

Qi Wang

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RESEARCH AREAS

Applied and computational mathematics/interdisciplinary studies:

- 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 in Multiple Scales (Kinetic and Continuum Mechanics Theories)
- Numerical Methods for Partial Differential Equations and High Performance Computing
- Applied Analysis
- Data Driven Modeling and Machine Learning in Materials Science and Engineering, Life Sciences and Medicine

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

- 2013-2019: College of Arts & Sciences Distinguished Professor, Department of Mathematics, University of South Carolina (UofSC), Columbia, SC
- 2008-Present: Professor, Department of Mathematics, UofSC
- 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, 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. 1/1/2021-6/30/2021, DOE-NCI via Leidos Biomedical Research, Inc., “Dynamic Multiscale Digital Twin for a Lung Cancer Patient.” PI: **\$100,000**.
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. 9/15/2019-9/14/2022, **DOE** (DE-SC0020272), “Data-science enabled investigation of the mechanisms for multiscale ion transport in functional electrolytes”, **PI: \$750,000**.
4. 6/1/2018-5/31/2021, **NSF** (DMS--1815921), “Collaborative Research: Computational modeling of how living cells utilize liquid-liquid phase separation to organize chemical compartments”, **PI: \$150,000**.
5. 9/15/2017-9/14/2022, **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**.
6. 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**.

Past:

7. 6/15/2018-6/16/2019, **GEAR-CRP**, “A Hybrid Discrete-Continuum Model for Simulating Sprouting Angiogenesis in 3D Biofabrication”, **PI: \$60,000**
8. 9/15/2015-8/31/2018, **NSF** (DMS-1517347), “Collaborative Research: Kinetic to Continuum Modeling of Active Anisotropic Fluids”, **PI: \$174,300**.
9. 9/1/2012-8/31/2017, **NSF** (DMS-1200487), “Collaborative Research: Experimentally guided mathematics for the mechanochemistry of cell shape dynamics”, **PI: \$591,000**.
10. 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)
11. 5/1/2012-4/30/2016, **AFOSR** (FA9550-12-1-0178), “Multiscale Mathematics for Nano-Particle-Endowed Active Membranes and Films”, **PI: \$810,000**.
12. 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**.
13. 11/1/2014-6/30/2016, **SC EPSCOR/IDEA**, “A 3D Hybrid Discrete-Continuum Model for Cellular Aggregate Fusion,” **PI: \$27,000**.
14. 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**.
15. 5/16/2013-6/30/2014, **SC, EPSCOR/IDEA GEAR-CRP**, “Investigating Cellular Spheroid Fusion Using Boundary Element Methods”, **PI: \$50,000**.
16. 5/16/2013-6/30/2014, **SC, EPSCOR/IDEA GEAR-CI**, “Computational Investigation of Cell-Substrate Interaction Guided by Experiments”, **PI: \$72,278**.
17. 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**.
18. 7/1/2012-6/30/2013, **USC**, “Summer School in Network Science at USC”, **Co-PI: \$21,000**.
19. 7/1/2009-6/30/2013, **NSF-DMS** (DMS-0908330), “Collaborative Research on Mathematical Constructs for Multiphase Complex Fluids,” **PI: \$175,882**.
20. 10/1/2012-6/30/2013, **SC EPSCOR/IDEA**, “SAN Proposal to Support Recruitment of Women into Mathematics,” **PI: \$6,000**.

21. 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
22. 7/1/2011-6/30/2012, **SC EPSCOR/IDEA**, “Modeling and Simulation of Organ Biofabrication Processes,” **PI**: \$85,000
23. 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
24. 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
25. 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
26. 8/15/2007-7/31/2009, **NSF-DMS, SCREMS** (DMS-0724273), “SCREMS: High Performance Computing and Visualization,” **PI**, \$114,678
27. 9/1/2008-6/30/2009, **NSF RII** (EPS-0447660), “Bridge for biofabrication Institute,” **Institutional PI for Mathematics**: \$375,000
28. 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)
29. 12/1/2004-11/30/2007, **AFOSR, PI**; \$148,400
30. 8/1/2002-7/31/2005, **NSF-DMS, PI**; \$177,004
31. 1/1/2002-12/31/2004, **AFOSR, PI**; \$137,907
32. 10/15/1998-10/14/2001, **AFOSR, PI**; \$99,000
33. 10/1/1995-9/30/1998, **AFOSR, PI**, \$95,000
34. 6/1/1992-5/31/1995, **AFOSR, PI**, \$89,000

PUBLICATIONS

Refereed papers:

1. Xiaowen Shen and Qi Wang, “Thermodynamically Consistent Algorithms for Models of Block Copolymer Solutions Interacting with Electric and Magnetic Fields”, *Journal of Scientific Computing*, 2020.
2. Di Wang, Yongyong Cai and Qi Wang, “Central Vortex Steady States and Dynamics of Bose-Einstein Condensates Interacting with Magnetic Fields.” *Physica D*, in press, 2020.
3. 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*, in press, 2020.
4. Qi Hong, Jia Zhao and Qi Wang, “Structure-preserving Numerical Approximations to Network Generating Partial Differential Equation Models,” *Computers and Mathematics with Applications*, in press, 2020.
5. 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.
6. Cheng Lei, Yu Wang, Jia Zhao, Kexun Li, Hua Jiang and Qi Wang. “A Patient Specific Predicative Model for Human Albumin Based on Deep Neural Networks.” *Computer Methods and Programs in Biomedicine*, 196 (2020), 105555.
7. 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.
8. 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.
9. Yuezheng Gong, Jia Zhao, Qi Wang, “Arbitrarily high-order unconditionally energy stable SAV schemes for gradient flow models.” *Computer Physics Communications*, 249 (2020), 107033.
10. 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.

11. 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.
12. 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.
13. 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.
14. 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.
15. 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.
16. 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.
17. 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.
18. 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.
19. 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.
20. 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.
21. 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.
22. 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.
23. 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", *advances in Computational Mathematics*, 44 (5) (2018), pp.1573-1600.
24. 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.
25. 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.
26. 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.
27. 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.
28. 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.
29. 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.

30. 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.
31. Xiaogang Yang and Qi Wang, "Structures and basic patterns in cavity flows of active liquid crystals". *Computers and Fluids*, 155 (2017), pp. 33-49.
32. 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.
33. 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.
34. 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.
35. 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.
36. 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.
37. Yuezheng Gong, Qi Wang, Yushun Wang, Jiaying Cai, "A conservative Fourier pseudospectral method for the nonlinear Schrodinger equation", *Journal of Computational Physics*, 328 (2017), pp. 354-370.
38. 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.
39. 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.
40. 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.
41. 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.
42. 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.
43. 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.
44. 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.
45. Jia Zhao and Qi Wang, "A 3D Hydrodynamic Model for Cytokinesis of Eukaryotic Cells", *Communication in Computational Physics*, 19(3) (2016), pp. 663-681.
46. 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.
47. 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.
48. 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.
49. 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.
50. 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.

51. 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.
52. 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.
53. 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.
54. 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.
55. 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.
56. 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.
57. M. G. Forest, Panon Phuworawong, Qi Wang, and Ruhai Zhou, "Rheology of active polar and apolar liquid crystalline suspensions" *Philos Trans of Royal Society A*, 372 (2014), pp. 20130362.
58. Xiaogang Yang and Qi Wang, "Capillary Instability of an Active Liquid Crystal Jet", *Soft Matter*, 10 (2014), pp. 6758-6776.
59. 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.
60. Yi Sun, Xiaofeng Yang, and Qi Wang, "In-Silico Analysis on Biofabricating Vascular Networks using Kinetic Monte Carlo Simulations", *Biofabrication*, 6 (2014), pp. 015008.
61. Jie Shen, Xiaofeng Yang and Qi Wang, "Mass Conserved Phase Field Model for Binary Fluids", *Communication in Computational Physics*, 13 (2013), pp. 1045-1065.
62. 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.
63. 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.
64. Chen Chen and Qi Wang, "3-D Pattern Formation in Biofilms," *Contemporary Mathematics* (586), (2013), pp. 105-116.
65. 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.
66. 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.
67. Xiaofeng Yang, Yi Sun, and Qi Wang, "Phase Field Approach for Multicellular Aggregate Fusion in Biofabrication", *Journal of Biomedical Engineering*, 135(7) (2013), pp. 071005.
68. Jun Li and Qi Wang, "Mass Conservation and Energy Dissipation Issue in a Class of Phase Field Models for Multiphase Fluids", *Journal of Applied Mechanics*, 81(2) (2014), pp. 021004.
69. Xinfeng Liu, Sara Johnson, Shou Liu, Deepak Kanojia, Wei Yue, Udai Singn, Qian Wang, Qi Wang, Qing Nie, and Hexin Chen, "Nonlinear Growth Kinetics of Breast Cancer Stem Cells: Implications for Cancer Stem Cell Targeted Therapy," *Scientific Reports*, 3 (2013), pp. 2473.
70. Brandon Lindley, Qi Wang and Tianyu Zhang, "A Multicomponent Hydrodynamic Models for Biofilm: 2-D Numerical Simulations of Growth and Interaction with Flows", *Physical Review E*, 85 (2012), pp. 031908.
71. Q. Wang and X. Yang, David Adalsteinsson, T. Elston, K. Jacobson, Maria Maryna, M. G. Forest, "Computational and Modeling Strategies for Cell Motility," *COMPUTATIONAL MODELING of BIOLOGICAL SYSTEMS*, edited by Nikolay Dokholyan, Springer, New York, pp. 257-296, 2012.
72. George G P Xiang, Jianyang Liu, and Q. Wang, "A Variational Derivation of Risk-Adjusted Performance Measures," *Journal of Risk*, 15 (2) (2012), pp. 45-58.
73. Xiaofeng Yang, Vladimir Mironov, and Qi Wang, "Modeling Fusion of Cellular Aggregates in Biofabrication Using Phase Field Theories," *J. Theoretical Biology*, 303 (21) (2012), pp. 110-118.
74. Q. Wang and T. Y. Zhang, "Kinetic theories for Biofilms", *Discrete and Continuous Dynamic Systems – Series B* 17 (3) (2012), pp. 1027-1059.
75. Brandon Lindley, Qi Wang, and Tianyu Zhang, "A Multicomponent model for Biofilm-Drug Interaction", *Discrete and Continuous Dynamic Systems- Series B*, 15(2) (2011), pp. 417-456.

76. Jun Li, M. G. Forest, Qi Wang and R. Zhou, "A Kinetic Theory and Benchmark Predictions for Polymer Dispersed, Semi-Flexible Nanorods and Nanoplatelets," *Physica D*, 240(2) (2011), pp. 114-130.
77. Zhenlu Cui and Qi Wang, "Permeation flows in cholesteric liquid crystal polymers under oscillatory shear," *Discrete and Continuous Dynamic Systems- Series B*, 15(1) (2011), pp. 45-60.
78. Jinsong Hua, Ping Lin, Chun Liu, Qi Wang, "Energy Law Preserving C^0 Finite Element Schemes for Phase Field Models in Two-phase Flow Computations", *Journal of Computational Physics*, 230 (19) (2011), pp. 7115-7131.
79. Chen Chen, Mingming Ren, Ashok Srinivasan and Qi Wang, "3-D simulations of biofilm-solvent interaction," *East Asian Journal on Applied Mathematics*, 1 (2011), pp. 197-214.
80. T S Little, V Mironov, A Nagy-Mehesz, R Markwald, Y Sugi, S M Lessner, M A Sutton, X Liu, Q Wang, X Yang, J O Blanchette, and M Skiles, "Engineering a 3D, biological construct: representative research in the South Carolina Project for Organ Biofabrication", *Biofabrication*, 3 (2011), pp. 030202 .
81. M. G. Forest, Qingqing Liao, and Qi Wang, "2-D Kinetic Theory for Polymer Particulate Nanocomposites," *Communications in Computational Physics*, 7(2) (2010), pp. 250-282.
82. Jun Li and Qi Wang, "Flow Driven Dynamics of Sheared Flowing Polymer-Particulate Nanocomposites," *Discrete and Continuous Dynamical Systems-Series A*, 26 (4) (2010), pp. 1359-1382, 2010.
83. T. Y. Zhang and Q. Wang, "Cahn-Hilliard vs Singular Cahn-Hilliard Equations in Phase Field Modeling", *Communications in Computational Physics*, 7(2) (2010), pp. 362-382.
84. Sarthok Sircar, Jun Li and Qi Wang, "Biaxial Phases of Bent-core Liquid Crystal Polymers in Shear Flows", *Communications in Mathematical Sciences*, 8(3) (2010), pp. 697-720.
85. Sarthok Sircar and Qi Wang, "Transient rheological responses in sheared biaxial liquid crystals", *Rheological Acta*, 49(7) (2010), pp. 699-717.
86. Xiaofeng Yang, M. Gregory Forest, William Mullins, and Qi Wang, "2-D Lid-driven Cavity Flow of Nematic Polymers: An unsteady Sea of Defects", *Soft Matter*, 6 (2010), pp. 1138-1156.
87. Q. Wang and T. Y. Zhang, "Mathematical models for biofilms", *Communication in Solid State Physics*, 150 (21-22) (2010), pp. 1009-1022.
88. X. Yang, M. G. Forest, W. Mullins and Q. Wang, "Dynamic defect morphology and hydrodynamics of sheared nematic polymers in two space dimensions", *Journal of Rheology*, 53 (2009), pp. 592.
89. X. Yang, M. G. Forest, Q. Wang, W. Mullins, "Quench sensitivity to defects and shear banding in nematic polymer film flows", *Journal Non-Newtonian Fluid Mechanics*, 159 (1-3) (2009), pp. 115-129.
90. Q. Wang, "Introduction to kinetic theory for complex fluids", *MULTI-SCALE PHENOMENA IN COMPLEX FLUIDS: Modeling, Analysis and Numerical Simulation*, Series in Contemporary Applied Mathematics (CAM)-vol 12, edited by Thomas Y Hou, Chun Liu, Jian-guo Liu, World Scientific, Singapore, 2009.
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180. Maosheng Jiang, Jia Zhao and Qi Wang, "Novel Numerical Approximations of Chemo-Repulsion Models Using Energy Quadratization Methods," *Journal of Computational and Applied Mathematics*, 2020.
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182. Xiaobo Jing and Qi Wang, "Thermodynamically Consistent Dynamical Boundary Conditions of Phase Field Models", *Physical Review E*, in revision, 2020.
- 183.Jian-cheng Zhang, Ming Yang, Lu Wang, Yu Wang, Yuan-hua He, Charles Damien Lu, Qi Wang, Ming-wei Sun, Wei Chen, Ping Zhou, Ke-xun Li, Jun Zeng, Hua Jiang. "The Efficacy of Lopinavir/Ritonavir (LPV/r) on Early Stage Novel Coronavirus Pneumonia (COVID-19) Patients when Administered for Sufficient Duration", *Journal of Infectious Diseases*, 2020.

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TEACHING EXPERIENCE, CURRICULAR DEVELOPMENT, & STUDENT ADVISING

Undergraduate Courses:

- Algebra
- Finite Mathematics
- Brief Survey of Calculus I
- Algebra & Trigonometry I, II
- Calculus for Technology I, II
- Integrated Calculus & Analytical Geometry I, II
- Calculus I & II, & Multivariate Calculus
- Linear Algebra & Differential Equations
- Ordinary Differential Equations and Linear Algebra
- Ordinary differential equations
- Discrete Mathematics
- Engineering Mathematics I, II
- Elementary Partial Differential Equations I, II
- Linear Algebra with Applications
- Vector Calculus
- Mathematical Foundation on Data Science and Machine Learning

Graduate Courses:

- Partial Differential Equations I, II
- Applied Mathematics Methods I, II
- 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 degree program in industrial and applied mathematics at IUPUI
- Developed a yearlong sequence of courses on computational mathematics for the new masters 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 PhD track in Applied and Computational Mathematics at 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:

Current M.S. students:

Cheng Lei (2020), Zepeng Shi (2020).

Past MS students:

Jian Wu, Ethan Adams, Xiangrong Xu, Fanyu Liu, Mitsutaka Tanaka, Jianyang Liu, Ling Qin, Ying Liu, Xiaodi Deng, Pengfei Liu, Yucan Zhao, Zengyan Zhang, ChangLiu, Zepeng Shi, ChengLei.

Current Ph. D. students:

- 1) Aditya K. Harish, expected graduation date, August, 2021
- 2) Xiaowen Shen, expected graduation date 2021
- 3) Chunyan Li, expected graduation date, 2022

- 4) Yakun Li, expected graduation date 2023
- 5) Wenkai Yu, expected graduation date 2023
- 6) Lin Lu, co-advisor, expected graduation date, 2021
- 7) Meirou Sun, expected graduation date 2025
- 8) Jianguo Hou, expected graduation date 2025

Past Ph. D. students:

- 1) Shouwen Sun, Instructor Shangqiu Normal University, Henan, China, July, 2020
- 2) Xiaobo Jing (July, 2019), Postdoc Associate, U of SC
- 3) Xueping Zhao (December, 2018, USC), Postdoctoral Associate, Max Planck Institute for the Physics of Complex Systems, Dresden, Germany
- 4) Jia Zhao (August, 2015, USC), Tenure-track Assistant Professor, Utah State University, UT
- 5) Norazaliza Mohd Gamil (May, 2015, USC), Lecturer, Universiti Malaysia Pahang
- 6) Xiaogang Yang (May, 2014), Wuhan University of Technology, Wuhan, China
- 7) Kanadpriya Basu (August, 2012, USC), Assistant Professor, Department of Mathematics, Occidental College, CA
- 8) Chen Chen (August, 2012, USC), Quantitative Analyst, Citibank, NY
- 9) Paisa Seeluangsawat (December, 2011, USC), Software Engineer, Google Inc., CA
- 10) Jun Li (June, 2010), Lecturer, School of Mathematics, Tianjin Normal University, Tianjin, P. R. China, Co-advised with Prof. Liang Ke
- 11) Sarthok Sircar (May, 2009, USC), Assistant Professor, IIT-Delhi, India
- 12) Zhenlu Cui (May, 2005, FSU), Professor, Department of Mathematics, Fayetteville State University, NC

Postdoctoral Mentoring:

Current Postdocs:

- 1) Dr. Qi Hong
- 2) Dr. Xiaobo Jing

Past Postdocs:

- 1) Dr. Maosheng Jiang, Lecturer, Qingdao University, China
- 2) Dr. Yuezheng Gong, Associate Professor, Nanjing Aeronautical University, Beijing, China
- 3) Dr. Jia Zhao, Assistant Professor, Utah State University, UT
Dr. Xiaogang Yang, Lecturer, Wuhan University of Technology, Beijing, China
- 4) Dr. Lu Peng, University of Dundee, UK
- 5) Dr. Yagang Zhang, Associate Professor, University of North Electric and Power, China
- 6) Dr. Lizhen Chen, Research Scientist, CSRC, China
- 7) Dr. Brandon Lindley, Research Scientist, Naval Lab, Washington DC
- 8) Dr. Guanghua Ji, Associate Professor, School of Mathematics, Beijing Normal University, China
- 9) Dr. Tianyu Zhang, Associate Professor, Department of Mathematics, Montana State University, Bozeman, MT
- 10) Dr. Bin Yu, Associate Professor, Department of Physics, Tianjin Normal University, China
- 11) Dr. Ming Ming Ren, Lecturer, School of Software, Nankai University, China

12) Dr. Fei Liu, Lecturer in Huazhong University of Science and Technology, China

INVITED PRESENTATIONS (since 2000)

Applied math seminar and colloquium

1. University of Maryland, Maryland, Feb. 11, 2020.
2. Nanjing University of Aeronautics and astronautics, Nanjing, China, Jan. 8, 2020
3. Missouri University of Science and Technology, Rolla, Missouri, Nov. 22, 2019
4. University of Michigan Technology, Sep. 27, 2019
5. Tianjin Math Day, Tianjin, May 29, 2019
6. Beijing University of Technology, China, Oct. 18, 2018
7. Nanjing Normal University, Nanjing, China, June 19, 2018
8. Nanjing University of Aeronautics and astronautics, Nanjing, China, June 18, 2018
9. Fudan University, June 14, 2018
10. Jinan University, Jan. 12, 2018
11. Tianjin Normal University, Dec. 22, 2017, China
12. Rutgers University, NJ, Sept. 22, 2017
13. Renming University, Beijing, China, June 9, 2017.
14. University of Electronic Science and Technology of China, Chengdu, Nov. 25, 2016
15. Tianjin University of Technology, Tianjin, China, Nov. 15, 2016
16. Institute of Computational Mathematics, CAS, Sept. 26, 2016
17. Peking University, Beijing, Sep. 21, 2016
18. Kavli Institute of Theoretical Physics, CAS, Beijing, August 24, 2016
19. Nankai University, July 13, 2016
20. Anhui University of Science and Technology, July 7, 2016
21. Nanjing Normal University, July 6, 2016
22. UC Santa Barbara, April 8, 2016
23. Rutgers University, March 25, 2016
24. University of North Carolina at Greensboro, Feb. 4, 2016
25. IAPCM, Jan. 8, 2016
26. Renmin University, Beijing, China, Dec. 25, 2015
27. North Carolina State University, Nov. 18, 2015.
28. HKUST, Oct. 28, 2015
29. Tianjin Normal University, Oct. 26, 2015
30. University of Maryland, Sept. 23, 2015
31. Shangdong University, School of Mathematics, Dec. 26, 2014
32. Tsinghua University, Chou Peiyuan Center for Applied Mathematics, Dec. 25, 2014
33. Beijing Normal University, School of Mathematics, Dec. 22, 2014
34. Nankai University, School of Mathematics, Nov. 28, 2014.
35. University of North Carolina at Chapel Hill, Sept. 18, 2014
36. University of Kansas, Lawrence, KS, April 3, 2014.
37. SiChuan Medical Science Academy, ChengDu, China, Dec. 22, 2013.
38. Ohio State University, Columbus, OH, Nov. 6-7, 2013.
39. Anhui University of Science and Technology, Ma An Shan, China, August 4, 2013.
40. Microbiology Institute of Chinese Academy of Sciences, Beijing, China, July 12, 2013.
41. Beijing University of Science and Technology, China, June 28, 2013.
42. Montana State University, Department of Mathematical Sciences, April 26, 2013.
43. University of Georgia, Physics Department, Athens, GA, February 5, 2013
44. Georgia State University, Department of Mathematics, Atlanta, GA, April 19, 2013
45. University of Alabama, Department of Mathematics, Tuscaloosa, Nov. 14, 2012
46. University of California, Irvine, Department of Mathematics, Nov. 5, 2012
47. Nankai University, School of Mathematics, June 13, 2012

48. Voorhees College, High School Science Fair Lecture, April 21, 2012
49. Voorhees College, Science Day Lecture, Feb 23, 2012
50. University of North Carolina at Chapel Hill, October, 2011
51. 2nd Annual EPSCOR Workshop, Tennessee-South Carolina-Oakridge National Lab, October, 2011
52. Illinois Institute of Technology, November, 2010
53. University of Utah, November, 2010
54. George Mason University, October, 2010
55. Michigan State University, East Lansing, MI, May 4, 2010
56. Indiana University-Purdue University Indianapolis, IN, Jan. 31, 2010
57. University of North Carolina at Chapel Hill, Nov. 13, 2009
58. University of North Carolina at Charlotte, April 15, 2009
59. Wilfrid Laurier University, April 8, 2009
60. Indiana University-Purdue University Indianapolis, Oct. 2, 2008
61. University of South Carolina, Jan., 2008
62. Peking University, Dec. 2007
63. Old Dominion University, Colloquium, Oct, 2007
64. Old Dominion University, Public Lecture, Oct., 2007
65. University of Central Florida, Nov. 2007
66. Beijing Normal University, Sep. 2007
67. Purdue University, November, 2006
68. UC Santa Barbara, May, 2006
69. University of Akron, March, 2006
70. Nankai University, School of Mathematics, Tianjin, July, 2005
71. Peking University, School of Mathematics, Beijing, June, 2005
72. IMA, University of Minnesota, April, 2005
73. Peking University, School of Mathematics, Beijing, 2004
74. Fudan University, Department of Mathematics, Shanghai, 2004
75. University of Texas Arlington, Arlington, Texas, 2004
76. University of Central Florida, Orlando, FL, 2004
77. University of California, Irvine, CA, 2003
78. Temple University, Philadelphia, PA, 2003
79. University of Minnesota, Minneapolis, MN, 2002
80. Carnegie-Mellon University, Pittsburgh, PA, 2002
81. Penn State University, State College, PA, 2002
82. Morningside center, Academia Sinica, Beijing, PRC, 2001
83. Center for computational mathematics, Academic Sinica, Beijing, PRC, 2001
84. Clemson University, Clemson, SC, 2001
85. Louisiana State University, Baton Rouge, LA, 2000
86. University of California, Davis, CA, 2000
87. University of Delaware, Newark, DE, 2000

National and international meetings

1. The Third Conference on Computational and Mathematical Bioinformatics and Biophysics, Tsinghua Sanya International Mathematics Forum, Dec. 20-24, 2020
2. International Conference on Phase Field Models, July 27-30, 2020, Xiamen University
3. Workshop on Numerical Methods and New Perspectives for Extended Liquid Crystalline Systems, ICERM, Brown University, Dec 9 - 13, 2019
4. ICIAM 2019, Valencia, Spain, July 15-19, 2019
5. International Conference on Scientific Computing at Tianjin Normal University, July 5-July 7, 2019
6. International Conference on Interface Problem in Fluid and Solid at China Southern Normal University, June 18-June 21, 2019
7. Advanced Numerical Methods for Scientific Computation (ANMSC2019) at Southern University of Science and Technology of China, June 15-18, 2019

8. International Conference on Mathematical Modeling and Numerical Methods, Qingdao, May30-June 2, 2019
9. Emergency Medicine and AI, Chengdu, March 12, 2019
10. Workshop on Phase field problem: recent development and applications, University of Science and Technology of China, January 10-12, 2019
11. Modeling and Numerical Methods for Interfacial Dynamics, China Southern University of Science and Technology, Shenzhen, China December 15-18, 2018.
12. Workshop on Phase Field Methods, Xiamen University, Nov. 15-16, 2018
13. Collective motion of active particles on surfaces, Kavli Inst, Chinese Academic of Sciences, Beijing, China, August 16, 2018.
14. 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
15. Mathematics in action: Modeling and Analysis in Molecular Biology and Electrophysiology, Suzhou University, June 16-18
16. Energy and entropy production rate preserving schemes for thermodynamically consistent phase field models, AMS joint meeting, Fudan University, Shanghai, June 10-14, 2018
17. Modeling, Analysis Simulations and Applications of Interfacial Dynamics and FSI problems, TSIMF, Sanya, Hainan, June 4-8, 2018
18. The Third International Conference on Cardiac Hydrodynamics, Northwest Polytechnic University, Xian, May 31-June 3, 2018
19. 2018 International Forum on Nutrition and Artificial Intelligence in Medicine, Cheng Du, Sichuan, May 26, 2018
20. Workshop on Microorganisms and Biofilms, Fields Institute, Toronto, CA, May, 8-12, 2018
21. Modeling and Simulation of Interface Dynamics in Fluids/Solids and Their Applications, Singapore, May 15-18, 2018
22. IMA Workshop on Active Matter, University of Minnesota, MM, Jan. 16-19, 2018
23. Hongkong Polytechnic University, Workshop on Computational Mathematics, December 9-11, 2017
24. 18th Conference on Numerical Methods for Fluid Dynamics, Huaihua, Hunan, China, August 12-15, 2017
25. 2017 Systems Biology and Medicine Workshop, Chengdu, Sichuan, July 26-July 30, 2017
26. Focus Activity on Mathematical and Computational methods for Quantum and Kinetic Problems, CSRC, Beijing, June 11-15, 2017
27. 3rd International Conference on Computational Mathematics and Engineering, Hong Kong Polytechnic University, May 31-June 2, 2017
28. Siam Southeastern Regional Meeting, FSU, Tallahassee FL, March 18-19, 2017
29. Tianjin-Beijing Computational Mathematics meeting, Dec. 26, 2016
30. Mathematics Biophysics and Molecular Bioscience Workshop, Sanya, China, Dec. 19-23, 2016
31. 2016 NCTS Workshop on Complex and Biological fluid dynamics with applications, Taiwan, Dec. 18-20, 2016
32. Workshop for mathematical medicine, Chengdu, China, Nov. 23-26, 2016
33. Workshop for Computational Methods in Materials Science, Beijing, Oct. 22-23, 2016
34. Chinese Chemical Society 2016 Conference on Soft Matter Theories, Computation and Simulations, Tianjin, China, August 25-August 28, 2016
35. 2016 International Workshop on Interdisciplinary Research between Mathematics and Biology, Peking University, July 16-17, 2016.
36. International Workshop on Nonlinear Partial Differential Equations and Scientific Computing, July 5-8, 2016.
37. The 5th CAM-ICCM Workshop: Multiscale and Large-scale Scientific Computing Chinese University of Hong Kong, June 18-20, 2016.
38. Siam Conference on Materials Science, Philadelphia, PA, USA, May12-15, 2016.
39. Numerical Analysis for Nonlinear Phenomena, Tsinghua Math, Forum, Sanya, China, Jan. 11-15, 2016.
40. Siam PDE 2015, Scottsdale AZ, Dec. 8, 2015
41. Workshop on Collective Dynamics of Active Systems, Duke University, Nov. 15, 2015
42. AMS Eastern Regional Meeting, New Brunswick, NJ, Nov, 2015

43. IWNM, Beijing, August 14-16, Beijing, 2015.
44. Workshop on the numerical methods for PDEs, Nankai University, Tianjin, August 7-9, 2015.
45. ICMMES, Beijing, July 20-25, 2015.
46. International Conference on Computational & Mathematical Biomedical Engineering (CBME), Paris, France, June 29-July 2, 2015.
47. Workshop on complex materials, University of Oslo, Norway, June 9-12, 2015.
48. Multiscale Modeling workshop, HKUST, Dec. 15-19, 2014.
49. SCPDE14, Baptist University, HongKong, Dec. 8-12, 2014.
50. MRS symposium on mathematical aspect of materials sciences, Boston, MA, Dec 1, 2014.
51. Siam Conference on Life Sciences, Charlotte, NC, August 4-7, 2014.
52. 2014 Annual Meeting of the Society of Biomathematics, Osaka, Japan, July 28-August 1, 2014
53. Sino-French conference on Computational and Applied Mathematics, Xiamen University, China, June 2-6, 2014.
54. Liquid Crystals, Suzhou, June 4-6, 2014
55. 2014 International on Modeling and Computation of Complex Biological Systems, Nankai University, May 26-29, 2014.
56. SIAM Southeastern Regional Meeting, March 29-30, 2014.
57. Newton Institute Workshop on Complex Fluids in Evolving Domains, Leeds, UK, August 19, - 21, 2013.
58. Siam Annual Meeting, San Diego, July 8-12, 2013.
59. International Conference on Applied and Computational Mathematics, Yellow Mountain, June 20-24, 2013.
60. International Conference on Mathematical Modeling and Computation, Wuhan University, May 15-19, 2013.
61. Ki-net workshop on Transport models for collective dynamics in biological systems, NCSU Jan. 15-Jan. 18, 2013.
62. Siam Conference on Materials Sciences, Philadelphia, June 8-12, 2013
63. Siam Conference on Computational Science and Engineering, Boston, Feb 25-29, 2013
64. International Workshop on Frontiers of Computational Mathematics, BCSRC, Beijing, October 20-21, 2012
65. International Conference in Applied and Computational Mathematics, Xiamen University, July 25-29, 2012
66. Frontier Conference in Applied and Computational Mathematics, NJIT, May 18-20, 2012.
67. MBI Workshop on Tissue Engineering and Regenerative Medicine, Columbus, OH, April 30-May 4, 2012
68. International Conference on Scientific Computing and Applications, UNLV, April 1-4, 2012
69. Siam Southeastern Region Meeting, University of Alabama, Huntsville, March 24-25, 2012
70. Workshop on Mathematical Models of Electrolytes with Application to Molecular Biology, Taipei, Taiwan, Jan. 5-7, 2012
71. Workshop on Complex Fluids, Beijing Normal University, Beijing, China, June 24, 2011
72. International Conference on Interdisciplinary Applied and Computational Mathematics, Zhejiang University, Hangzhou, China, June 17-21, 2011.
73. Forum on Scientific and Engineering Computing 2011, Beijing, China, June 2-3, 2011.
74. MBI, Workshop on Computational Biology, Ohio State University, April, 2011.
75. High Performance Computing Workshop, University of South Carolina, Columbia, SC, April, 14, 2011
76. Siam Conference on Computational Science and Engineering, Reno, Nevada, March 5, 2011
77. Workshop on Mathematical Modeling and Computer Simulations for Soft Materials, Colorado State University campus (Fort Collins, CO), September 13-17, 2010
78. Siam Conference on Nonlinear Waves and Coherent Structures, Philadelphia, PA, August 16-19, 2010
79. Taiwan Strait Workshop on Computational Mathematics, Xiamen, China, August 11-12, 2010
80. Workshop on Computational Problems in Materials Sciences, Suzhou, China, August 2-5, 2010
81. Symposium on Computational PDEs and modeling of complex biological systems, Pittsburg, PA, July 12-15, 2010
82. Symposium on fluids with dynamic microstructure, Pittsburgh, PA, July 12-16, 2010

83. International Workshop on Scientific Computing and Nonlinear PDEs, Jiuzhaigou, China, June 7-11, 2010
84. Emerging Topics in Dynamical Systems and Nonlinear PDEs, Barcelona, Spain, May 31-June 4, 2010
85. Cha Cha Days, UCF, Orlando, FL, Nov. 7, 2009
86. Flowing Complex Fluids: Fluid Mechanics-Interaction of Microstructure and Flow, IMA, University of Minnesota, Oct. 16, 2009
87. The Sixth International Conference for Mesoscopic Methods in Engineering and Science (ICMMES-2009), Guangzhou, China, July 13-17, 2009
88. Workshop on Dynamical Systems and Modern Applied Mathematics, HuaZhong Science and Technology University, Wuhan, China, June 20, 2009
89. Symposium on modeling and computation of soft matter materials, Siam Southeastern Regional Meeting, April 4, 2009
90. Special Topic Session on complex fluids, IMACS, Athens, GA, March, 2009
91. Minisymposium on theoretical and computational modeling of soft matter and complex fluids, Siam CSE, Miami, March 2-6, 2009
92. IMA Special Workshop: Scientific Challenges in Solar Energy Conversion and Storage, University of Minnesota, November 1, 2008
93. MMM2009, Tallahassee, FL, Oct. 28-31, 2008
94. Minisymposium, Siam Annual Meeting, San Diego, CA, July 7-11, 2008
95. World Congress of Nonlinear Analysts, Orlando, FL, July 2-9, 2008
96. Kavli Institute, Institute of Physics, Chinese Academy of Science, Beijing, P. R. China, May19-25, 2008
97. Ferroelectric phenomenon, AIMS, Stanford, CA, May 12-16, 2008
98. Workshop on structure formation in soft matter/complex fluids, BICMR, Peking University, Dec. 2007
99. Symposium on Modeling and Simulation of Complex Fluids, ASME, Nov., 2007
100. Minisymposium on advances in advanced materials, ICIAM07, Zurich, Switzerland, July, 2007
101. Workshop on Multiscale modeling in complex fluids, CSCAMM, University of Maryland, April, 2007
102. Minisymposium on Recent Advances in Soft Matter and Complex Fluids, Siam Conference on Computational Science and Engineering, Costa Mesa, CA, Feb. 2007
103. AMS-SIAM joint symposium on materials, New Orleans, LA, Jan. 2007
104. Symposium on complex fluids, SES2006, Penn State University, PA, 2006
105. 2006 International Conference on Applied Mathematics and Interdisciplinary Research-Nankai, Tianjin, P. R. China
106. Workshop on Complex Fluids, Peking University, Beijing, 2006
107. Interfacial Dynamics in Complex Fluids, May, Banff, Canada, 2006
108. Workshop on Stochastic Differential Equations, FSU, February, 2006
109. New Challenges in composite materials, AFOSR/AFL, Dayton, 2005
110. Effective theories for nanocomposite materials, IMA workshop, 2005
111. Nanoscale Material Interfaces: Experiment, Theory, and Simulation, Singapore, Jan. 11-15, 2005
112. CRM Workshop on Multiscale Rheological Models for Fluids, University of Montreal, Canada, 2004
113. Workshop on Complex Fluids, Peking University, Beijing, 2004
114. Department of Energy Workshop on Multiscale Challenges, Denver, Co, 2004
115. Special Session on soft matters, AMS southeastern sectional meeting, Chapel Hill, NC, 2003
116. Symposium on Modeling and Simulation of Multiscale Fluids, International Congress on Industrial and Applied Mathematics, Sydney, Australia, 2003
117. International Workshop on non-equilibrium thermodynamics, Princeton, NJ, 2003
118. Special Session on PDE and Its Applications, AMS Annual Meeting, San Diego, 2002
119. 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. Forum on interfacial phenomena, CSRC, Beijing, June 8, 2019.
2. 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
3. Forum on Nonequilibrium Phenomena, Beijing, China, Dec. 20-21, 2015.
4. International Conference on Applied Mathematics and Interdisciplinary Studies, Chern Institute of Mathematics, Nankai University, Tianjin, China, May 24-27, 2013.
5. Summer School on Network Science, University of South Carolina, May 20-31, 2013.
6. CTW: Tissue Engineering and Regenerative Medicine, MBI, Ohio State University, April 30 - May 4, 2012
7. International Conference on Applied Mathematics and Interdisciplinary Studies, Chern Institute of Mathematics, Nankai University, Tianjin, China, June 13-16, 2011
8. Symposium on Modeling of complex fluids: From passive to active systems, Siam meeting on materials sciences, Philadelphia, May 23-26, 2010
9. Symposium on modeling and computation of soft matter materials, Siam South Eastern Regional Meeting, Columbia, SC, April 4-5, 2009
10. Special Topics Session, IMACS, Athens, GA, March 23-26, 2009
11. Minisymposium, Siam CSE, Miami, March 2-6, 2009
12. Wave Propagation in Nonlinear Materials, 7th AIMS Dynamical System Meeting, Arlington, Texas, May, 2008
13. 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
14. Minisymposium on Recent Advances in Soft Matter and Complex Fluids, Siam Conference on Computational Science and Engineering, Costa Mesa, CA, 2007
15. Symposium on complex fluids, SES2006, Penn State University, PA, 2006
16. Workshop on Complex Fluids, Peking University, Beijing, P. R. China, 2006
17. International conference on applied mathematics and interdisciplinary research—Nankai, Tianjin, P. R. China, 2006
18. Workshop on multiscale challenges in soft matter materials, SAMSI, NC, 2004.
19. AMS Special Session on Multiscale modeling of complex fluids, Tallahassee, FL, 2004
20. Symposium on Multiscale modeling and simulation of complex fluids, Siam MS04, Los Angeles, CA, 2004
21. AMS Special Session on Multiscale Challenges in Soft Matters, Chapel Hill, NC, 2003
22. 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.

- Molecular Based Mathematical Biology, 2012-2018.
- Computational and Mathematical Biophysics, 2018-Present.

Referee for Journals:

- Siam J. Applied Mathematics,
- Liquid Crystal and Molecular Crystal,
- 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

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