, Shanghai, 2011.7.4-8.
- International Conference on Applied Mathematics and Interdisciplinary Research, Tianjin, 2011.6.13-16.
- Kinetic and Fluids, Beijing, 2010.07.
- The 5th China-Italy Conference on Computational and Applied Mathematics. Mathematical models in Life Science: Theory and Simulation, Roma, Italy, 2009.09.
- The 3rd Chinese-German Workshop on Computational and Applied Mathematics, Heidelberg, Germany, 2009.9.28 – 10.2.
- International Workshop on Continuum Modeling of Biomolecules, Beijing, 2009.09
- Mathematical Theory and Numerical Methods of Computational Materials simulation and Design, Singapore, 2009.08.
- International Conference on Mathematical Theory and Applications of Liquid Crystal, Ferromagnetism and Related Topics, Guangzhou, 2009.06.
- Computational Multiscale Methods, Oberwolfach, Germany, 2009.06.
- International Workshop on Quantum Systems and Semiconductor Devices: Analysis, Simulations, Applications, Beijing, 2009.04.
- Adaptivity, Robustness and Complexity of Multiscale Algorithm, Edinburgh, England, 2009.03.
- Rheology of complex fluids: Modeling and Numerics, Paris, France, 2009.01.
- The 6th International Conference on Scientific Computing and Applications, Busan, Korea, 2008.06.
- Workshop on the Foundations of numerical PDEs (FoCM), Hong Kong, 2008.06.
- Workshop on Nanoscale Interfacial Phenomena in Complex Fluids, Beijing, 2008.06.
- Canada-China workshop on industrial mathematics, Banff, Canada, 2007.08.
- Multiscale Modeling of Complex Fluids, Maryland, 2007.04.
- International Workshop on Multiscale Analysis and Applications, Singapore, 2006.11.
- The Symposium on Multi-physics and Multi-Scale Computation of Materials-2006, Xian, 2006.11.
- International Conference on PDE and Numerical Analysis, Changsha, 2006.06.
- Workshop on Multiscale Modeling of Complex Fluids, Beijing, Jun. 2006.06.
- International Conference on Recent Advances in Scientific Computations, Beijing, 2006.06.
- International Conferences on Applied Mathematics and Interdisciplinary Research, Tianjin, 2006.06.
- International Symposium on Polymer Physics, Suzhou, 2006.06.
- Interfacial Dynamics in Complex Fluids, Banff, Canada, 2006.05.
- International Conference on Calculus of Variations, PDEs and Nonlinear Analysis, Beijing, 2006.05.
- The second International Conference on Scientific Computing and Partial Differential Equations, Hong

Kong, 2005.11.

- The 1st China-Germany Workshop on Computational and Applied Mathematics, Berlin, Germany, 2005.09.
- International conference on scientific computing, Nanjing, 2005.06.
- International conference on multiscale modeling and scientific computing, Peking University, 2005.06.
- Mathematical models in life sciences: Theory and Simulation, Beijing, 2005.06.
- The 3rd joint Chinese-Korean Workshop on Recent Progresses on Numerical Analysis and Its Applications, South Korea, 2005.02.
- Nanoscale Material Interfaces: Experiment, Theory and Simulation, Singapore, 2005.01.
- Workshop on Multiscale Rheological Models for Fluids, Montreal, Canada, 2004.11.
- International Conference on Numerical and Applied PDEs, Changchun, 2004.06.
- International Conference on Frontiers of Applied Mathematics, Beijing, 2004.06.
- The 2nd International Conference on Inverse Problem, Shanghai, 2004.06.
- International Workshop on Wave Propagations, Beijing, 2004.06.
- International Conference on Superconvergence and A Posteriori Estimates in FEM, Changsha, 2004.05.
- International Conference of Scientific Computing, Beijing, 2003.12.
- The 3rd China-Italy Joint Conference on Computational and Applied Mathematics, Grado, Italy, 2003.11.
- The 2nd Chinese-Korean Joint Workshop on Recent Advances in Numerical Analysis and Its applications, Beijing, 2003.02.
- The Third International Workshop on Scientific Computing and Applications, Hong Kong, 2003.01.
- ICM2002-Beijing Satellite Conference on Scientific Computing, Xi'an, 2002.08.
- The 11th International Conference of Fluid Dynamics and Soft Condensed Matter, Shanghai, 2002.08.
- Workshop on Multiscale Analysis and Computation, Taiwan, 2002.06.
- The 3rd China-Sweden Workshop on Computational Mathematics Goteberg, Sweden, 2002.06.
- International symposium on computational & applied PDEs, Zhangjiajie, 2001.06.
- International conference on scientific & engineering computing, Peking University, 2001.03.
- The First Chinese-Korean Joint Workshop on Recent advances in Numerical Analysis and Its Applications, Korea, 2001.02.
- The 2nd Sino-Italian Symposium on Computational and Applied Mathematics, Ischia, Italy, 2000.06.
- The 2nd China-Sweden workshop on Numerical Partial Differential Equations, Hong Kong, 2000.01.
- Conference of Partial Differential Equation and Numerical Method in Mechanics, Hong Kong, 1999.06.
- The First Sino-Italian Symposium on Applied and Computational Mathematics, Beijing, 1998.12.
- China-Japan Symposium on Computational Mathematics, Dalian, 1997.08.
- 96'Symposium on Computational Physics, Institute of Computational Mathematics and Applied Physics, Beijing, 1996.06.
- Summer Research Seminars on Theory and Computations of Fluid Dynamics, Beijing, 1994.06.

Books

1. Pingwen Zhang, Zeqi Qiu and Jie Song, Digital Ecology and Governance(Chinese), Vol.3, Social Sciences Academic Press, (2025)
2. Pingwen Zhang, Applied Mathematics Research: National Demand Drives the Development of Applied

Mathematics, Higher Education Press, (2024)

3. Pingwen Zhang, Zeqi Qiu and Jie Song, Digital Ecology and Governance(Chinese), Vol.2, Social Sciences Academic Press, (2024)
4. Pingwen Zhang, Zeqi Qiu and Jie Song, Digital Ecology and Governance(Chinese), Vol.1, Social Sciences Academic Press, (2023)
5. Pingwen Zhang and Zeqi Qiu, Five discussions on data elements: information, ownership, value, security and transaction(Chinese), Peking University Press, (2022)
6. Pingwen Zhang and Tiejun Li, Numerical Analysis (Chinese), Peking University Press, (2007)
7. Tatsien Li and Pingwen Zhang (editors), Frontiers and Prospects of Contemporary Applied Mathematics, Series in Contemporary Applied Mathematics, CAM6, Higher Education Press and World Scientific, (2006)
8. Tie Zhou, Shufang Xu, Pingwen Zhang and Tiejun Li, Computational Methods, Tsinghua University Press, (2006)
9. Shufang Xu, Li Gao and Pingwen Zhang, Numerical Linear Algebra (Chinese), Peking University Press, (2001)
10. Long-an Ying and Pingwen Zhang, Vortex Methods, Science Press, (1994)

Publications(Chinese)

1. Zeqi Qiu, Haolin Li, Pingwen Zhang, et al. Digitalization of expert knowledge and liberal arts intelligence [J]. Social Sciences in China, 2025, (07):91-109.
2. Pingwen Zhang. Fully leveraging the unique role of high-level research universities in building a powerful nation in science and technology [J]. China Higher Education, 2024, (Z2):43-45.
3. Pingwen Zhang. Universities should identify the focus of their efforts in serving the development of new productive forces [J]. China Higher Education, 2024, (08):1.
4. Pingwen Zhang. Reflections on cultivating high-level talents in mathematics [J]. Universities and Disciplines, 2023, 4(04):1-12.
5. Pingwen Zhang. Focusing on the construction of the "Four Centers" in the capital to drive the development of Beijing's municipal universities [J]. Beijing Education, 2023, :10-13.
6. Pingwen Zhang. Digital economy will become a booster for the new journey of national development [J]. China Economic and Trade Herald, 2022, :12-14.
7. Tianyu Qiao, Youjun Li, Yue Zhao, Cheng Tan and Pingwen Zhang. Exploring the theory and methodology for analyzing the digital governance landscape [J]. Journal of the Chinese Academy of Sciences, 2022, :1365-1375.
8. Pingwen Zhang. Mathematics and corporate innovation [J]. Journal of the Chinese Academy of Sciences, 2021, 36(4).
9. Juan Wang, Yunjie Zhang, Jie Song and Pingwen Zhang. Comparative study on digital economy and trade between China, the United States and Europe [J]. Journal of Xi'an Jiaotong University, 2022, .
10. Juan Wang, Yi Zhang, Jing Huang, Youjun Li, Jie Song and Pingwen Zhang. Calculation and analysis of China's digital ecosystem index [J]. E-government, 2022, 3:4-16.
11. Pingwen Zhang, Fei He, Jie He and Feng He. Diagnosing and inquiring, benchmarking against the best: exploration and insights from international peer review of disciplines at Peking university [J]. Universities and Disciplines, 2021, 2(3).
12. Pingwen Zhang. Some thoughts on "universities and disciplines" [J]. Universities and Disciplines, 2020, 1(1).

Publications(English)

1. Shuai Miao,Ziqi Liu,Lei Zhang,Pingwen Zhang and Xiangcheng Zheng. Construction and analysis for Adams explicit discretization of high-index saddle dynamics. CSIAM Transactions on Applied Mathematics, 2025, .
2. Dawei Wu,Baoming Shi,Yucen Han,Pingwen Zhang,Apala Majumdar and Lei Zhang. A diffuse-interface Landau-de Gennes model for free-boundary problems in the theory of nematic liquid crystals. SIAM Journal on Mathematical Analysis, 2025, 57(4):4358-4395.
3. Ruedi Aebersold, Mark S. Baker, Xiuwu Bian, Xiaochen Bo, Daniel W. Chan, Cheng Chang, Luonan Chen, Chris Soon Heng Tan, Xiangmei Chen, Yu-Ju Chen, Heping Cheng, Ben C. Collins, Fernando Corrales, Jürgen Cox, Weinan E, Jennifer E. Van Eyk, Jia Fan, Pouya Faridi, Daniel Figeys, George Fu Gao, Mingxia Gao, Qiang Gao, Wen Gao, Yushun Gao, Zu-Hua Gao, Keisuke Goda, Wilson Wen Bin Goh, Dongfeng Gu, Changjiang Guo, Tiannan Guo, Xuejiang Guo, Fuchu He, Jie He, Jun He, Qing-Yu He, Yuezhong He, Albert J. R. Heck, Henning Hermjakob, Jinlin Hou, Canhua Huang, Tony Hunter, Chenxi Jia, Narayanan Gopalakrishna Iyer, Ying Jiang, Connie R. Jimenez, Lokesh Joshi, Neil L. Kelleher, Bernhard Kuster, Chaoying Li, Dong Li, Ming Li, Yan Li, Yanchang Li, Yang Li, Qingsong Lin, Cui Hua Liu, Fan Liu, Guang-Hui Liu, Siqi Liu, Xiaonan Liu, Ya Liu, Yansheng Liu, Zhihua Liu, Zhongyang Liu, Teck Yew Low, Ben Lu, Haojie Lu, Matthias Mann, Anming Meng, Robert L. Moritz, Edouard Nice, Yongzhan Nie, Guang Ning, Mariko Okada, Gilbert S. Omenn, Christopher M. Overall, Giuseppe Palmisano, Yaojin Peng, Charles Pineau, Terence Chuen Wai Poon, Anthony W. Purcell, Guojun Qian, Jie Qiao, Hongqiang Qin, Yu Rao, Zihao Rao, Roger R. Reddel, Xianwen Ren, Yan Ren, Phillip J. Robinson, Paola Roncada, Chris Sander, Jiahao Sha, Feng Shen, Lin Shen, Erwei Song, Sanjeeva Srivastava, Shicheng Su, Aihua Sun, Siu Kwan Sze, Minjia Tan, Ben Zhong Tang, Chao Tang, Liujun Tang, Sheng-Ce Tao, Ruijun Tian, Juan Antonio Vizcaíno, Chanjuan Wang, Chen Wang, Jian Wang, Tong Wang, Xiaowen Wang, Xinxing Wang, Yan Wang, Liming Wei, Tobias Weiss, Mathias Wilhelm, Robert Winkler, Bernd Wollscheid, Catherine C. L. Wong, Limsoon Wong, Linhai Xie, Wei Xie, Xiaoliang Sunney Xie, Li Xu, Ping Xu, Tao Xu, Tianhao Xu, Liying Yan, Huanming Yang, Jianjun Yang, Jing Yang, Xiao Yang, John Yates, Mingliang Ye, Wantao Ying, Xiaobo Yu, Yaxiang Yuan, Qingcun Zeng, Qiwei Zhai, Qimin Zhan, Bing Zhang, Hui Zhang, Lihua Zhang, Lingqiang Zhang, Pingwen Zhang, Xiaofei Zhang, Xu Zhang, Ying Zhang, Yukui Zhang, Yu Zi Zheng, Nan-Shan Zhong, Qing Zhong, Feng Zhou, Yi Zhu, Yunping Zhu and Zemin Zhang. π -HuB: the proteomic navigator of the human body. NATURE, 2024, 636(8042).
4. Kai Jiang,Shifeng Li and Pingwen Zhang. ON THE APPROXIMATION OF QUASIPERIODIC FUNCTIONS WITH DIOPHANTINE FREQUENCIES BY PERIODIC FUNCTIONS. SIAM JOURNAL ON MATHEMATICAL ANALYSIS, 2025, 57(1).
5. Kai Jiang,Xueyang Li,Yao Ma,Juan Zhang,Pingwen Zhang and Qi Zhou. IRRATIONAL-WINDOW-FILTER PROJECTION METHOD AND APPLICATION TO QUASIPERIODIC SCHRÖDINGER EIGENPROBLEMS. SIAM JOURNAL ON NUMERICAL ANALYSIS, 2025, 63(2).
6. Yuling Jiao,Ruoxuan Li,Peiying Wu,Jerry Zhijian Yang and Pingwen Zhang. DRM Revisited: A Complete Error Analysis. JOURNAL OF MACHINE LEARNING RESEARCH, 2025, 26.
7. Lei Zhang,Pingwen Zhang and Xiangcheng Zheng. UNDERSTANDING HIGH-INDEX SADDLE DYNAMICS VIA NUMERICAL ANALYSIS. COMMUNICATIONS IN MATHEMATICAL SCIENCES, 2025, 23(2).
8. Shuai Miao,Lei Zhang,Pingwen Zhang and Xiangcheng Zheng. Construction and analysis for orthonormalized Runge-Kutta schemes of high-index saddle dynamics. COMMUNICATIONS IN NONLINEAR SCIENCE AND NUMERICAL SIMULATION, 2025, 145.
9. Wei Si,Shifeng Li,Pingwen Zhang,An-Chang Shi and Kai Jiang. Designing a minimal Landau model to stabilize desired quasicrystals. PHYSICAL REVIEW RESEARCH, 2025, 7(2).

10. Xin Wang, An-Chang Shi, Pingwen Zhang and Kai Jiang. Stability of Diverse Dodecagonal Quasicrystals in T-Shaped Liquid Crystalline Molecules. *Macromolecules*, 2025, 58.
11. Zhuoyuan Li, Bin Dong and Pingwen Zhang. State-observation augmented diffusion model for nonlinear assimilation with unknown dynamics. *Journal of Computational Physics*, 2025, 539.
12. Tiejun Zhou, Lei Zhang, Pingwen Zhang, An-Chang Shi and Kai Jiang. Nucleation and phase transition of decagonal quasicrystals. *Journal of Chemical Physics*, 2024, 161(16).
13. Qiuzi Han Wen, Dingyu Wan, Quan Dong, Yan Yan and Pingwen Zhang. Improved freezing rain forecast using machine learning. *Weather and Climate Extremes*, 2024, 44.
14. Chenguang Duan, Yuling Jiao, Jerry Zhijian Yang and Pingwen Zhang. Recovering the Source Term in Elliptic Equation via Deep Learning: Method and Convergence Analysis. *East Asian Journal on Applied Mathematics*, 2024, 14(3):460-489.
15. Zhuoyuan Li, Bin Dong and Pingwen Zhang. Latent assimilation with implicit neural representations for unknown dynamics. *Journal of Computational Physics*, 2024, 506.
16. Kai Jiang, Qi Zhou and Pingwen Zhang. Accurately Recover Global Quasiperiodic Systems by Finite Points. *SIAM Journal on Numerical Analysis*, 2024, 62(4):1713-1735.
17. Kai Jiang, Shifeng Li and Pingwen Zhang. Numerical Methods and Analysis of Computing Quasiperiodic Systems. *SIAM Journal on Numerical Analysis*, 2024, 62(1):353-375.
18. Qiuqi Li, Chang Liu, Mengnan Li and Pingwen Zhang. An Adaptive Method Based on Local Dynamic Mode Decomposition for Parametric Dynamical Systems. *Communications in computational physics*, 2024, 35(1):38-69.
19. Zhijuan He, Xin Wang, Pingwen Zhang, An-Chang Shi and Kai Jiang. Theory of Polygonal Phases Self-Assembled from T-Shaped Liquid Crystalline Molecules. *Macromolecules*, 2024, 57(5):2154-2164.
20. Lei Zhang, Pingwen Zhang and Xiangcheng Zheng. Probabilistic error estimate for numerical discretization of high-index saddle dynamics with inaccurate models. *Annals of Applied Mathematics*, 2023, 40(1):1-20.
21. Yue Luo, Lei Zhang, Pingwen Zhang, Zhiyi Zhang and Xiangcheng Zheng. Semi-implicit method of high-index saddle dynamics and application to construct solution landscape. *Numerical Methods for Partial Differential Equations*, 2024, 40(6).
22. Jianyuan Yin, Lei Zhang and Pingwen Zhang. Solution landscape of the Onsager model identifies non-axisymmetric critical points. *Physica D-nonlinear Phenomena*, 2022, 430.
23. Lei Zhang, Pingwen Zhang and Xiangcheng Zheng. Error estimate for semi-implicit method of sphere-constrained high-index saddle dynamics. *Chinese Annals of Mathematics, Series B*, 2023, :1-20.
24. Juan Wang, Yunjie Zhang, Jie Song and Pingwen Zhang. The comparative study on the digital economy and trade between China, the U.S. and the EU. *Acta Numerica*, 2022, :1-89.
25. Jie Song, Guannan He, Jianxiao Wang and Pingwen Zhang. Shaping future low-carbon energy and transportation systems: Digital technologies and applications. *iEnergy*, 2022, :285-305.
26. Lei Zhang, Pingwen Zhang and Xiangcheng Zheng. A model-free shrinking-dimer saddle dynamics for finding saddle point and solution landscape. *Japan Journal of Industrial and Applied Mathematics*, 2023, :1-17.
27. Chuansai Zhou, Haochen Li, Chen Yu, Jiangjiang Xia and Pingwen Zhang. A station-data-based model residual machine learning method for fine-grained meteorological grid prediction. *Applied Mathematics and Mechanics*, 2022, :155-166.
28. Wenjia Kong, Haochen Li, Chen Yu, Jiangjiang Xia, Yanyan Kang and Pingwen Zhang. A deep spatio-temporal forecasting model for multi-site weather prediction post-processing. *Communications in Computational Physics*, 2022, :131-153.

29. Chuansai Zhou, Wen Yuan, Jun Wang, Haiyong Xu, Yong Jiang, Xinmin Wang, Qiuzi Han Wen and Pingwen Zhang. Detecting Suspected Epidemic Cases Using Trajectory Big Data. *arXiv preprint arXiv:2004.00908*, 2020, :186-206.
30. Mingwen Fei, Wei Wang, Pingwen Zhang and Zhifei Zhang. On the Isotropic-Nematic Phase Transition for the Liquid Crystal. *Peking Mathematical Journal*, 2018, 1:141-219.
31. Yi Mo, Mengjie Du, Wei Ge and Pingwen Zhang. Analysis of the energy-minimization multiscale model with multiobjective optimization. *Particuology*, 2020, 48:109-115.
32. Weihua Deng, Xudong Wang and Pingwen Zhang. Anisotropic Nonlocal Diffusion Operators for Normal and Anomalous Dynamics. *Multiscale Modeling & Simulation*, 2020, 18(1):415-443.
33. Chen Yu, Haochen Li, Jiangjiang Xia, Hanqiuzi Wen and Pingwen Zhang. A Data-Driven Random Subfeature Ensemble Learning Algorithm for Weather Forecasting. *Communications in Computational Physics*, 2020, 28(4):1305-1320.
34. Chuansai Zhou, Wen Yuan, Jun Wang, Haiyong Xu, Yong Jiang, Xinmin Wang, Qiuzi Han Wen and Pingwen Zhang. Detecting Suspected Epidemic Cases Using Trajectory Big Data. *CSIAM Transactions on Applied Mathematics*, 2020, 1(1):186-206.
35. Jiangjiang Xia, Haochen Li, Yanyan Kang, Chen Yu, Lei Ji, Lve Wu, Xiao Lou, Guangxiang Zhu, Zaiwen Wang, Zhongwei Yan, Lizhi Wang, Jiang Zhu, Pingwen Zhang, Min Chen, Yingxin Zhang, Lihao Gao and Jiarui Han. Machine Learning-based Weather Support for the 2022 Winter Olympics. *Advances in Atmospheric Sciences*, 2020, 37:927-932.
36. Qiuqi Li and Pingwen Zhang. A Variable-Separation Method for Nonlinear Partial Differential Equations With Random Inputs. *SIAM Journal on Scientific Computing*, 2020, 42(2):A723-A750.
37. Bing Yu, Xiangcheng Zheng, Pingwen Zhang and Lei Zhang. Computing solution landscape of nonlinear space-fractional problems via fast approximation algorithm. *Journal of Computational Physics*, 2022, 468:111513.
38. Lei Zhang, Pingwen Zhang and Xiangcheng Zheng. Discretization and index-robust error analysis for constrained high-index saddle dynamics on the high-dimensional sphere. *Science China Mathematics*, 2023, 66:2347-2360.
39. Lei Zhang, Pingwen Zhang and Xiangcheng Zheng. Error estimates for euler discretization of high-index saddle dynamics. *SIAM Journal on Numerical Analysis*, 2022, 60(5):2925-2944.
40. Lei Zhang, Pingwen Zhang and Xiangcheng Zheng. Mathematical and numerical analysis to shrinking-dimer saddle dynamics with local Lipschitz conditions. *CSIAM Transaction on Applied Mathematics*, 2023, :157-176.
41. Jianyuan Yin, Lei Zhang and Pingwen Zhang. Solution Landscape of the Onsager Model Identifies Non-axisymmetric Critical Points. *Physica D: Nonlinear Phenomena*, 2022, 430:133081.
42. Jucen Han, Jianyuan Yin, Pingwen Zhang, Apala Majumdar and Lei Zhang. Solution landscape of a reduced Landau-de Gennes model on a hexagon. *Nonlinearity*, 2021, 34(4):2048-2069.
43. Wei Wang, Lei Zhang and Pingwen Zhang. Modeling and Computation of Liquid Crystals. *Acta Numerica*, 2021, 30:765-851.
44. Jianyuan Yin, Kai Jiang, AnChang Shi, Pingwen Zhang and Lei Zhang. Transition pathways connecting crystals and quasicrystals. *Proceedings of the National Academy of Sciences*, 2021, 118(49):e2106230118.
45. Jianyuan Yin, Yiwei Wang, Jeff Z. Y. Chen, Pingwen Zhang and Lei Zhang. Construction of a Pathway Map on a Complicated Energy Landscape. *Phys. Rev. Lett.*, 2020, 124(9).
46. Yucen Han, Yucheng Hu, Pingwen Zhang and Lei Zhang. Transition pathways between defect patterns in

confined nematic liquid crystals. JOURNAL OF COMPUTATIONAL PHYSICS, 2019, 396:1-11.

47. Haochen Li, Yu, Chen, Jiangjiang Xia, Yingchun Wang, Jiang Zhu and Pingwen Zhang. A Model Output Machine Learning Method for Grid Temperature Forecasts in the Beijing Area. Advances in Atmospheric Sciences, 2019, 36(10):1156-1170.
48. Tian Tian, Han Wang, Wei Ge and Pingwen Zhang. Detecting Particle Clusters in Particle-Fluid Systems by a Density Based Method. COMMUNICATIONS IN COMPUTATIONAL PHYSICS, 2019, 26(5):1617-1630.
49. Yongqiang Cai, Pingwen Zhang and An-Chang Shi. Elastic properties of liquid-crystalline bilayers self-assembled from semiflexible-flexible diblock copolymers. SOFT MATTER, 2019, 15(45):9215-9223.
50. Jiajie Chen, Pingwen Zhang and Zhifei Zhang. Local minimizer and De Giorgi's type conjecture for the isotropic-nematic interface problem. calculus of Variations, 2018, 57(5):1-19.
51. Yiwei Wang, Pingwen Zhang and Jeff Z. Y. Chen. Formation of three-dimensional colloidal crystals in a nematic liquid crystal. SOFT MATTER, 2018, 14(32):6756-6766.
52. Jie Shen, Jie Xu and Pingwen Zhang. Approximations on $SO(3)$ by Wigner D-matrix and Applications. JOURNAL OF SCIENTIFIC COMPUTING, 2018, 74(3):1706-1724.
53. Yixiang Luo, Jie Xu and Pingwen Zhang. A Fast Algorithm for the Moments of Bingham Distribution. JOURNAL OF SCIENTIFIC COMPUTING, 2018, 75(3):1337-1350.
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