

Qi Wang

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RESEARCH AREAS (Applied and Computational Mathematics)

- Computational Fluid Mechanics and Rheology of Complex Fluids
- Multi-scale Modeling and Computation of Soft Matter/Complex Fluids/Complex Biological Systems (Liquid Crystals Polymers, Hybrid Materials, Multiphase Fluid Flows, Biofilms, Cell Dynamics)
- Kinetic Theory and Continuum Theories of Multiphase Materials
- Structure Preserving Numerical Methods for Dissipative PDE Systems
- Data Analytics in Materials and Life Sciences
- High Performance and Parallel Computing

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-Present: College of Arts & Sciences Distinguished Professor, Department of Mathematics, University of South Carolina (USC), Columbia, SC
- 2008-2013: Professor, Department of Mathematics, University of South Carolina
- 2003-2009: Professor, Department of Mathematics, Florida State University (FSU), Tallahassee, FL
- 2001-2003: Associate Professor, Department of Mathematics, Florida State University
- 1991-200: 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, MADE in SC, SC EPSCOR project
- 2008-Present: Theory, Modeling, and Simulation Thrust Leader, NanoCenter at USC
- 2008-Present: Adjunct Professor, Department of Chemistry and Biochemistry, USC
- 2009-Present: Founding Member, Member of Executive Committee, Interdisciplinary Mathematics Institute (IMI), USC
- 2017-Present: Guest Professor, School of Materials Science and Engineering, Nankai University
- 2011-Present: Associate Member and Chair Professor, Beijing Computational Science Research Center, P. R. China
- 2013-2016: Guest Professor, School of Mathematics, Nankai University
- 2011-2015: Thrust Leader, Modeling and Simulation of Biofabrication, South Carolina EPSCOR Biofabrication Project.
- 2010-2013: Changjiang Guest Professor, School of Mathematics, Nankai University
- 2005-2010: S. S. Chern Guest Professor, School of Mathematics and Chern Institute of Mathematics, Nankai University
- 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

RESEARCH GRANTS & CONTRACTS

Current:

1. 8/1/2017-7/31/2022, **NSF** (OIA-1655740), "RII Track-1: Materials Assembly and Design Excellence in South Carolina: MADE in SC." Co-PI (PI: Prakash Nagarkatti) : **\$2,000,000.**
2. 9/15/2015-8/31/2018, **NSF** (DMS-1517347), "Collaborative Research: Kinetic to Continuum Modeling of Active Anisotropic Fluids." PI: **\$174,300.**
3. 9/1/2012-8/31/2017, **NSF** (DMS-1200487), "Collaborative Research: Experimentally guided mathematics for the mechanochemistry of cell shape dynamics." PI: **\$591,000.**

Past:

4. 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)
5. 5/1/2012-4/30/2016, **AFOSR** (FA9550-12-1-0178), "Multiscale Mathematics for Nano-Particle-Endowed Active Membranes and Films." **PI: \$810,000.**
6. 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.**
7. 11/1/2014-6/30/2016, **SC EPSCOR/IDEA**, "A 3D Hybrid Discrete-Continuum Model for Cellular Aggregate Fusion," **PI: \$27,000.**
8. 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.**
9. 5/16/2013-6/30/2014, **SC, EPSCOR/IDEA GEAR-CRP**, "Investigating Cellular Spheroid Fusion Using Boundary Element Methods." **PI: \$50,000.**
10. 5/16/2013-6/30/2014, **SC, EPSCOR/IDEA GEAR-CI**, "Computational Investigation of Cell-Substrate Interaction Guided by Experiments." **PI: \$72,278.**
11. 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.**
12. 7/1/2012-6/30/2013, **USC**, "Summer School in Network Science at USC." **Co-PI: \$21,000.**
13. 7/1/2009-6/30/2013, **NSF-DMS** (DMS-0908330), "Collaborative Research on Mathematical Constructs for Multiphase Complex Fluids," **PI: \$175,882.**
14. 10/1/2012-6/30/2013, **SC EPSCOR/IDEA**, "SAN Proposal to Support Recruitment of Women into Mathematics," **PI: \$6,000.**
15. 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**
16. 7/1/2011-6/30/2012, **SC EPSCOR/IDEA**, "Modeling and Simulation of Organ Biofabrication Processes," **PI: \$85,000**
17. 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**
18. 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**
19. 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**
20. 8/15/2007-7/31/2009, **NSF-DMS, SCREMS** (DMS-0724273), "SCREMS: High Performance Computing and Visualization," **PI, \$114,678**
21. 9/1/2008-6/30/2009, **NSF RII** (EPS-0447660), "Bridge for biofabrication Institute," **Co-PI (for Mathematics): \$375,000**

22. 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)
23. 12/1/2004-11/30/2007, **AFOSR, PI**; \$148,400
24. 8/1/2002-7/31/2005, **NSF-DMS, PI**; \$177,004
25. 1/1/2002-12/31/2004, **AFOSR, PI**; \$137,907
26. 10/15/1998-10/14/2001, **AFOSR, PI**; \$99,000
27. 10/1/1995-9/30/1998, **AFOSR, PI**, \$95,000
28. 6/1/1992-5/31/1995, **AFOSR, PI**, \$89,000

PUBLICATIONS

Refereed papers:

1. Yi Sun and Qi Wang, In-Silico Analysis on 3D Biofabrication using Kinetic Monte Carlo Simulations, **Advances in Tissue Engineering and Regenerative Medicine**, in press, 2017.
2. 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 and vascularized mouse thyroid gland construct,” *Biofabrication*, in press, 2017.
3. 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*, in press, 2017.
4. Yuezheng Gong, Jia Zhao, and Qi Wang, “An Energy Stable Algorithm for the Quasi-incompressible Hydrodynamic Model of Viscous Fluid Mixtures,” *Computer Physics Communications*, DOI: 10.1016/j.cpc.2017.05.002, 2017.
5. 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*, 333:104-127, 2017.
6. 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) 803-825.
7. Xiaogang Yang and Qi Wang, “Structures and basic patterns in cavity flows of active liquid crystals”. *Computers and Fluids*, Available online May 22, 2017.
8. Jia Zhao and Qi Wang, “3-D Numerical Simulations of Biofilm Dynamics with Quorum Sensing in a Flow Cell,” *Bulletin of Mathematical Biology*, DOI 10.1007/s11538-017-0259-4, 2017.
9. 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*, in press 2017.

10. J. Zhao, Q. Wang, X. Yang, "Numerical approximations for a phase field dendritic crystal growth model based on the invariant energy quadratization approach," *Internat. J. Numer. Methods Engrg.* 110(3) (2017) 279-300.
11. 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*, DOI: 10.1142/S0218202517500373, 2017.
12. Yuezheng Gong, Qi Wang, and Zhu Wang, "Structure-Preserving Galerkin POD Reduced-Order Modeling of Hamiltonian Systems", *Computer Methods in Mechanics and Engineering*, 315, 2017, pp.780-798.
13. 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*, 2016, DOI10.1007/s10915-016-0224-7.
14. 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.
15. Jia Zhao, Tianyu Zhang, and Qi Wang, "Treatment of Biofilms by Nanotechnology and Applications to Food Science," *NANOTECHNOLOGY IN AGRICULTURE AND FOOD SCIENCE*, edited by, Monique A. V. Axelos and Marcel Van de Voorde, Wiley-VCH, 2017.
16. Yuezheng Gong, Qi Wang, Yushun Wang, Jiayang Cai, "A conservative Fourier pseudospectral method for the nonlinear Schrodinger equation", *Journal of Computational Physics*, 328 (2017) 354–370.
17. 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*, 310:77-97,2016.
18. Jia Zhao, P. Seeluangsawat , and Qi Wang, "A hydrodynamic model for biofilms accounting for persisters and susceptibles", *Mathematics of Biosciences*, 282:1-15, 2016.
19. Xiaogang Yang and Qi Wang, "Role of Active Viscosity and Self-propelling Speed on Channel Flows of Active Polar Liquid Crystals", *Soft Matter*, 2016, 12, 1262 - 1278.
20. 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*, 2016, 392, 83–98.
21. 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, 1241-1266.
22. Jia Zhao and Qi Wang, "A 3D Hydrodynamic Model for Cytokinesis of Eukaryotic Cells", *Communication in Computational Physics*, 2016, 19(3), 663-681.
23. Jia Zhao and Qi Wang, "Modeling and Simulations of Cytokinesis of Eukaryotic Cells," *International Journal for Numerical Methods in Biomedical Engineering*, 32 (12) (2016), e2774.
24. Xiaogang Yang, Jun Li, M. G. Forest, and Qi Wang, "Hydrodynamic Theories for Flows of Active Liquid Crystals and the Generalized Onsager Principle", *Entropy*, 2016, 18, 202.

25. 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):e1004841.
26. 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):3264-3290, 2016.
27. 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, 27537.
28. 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), 870-876, 2016.
29. Xiaofeng Yang, Jia Zhao, and Qi Wang, "Numerical Approximations for a phase field dendritic Growth Model Based on the Invariant Energy Quadraticization Approach," *International journal for Numerical Methods in Engineering*, DOI: 10.1002/nme.5372, 2016.
30. Guanghua Ji, M. G. Forest, and Qi Wang, "Formation in Sheared Polymer-Rod Nanocomposites", *Discrete and Continuous Dynamical Systems-Series D*, 8(2), 2015, 341-379.
31. M. G. Forest, Qi Wang, and Ruhai Zhou, "Kinetic attractor phase diagrams of active nematic suspensions: the dilute regime", *Soft Matter*, 2015, 11, 6393 – 6402.
32. 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*, 2015, 305, 539-556.
33. Hua Jiang, Hao Yang, Jun Zeng, Zhiyuan Zhou, Jin Peng, Qi Wang, *Analytic Oncology, Electron J Metab Nutr Cancer*, Jun. 2015, Vol. 2, No. 2, 26-30.
34. 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, 4461-4478.
35. 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*, 2014, 372:20130362.
36. Xiaogang Yang and Qi Wang, "Capillary Instability of an Active Liquid Crystal Jet", *Soft Matter*, 10, 2014, 6758-6776.
37. 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*, 2014, 23 (11): 117502.
38. Jie Shen, Xiaofeng Yang and Qi Wang, "Mass Conserved Phase Field Model for Binary Fluids", *Communication in Computational Physics*, 13 (2013), pp. 1045-1065.
39. 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): 9642-9660.
40. 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 pinch-off using a phase-field model for two-phase complex fluids," *Journal of Computational Physics*, 236, 2013, 1-14.

41. Chen Chen and Qi Wang, "3-D Pattern Formation in Biofilms," *Contemporary Mathematics* (586), 2013, 105-116.
42. Yi Sun and Qi Wang, "Modeling and Simulations of Multicellular Aggregate Self-assembly in Biofabrication Using Kinetic Monte Carlo Methods," *Soft Matter*, 2013, 9, 2172-2186.
43. M. G. Forest, R. Zhou, and Q. Wang, "Kinetic theory and simulations of active polar liquid crystalline polymers," *Soft Matter*, 2013, 9 (21), 5207 - 5222.
44. Xiaofeng Yang, Yi Sun, and Qi Wang, "Phase Field Approach for Multicellular Aggregate Fusion in Biofabrication", *Journal of Biomedical Engineering*, 135(7), 2013, 071005.
45. 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), 2013, 021004.
46. 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*, 2013, 3:2473.
47. Yi Sun, Xiaofeng Yang, and Qi Wang, "In-Silico Analysis on Biofabricating Vascular Networks using Kinetic Monte Carlo Simulations." *Biofabrication*, 6, 2013, 015008.
48. 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*, (2012), E 85, 031908.
49. 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, 2012, 257-296.
50. George G P Xiang, Jianyang Liu, and Q. Wang, "A Variational Derivation of Risk-Adjusted Performance Measures," *Journal of Risk*, 15 (2), 2012/13.
51. Xiaofeng Yang, Vladimir Mironov, and Qi Wang, "Modeling Fusion of Cellular Aggregates in Biofabrication Using Phase Field Theories," *J. Theoretical Biology*, 303 (21), 2012.
52. Q. Wang and T. Y. Zhang, "Kinetic theories for Biofilms", *Discrete and Continuous Dynamic Systems – Series B* 17 (3) (2012), 1027-1059.
53. Brandon Lindley, Qi Wang, and Tianyu Zhang, "A Multicomponent model for Biofilm-Drug Interaction", *Discrete and Continuous Dynamic Systems- Series B*, 15(2) (2011), 417-456.
54. Jun Li, M. G. Forest, Qi Wang and R. Zhou, "A Kinetic Theory and Benchmark Predictions for Polymer Dispersed, Semi-Flexible Nanorods and Nanoplateletes," *Physica D*, 240(2) (2011), 114-130.
55. Zhenlu Cui and Qi Wang, Dynamics of chiral active liquid crystal polymers, *Discrete and Continuous Dynamic Systems- Series B*, 15(1) (2011), 45-60.
56. 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), 7115-7131.
57. Chen Chen, Mingming Ren, Ashok Srinivasan and Qi Wang, "3-D simulations of biofilm-solvent interaction," *East Asian Journal on Applied Mathematics*, 1 (2011), 197-214.

58. 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).
59. M. G. Forest, Qingqing Liao, and Qi Wang, "2-D Kinetic Theory for Polymer Particulate Nanocomposites," *Communications in Computational Physics*, 7(2), (2010), 250-282.
60. Jun Li and Qi Wang, "Flow Driven Dynamics of Sheared Flowing Polymer-Particulate Nanocomposites," *Discrete and Continuous Dynamical Systems-Series A*, 26 (4) (2010), 1359-1382.
61. T. Y. Zhang and Q. Wang, "Cahn-Hilliard vs Singular Cahn-Hilliard Equations in Phase Field Modeling", *Communications in Computational Physics*, 7(2) (2010), 362-382.
62. 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), 697-720.
63. Sarthok Sircar and Qi Wang, "Transient rheological responses in sheared biaxial liquid crystals", *Rheological Acta*, 49(7) (2010), 699-717.
64. 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), 1138-1156.
65. Q. Wang and T. Y. Zhang, "Mathematical models for biofilms", *Communication in Solid State Physics*, 150 (21-22) (2010), 1009-1022.
66. 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), 592.
67. 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), 115-129.
68. 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.
69. Jun Li, Sarthok Sircar, and Qi Wang, "A Note on the Kinematics of Rigid Molecules in Linear Flow Fields and Kinetic Theory for Biaxial Liquid Crystal Polymers", *International Journal of Emerging Multidisciplinary Fluid Mechanics*, 1(2) (2009), 115-126.
70. Sarthok Sircar and Qi Wang, "Dynamics and rheology of ellipsoidal suspensions in shear flows", *Journal of Rheology*, 53 (4) (2009), 819-859.
71. L. Nguyen, W. Yang, Q. Wang, and L. Hirst, "Molecular dynamics simulation of F-actin reveals the role of cross-linkers in semi-flexible filament", *Soft Matter*, 5 (2009), 2033-2036.
72. T. Y. Zhang, N. Cogan, and Q. Wang, "Phase Field Models for Biofilms. II. 2-D Numerical Simulations of Biofilm-Flow Interaction," *Communications in Computational Physics*, 4 (2008), pp. 72-101.
73. Xiaofeng Yang, Zhenlu Cui, M. G. Forest, Qi Wang, and Jie Shen, "Dimensional Robustness & Instability of Sheared Semi-dilute, Nano-rod Dispersions", *Siam Journal on Multiscale Modeling and Simulation*, 7 (2008), 622-654.
74. T. Y. Zhang, N. Cogan, and Q. Wang, "Phase Field Models for Biofilms. I. Theory and 1-D simulations," *Siam Journal on Applied Math.*, 69 (3) (2008), 641-669.

75. J. Lee, M. G. Forest, Q. Wang, and R. Zhou, "Dipole-induced bi-stability and hysteresis in nanorod monolayers," *Physics Letters A*, 372 (2008), 3484-3487.
76. Sarthok Sircar and Qi Wang, "Shear induced mesostructures in biaxial liquid crystal polymers", *Physical Review E*, 78 (2008), 061702.
77. A. Kataoka, B. C. W. Tanner, J. M. Macpherson, X. Xu, Q. Wang, M. Reginier, T. Daniel and P. B. Chase, "Spatially explicit, nanomechanical models of the muscle half sarcomere: Implications for mechanical tuning in atrophy and fatigue," *Acta Astronautica*, 60 (2) (2007), pp 111-118.
78. H. Zhou, H. Wang, Q. Wang, and M. G. Forest, "Characterization of stable kinetic equilibria of rigid, dipolar rod ensembles for coupled dipole-dipole and excluded-volume potentials," *Nonlinearity*, 20 (2007), 27-297.
79. M. G. Forest, Q. Wang, and R. Zhou, "Monodomain dynamics for rigid rod & platelet suspensions in strongly coupled coplanar linear flow and magnetic," *Journal of Rheology*, 51 (2007), pp. 1-21.
80. M. G. Forest, R. Zhou, and Q. Wang, "Nano-rod suspension flows: a 2D Smoluchowski-Navier-Stokes solver", *International Journal of Numerical Analysis and modeling*, 4 (3-4) (2007), pp. 478-488.
81. H. Zhou, H. Wang, and Q. Wang, "Nonparallel solutions of extended nematic polymers under an external field," *Discrete and Continuous Dynamical Systems-Series B*, 7 (4) (2007), pp. 907-929.
82. H. Zhou, M. G. forest, and Q. Wang, "Anchoring-induced texture & flow feedback of nematic polymers in shear cells," *Discrete and Continuous Dynamical Systems-Series B*, 8 (3) (2007), pp. 707-733.
83. M. G. Forest, R. Zhou, and Q. Wang, "Microscopic-Macroscopic Simulations of Rigid-Rod Polymer Hydrodynamics: Heterogeneity and Rheochaos," *Siam Journal on Multiscale Modeling and Simulation*, 6 (3) (2007), pp. 858-878.
84. G. Ji, Q. Wang, P. Zhang, H. Wang, and H. Zhou, "Steady states of homogeneous, rigid, extended nematic polymers under imposed magnetic fields and their stability," *Communications in Mathematical Sciences*, 5(4) (2007), pp. 917-950.
85. Z. Cui, M. G. Forest, and Q. Wang, "On weak plane Couette and Poiseuille flows of rigid rod and platelet ensembles," *Siam Journal on Applied Mathematics*, 66(4) (2006), pp. 1227-1260.
86. Z. Cui, M. C. Calderer, Q. Wang, "A kinetic theory for flows of cholesteric liquid crystal polymers", *Discrete and Continuous Dynamical Systems-Series B*, 6 (2) (2006), pp 291-310.
87. Z. Cui and Q. Wang, "A continuum mechanics model for flows of chiral nematic polymers and permeation flows," *Journal of Non-Newtonian Fluid Mechanics*, 128 (1) (2006), pp. 44-61.
88. G. Ji, Q. Wang, P. Zhang, H. Zhou, "Study of phase transition in homogeneous, rigid extended nematics and magnetic suspensions using an order-reduction method," *Physics of Fluids*, 18 (2006), pp. 123103 (1-17).
89. M. G. Forest, S. Sircar, Q. Wang, and R. Zhou, "Monodomain dynamics for rigid rod & platelet suspensions in strongly coupled coplanar linear flow and magnetic fields II: Kinetic theory", *Physics of Fluids*, 18 (10) 2006, pp. 103102 (1-14).
90. X. Zheng, M. G. Forest, R. Zhou, and Q. Wang, "Likelihood and expected -time statistica of monodomain attractors in sheared discotic and rodlike nematic polymers," *Rheological Acta*, 44 (3) (2005), pp. 219-234.

- 91.X. Zheng, M. G. Forest, R. Lipton, R Zhou, and Q. Wang, "Exact scaling laws for electrical conductivity properties of nematic polymer nano-composite monodomains," *Advanced Functional Materials*, 15 (4) (2005), pp. 627-638.
- 92.R. Zhou, M. G. Forest, and Q. Wang, "Kinetic structure simulations of nematic polymers in plane Couette cells, I: The algorithm and benchmarks," *Siam Journal on Multiscale Modeling and Simulation*, 3 (4) (2005), pp. 853-870.
- 93.H. Zhou, M. G. Forest, X. Zheng, Q. Wang, and R. Lipton, "Extension-enhanced conductivity of liquid crystalline polymer nano-composites," *Macromolecular Symposia*, 228 (2005), pp. 81-89.
- 94.M. G. Forest, R. Zhou, Qi Wang, X. Zheng, and R. Lipton, "Anisotropy and Heterogeneity of Nematic Polymer Nano-Composite Film Properties," IMA Volume 141, *Molding of Soft Matter*, ed. M. C. T. Claderer and E. M. Terenjev, Springer, pp. 85-98, 2005.
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- 96.M. G. Forest, R. Zhou, and Q. Wang, Kinetic structure simulations of nematic polymers in plane Couette cells, II. SIAM MMS, 4 (2005), pp. 1280-1304.
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- 147.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*, 2017.
- 148.Xiaogang Yang, Yuezheng Gong, Jun Li, Jia Zhao, and Qi Wang, "Comparison of Hydrodynamic Phase Field Models for Binary Fluid Mixtures," *Physical Review E*, 2017.
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- 153.Dacheng Ren, Qi Wang, and Yan-Yeung Luk, "Collaborative Research: Investigating Bacteria-Surface Interactions by Surface Engineering and Mathematical Modeling", *Proceedings of 2010 NSF Engineering Research and Innovation Conference*, Hawaii, 2010.

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Book Chapters:

156. Q. Wang, "Introduction to Constitutive Modeling of Macromolecules," DYNAMICS IN MODELS OF COARSENING, COAGULATION, CONDENSATION AND QUANTIZATION, Lecture Notes Series, Institute for Mathematical Sciences, National University of Singapore, edited by Weizhu Bao and Jian-guo Liu, World Scientific, Singapore, 2007.

157. 江华, 杨浩, 彭谨, 周志远, 曾俊, 王奇, "第7章 分析医学: 数据科学、物理学和临床医学的心综合," 临床系统生物医学研究-从理论到实践, 曾俊, 江华, 杨浩主编, 科学出版社, 2017年6月。

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158. W. Kang, K. Liang, Q. Wang, *Special Issue for Discrete and Continuous Dynamical System-Series B*, 8 (3), 2007.

159. An Chang Shi, Qi Wang, and Pingwen Zhang, "Structure Formation and Evolution in Soft Matter/Complex Fluid Systems", *Communications in Computational Physics*, 2009.

160. Qi Wang and Xiaofeng Yang, "Theoretical and Computational Modeling of Complex Fluids/Soft Matter", *Discrete and Continuous Dynamical System-Series B*, 2011.

161. Qi Wang, "Trends in Applied Mathematics", *Mathematical Methods in the Applied Sciences*, 2015, 38(18).

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

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 masters 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.

Student Advising:

Current M.S. students and Undergraduate Students for research:

- Yucan Zhao

Past MS students:

- Jian Wu (IUPUI)
- Ethan Adams (FSU)
- Xiangrong Xu (FSU)
- Fanyu Liu (FSU)
- Mitsutaka Tanaka (FSU)
- Jianyang Liu (FSU)
- Ling Qin (Nankai U)
- Ying Liu (Nankai U)
- Xiaodi Deng (USC)
- Pengfei Liu(Nankai U)

Current Ph. D. students:

- 1) Xueping Zhao, expected graduation date, 2018
- 2) Chang Liu, expected graduation date, 2018
- 3) Hao Yang, expected graduation date, 2018
- 4) Xiaopo Jing, expected graduation date, 2019

- 5) Aditya K. Harish, expected graduation date, 2019

Past Ph. D. students:

- 1) Jia Zhao (August, 2015, USC), Tenure-track Assistant Professor, Utah State University, UT
- 2) Norazaliza Mohd Gamil (May, 2015, USC), Lecturer, Universiti Malaysia Pahang
- 3) Xiaogang Yang (May, 2014, Nankai University), Wuhan University of Technology, Wuhan, China
- 4) Kanadpriya Basu (August, 2012, USC), Instructor, North Texas University, TX
- 5) Chen Chen (August, 2012, USC), Quantitative Analyst, Citibank, NY
- 6) Paisa Seeluangsawat (December, 2011, USC), Software Engineer, Google Inc., CA
- 7) Jun Li (June, 2010, Nankai University), Lecturer, School of Mathematics, Tianjin Normal University, Tianjin, P. R. China
- 8) Sarthok Sircar (May, 2009, USC), Lecturer, Department of Mathematics, University of Adelaide, Australia
- 9) Zhenlu Cui (May, 2005, FSU), Professor, Department of Mathematics, Fayetteville State University, NC

Postdoctoral Mentoring:

Current Postdocs:

- 1) Dr. Maosheng Jiang, CSRC, Beijing, China

Past Postdocs:

- 2) Dr. Yuezheng Gong, Nanjing Aeronautical University, Beijing, China
- 3) Dr. Jia Zhao, Utah State University, UT
- 1) Dr. Xiaogang Yang, Lecturer, Wuhan University of Technology, Beijing, China
- 2) Dr. Lu Peng, University of Dundee, UK
- 3) Dr. Yagang Zhang, Associate Professor, University of North Electric and Power, China
- 4) Dr. Lizhen Chen, Research Scientist, BCSRC, China
- 5) Dr. Brandon Lindley, Research Scientist, Naval Lab, Washington DC
- 6) Dr. Guanghua Ji, Associate Professor, School of Mathematics, Beijing Normal University, China

- 7) Dr. Tianyu Zhang, Associate Professor, Department of Mathematics, Montana State University, Bozeman, MT
- 8) Dr. Bin Yu, Associate Professor, Department of Physics, Tianjin Normal University, China
- 9) Dr. Ming Ming Ren, Lecturer, School of Software, Nankai University, China Dr.
- 10) Dr. Fei Liu, Lecturer in Huazhong University of Science and Technology, China

INVITED PRESENTATIONS (since 2000)

Applied math seminar and colloquium

- Renming University, Beijing, China, June 9, 2017.
- University of Electronic Science and Technology of China, Chengdu, Nov. 25, 2016
- Tianjin University of Technology, Tianjin, China, Nov. 15, 2016
- Institute of Computational Mathematics, CAS, Sept. 26, 2016
- Peking University, Beijing, Sep. 21, 2016
- Kavli Institute of Theoretical Physics, CAS, Beijing, August 24, 2016
- Nankai University, July 13, 2016
- Anhui University of Science and Technology, July 7, 2016
- Nanjing Normal University, July 6, 2016
- UC Santa Barbara, April 8, 2016
- Rutgers University, March 25, 2016
- University of North Carolina at Greensboro, Feb. 4, 2016
- IAPCM, Jan. 8, 2016
- Renmin University, Beijing, China, Dec. 25, 2015
- North Carolina State University, Nov. 18, 2015.
- HKUST, Oct. 28, 2015
- Tianjin Normal University, Oct. 26, 2015
- University of Maryland, Sept. 23, 2015
- Shangdong University, School of Mathematics, Dec. 26, 2014
- Tsinghua University, Chou Peiyuan Center for Applied Mathematics, Dec. 25, 2014
- Beijing Normal University, School of Mathematics, Dec. 22, 2014
- Nankai University, School of Mathematics, Nov. 28, 2014.
- University of North Carolina at Chapel Hill, Sept. 18, 2014
- University of Kansas, Laurence, KS, April 3, 2014.
- SiChuan Medical Science Academy, ChengDu, China, Dec. 22, 2013.
- Ohio State University, Columbus, OH, Nov. 6-7, 2013.
- Anhui University of Science and Technology, Ma An Shan, China, August 4, 2013.
- Microbiology Institute of Chinese Academy of Sciences, Beijing, China, July 12, 2013.
- Beijing University of Science and Technology, China, June 28, 2013.
- Montana State University, Department of Mathematical Sciences, April 26, 2013.
- University of Georgia, Physics Department, Athens, GA, February 5, 2013
- Georgia State University, Department of Mathematics, Atlanta, GA, April 19, 2013
- University of Alabama, Department of Mathematics, Tuscaloosa, Nov. 14, 2012

- University of California, Irvine, Department of Mathematics, Nov. 5, 2012
- Nankai University, School of Mathematics, June 13, 2012
- Voorhees College, High School Science Fair Lecture, April 21, 2012
- Voorhees College, Science Day Lecture, Feb 23, 2012
- University of North Carolina at Chapel Hill, October, 2011
- 2nd Annual EPSCOR Workshop, Tennessee-South Carolina-Oakridge National Lab, October, 2011
- Illinois Institute of Technology, November, 2010
- University of Utah, November, 2010
- George Mason University, October, 2010
- Michigan State University, East Lansing, MI, May 4, 2010
- Indiana University-Purdue University Indianapolis, IN, Jan. 31, 2010
- University of North Carolina at Chapel Hill, Nov. 13, 2009
- University of North Carolina at Charlotte, April 15, 2009
- Wilfrid Laurier University, April 8, 2009
- Indiana University-Purdue University Indianapolis, Oct. 2, 2008
- University of South Carolina, Jan., 2008
- Peking University, Dec. 2007
- Old Dominion University, Colloquium, Oct, 2007
- Old Dominion University, Public Lecture, Oct., 2007
- University of Central Florida, Nov. 2007
- Beijing Normal University, Sep. 2007
- Purdue University, November, 2006
- UC Santa Barbara, May, 2006
- University of Akron, March, 2006
- Nankai University, School of Mathematics, Tianjin, July, 2005
- Peking University, School of Mathematics, Beijing, June, 2005
- IMA, University of Minnesota, April, 2005
- Peking University, School of Mathematics, Beijing, 2004
- Fudan University, Department of Mathematics, Shanghai, 2004
- University of Texas Arlington, Arlington, Texas, 2004
- University of Central Florida, Orlando, FL, 2004
- University of California, Irvine, CA, 2003
- Temple University, Philadelphia, PA, 2003
- University of Minnesota, Minneapolis, MN, 2002
- Carnegie-Mellon University, Pittsburgh, PA, 2002
- Penn State University, State College, PA, 2002
- Morningside center, Academia Sinica, Beijing, PRC, 2001
- Center for computational mathematics, Academic Sinica, Beijing, PRC, 2001
- Clemson University, Clemson, SC, 2001
- Louisiana State University, Baton Rouge, LA, 2000
- University of California, Davis, CA, 2000
- University of Delaware, Newark, DE, 2000

National and international meetings

- 18th Conference on Numerical Methods for Fluid Dynamics, Huaihua, Hunan, China, August 12-15, 2017
- 2017 Systems Biology and Medicine Workshop, Chengdu, Sichuan, July 26-July 30, 2017
- Focus Activity on Mathematical and Computational methods for Quantum and Kinetic Problems, CSRC, Beijing, June 11-15, 2017
- 3rd International Conference on Computational Mathematics and Engineering, Hong Kong Polytechnic University, May 31-June 2, 2017
- Siam Southeastern Regional Meeting, FSU, Tallahassee FL, March 18-19, 2017
- Tianjin-Beijing Computational Mathematics meeting, Dec. 26, 2016
- Mathematics Biophysics and Molecular Bioscience Workshop, Sanya, China, Dec. 19-23, 2016
- 2016 NCTS Workshop on Complex and Biological fluid dynamics with applications, Taiwan, Dec. 18-20, 2016
- Workshop for mathematical medicine, Chengdu, China, Nov. 23-26, 2016
- Workshop for Computational Methods in Materials Science, Beijing, Oct. 22-23, 2016
- Chinese Chemical Society 2016 Conference on Soft Matter Theories, Computation and Simulations, Tianjin, China, August 25-August 28, 2016
- 2016 International Workshop on Interdisciplinary Research between Mathematics and Biology, Peking University, July 16-17, 2016.
- International Workshop on Nonlinear Partial Differential Equations and Scientific Computing, July 5-8, 2016.
- The 5th CAM-ICCM Workshop: Multiscale and Large-scale Scientific Computing Chinese University of Hong Kong, June 18-20, 2016.
- Siam Conference on Materials Science, Philadelphia, PA, USA, May12-15, 2016.
- Numerical Analysis for Nonlinear Phenomena, Tsinghua Math, Forum, Sanya, China, Jan. 11-15, 2016.
- Siam PDE 2015, Scottsdale AZ, Dec. 8, 2015
- Workshop on Collective Dynamics of Active Systems, Duke University, Nov. 15, 2015
- AMS Eastern Regional Meeting, New Brunswick, NJ, Nov, 2015
- IWNM, Beijing, August 14-16, Beijing, 2015.
- Workshop on the numerical methods for PDEs, Nankai University, Tianjin, August 7-9, 2015.
- ICMMES, Beijing, July 20-25, 2015.
- International Conference on Computational & Mathematical Biomedical Engineering (CBME), Paris, France, June 29-July 2, 2015.
- Workshop on complex materials, University of Oslo, Norway, June 9-12, 2015.
- Multiscale Modeling workshop, HKUST, Dec. 15-19, 2014.
- SCPDE14, Baptist University, HongKong, Dec. 8-12, 2014.
- MRS symposium on mathematical aspect of materials sciences, Boston, MA, Dec 1, 2014.
- Siam Conference on Life Sciences, Charlotte, NC, August 4-7, 2014.
- 2014 Annual Meeting of the Society of Biomathematics, Osaka, Japan, July 28-August 1, 2014
- Sino-French conference on Computational and Applied Mathematics, Xiamen University, China, June 2-6, 2014.
- Liquid Crystals, Suzhou, June 4-6, 2014

- 2014 International on Modeling and Computation of Complex Biological Systems, Nankai University, May 26-29, 2014.
- SIAM Southeastern Regional Meeting, March 29-30, 2014.
- Newton Institute Workshop on Complex Fluids in Evolving Domains, Leeds, UK, August 19, - 21, 2013.
- Siam Annual Meeting, San Diego, July 8-12, 2013.
- International Conference on Applied and Computational Mathematics, Yellow Mountain, June 20-24, 2013.
- International Conference on Mathematical Modeling and Computation, Wuhan University, May 15-19, 2013.
- Ki-net workshop on Transport models for collective dynamics in biological systems, NCSU Jan. 15-Jan. 18, 2013.
- Siam Conference on Materials Sciences, Philadelphia, June 8-12, 2013
- Siam Conference on Computational Science and Engineering, Boston, Feb 25-29, 2013
- International Workshop on Frontiers of Computational Mathematics, BCSRC, Beijing, October 20-21, 2012
- International Conference in Applied and Computational Mathematics, Xiamen University, July 25-29, 2012
- Frontier Conference in Applied and Computational Mathematics, NJIT, May 18-20, 2012.
- MBI Workshop on Tissue Engineering and Regenerative Medicine, Columbus, OH, April 30-May 4, 2012
- International Conference on Scientific Computing and Applications, UNLV, April 1-4, 2012
- Siam Southeastern Region Meeting, University of Alabama, Huntsville, March 24-25, 2012
- Workshop on Mathematical Models of Electrolytes with Application to Molecular Biology, Taipei, Taiwan, Jan. 5-7, 2012
- Workshop on Complex Fluids, Beijing Normal University, Beijing, China, June 24, 2011
- International Conference on Interdisciplinary Applied and Computational Mathematics, Zhejiang University, Hangzhou, China, June 17-21, 2011.
- Forum on Scientific and Engineering Computing 2011, Beijing, China, June 2-3, 2011.
- MBI, Workshop on Computational Biology, Ohio State University, April, 2011.
- High Performance Computing Workshop, University of South Carolina, Columbia, SC, April, 14, 2011
- Siam Conference on Computational Science and Engineering, Reno, Nevada, March 5, 2011
- Workshop on Mathematical Modeling and Computer Simulations for Soft Materials, Colorado State University campus (Fort Collins, CO), September 13-17, 2010
- Siam Conference on Nonlinear Waves and Coherent Structures, Philadelphia, PA, August 16-19, 2010
- Taiwan Strait Workshop on Computational Mathematics, Xiamen, China, August 11-12, 2010
- Workshop on Computational Problems in Materials Sciences, Suzhou, China, August 2-5, 2010
- Symposium on Computational PDEs and modeling of complex biological systems, Pittsburg, PA, July 12-15, 2010
- Symposium on fluids with dynamic microstructure, Pittsburgh, PA, July 12-16, 2010
- International Workshop on Scientific Computing and Nonlinear PDEs, Jiuzhaigou, China, June 7-11, 2010

- Emerging Topics in Dynamical Systems and Nonlinear PDEs, Barcelona, Spain, May 31-June 4, 2010
- Cha Cha Days, UCF, Orlando, FL, Nov. 7, 2009
- Flowing Complex Fluids: Fluid Mechanics-Interaction of Microstructure and Flow, IMA, University of Minnesota, Oct. 16, 2009
- The Sixth International Conference for Mesoscopic Methods in Engineering and Science (ICMMES-2009), Guangzhou, China, July 13-17, 2009
- Workshop on Dynamical Systems and Modern Applied Mathematics, HuaZhong Science and Technology University, Wuhan, China, June 20, 2009
- Symposium on modeling and computation of soft matter materials, Siam Southeastern Regional Meeting, April 4, 2009
- Special Topic Session on complex fluids, IMACS, Athens, GA, March, 2009
- Minisymposium on theoretical and computational modeling of soft matter and complex fluids, Siam CSE, Miami, March 2-6, 2009
- IMA Special Workshop: Scientific Challenges in Solar Energy Conversion and Storage, University of Minnesota, November 1, 2008
- MMM2009, Tallahassee, FL, Oct. 28-31, 2008
- Minisymposium, Siam Annual Meeting, San Diego, CA, July 7-11, 2008
- World Congress of Nonlinear Analysts, Orlando, FL, July 2-9, 2008
- Kavli Institute, Institute of Physics, Chinese Academy of Science, Beijing, P. R. China, May19-25, 2008
- Ferroelectric phenomenon, AIMS, Stanford, CA, May 12-16, 2008
- Workshop on structure formation in soft matter/complex fluids, BICMR, Peking University, Dec. 2007
- Symposium on Modeling and Simulation of Complex Fluids, ASME, Nov., 2007
- Minisymposium on advances in advanced materials, ICIAM07, Zurich, Switzerland, July, 2007
- Workshop on Multiscale modeling in complex fluids, CSCAMM, University of Maryland, April, 2007
- Minisymposium on Recent Advances in Soft Matter and Complex Fluids, Siam Conference on Computational Science and Engineering, Costa Mesa, CA, Feb. 2007
- AMS-SIAM joint symposium on materials, New Orleans, LA, Jan. 2007
- Symposium on complex fluids, SES2006, Penn State University, PA, 2006
- 2006 International Conference on Applied Mathematics and Interdisciplinary Research-Nankai, Tianjin, P. R. China
- Workshop on Complex Fluids, Peking University, Beijing, 2006
- Interfacial Dynamics in Complex Fluids, May, Banff, Canada, 2006
- Workshop on Stochastic Differential Equations, FSU, February, 2006
- New Challenges in composite materials, AFOSR/AFL, Dayton, 2005
- Effective theories for nanocomposite materials, IMA workshop, 2005
- Nanoscale Material Interfaces: Experiment, Theory, and Simulation, Singapore, Jan. 11-15, 2005
- CRM Workshop on Multiscale Rheological Models for Fluids, University of Montreal, Canada, 2004
- Workshop on Complex Fluids, Peking University, Beijing, 2004
- Department of Energy Workshop on Multiscale Challenges, Denver, Co, 2004
- Special Session on soft matters, AMS southeastern sectional meeting, Chapel Hill, NC, 2003
- Symposium on Modeling and Simulation of Multiscale Fluids, International Congress on Industrial and Applied Mathematics, Sydney, Australia, 2003
- International Workshop on non-equilibrium thermodynamics, Princeton, NJ, 2003
- Special Session on PDE and Its Applications, AMS Annual Meeting, San Diego, 2002
- The Second Siam Meeting on Mathematical Issues in Materials Science, Philadelphia, PA, 2000

Tutorial Lectures (since 2000)

- Complex Fluids Summer School, Fudan University, June –July, 2006
- Workshop II, Nanoscale Material Interfaces: Experiment, Theory, and Simulation, Singapore, Jan. 3-8, 2005
- Complex Fluids, Fudan University, June, 2004

CONFERENCE, SYMPOSIA & WORKSHOPS ORGANIZED RECENTLY (since 2000)

- Forum on Nonequilibrium Phenomena, Beijing, China, Dec. 20-21, 2015.
- International Conference on Applied Mathematics and Interdisciplinary Studies, Chern Institute of Mathematics, Nankai University, Tianjin, China, May 24-27, 2013.
- Summer School on Network Science, University of South Carolina, May 20-31, 2013.
- CTW: Tissue Engineering and Regenerative Medicine, MBI, Ohio State University, April 30 - May 4, 2012
- International Conference on Applied Mathematics and Interdisciplinary Studies, Chern Institute of Mathematics, Nankai University, Tianjin, China, June 13-16, 2011
- Symposium on Modeling of complex fluids: From passive to active systems, Siam meeting on materials sciences, Philadelphia, May 23-26, 2010
- Symposium on modeling and computation of soft matter materials, Siam South Eastern Regional Meeting, Columbia, SC, April 4-5, 2009
- Special Topics Session, IMACS, Athens, GA, March 23-26, 2009
- Minisymposium, Siam CSE, Miami, March 2-6, 2009
- Wave Propagation in Nonlinear Materials, 7th AIMS Dynamical System Meeting, Arlington, Texas, May, 2008
- 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
- Minisymposium on Recent Advances in Soft Matter and Complex Fluids, Siam Conference on Computational Science and Engineering, Costa Mesa, CA, 2007
- Symposium on complex fluids, SES2006, Penn State University, PA, 2006
- Workshop on Complex Fluids, Peking University, Beijing, P. R. China, 2006
- International conference on applied mathematics and interdisciplinary research—Nankai, Tianjin, P. R. China, 2006
- Workshop on multiscale challenges in soft matter materials, SAMSI, NC, 2004.
- AMS Special Session on Multiscale modeling of complex fluids, Tallahassee, FL, 2004
- Symposium on Multiscale modeling and simulation of complex fluids, Siam MS04, Los Angeles, CA, 2004
- AMS Special Session on Multiscale Challenges in Soft Matters, Chapel Hill, NC, 2003
- 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-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,
- Siam Journal on MMS,
- 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
- etc.

Referee for funding agencies:

- Grant proposals of 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.

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 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), Society of Rheology (SOR), Material Research Society (MRS), American Physical Society (APS)

REFERENCES

Available upon request