Qi Wang

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RESEARCH AREAS

Applied and computational mathematics and interdisciplinary studies:

- Data Science and Machine Learning with applications in geophysical, life, and materials science
- Digital Twins for Health
- Modeling and Computation of Soft Matter and Complex Biological Systems
- Fluid Mechanics of Complex Flows and Rheology of Complex Fluids
- Non-equilibrium Theories for Complex Systems (Kinetic and Continuum Mechanics Theories)
- Numerical Methods for Partial Differential Equations
- Applied Analysis of Dynamical Systems and PDEs

EDUCATION

- **Ph. D.**, Mathematics, The Ohio State University, Columbus, Ohio, 1991
- **M. S**., Mathematics, The Ohio State University, Columbus, Ohio, 1988
- **B. S.**, Mathematics, Nankai University, Tianjin, P. R. China, 1982

PROFESSIONAL EMPLOYMENT

- 2008-Present: Professor, Department of Mathematics, UofSC
- 2013-2019: College of Arts & Sciences Distinguished Professor, Department of Mathematics, University of South Carolina (UofSC), Columbia, SC
- 2003-2009: Professor, Department of Mathematics, Florida State University (FSU), Tallahassee, FL
- 2001-2003: Associate Professor, Department of Mathematics, FSU
- 1991-2001: Assistant, Associate Professor, Department of Mathematical Sciences, Indiana University-Purdue University Indianapolis (IUPUI), Indiana
- 1/1990-4/1990: Research Associate, CNLS, Los Alamos National Lab (LANL), New Mexico

OTHER POSITIONS & AFFILIATIONS

- 2017-Present: Thrust Leader of Modeling and Computational Core, South Carolina's NSF EPSCOR Project on "Materials Assembly and Design Excellence in South Carolina (MADE in SC)"
- 2008-Present: Adjunct Professor, Department of Chemistry and Biochemistry, UofSC
- 2008-2018: Theory, Modeling, and Simulation Thrust Leader, NanoCenter at UofSC
- 2009-2015: Thrust Leader of the Thrust in Modeling and Simulation of Biofabrication, South Carolina's NSF EPSCOR Project on "Biofabrication"
- 2004-2007: Director of Applied and Computational Mathematics Program, Florida State University
- 2/2005-4/2005: Visiting Professor, IMA**,** University of Minnesota, Minneapolis, NM
- 1/1999-5/1999: Visiting Associate Professor, Department of Mathematics, the University of North Carolina at Chapel Hill (UNC-CH), Chapel Hill, NC

AWARDS and HONORS

- 2020, USC Educational Foundation Research Award for Science, Mathematics, and Engineering

RESEARCH GRANTS & CONTRACTS

Current:

1. 8/1/2021-7/31/2026, **NSF** (DMS-2038080). "RTG: Mathematical Foundation of Data Science at University of South Carolina." **Co-PI**: **$1,996,609**
2. 8/1/2020-7/31/2023, **NSF** (DMS--1954532), "Excellence in Research: Cutting-Edge Research in Machine Learning and Its Application", **Co-PI: $466,200.**
3. 9/15/2019-9/14/2023, **DOE** (DE-SC0020272), "Data-science enabled investigation of the mechanisms for multiscale ion transport in functional electrolytes"**, PI**: **$750,000**.
4. 9/15/2017-9/14/2023, **NSF** (OIA--1655740), "RII Track-1: Materials Assembly and Design Excellence in South Carolina: MADE in SC", Co-**PI (PI:** Prakash Nagarkatti, UofSC**)**: **$20,000,000.**
5. 6/1/2021-8/31/2022, **EPSCOR/IDEA GEAR-CRP**, "Confined Blue Phase Soft Crystals with Tunable Photonic Bandgap", Co-**PI**: $60,000.

Past:

6. 1/1/2021-5/31/2022, NCI via Leidos Biomedical Research, Inc. (21X130F), "Dynamic Multiscale Digital Twin for a Lung Cancer Patient." PI: $50,000.
7. 5/1/2021-5/31/2022, DOE (DE-SC0021655), "Dynamic Multiscale Digital Twin for a Lung Cancer Patient." PI: $50,000.
8. 6/1/2018-5/31/2022, NSF (DMS--1815921), "Collaborative Research: Computational modeling of how living cells utilize liquid-liquid phase separation to organize chemical compartments", PI: $150,000.
9. 5/1/2020-4/30/2021, **EPSCOR/IDEA GEAR-CRP**, "A Hybrid Multiscale Model with Machine Learning for Sprouting Angiogenesis in Biofabrication", Co-**PI**: $60,000.
10. 6/15/2018-6/16/2019, **GEAR-CRP, "**A Hybrid Discrete-Continuum Model for Simulating Sprouting Angiogenesis in 30 Biofabrication**", PI: $60,000**
11. 9/15/2015-8/31/2018, **NSF** (DMS-1517347), "Collaborative Research: Kinetic to Continuum Modeling of Active Anisotropic Fluids", **PI**: **$174,300.**
12. 9/1/2012-8/31/2017, **NSF** (DMS-1200487), "Collaborative Research: Experimentally guided mathematics for the mechanochemistry of cell shape dynamics", **PI**: **$591,000.**
13. 10/1/2012-9/30/2016, **NIH** (R01GM078994-05A1), "Cytoskeletal Oscillations: Mathematical Modeling Integrated with Experiments", **USC PI**: **$150,000**. (Subcontract to University of South Carolina, **PI: Tim Elston**, UNC-Chapel Hill)
14. 5/1/2012-4/30/2016, **AFOSR (**FA9550-12-1-0178), "Multiscale Mathematics for Nano-Particle-Endowed Active Membranes and Films", **PI**: **$810,000.**
15. 5/16/2014-5/15/2016, USC ASPIRE II, "From Genome to Novel Materials: Developing the Beta (β) Keratin Monomer as a Nanofiber for Fabrication of New Products with new Properties", **Co-PI: $99,633.**
16. 11/1/2014-6/30/2016**, SC EPSCOR/IDEA, "**A 3D Hybrid Discrete-Continuum Model for Cellular Aggregate Fusion**," PI: $27,000.**
17. 5/16/2013-6/30/2014, **SC, EPSCOR/IDEA GEAR-CRP**, "Experimentally guided in-silico analysis of cellular aggregate fusion in bioprinting", **PI**: **$100,000.**
18. 5/16/2013-6/30/2014, **SC, EPSCOR/IDEA GEAR-CRP**, "Investigating Cellular Spheroid Fusion Using Boundary Element Methods", **PI**: **$50,000.**

19. 5/16/2013-6/30/2014, **SC, EPSCOR/IDEA GEAR-CI**, "Computational Investigation of Cell-Substrate Interaction Guided by Experiments", **PI**: **$72,278.**
20. 9/1/2012-6/30/2013, **SC, EPSCOR/IDEA-GEAR**, "Thrust Leader Fund for Thrust I: In Silico Study of Cellular Aggregate Fusion", **PI**: $50,000.
21. 7/1/2012-6/30/2013, **USC**, "Summer School in Network Science at USC", **Co-PI**: $21,000.
22. 7/1/2009-6/30/2013, **NSF-DMS** (DMS-0908330), "Collaborative Research on Mathematical Constructs for Multiphase Complex Fluids," **PI**: $175,882.
23. 10/1/2012-6/30/2013, **SC EPSCOR/IDEA**, "SAN Proposal to Support Recruitment of Women into Mathematics," **PI**: $6,000.
24. 8/16/2008-7/31/2012, **NSF-CMMI** (CMMI-0849317), "Collaborative Research: Investigating Bacteria-Surface Interactions by Surface Engineering and Mathematical Modeling," **PI**: $99,999
25. 7/1/2011-6/30/2012, **SC EPSCOR/IDEA**, "Modeling and Simulation of Organ Biofabrication Processes," **PI**: $85,000
26. 8/4/2008-8/31/2010, **NSF-DMS** (DMS-0819051), "An integrated approach to modeling and simulations of complex fluids of microstructures, Supplemental," **PI**: $40,000
27. 9/1/2006-8/31/2010, **NSF-DMS** (DMS-0605029), "An integrated approach to modeling and simulations of complex fluids of microstructures**," PI:** $152,197
28. 9/1/2006-8/31/2010, **NSF-DMS** (DMS-0626180), "MSPA-MCS: Data-Driven Parallelization of Time in Molecular Dynamics Simulations," **Co-PI**: $ 392,890
29. 8/15/2007-7/31/2009**, NSF-DMS, SCREMS** (DMS-0724273)**, "**SCREMS: High-Performance Computing and Visualization," **PI,** $114,678
30. 9/1/2008-6/30/2009, **NSF RII** (EPS-0447660), "Bridge for biofabrication Institute," **Institutional PI for Mathematics**: $375,000
31. 12/1/2007-11/30/2010, **AFOSR (**FA9550-08-1-0107**), "**Modeling of high-performance polymer-nanoparticle composites and their effective material properties," **PI**; ($222,464, 1st year $86,464)
32. 12/1/2004-11/30/2007, **AFOSR, PI**; $148,400
33. 8/1/2002-7/31/2005, **NSF-DMS, PI**; $177,004
34. 1/1/2002-12/31/2004, **AFOSR, PI**; $137,907
35. 10/15/1998-10/14/2001, **AFOSR, PI**; $99,000
36. 10/1/1995-9/30/1998, **AFOSR, PI**, $95,000
37. 6/1/1992-5/31/1995, **AFOSR, PI**, $89,000

PUBLICATIONS

Refereed Journal Papers:

1. Eric Stahlberg, Mohamed Abdel-Rahman, Boris Aguilar, Alireza Asadpoure, Robert A. Beckman, Lynn Borkon, Colleen Cebulla, Young Hwan Chang, Ansu Chatterjee, Jun Deng, Sepidah Dolatshahi, Olivier Gevaert, Emily Greenspan, Wenrui Hao, Tina Hernandez-Boussard, Pamela Jackson, Marieke Kuijjer, Adrian Lee, Paul Macklin, Subha Madhavan, Matthew D. McCoy, Navid Mohammad Mirzaei, Talayeh Razzaghi, Heber Rocha, Leili Shahriyari, Ilya Shmulevich, Daniel G. Stover, Yi Sun, Tanveer Syeda-Mahmood, Qi Wang, Jinhua Wang, Ioannis Zervantonakis. "Exploring Approaches for Predictive Cancer Patient Digital Twins: Opportunities for Collaboration and Innovation." Frontiers in Digital Health, 2022.
2. Xiaobo Jing and Qi Wang, "Thermodynamically Consistent Dynamical Boundary Conditions of Phase Field Models", Communications in Mathematical Sciences, 2022.
3. Lu Guanyu, Liu Wenqiang, HAO Huiqing, Wang Qi, and HAO Yonghong. "Application of the combined LSTM-GRU model to hydrological simulations". Journal of Hydrology (Chinese), 2022.
4. Maosheng Jiang, Jia Zhao and Qi Wang. "Linear Energy Stable Numerical Schemes for a General Chemo-Repulsive Model". Journal of Computational and Applied Mathematics, 2022.

5. Huiqing Hao; Yonghong Hao; Yan Liu; Yan Jim Yeh; Ming Zhang; Qi Wang; Yonghui Fan. "Anomaly of glacier mass balance in different vertical zones and responses to climate modes: Urumqi Glacier No. 1, China Climate Dynamics" Climate Dynamics, 2022.
6. Jianguo Hou, Jun Deng, Chunyan Li, and Qi Wang. "Tracing and Forecasting Metabolic Indices of Cancer Patients Using Patient-Specific Deep Learning Models". Journal of Personalized Medicine, 12 (2022), 742.
7. Xiehui Song, HuiqingHao, Wenqiang Liu, Qi Wang, Lixing An, Tian-Chyi Jim Yeh, Yonghong Hao. "Spatial-temporal behavior of precipitation driving karst spring discharge in a mountain terrain." Journal of Hydrology 612 (2022), 128116.
8. Chunyan Li, Shehani T. Wetthasinghe, Huina Lin, Tianyu Zhu, Chuanbing Tang, Vitaly Rassolov, Qi Wang, Sophya Garashchuk. "Stability analysis of substituted cobaltocenium [bis(cyclopentadienyl)cobalt(III)] employing chemistry-informed neural networks." Journal of Chemical Theory and Computation, April 11, 2022, https://doi.org/10.1021/acs.jctc.1c01201.
9. Shehani T. Wetthasinghe, Chunyan Li, Huina Lin, Tianyu Zhu, Chuanbing Tang, Vitaly Rassolov, Qi Wang, Sophya Garashchuk. "Investigating stability of substituted cobaltocenium using deep neural networ Correlation between the Stability of Substituted Cobaltocenium and Molecular Descriptorsks." Journal of Physical Chemistry A, 126(1) (2022), 80-87.
10. Hong-Fei Deng, Ming-Wei Sun,Yu Wang, Jun Zeng, Ting Yuan, Ting Li, Di-Huan Li, Wei Chen, Ping Zhou, Qi Wang, Hua Jiang. "Evaluating Machine Learning Moldes for Sepsis Prediction: A Systematic Review of Methodologies," iScience, in press, 2022.
11. Xiaowen Shen and Qi Wang. "Thermodynamically Consistent Models for Diblock Copolymer Systems Coupled with an Electric Field". Chinese Phys. B, 31(4), 2022.
12. Lin Lu, Qi Wang, Yongzhong Song and Yushun Wang, "Local structure-preserving algorithms for phase field models of graphene growth." Journal of Scientific Computing, 90(1) (2022).
13. Xin Guo, Xu-sheng Wang, Jun Li, Tongke Wang, Zhixue Zhao, Huiqing Hao, Hongbin Zhan, Qi Wang, Yonghong Hao. An approximate analytical solution of depth to water table driven by periodical precipitation and evapotranspiration in shallow groundwater zones. Advances in Water Resources, 155 (2021), 104012.
14. Qi Hong, Yuezheng Gong, Jia Zhao and Qi Wang, "Arbitrarily High Order Structure-Preserving Algorithms for the Allen-Cahn Model with a Nonlocal Constraint." Applied Numerical Mathematics, Volume 170, December 2021, 321-339.
15. Yakun Li, Wenkai Yu, Jia Zhao, and Qi Wang. "Second Order Decoupled Energy Dissipation Rate Preserving Schemes for an extended Cahn-Hilliard-Darcy Model." Journal of Computational Physics, Volume 444, 1 November 2021, 110561.
16. Wenkai Yu, Jia Zhao, Yakun Li and Qi Wang. "Second-Order Linear Thermodynamically Consistent Approximations to the Nonlocal Allen-Cahn-Brinkman Model." Computer Methods in Applied Mechanics and Engineering, Volume 386, 1 December 2021.
17. Xiaowen Shen and Qi Wang, "Thermodynamically Consistent Numerical Algorithms for Models of Diblock Copolymer Solutions with Variable Mobility", Journal of Computational and Applied Mathematics, Volume 395, 15 October 2021, 113573.
18. Xiaowen Shen and Qi Wang, "Thermodynamically Consistent Algorithms for Models of Block Copolymer Solutions Interacting with Electric and Magnetic Fields", Journal of Scientific Computing, **88,** 43 (2021).
19. Yuezheng Gong, Qi Hong and Qi Wang, "Supplementary Variable Method for Thermodynamically Consistent Partial Differential Equations." Computer Methods in Applied Mechanics and Engineering, 2021, 381, 113746.
20. Di Wang, Yongyong Cai and Qi Wang, "Central Vortex Steady States and Dynamics of Bose-Einstein Condensates Interacting with Magnetic Fields." Physica D, Volume 419, May 2021, 132852.
21. Lin Lu, Qi Wang, Yongzhong Song, Yushun Wang, "Local structure-preserving algorithms for the molecular beam epitaxy model with slope selection." Discrete and Continuous Dynamical System-B, September 2021, 26(9): 4745-4765. doi: 10.3934/dcdsb.2020311

22. Qi Hong, Jia Zhao and Qi Wang, "Structure-preserving Numerical Approximations to Network Generating Partial Differential Equation Models," *Computers and Mathematics with Applications*, 81 (2021), 148-165.
23. Qi Hong, Jun Li and Qi Wang, "Supplementary Variable Method for Structure-Preserving Approximations to Partial Differential Equations with Deduced Equations." Applied Mathematics Letter, 110 (2020), 106576.
24. Cheng Lei, Yu Wang, Jia Zhao, Kexun Li, Hua Jiang and Qi Wang. "A Patient-Specific Predictive Model for Human Albumin Based on Deep Neural Networks." Computer Methods and Programs in Biomedicine, 196 (2020), 105555.
25. Shouwen Sun, Jun Li, Jia Zhao, and Qi Wang, "Structure-Preserving Numerical Approximations to Thermodynamically Consistent Non-isothermal Models of Binary Viscous Fluid Flows." *Journal of Scientific Computing*, 83 (2020), 50.
26. Yuezheng Gong, Jia Zhao and Qi Wang. "Arbitrarily high-order linear unconditionally energy stable schemes for gradient ow models." *Journal of Computational Physics*, 419 (2020), 109610.
27. Yuezheng Gong, Jia Zhao, Qi Wang, "Arbitrarily high-order unconditionally energy stable SAV schemes for gradient flow models." *Computer Physics Communications*, 249 (2020), 107033.
28. Xueping Zhao, Tiezheng Qian and Qi Wang, "Thermodynamically Consistent Hydrodynamic Models of Multi-component Fluid Flows," *Communications in Mathematical Sciences*, Vol. 18, No. 5 (2020), 1441–1468.
29. Xiaobo Jing and Qi Wang, "Linear Second-Order Energy Stable Schemes of Phase Field Models with Nonlocal Constraints for Crystal Growth." *Computers & Mathematics with Applications*, 79(3) (2020), 764-788.
30. Yuezheng Gong and Qi Wang and Jia Zhao. "Arbitrarily High-Order Unconditionally Energy Stable Schemes for Thermodynamically Consistent Gradient Flow Models." Siam *Journal on Scientific Computing.* 42(1) (2020), B135-B156.
31. Yucan Zhao, Jun Li, Jia Zhao and Qi Wang, "A Linear Energy and Entropy-production-rate Preserving Scheme for Thermodynamically Consistent Crystal Growth Models." *Applied Mathematics Letters*, 98, (2019), pp. 142-147.
32. Xueping Zhao and Qi Wang. "A Second-Order Fully-discrete Linear Unconditionally Energy Stable Numerical Scheme for Phase Field Models of Binary Compressible Fluid Flows." *Journal of Computational Physics*, 395 (2019), 382-409.
33. Xiaobo Jing, Jun Li, Xueping Zhao and Qi Wang. "Second Order Linear Energy Stable Schemes for Allen-Cahn Equations with Nonlocal Constraints." *Journal of Scientific Computing*, 80 (1) (2019), 500-537.
34. Jun Li, Jia Zhao and Qi Wang. "Structure Preserving Numerical Approximations of Thermodynamically Consistent Crystal Growth Models." *Journal of Computational Physics*, 382 (2019), pp. 202-220.
35. Xiaobo Jing, Xiangya Huang, Markus Haapasalo, Ya Shen and Qi Wang, "Modeling Oral Multispecies Biofilm Recovery after Antibacterial Treatment", *Scientific Reports.* 9 (2019), pp. 804.
36. Shouwen Sun, Xiaobo Jing and Qi Wang, "Error Estimates of Energy Stable Numerical Schemes for Allen-Cahn Equations with Nonlocal Constraints." *Journal of Scientific Computing*, Volume 79(1) (2019), pp. 593–623.
37. Xiaogang Yang, Jun Li, Yuezheng Gong, Robert S. Eisenberg, Qi Wang, "Quasi-compressible Ionic Fluid Models", *Journal of Molecular Liquids,* 273 (2019), pp. 677-691.
38. Yuezheng gong, Jia Zhao, and Qi Wang, "Second Order Fully-Discrete Energy Stable Methods on Staggered Grids for Hydrodynamic Phase Field Models of Binary Viscous Fluids", *Siam Journal on Scientific Computing*, 40:2, (2018), pp. B528-B553.
39. Jia Zhao, Xiaofeng Yang, Yuezheng Gong, Xueping Zhao, Jun Li, Xiaogang Yang and Qi Wang, "A General Strategy for Numerical Approximations of Thermodynamically Consistent Nonequilibrium Models--Part I: Thermodynamical Systems", *International Journal of Numerical Analysis and Modeling*, 15(16) (2018), pp 884-918.
40. Xiaogang Yang, Yuezheng Gong, Jun Li, Jia Zhao, and Qi Wang, "Comparison of Hydrodynamic Phase Field Models for Binary Fluid Mixtures", *Theoretical and Computational Fluid Dynamics*, 32(5) (2018), pp 537-560.

41. Yuezheng Gong, Jia Zhao, and Qi Wang, "Linear Second Order in Time Energy Stable Schemes for Hydrodynamic Models of Binary Mixtures Based on a Spatially Pseudospectral Approximation", a*dvances in Computational Mathematics*, 44 (5) (2018), pp.1573-1600.
42. Yuezheng Gong, Jia Zhao, Xiaogang Yang and Qi Wang, "Second-order Linear Schemes for Hydrodynamic Phase Field Models of Binary Viscous Fluids with Variable Densities," *Siam Journal on Scientific Computing*, 40-1 (2018), pp. B138-B167.
43. Jia Zhao and Qi Wang, "3-D Numerical Simulations of Biofilm Dynamics with Quorum Sensing in a Flow Cell," *Bulletin of Mathematical Biology*, 79(4) (2017), pp. 884-919.
44. Yi Sun and Qi Wang, "In-Silico Analysis on 3D Biofabrication using Kinetic Monte Carlo Simulations," Advances in Tissue Engineering and Regenerative Medicine**,** 2(5) (2017), pp. 00045.
45. E. A. Bulanova, E. V. Koudan, J. Degosserie, C. Heymans, F. D. Pereira, V. A. Parfenov, Yi Sun, Qi Wang, S. A. Akhmedova , N. S. Sergeeva, G. A. Frank, Y. D. Khesuani, C. E. Pierreux, V. A. Mironov. "Bioprinting of functional vascularized mouse thyroid gland construct," *Biofabrication*, 2017, 9(3), 034105.
46. Yuezheng Gong, Jia Zhao, and Qi Wang, "An Energy Stable Algorithm for the Quasi-incompressible Hydrodynamic Model of Viscous Fluid Mixtures," *Computer Physics Communications*, 219 (2017), pp. 20-34.
47. Xiaofeng Yang, Jia Zhao, and Qi Wang, "Linear and Unconditionally Energy Stable Schemes for Molecular Beam Epitaxial Growth Model Based on Invariant Energy Quadratization Methods," *Journal of Computational Physics*, 333 (2017), pp. 104-127.
48. Jia Zhao, Xiaofeng Yang, Yuezheng Gong, and Qi Wang, "A Novel Linear Second Order Unconditionally Energy-stable Scheme for a Hydrodynamic Q-tensor Model of Liquid Crystals," *Computer Methods in Applied Mechanics and Engineering,* 318 (2017), pp. 803-825.
49. Xiaogang Yang and Qi Wang, "Structures and basic patterns in cavity flows of active liquid crystals". *Computers and Fluids*, 155 (2017), pp. 33-49.
50. Xiaofeng Yang, Jia Zhao, Qi Wang, Jie Shen, "Numerical Approximations for a three-component Cahn-Hilliard phase-field Model based on the Invariant Energy Quadratization method", *Mathematical Models and Methods in Applied Sciences*, 27(11) (2017), pp. 1993-2030.
51. Yuezheng Gong, Qi Wang, and Zhu Wang, "Structure-Preserving Galerkin POD Reduced-Order Modeling of Hamiltonian Systems", *Computer Methods in Applied Mechanics and Engineering*, 315 (2017), pp. 780-798.
52. Xiaofeng Yang, Jia Zhao, and Qi Wang, "Numerical Approximations for a phase field dendritic Growth Model Based on the Invariant Energy Quadratization Approach," *International journal for Numerical Methods in Engineering*, 110(3) (2017), pp. 279–300.
53. Jia Zhao, Huiyuan Li, Qi Wang, and Xiaofeng Yang, "A Linearly Decoupled Energy Stable Scheme for Phase Field Models of Three-phase Incompressible Viscous Fluid Flows", *Journal of Scientific Computing,* 70(3) (2017), 1367-1389*.*
54. Jia Zhao, Tianyu Zhang, and Qi Wang, "Treatment of Biofilms by Nanotechnology and Applications to Food Science," NANOTECHNOLOGY IN AGRICULTURE AND FOOD SCIENCES, edited by, Monique A. V. Axelos and Marcel Van de Voorde, Wiley-VCH, 2017.
55. Yuezheng Gong, Qi Wang, Yushun Wang, Jiaxiang Cai, "A conservative Fourier pseudospectral method for the nonlinear Schrodinger equation", *Journal of Computational Physics*, 328 (2017), pp. 354–370.
56. Yuezheng Gong, Xinfeng Liu, and Qi Wang, "Fully Discretized Energy Stable Schemes for Hydrodynamic Models of Two-phase Viscous Fluid Flows", *Journal of Scientific Computing,* 69(3) (2016), 921-945.
57. Norazaliza mohd Jamil and Qi Wang, "CFD-PBE Modelling and Simulation of Enzymatic Hydrolysis of Cellulose in a Stirred Tank", *Journal of Mathematics and Statistics*, 12(4) (2016), pp. 225-237.
58. Jia Zhao, Qi Wang, and Xiaofeng Yang, "Numerical Approximations to a New Phase Field Model for Immiscible Mixtures of Nematic Liquid Crystals and Viscous Fluids", *Computer Methods in Applied Mechanics and Engineering*, 310 (2016), pp. 77-97.
59. Jia Zhao, P. Seeluangsawat , and Qi Wang, "A hydrodynamic model for biofilms accounting for persisters and susceptibles", *Mathematics of Biosciences*, 282 (2016), pp. 1-15.

60.Xiaogang Yang and Qi Wang, "Role of Active Viscosity and Self-propelling Speed on Channel Flows of Active Polar Liquid Crystals", *Soft Matter*, 12 (2016), pp. 1262 - 1278.
61.Jia Zhao, Ya Shen, Markus Haapasalo, Zhejun Wang, and Qi Wang, "A 3D Numerical Study of Antimicrobial Persistence in Heterogeneous Multi-species Biofilms", *Journal of Theoretical Biology*, 392 (2016), pp. 83–98.
62.Jia Zhao and Qi Wang, "Semi-Discrete Energy-Stable Schemes for a Tensor-Based Hydrodynamic Model of Nematic Liquid Crystal Flows", *Journal of Scientific Computing,* 68(3) (2016), pp. 1241-1266.
63.Jia Zhao and Qi Wang, "A 3D Hydrodynamic Model for Cytokinesis of Eukaryotic Cells", *Communication in Computational Physics*, 19(3) (2016), pp. 663-681.
64.Jia Zhao and Qi Wang, "Modeling and Simulations of Cytokinesis of Eukaryotic Cells," *International Journal for Numerical Methods in Biomedical Engineering*, 32 (12) (2016), pp. e2774.
65.Xiaogang Yang, Jun Li, M. G. Forest, and Qi Wang, "Hydrodynamic Theories for Flows of Active Liquid Crystals and the Generalized Onsager Principle", *Entropy*, 18 (2016), pp. 202.
66.Kapustina, M., Tsygankov, J., Zhao, J., Yang, X., Chen, A., Roach, N., Wessler, T., Elston, T.C., Wang, Q., Jacobson, K., Forest, G., "Modeling the excess cell surface stored in a complex morphology of bleb-like protrusions". *PLOS Computational Biology*, 12(3) (2016), pp. e1004841.
67.Jia Zhao, Xiaofeng Yang, Jun Li and Qi Wang, "Energy stable numerical schemes for a hydrodynamic model of nematic liquid crystals", *Siam J. Sci. Comp.,* 38(5) (2016), pp. 3264-3290.
68.Ya Shen, Jia Zhao, César de la Fuente-Núñez, Zhejun Wang, Robert E. W. Hancock, Clive R. Roberts, Jingzhi Ma, Jun Li, Markus Haapasalo and Qi Wang, "Development and Experimental Validation of a Model for Oral Multispecies Biofilm Recovery after Chlorhexidine Treatment", *Scientific Reports*, 6 (2016), pp. 27537.
69. Noraza liza Mohd Jamil and Qi Wang, "One-Dimensional Simulation of Diffusion and Advection Effects in Enzymatic Hydrolysis of Cellulose", *American Journal of Applied Sciences.* 13(7) (2016), pp. 870-876.
70.Jia Zhao, Xiaofeng Yang, Jie Shen, Qi Wang, "A Decoupled Energy Stable Scheme for a Hydrodynamic Phase-field Model of Mixtures of Nematic Liquid Crystals and Viscous Fluids", *Journal of Computational Physics*, 305 (2016), pp. 539-556.
71. Guanghua Ji, M. G. Forest, and Qi Wang, "Formation in Sheared Polymer-Rod Nanocomposites", *Discrete and Continuous Dynamical Systems-Series D,* 8(2) (2015), pp. 341-379.
72. M. G. Forest, Qi Wang, and Ruhai Zhou, "Kinetic attractor phase diagrams of active nematic suspensions: the dilute regime", *Soft Matter*, 11 (2015), pp. 6393 – 6402.
73. Hua Jiang, Hao Yang, Jun Zeng, Zhiyuan Zhou, Jin Peng, Qi Wang, "Analytic Oncology*", Electron J Metab Nutr Cancer*， 2 (2) (2015), pp. 26-30.
74. Chen Chen, Dacheng Ren, Mingming Ren and Qi Wang, "3-D Spatial-Temporal Structures of Biofilms in A Water Channel," *Mathematical Methods in the Applied Sciences*, 38 (18) (2015), pp. 4461-4478.
75. M. G. Forest, Panon Phuworawong, Qi Wang, and Ruhai Zhou, "Rheology of active polar and apolar liquid crystalline suspensions" *Philo Trans of Royal Society A,* 372 (2014), pp. 20130362.
76. Xiaogang Yang and Qi Wang, "Capillary Instability of an Active Liquid Crystal Jet", *Soft Matter*, 10 (2014), pp. 6758-6776.
77. Xiaogang Yang, M. G. Forest, and Qi Wang, "Near Equilibrium Dynamics and 1-D Spatial-Temporal Structures of Polar Active Liquid Crystals", *Chinese Phys. B*, 23 (11) (2014), pp. 117502.
78.Yi Sun, Xiaofeng Yang, and Qi Wang, "In-Silico Analysis on Biofabricating Vascular Networks using Kinetic Monte Carlo Simulations", *Biofabrication*, 6 (2014), pp. 015008.
79. Jie Shen, Xiaofeng Yang and Qi Wang, "Mass Conserved Phase Field Model for Binary Fluids", *Communication in Computational Physics*, 13 (2013), pp. 1045-1065.
80. M. Gregory Forest, Q. Wang and X. Yang, "LCP droplet dispersions: a two-phase diffuse-interface kinetic theory and global droplet defect predictions, *Soft Matter*, 8(37) (2013), pp. 9642-9660.
81. Xiaofeng Yang, M. Gregory Forest, Huiyuan Li, Chun Liu, Jie Shen, Qi Wang, and Falai Chen, "Numerical Investigation of the Dynamics of drop formation and pitch-off using a phase-field model for two-phase complex fluids," *Journal of Computational Physics*, 236 (2013), pp. 1-14.

82. Chen Chen and Qi Wang, "3-D Pattern Formation in Biofilms," *Contemporary Mathematics* (586), (2013), pp. 105-116.
83. Yi Sun and Qi Wang, "Modeling and Simulations of Multicellular Aggregate Self-assembly in Biofabrication Using Kinetic Monte Carlo Methods," *Soft Matter*, 9 (2013), pp. 2172-2186.
84. M. G. Forest, R. Zhou, and Q. Wang, "Kinetic theory and simulations of active polar liquid crystalline polymers," *Soft Matter,* 9 (21) (2013), pp. 5207 – 5222.
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- Computational Methods I, II
- Computational Methods for Partial Differential Equations I, II
- Boundary Value Problems for Partial Differential Equations

- Qualitative Theory of Ordinary Differential Equations
- Mathematical Modeling
- Numerical Linear Algebra
- Wave propagation (linear and nonlinear waves)
- Modeling of Complex Fluids
- Advanced Topics in Applied and Computational Mathematics I & II
- Modeling and Computation of Complex Biological systems I & II
- Numerical Methods for Differential Equations I, II

Curriculum Development:

- Developed a new master's degree program in industrial and applied mathematics at IUPUI
- Developed a yearlong sequence of courses on computational mathematics for the new master's degree program in industrial and applied mathematics and another sequence on computational methods for partial differential equations for advanced graduate students
- Was the program coordinator from 2000-2001 for the Industrial and Applied Mathematics program at IUPUI
- Renovated the applied mathematics curriculum by restructuring the applied and computational mathematics courses and the qualifying examination system at FSU
- Developed a Ph.D. track in Applied and Computational Mathematics at the University of South Carolina by developing and designing the applied and computational mathematics graduate program.
- Developed a new undergraduate course on "mathematical foundation of data science and machine learning" at UofSC in 2019, which has been offered annually.

Student Advising:

MS students advised: 18

Ph. D. students advised: 18

Postdocs mentored: 15

INVITED PRESENTATIONS (since 2000)

Seminar and colloquium

1. MUSC, Department of Hematology and Oncology, Medical University of South Carolina, August 12, 2022
2. Yale Smart Medicine Lab, Feb. 15, 2022
3. School of Computational Science, Michigan State University, Feb. 7, 2022
4. South Eastern University, Nanjing, China, Oct. 17, 2021
5. George Mason University, Oct. 15, 2021

6. Beijing University of Technology, June 16, 2021
7. Tianjin Normal University, June 9, 2021
8. Hong Kong Polytechnic University, Feb. 22, 2021
9. University of Maryland, Maryland, Feb. 11, 2020
10. Nanjing University of Aeronautics and Astronautics, Nanjing, China, Jan. 8, 2020
11. Missouri University of Science and Technology, Rolla, Missouri, Nov. 22, 2019
12. University of Michigan Technology, Sep. 27, 2019
13. Tianjin Math Day, Tianjin, May 29, 2019
14. Beijing University of Technology, China, Oct. 18, 2018
15. Nanjing Normal University, Nanjing, China, June 19, 2018
16. Nanjing University of Aeronautics and astronautics, Nanjing, China, June 18, 2018
17. Fudan University, June 14, 2018
18. Jinan University, Jan. 12, 2018
19. Tianjin Normal University, Dec. 22, 2017, China
20. Rutgers University, NJ, Sept. 22, 2017
21. Renming University, Beijing, China, June 9, 2017.
22. University of Electronic Science and Technology of China, Chengdu, Nov. 25, 2016
23. Tianjin University of Technology, Tianjin, China, Nov. 15, 2016
24. Institute of Computational Mathematics, CAS, Sept. 26, 2016
25. Peking University, Beijing, Sep. 21, 2016
26. Kavli Institute of Theoretical Physics, CAS, Beijing, August 24, 2016
27. Nankai University, July 13, 2016
28. Anhui University of Science and Technology, July 7, 2016
29. Nanjing Normal University, July 6, 2016
30. UC Santa Barbara, April 8, 2016
31. Rutgers University, March 25, 2016
32. University of North Carolina at Greensboro, Feb. 4, 2016
33. IAPCM, Jan. 8, 2016
34. Renmin University, Beijing, China, Dec. 25, 2015
35. North Carolina State University, Nov. 18, 2015.
36. HKUST, Oct. 28, 2015
37. Tianjin Normal University, Oct. 26, 2015
38. University of Maryland, Sept. 23, 2015
39. Shangdong University, School of Mathematics, Dec. 26, 2014
40. Tsinghua University,Chou Peiyuan Center for Applied Mathematics, Dec. 25, 2014
41. Beijing Normal University, School of Mathematics, Dec. 22, 2014
42. Nankai University, School of Mathematics, Nov. 28, 2014.
43. University of North Carolina at Chapel Hill, Sept. 18, 2014
44. University of Kansas, Laurence, KS, April3, 2014.
45. SiChuan Medical Science Academy, ChengDu, China, Dec. 22, 2013.
46. Ohio State University, Columbus, OH, Nov. 6-7, 2013.
47. Anhui University of Science and Technology, Ma An Shan, China, August 4, 2013.
48. Microbiology Institute of Chinese Academy of Sciences, Beijing, China, July 12, 2013.
49. Beijing University of Science and Technology, China, June 28, 2013.
50. Montana State University, Department of Mathematical Sciences, April 26, 2013.
51. University of Georgia, Physics Department, Athens, GA, February 5, 2013
52. Georgia State University, Department of Mathematics, Atlanta, GA, April 19, 2013
53. University of Alabama, Department of Mathematics, Tuscaloosa, Nov. 14, 2012
54. University of California, Irvine, Department of Mathematics, Nov. 5, 2012
55. Nankai University, School of Mathematics, June 13, 2012
56. Voorhees College, High School Science Fair Lecture, April 21, 2012

57. Voorhees College, Science Day Lecture, Feb 23, 2012
58. University of North Carolina at Chapel Hill, October, 2011
59. 2nd Annual EPSCOR Workshop, Tennessee-South Carolina-Oakridge National Lab, October, 2011
60. Illinois Institute of Technology, November, 2010
61. University of Utah, November, 2010
62. George Mason University, October, 2010
63. Michigan State University, East Lansing, MI, May 4, 2010
64. Indiana University-Purdue University Indianapolis, IN, Jan. 31, 2010
65. University of North Carolina at Chapel Hill, Nov. 13, 2009
66. University of North Carolina at Charlotte, April 15, 2009
67. Wilfrid Laurier University, April 8, 2009
68. Indiana University-Purdue University Indianapolis, Oct. 2, 2008
69. University of South Carolina, Jan., 2008
70. Peking University, Dec. 2007
71. Old Dominion University, Colloquium, Oct 2007
72. Old Dominion University, Public Lecture, Oct. 2007
73. University of Central Florida, Nov. 2007
74. Beijing Normal University, Sep. 2007
75. Purdue University, November 2006
76. UC Santa Barbara, May 2006
77. University of Akron, March, 2006
78. Nankai University, School of Mathematics, Tianjin, July 2005
79. Peking University, School of Mathematics, Beijing, June 2005
80. IMA, University of Minnesota, April 2005
81. Peking University, School of Mathematics, Beijing, 2004
82. Fudan University, Department of Mathematics, Shanghai, 2004
83. University of Texas Arlington, Arlington, Texas, 2004
84. University of Central Florida, Orlando, FL, 2004
85. The University of California, Irvine, CA, 2003
86. Temple University, Philadelphia, PA, 2003
87. University of Minnesota, Minneapolis, MN, 2002
88. Carnegie-Mellon University, Pittsburgh, PA, 2002
89. Penn State University, State College, PA, 2002
90. Morningside center, Academia Sinica, Beijing, PRC, 2001
91. Center for computational mathematics, Academia Sinica, Beijing, PRC, 2001
92. Clemson University, Clemson, SC, 2001
93. Louisiana State University, Baton Rouge, LA, 2000
94. University of California, Davis, CA, 2000
95. The University of Delaware, Newark, DE, 2000

National and international meetings

1. Workshop on Informatics in Translating Scientific Discoveries into Action (I2A) as a part of the 10th International Conference on Intelligent Biology and Medicine (ICIBM 2022), August 7-8, Philadelphia, PA, 2022
2. Workshop on interface problems: modeling, theory and numerics (online). July 3-5, 2022
3. Virtual NCI-DOE Collaboration Cancer Patient Digital Twin Project Teams Final Updates Meeting, March 4, 2022
4. Mini-symposium on Artificial Intelligence in Biomedical Device Research, Online workshop, Feb. 18, 2022

5. Hybrid Workshop on Education Initiatives in ML and AI in Biomedicine (virtual), Jan. 11, 2022.
6. AI and its Applications in Medicine Workshop, Chengdu, Dec. 18, 2021
7. Forum in Soft Matter, Xiamen University, Dec. 13, 2021
8. Workshop on numerical methods for interface problems, Beijing, July 7-9, 2021
9. Forum on Frontiers of Computational Mathematics, Xiamen University, May, 27-30, 2021
10. Workshop on Modeling and Numerical Methods for Interface Problems, Jan. 28-30, 2021
11. The Third Conference on Computational and Mathematical Bioinformatics and Biophysics, Tsinghua Sanya International Mathematics Forum, Dec. 20-24, 2020
12. International Conference on Phase Field Models, July 27-30, 2020, Xiamen University
13. Workshop on Numerical Methods and New Perspectives for Extended Liquid Crystalline Systems, ICERM, Brown University, Dec 9 - 13, 2019
14. ICIAM 2019, Valencia, Spain, July 15-19, 2019
15. International Conference on Scientific Computing at Tianjin Normal University, July 5-July 7, 2019
16. International Conference on Interface Problem in Fluid and Solid at China Southern Normal University, June 18-June21, 2019
17. Advanced Numerical Methods for Scientific Computation (ANMSC2019) at Southern University of Science and Technology of China, June 15-18, 2019
18. International Conference on Mathematical Modeling and Numerical Methods， Qingdao, May30-June 2, 2019
19. Emergency Medicine and AI, Chengdu, March 12, 2019
20. Workshop on Phase field problem: recent development and applications, University of Science and Technology of China, January 10-12, 2019
21. Modeling and Numerical Methods for Interfacial Dynamics, China Southern University of Science and Technology, Shenzhen, China December 15-18, 2018.
22. Workshop on Phase Field Methods, Xiamen University, Nov. 15-16, 2018
23. Collective motion of active particles on surfaces, Kavli Inst, Chinese Academic of Sciences, Beijing, China, August 16, 2018.
24. Symposium on Recent Advances on Structure and Property-Preserving Numerical Approximations to PDEs, The 12th AIMS Conference on Dynamical Systems, Differential Equations and Applications July 5 - July 9, 2018, Taipei, Taiwan
25. Mathematics in action: Modeling and Analysis in Molecular Biology and Electrophysiology, Suzhou University, June 16-18
26. Energy and entropy production rate preserving schemes for thermodynamically consistent phase-field models, AMS joint meeting, Fudan University, Shanghai, June 10-14, 2018
27. Modeling, Analysis Simulations and Applications of Interfacial Dynamics and FSI problems, TSIMF, Sanya, Hainan, June 4-8, 2018
28. The Third International Conference on Cardiac Hydrodynamics, Northwest Polytechnic University, Xian, May 31-June 3, 2018
29. 2018 International Forum on Nutrition and Artificial Intelligence in Medicine，Cheng Du, Sichuan, May 26, 2018
30. Workshop on Microorganisms and Biofilms, Fields Institute, Toronto, CA, May, 8-12, 2018
31. Modeling and Simulation of Interface Dynamics in Fluids/Solids and Their Applications, Singapore, May 15-18, 2018
32. IMA Workshop on Active Matter, University of Minnesota, MM, Jan. 16-19, 2018
33. Hongkong Polytechnic University, Workshop on Computational Mathematics, December 9-11, 2017
34. 18th Conference on Numerical Methods for Fluid Dynamics, Huaihua, Hunan, China, August 12-15, 2017
35. 2017 Systems Biology and Medicine Workshop, Chengdu, Sichuan, July 26-July 30, 2017
36. Focus Activity on Mathematical and Computational methods for Quantum and Kinetic Problems, CSRC, Beijing, June 11-15, 2017
37. 3rd International Conference on Computational Mathematics and Engineering, Hong Kong Polytechnic University, May 31-June 2, 2017

38. Siam Southeastern Regional Meeting, FSU, Tallahassee FL, March 18-19, 2017
39. Tianjin-Beijing Computational Mathematics meeting, Dec. 26, 2016
40. Mathematics Biophysics and Molecular Bioscience Workshop, Sanya, China, Dec. 19-23, 2016
41. 2016 NCTS Workshop on Complex and Biological fluid dynamics with applications, Taiwan, Dec. 18-20, 2016
42. Workshop for mathematical medicine, Chengdu, China, Nov. 23-26, 2016
43. Workshop for Computational Methods in Materials Science, Beijing, Oct. 22-23, 2016
44. Chinese Chemical Society 2016 Conference on Soft Matter Theories, Computation and Simulations, Tianjin, China, August 25-August 28, 2016
45. 2016 International Workshop on Interdisciplinary Research between Mathematics and Biology, Peking University, July 16-17, 2016.
46. International Workshop on Nonlinear Partial Differential Equations and Scientific Computing, July 5-8, 2016.
47. The 5th CAM-ICCM Workshop: Multiscale and Large-scale Scientific Computing Chinese University of Hong Kong, June 18-20, 2016.
48. Siam Conference on Materials Science, Philadelphia, PA, USA, May12-15, 2016.
49. Numerical Analysis for Nonlinear Phenomena, Tsinghua Math, Forum, Sanya, China, Jan. 11-15, 2016.
50. Siam PDE 2015, Scottsdale AZ, Dec. 8, 2015
51. Workshop on Collective Dynamics of Active Systems, Duke University, Nov. 15, 2015
52. AMS Eastern Regional Meeting, New Brunswick, NJ, Nov, 2015
53. IWNM, Beijing, August 14-16, Beijing, 2015.
54. Workshop on the numerical methods for PDEs, Nankai University, Tianjin, August 7-9, 2015.
55. ICMMES, Beijing, July 20-25, 2015.
56. International Conference on Computational & Mathematical Biomedical Engineering （CBME）, Paris, France, June 29-July 2, 2015.
57. Workshop on complex materials, University of Oslo, Norway, June 9-12, 2015.
58. Multiscale Modeling workshop, HKUST, Dec. 15-19, 2014.
59. SCPDE14, Baptist University, HongKong, Dec. 8-12, 2014.
60. MRS symposium on mathematical aspect of materials sciences, Boston, MA, Dec 1, 2014.
61. Siam Conference on Life Sciences, Charlotte, NC, August 4-7, 2014.
62. 2014 Annual Meeting of the Society of Biomathematics, Osaka, Japan, July 28-August 1, 2014
63. Sino-French conference on Computational and Applied Mathematics, Xiamen University, China, June 2-6, 2014.
64. Liquid Crystals, Suzhou, June 4-6, 2014
65. 2014 International on Modeling and Computation of Complex Biological Systems, Nankai University, May 26-29, 2014.
66. SIAM Southeastern Regional Meeting, March 29-30, 2014.
67. Newton Institute Workshop on Complex Fluids in Evolving Domains, Leeds, UK, August 19, - 21, 2013.
68. Siam Annual Meeting, San Diego, July 8-12, 2013.
69. International Conference on Applied and Computational Mathematics, Yellow Mountain, June 20-24, 2013.
70. International Conference on Mathematical Modeling and Computation, Wuhan University, May 15-19, 2013.
71. Ki-net workshop on Transport models for collective dynamics in biological systems, NCSU Jan. 15-Jan. 18, 2013.
72. Siam Conference on Materials Sciences, Philadelphia, June 8-12, 2013
73. Siam Conference on Computational Science and Engineering, Boston, Feb 25-29, 2013
74. International Workshop on Frontiers of Computational Mathematics, BCSRC, Beijing, October 20-21, 2012

75. International Conference in Applied and Computational Mathematics, Xiamen University, July 25-29, 2012
76. Frontier Conference in Applied and Computational Mathematics, NJIT, May 18-20, 2012.
77. MBI Workshop on Tissue Engineering and Regenerative Medicine, Columbus, OH, April 30-May 4, 2012
78. International Conference on Scientific Computing and Applications, UNLV, April 1-4, 2012
79. Siam Southeastern Region Meeting, University of Alabama, Huntsville, March 24-25, 2012
80. Workshop on Mathematical Models of Electrolytes with Application to Molecular Biology, Taipei, Taiwan, Jan. 5-7, 2012
81. Workshop on Complex Fluids, Beijing Normal University, Beijing, China, June 24, 2011
82. International Conference on Interdisciplinary Applied and Computational Mathematics, Zhejiang University, Hangzhou, China, June 17-21, 2011.
83. Forum on Scientific and Engineering Computing 2011, Beijing, China, June 2-3, 2011.
84. MBI, Workshop on Computational Biology, Ohio State University, April, 2011.
85. High Performance Computing Workshop, University of South Carolina, Columbia, SC, April, 14, 2011
86. Siam Conference on Computational Science and Engineering, Reno, Nevada, March 5, 2011
87. Workshop on Mathematical Modeling and Computer Simulations for Soft Materials, Colorado State University campus (Fort Collins, CO), September 13-17, 2010
88. Siam Conference on Nonlinear Waves and Coherent Structures, Philladelphia, PA, August 16-19, 2010
89. Taiwan Strait Workshop on Computational Mathematics, Xiamen, China, August 11-12, 2010
90. Workshop on Computational Problems in Materials Sciences, Suzhou, China, August 2-5, 2010
91. Symposium on Computational PDEs and modeling of complex biological systems, Pittsburg, PA, July 12-15, 2010
92. Symposium on fluids with dynamic microstructure, Pittsburgh, PA, July 12-16, 2010
93. International Workshop on Scientific Computing and Nonlinear PDEs, Jiuzhaigou, China, June 7-11, 2010
94. Emerging Topics in Dynamical Systems and Nonlinear PDEs, Barcelona, Spain, May 31-June 4, 2010
95. Cha Cha Days, UCF, Orlando, FL, Nov. 7, 2009
96. Flowing Complex Fluids: Fluid Mechanics-Interaction of Microstructure and Flow, IMA, University of Minnesota, Oct. 16, 2009
97. The Sixth International Conference for Mesoscopic Methods in Engineering and Science (ICMMES-2009), Guangzhou, China, July 13-17, 2009
98. Workshop on Dynamical Systems and Modern Applied Mathematics, HuaZhong Science and Technology University, Wuhan, China, June 20, 2009
99. Symposium on modeling and computation of soft matter materials, Siam Southeastern Regional Meeting, April 4, 2009
100. Special Topic Session on complex fluids, IMACS, Athens, GA, March, 2009
101. Minisymposium on theoretical and computational modeling of soft matter and complex fluids, Siam CSE, Miami, March 2-6, 2009
102. IMA Special Workshop: Scientific Challenges in Solar Energy Conversion and Storage, University of Minnesota, November 1, 2008
103. MMM2009, Tallahassee, FL, Oct. 28-31, 2008
104. Minisymposium, Siam Annual Meeting, San Diego, CA, July 7-11, 2008
105. World Congress of Nonlinear Analysts, Orlando, FL, July 2-9, 2008
106. Kavli Institute, Institute of Physics, Chinese Academy of Science, Beijing, P. R. China, May19-25, 2008
107. Ferroelectric phenomenon, AIMS, Stanford, CA, May 12-16, 2008
108. Workshop on structure formation in soft matter/complex fluids, BICMR, Peking University, Dec. 2007
109. Symposium on Modeling and Simulation of Complex Fluids, ASME, Nov., 2007
110. Minisymposium on advances in advanced materials, ICIAM07, Zurich, Switzerland, July, 2007

111. Workshop on Multiscale modeling in complex fluids, CSCAMM, University of Maryland, April, 2007
112. Minisymposium on Recent Advances in Soft Matter and Complex Fluids, Siam Conference on Computational Science and Engineering, Costa Mesa, CA, Feb. 2007
113. AMS-SIAM joint symposium on materials, New Orleans, LA, Jan. 2007
114. Symposium on complex fluids, SES2006, Penn State University, PA, 2006
115. 2006 International Conference on Applied Mathematics and Interdisciplinary Research-Nankai, Tianjin, P. R. China
116. Workshop on Complex Fluids, Peking University, Beijing, 2006
117. Interfacial Dynamics in Complex Fluids, May, Banff, Canada, 2006
118. Workshop on Stochastic Differential Equations, FSU, February 2006
119. New Challenges in composite materials, AFOSR/AFL, Dayton, 2005
120. Effective theories for nanocomposite materials, IMA workshop, 2005
121. Nanoscale Material Interfaces: Experiment, Theory, and Simulation, Singapore, Jan. 11-15, 2005
122. CRM Workshop on Multiscale Rheological Models for Fluids, University of Montreal, Canada, 2004
123. Workshop on Complex Fluids, Peking University, Beijing, 2004
124. Department of Energy Workshop on Multiscale Challenges, Denver, Co, 2004
125. Special Session on soft matters, AMS southeastern sectional meeting, Chapel Hill, NC, 2003
126. Symposium on Modeling and Simulation of Multiscale Fluids, International Congress on Industrial and Applied Mathematics, Sydney, Australia, 2003
127. International Workshop on non-equilibrium thermodynamics, Princeton, NJ, 2003
128. Special Session on PDE and Its Applications, AMS Annual Meeting, San Diego, 2002
129. The Second Siam Meeting on Mathematical Issues in Materials Science, Philadelphia, PA, 2000

Tutorial Lectures (since 2000)

1. Soft Matter Lecture, International summer School of Soft Matter, Xiamen University, August 5-16, 2019.
2. AI tutorial, Chengdu, July 23-24, 2019.
3. Basics of Machine Learning and Deep Learning, Summer School, Sichuan People's Hospital, Cheng Du, Sichuan, China, August 8, 2018.
4. Machine Learning and Deep Learning-- Theory, Numerics, and Applications, Summer School, School of Mathematics, Nankai University, Tianjin, China, July 2-July 27, 2018.
5. Complex Fluids Summer School, Fudan University, Shanghai, China, June –July, 2006
6. Workshop II, Nanoscale Material Interfaces: Experiment, Theory, and Simulation, Singapore, Jan. 3-8, 2005
7. Complex Fluids, Fudan University, June, 2004

CONFERENCE, SYMPOSIA & WORKSHOPS ORGANIZED RECENTLY (since 2000)

1. Workshop on Numerical Methods for Multiphysics Problems (Virtual), Beijing, April 22, 2022
2. Forum on interfacial phenomena, CSRC, Beijing, June 8, 2019.
3. Symposium on Recent Advances on Structure and Property-Preserving Numerical Approximations to PDEs, The 12th AIMS Conference on Dynamical Systems, Differential Equations and Applications July 5 - July 9, 2018 Taipei, Taiwan
4. Forum on Nonequilibrium Phenomena, Beijing, China, Dec. 20-21, 2015.
5. International Conference on Applied Mathematics and Interdisciplinary Studies, Chern Institute of Mathematics, Nankai University, Tianjin, China, May 24-27, 2013.
6. Summer School on Network Science, University of South Carolina, May 20-31, 2013.
7. CTW: Tissue Engineering and Regenerative Medicine, MBI, Ohio State University, April 30 - May 4, 2012

8. International Conference on Applied Mathematics and Interdisciplinary Studies, Chern Institute of Mathematics, Nankai University, Tianjin, China, June 13-16, 2011
9. Symposium on Modeling of complex fluids: From passive to active systems, Siam meeting on materials sciences, Philadelphia, May 23-26, 2010
10. Symposium on modeling and computation of soft matter materials, Siam South Eastern Regional Meeting, Columbia, SC, April 4-5, 2009
11. Special Topics Session, IMACS, Athens, GA, March 23-26, 2009
12. Minisymposium, Siam CSE, Miami, March 2-6, 2009
13. Wave Propagation in Nonlinear Materials, 7th AIMS Dynamical System Meeting, Arlington, Texas, May, 2008
14. Multiscale Modeling and Computation Workshops on Soft Matter and Complex Fluids, International Center of Mathematics, Peking University, Beijing, P. R. China, September, 2007- May, 2008
15. Minisymposium on Recent Advances in Soft Matter and Complex Fluids, Siam Conference on Computational Science and Engineering, Costa Mesa, CA, 2007
16. Symposium on complex fluids, SES2006, Penn State University, PA, 2006
17. Workshop on Complex Fluids, Peking University, Beijing, P. R. China, 2006
18. International conference on applied mathematics and interdisciplinary research—Nankai, Tianjin, P. R. China, 2006
19. Workshop on multiscale challenges in soft matter materials, SAMSI, NC, 2004.
20. AMS Special Session on Multiscale modeling of complex fluids, Tallahassee, FL, 2004
21. Symposium on Multiscale modeling and simulation of complex fluids, Siam MS04, Los Angeles, CA, 2004
22. AMS Special Session on Multiscale Challenges in Soft Matters, Chapel Hill, NC, 2003
23. Mathematical Problems in Liquid Crystal Polymer, 4th Dynamical System Conference, Snow Bird, 2000

SERVICE TO THE PROFESSIONAL SOCIETY

Editorial Board Membership:

- Discrete and Continuous Dynamical Systems- Series B, 2004-Present.
- Mathematical Methods in the Applied Sciences, 2009-Present.
- Nanoscale Systems: Mathematical Modelling, Theory and Applications, 2012-Present.
- Computational and Mathematical Biophysics, 2018-Present.
- Molecular Based Mathematical Biology, 2012-2018.

Referee for Journals:

- Siam J. Applied Mathematics,
- Liquid Crystal and Molecular Crystal,
- Journal of Biophysics,
- Journal of Rheology,
- Journal of Non-Newtonian fluid Mechanics,
- Journal of Applied Mechanics,
- Journal of Chemical Physics,
- Rheological Acta,
- Physical Review E,
- Macromolecules,
- Journal of Physics A,
- Theoretical and Computational Fluid Dynamics,
- Communications in Mathematical Sciences,

- Communications in Computational Physics,
- Journal of Mathematical Physics,
- Polymers,
- Nonlinearity,
- Discrete and Continuous Dynamical systems-Series B,
- Microfluidics and Nanofluidics,
- Physica D,
- Journal of Physics D,
- Nanoletters,
- Modelling and Simulation in Materials Science and Engineering,
- Abstract and Applied Analysis,
- J. of Applied and Computational Mathematics
- Journal of Theoretical Biology
- Biofuel
- Science China
- Urgent Care
- Siam Journal on Multiscale Modeling and Simulation
- Journal of Scientific Computing
- Journal of Computational Physics
- Computers Methods in Applied Mechanics and Engineering
- J. R. Soc. Interface
- Applied Mathematics and Mechanics
- Journal of Colloid and Interface
- International Journal for Numerical Methods in Engineering
- Biomedical and Environmental Sciences
- Multiscale Modeling and Simulation: A SIAM Interdisciplinary Journal
- ACS Applied Materials & Interfaces
- NPJ Biofilms and Microbiomes
- Biofabrication
- Journal of Biophysics

Referee for funding agencies:

- Grant proposals of DOE, NIH, NSF, AFOSR, NIH BEP panel, National Academy of Science for Ohio State R&D projects, Petroleum Fund, Mississippi State EPSCOR grant, Fields Institute, Canada, Natural Science Foundation of China etc.

SERVICE ON NATIONAL COMMITTEES

- Ohio BRCP Committee, National Academy of Arts and Sciences, 2008

SERVICE TO THE UNIVERSITY (since 2000)

- University High Performance Computing Committee, VPR's Office (USC)
- University Diversity Committee (USC)
- Member of Management Team, Nanocenter at USC
- University-wide hiring committee on biofabrication (USC)
- Chair of Applied and Computational Mathematics Committee
- Chair of Hiring Committee (USC)
- Chair of Tenured Full Professor Committee (USC)

- Advisor Committee, Committee on Applied and Computational Mathematics, Computer Committee, and Hiring Committee (USC)
- Member of Departmental Award, Graduate, Executive, Faculty evaluation, Professional degree, and Preliminary examination committees (FSU)
- Chair of the Departmental Hiring Committee (FSU)
- Chair of the Technology Committee and Student Grievance Committee (IUPUI)
- Departmental representative to the University Faculty Senate (FSU)
- Member of the Science Area Promotion and Tenure Committee in College of Arts and Sciences (FSU)
- Thrust Leader for SC Biofabrication Project on Biomathematics at USC
- PI for shared high performance computing facilities at USC
- First-year Scholar Mentor, 2012-2013
- Mentor for undergraduate student research
- Office of Research Awards Committee

PROFESSIONAL MEMBERSHIPS

Society for Industrial and Applied Mathematics (SIAM), American Association for the Advancement of Science (AAAS)

REFERENCES

Available upon request