

PENGTAO YUE

Associate Professor

Department of Mathematics, Virginia Polytechnique Institute & State University

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EDUCATION

1997.9-2002.7 Ph.D./ Fluid Mechanics

University of Science and Technology of China, Hefei, Anhui, P. R. China

Dissertation: Study on Some Topics of Scramjet Combustor

1993.9-1997.7 B.Sc./ Theoretical and Applied Mechanics

University of Science and Technology of China, Hefei, Anhui, P. R. China

EMPLOYMENT

- 2014.8-present Associate Professor, Department of Mathematics, Virginia Polytechnic Institute and State University
- 2008.8-2014.8 Assistant Professor, Department of Mathematics, Virginia Polytechnic Institute and State University
- 2007.7-2008.6 Research Associate, Department of Mathematics and Department of Chemical and Biological Engineering, University of British Columbia
- 2004.6-2007.6 Postdoctoral Research Fellow, Department of Mathematics and Department of Chemical and Biological Engineering, University of British Columbia
- 2002.8-2004.6 Postdoctoral Research Associate, Benjamin Levich Institute for Physico-Chemical Hydrodynamics, City College of CUNY
- 1997.9-2002.7 Graduate Research Assistant, Shockwave Research Laboratory, Department of Modern Mechanics, University of Science and Technology of China

VISITING POSITIONS

- 2011.6-2011.7 Visiting Assistant Professor, Department of Mathematics, Hong Kong University of Science and Technology

CURRENT RESEARCH INTERESTS

Computational fluid mechanics, dynamic wetting of moving particles, complex fluids, drop and bubble dynamics, interfacial and free surface flows, particle-bubble interaction, magnetic drug targeting, and phase-field simulations of asphalt binder.

COURSES TAUGHT

- **Virginia Polytechnic Institute and State University**
 - Math 1124H: Vector Geometry
 - Math 2214: Introduction to Differential Equations
 - Math 3034: Introduction to Mathematical Proofs
 - Math 3054: Programming for Mathematical Problem Solving
 - Math 3144: Linear Algebra (I)
 - Math 3214: Calculus of Several Variables
 - Math 4445: Introduction to Numerical Analysis (I)
 - Math 4446: Introduction to Numerical Analysis (II)
 - Math 5474: Finite Difference Method
 - Math 5484: Finite Element Method
- **University of British Columbia**
 - Math 104/184: Differential Calculus

RESEARCH GRANTS

- National Science Foundation CBET-1604272, Exploiting Vapor Pressure Gradients to Suppress In-Plane Frost Growth. PI: J. Boreyko, Co-PI P. Yue, 8/15/2016-8/14/2019, \$328,298.
- National Science Foundation DMS-1522604, Hybrid Numerical Methods for Three-Phase Flows with Moving Contact Lines. PI: P. Yue, 9/1/2015-8/31/2018, \$167,234.
- National Science Foundation DMS-0907788, Computational study of drop deformation in systems with two immiscible liquids. PI: Y. Renardy; Co-PI: P. Yue. 6/1/2009-5/31/2012, \$247,880.

AWARDS

- **University of Science and Technology of China, Graduate:**
 - University Outstanding Graduate 2002
 - Qiushi Graduate Scholarship 2000
 - Guanghua Educational Foundation Scholarship 1999
- **University of Science and Technology of China, Undergraduate:**
 - Outstanding Student Scholarship 1996-1997
 - Outstanding Student Scholarship 1995-1996

▪ P & G Scholarship

1994-1995

PUBLICATIONS

Submitted and in press

- [1] M. Cui, Q. Gao, C. Bowland, E. Burgeson, K. Hong, P. Yue, A. Naskar, A cast net thrown onto an interface: wrapping 3D objects with an interfacial-jammed amphiphilic sheet. *ACS Nano*, submitted

Peer-reviewed journal publications

- [2] S. F. Ahmadi, S. Nath, C. M. Kingett, P. Yue, and J. B. Boreyko, How soap bubbles freeze. *Nature Communications*, 10: 2531, 2019.
- [3] S. Adjerid, N. Chaabane, T. Lin, and P. Yue, An immersed discontinuous finite element method for the Stokes problem with a moving interface. *Journal of Computational and Applied Mathematics*. 362: 540-559, 2019.
- [4] F.-C. Yang, X.-P. Chen, and P. Yue, The influence of “gas” viscosity on water entry of hydrophobic spheres. *European Physical Journal E*, 42: 34, 2019. (9 pages)
- [5] J. Zhang and P. Yue, A High-order and interface-preserving discontinuous Galerkin method for level-set reinitialization. *Journal of Computational Physics*. 378: 634-664, 2019.
- [6] S. F. Ahmadi, S. Nath, G. J. Iliff, B. R. Srijanto, C. P. Collier, P. Yue, and J. B. Boreyko, Passive anti-frosting surfaces using microscopic ice stripe arrays. *ACS Applied Materials & Interfaces*, 10(38) 32874-32884, 2018.
- [7] S. Nath, C. Bisbano, P. Yue, and J. Boreyko, Dueling dry zones around hygroscopic droplets, *Journal of Fluid Mechanics*, 853: 601-620, 2018.
- [8] M. Worner, X. Cai, H. Alla, and P. Yue, A semi-analytical method to estimate the effective slip length of spreading spherical-cap shaped droplets using Cox theory. *Fluid Dynamics Research*, 50(3): 035501, 2018. (17 pages)
- [9] F.-C. Yang, X.-P. Chen, and P. Yue, Surface roughness effects on contact line motion with small capillary number. *Physics of Fluids*, 30: 012106, 2018. (10 pages)
- [10] I. Rukshin, J. Mohrenweiser, P. Yue, and S. Afkhami, Modeling superparamagnetic particles in blood flow for applications in magnetic drug targeting. *Fluids*, 2(2): 29, 2017 (12 pages)
- [11] Y. Hou, L. Wang, P. Yue, and W. Sun, Fracture failure in crack interaction of asphalt binder by using a phase field approach. *Mater. Struct.* 48 (2015) 2997-3008.
- [12] H. Mohammadigoushki, P. Yue, J.J. Feng, Bubble migration in two-dimensional foam sheared in a wide-gap Couette device: Effects of non-Newtonian rheology. *J. Rheol.* 58 (2014) 1809-1827.
- [13] Y. Hou, L. Wang, P. Yue, T. Pauli, and W. Sun, Modeling mode I cracking failure in asphalt binder by using nonconserved phase-field model. *J. Mater. Civ. Eng.* 26 (2014), 684–691.
- [14] Y. Hou, P. Yue, Q. Xin, T. Pauli, W. Sun, and L. Wang, Fracture failure of asphalt binder in mixed mode (Mode I & Mode II) by using phase field model. *Road Mater. Pavement Des.* 15 (2014) 167-181.
- [15] P. Yue and Y. Renardy, Spontaneous penetration of a non-wetting drop into an exposed pore. *Phys. Fluids*, 25 (2013) 052104.
- [16] T. Qin, S. Ragab, and P. Yue, Axisymmetric simulation of the interaction of a rising bubble with a rigid surface in viscous flow. *Int. J. Multiphase Flow*. 52 (2013) 60–70.
- [17] P. Yue and J.J. Feng, Phase-field simulations of dynamic wetting of viscoelastic fluids. *J. Non-Newtonian Fluid Mech.* 189-190 (2012) 8-13.
- [18] P. Yue, S. Lee, S. Afkhami, and Y. Renardy, On the motion of superparamagnetic particles in magnetic drug targeting. *Acta Mech.* 223 (2012) 505-527
- [19] P. Yue and J.J. Feng, Can diffuse-interface models quantitatively describe moving contact

- lines? *European Phys. J. Special Topics* 197 (2011) 37-46.
- [20] J. R. Vélez-Cordero, D. Sámano, P. Yue, J. J. Feng, and R. Zenit, Hydrodynamic interaction between a pair of bubbles ascending in shear-thinning inelastic fluids. *J. Non-Newtonian Fluid Mech.* 166 (2011) 118-132.
- [21] P. Yue and J.J. Feng, Wall energy relaxation in the Cahn-Hilliard model for moving contact lines. *Phys. Fluids* 23(2011) 012106.
- [22] P. Yue, C. Zhou, and J.J. Feng, Sharp interface limit of the Cahn-Hilliard model for moving contact lines. *J. Fluid Mech.* 645 (2010) 279-294.
- [23] C. Zhou, P. Yue, J.J. Feng, C.F. Ollivier-Gooch, H.H. Hu, 3D phase-field simulations of interfacial dynamics in Newtonian and viscoelastic fluids. *J. Comput. Phys.* 229 (2010) 498-511.
- [24] C. Zhou, P. Yue, and J.J. Feng, Dynamic simulation of capillary breakup of nematic fibers: molecular orientation and interfacial rupture. *J. Comput. Theor. Nanosci.* 7(2010) 683-692.
- [25] S. Afkhami, P. Yue, and Y. Renardy, A comparison of viscoelastic stress wakes for 2D and 3D Newtonian drop deformation in a viscoelastic matrix under shear. *Phys. Fluids* 21 (2009) 072106.
- [26] Z. Xia, K.W. Connington, S. Rapaka, P. Yue, J.J. Feng, and S. Chen, Flow patterns in the sedimentation of an elliptical particle. *J. Fluid Mech.* 625(2009) 249-272.
- [27] P. Yue, C. Zhou, J. Dooley, and J.J. Feng, Elastic encapsulation in bicomponent stratified flows of viscoelastic fluids. *J. Rheol.* 52 (2008) 1027-1042.
- [28] C. Zhou, P. Yue, and J.J. Feng, Dynamic simulation of droplet interaction and self-assembly in a nematic liquid crystal. *Langmuir* 24 (2008) 3099-3110.
- [29] D. Zhou, P. Yue, and J.J. Feng, Viscoelastic effects on drop deformation in a converging pipe flow, *J. Rheol.* 52 (2008) 469-487.
- [30] P. Yue, J. Dooley, and J.J. Feng, A general criterion for viscoelastic secondary flow in pipes of noncircular cross section, *J. Rheol.* 52 (2008) 315-332.
- [31] C. Zhou, P. Yue, and J.J. Feng, Deformation of a compound drop through a contraction in a pressure-driven pipe flow, *Int. J. Multiphase Flow* 34 (2008) 102-109.
- [32] C. Zhou, P. Yue, and J.J. Feng, The rise of Newtonian drops in a nematic liquid crystal, *J. Fluid Mech.* 593 (2007) 385-404.
- [33] P. Yue, J.J. Feng, C.A. Bertelo, and H.H. Hu, An arbitrary Lagrangian-Eulerian method for simulating bubble growth in polymer foaming, *J. Comput. Phys.* 226 (2007) 2229-2249.
- [34] C. Zhou, P. Yue, J.J. Feng, C. Liu, and J. Shen, Heart-shaped bubbles rising in anisotropic liquids, *Phys. Fluids* 19 (2007) 041703.
- [35] P. Yue, C. Zhou, and J.J. Feng, Spontaneous shrinkage of drops and mass conservation in phase-field simulations, *J. Comput. Phys.* 233 (2007) 1-9.
- [36] C. Zhou, P. Yue, and J.J. Feng, Simulation of neutrophil deformation and transport in capillaries using Newtonian and viscoelastic drop models, *Ann. Biomed. Eng.* 35 (2007) 766-780.
- [37] L. Chin, P. Yue, J.J. Feng, and C.Y. Seow, Mathematical simulation of muscle crossbridge cycle and force-velocity relationship, *Biophys. J.* 91 (2006) 3653-3663.
- [38] P. Yue, C. Zhou, and J.J. Feng, A computational study of the coalescence between a drop and an interface in Newtonian and viscoelastic fluids, *Phys. Fluids* 18 (2006) 102102.
- [39] C. Zhou, P. Yue, and J.J. Feng, Formation of simple and compound drops in microfluidic devices, *Phys. Fluids* 18 (2006) 092105.
- [40] P. Yue, C. Zhou, J.J. Feng, C. Ollivier-Gooch, and H.H. Hu, Phase-field simulations of interfacial dynamics in viscoelastic fluids using finite elements with adaptive meshing. *J. Comput. Phys.* 219 (2006) 47-67.
- [41] P. Yue, J.J. Feng, C. Liu, and J. Shen, Transient drop deformation upon startup of shear in viscoelastic fluids, *Phys. Fluids* 17 (2005) 123101.
- [42] P. Yue, J.J. Feng, C. Liu, and J. Shen, Viscoelastic effects on drop deformation in steady shear. *J. Fluid Mech.* 540 (2005) 427 - 437.

- [43] P. Yue, J.J. Feng, C. Liu, and J. Shen, Interfacial forces and Marangoni flow on a nematic drop retracting in an isotropic fluid, *J. Colloid Interface Sci.* 290 (2005) 281-288.
- [44] P. Yue, J.J. Feng, C. Liu, and J. Shen, Diffuse-interface simulations of drop coalescence and retraction in viscoelastic fluids, *J. Non-Newtonian Fluid Mech.* 129 (2005) 163-176.
- [45] P. Yue, J.J. Feng, C. Liu, and J. Shen, A diffuse-interface method for simulating two-phase flows of complex fluids, *J. Fluid Mech.* 515 (2004) 293-317.

Journal papers based on doctoral work

- [46] Xu Shengli, Yue Pengtao, Liu Kai, Zhu Zuojin. Experimental visualization on natural gas-air mixing in engine intake. *Experiments and Measurements in Fluid Mechanics*, Vol. 19, No. 4, 2005, p 74-79.
- [47] Xu Shengli, Liu Kai, Zhu Zuojin, Yue Pengtao. Numerical experiments of three dimensional mixing of natural gas and air. *Journal of Hydrodynamics*, Vol. 17, No. 1, 2005, p 12-21.
- [48] Tang Jingyou, Yue Pengtao, Gu Yan, Hu Haibo, Xu Shengli, Dong Qingdong. One-dimensional numerical computation for equation of state of gaseous methane under shock compression. *Acta Aerodynamica Sinica*. Vol. 21, No. 2, 2003, p 164.
- [49] Tang Jingyou, Yue Pengtao, Xu Shengli, Gu Yan, Dong Qingdong. Study on the optimization for the protective atmosphere of pins in hydrodynamic measurements. *Experiments and Measurements in Fluid Mechanics*. Vol 17, No.1, 2003, p 28.
- [50] Yue Pengtao, Xu Shengli, Liu Dayou, Duan Xinping. Numerical investigation on mud bed-generation and impacting a wall along a slope. *Journal of Hydrodynamics*. Vol.14, No.2, 2002, p 7-11.
- [51] Xu Shengli, Yue Pengtao, Liu Dayou, Duan Xinping. Numerical simulation on cylindrical Bingham fluid impacted to a solid wall and fluid surface. *Explosion and Shock Waves*. Vol.22, No.1, 2002, p 8-14.
- [52] Xu Shengli, Yue Pengtao, Zhang Mengping. Numerical investigation on supersonic combustion of hydrogen enhanced by a cavity flame holder. *Journal of Propulsion Technology*. Vol.22, No.6, 2001, p 505-509.
- [53] Yue Pengtao, Zhang Mengping, Xu Shengli. Numerical investigation on mixing of atomized kerosene in supersonic flow with H₂ pilot flame. *Journal of Propulsion Technology*. Vol. 22, No.6, 2001, p 500-504.
- [54] Yue Pengtao, Xu Shengli, Liu Dayou, Duan Xinping. Numerical investigation on two-dimensional cylindrical mud impacting to walls and mud surfaces. *Journal of University of Science and Technology of China*. Vol. 31, No.5, 2001, p 518-527.
- [55] Xu Shengli, Yue Pengtao, Han Zhaoyuan. Numerical studies on the mixing of CH₄ and kerosene injected into a supersonic flow with H₂ pilot injection. *Applied Mathematics and Mechanics*. Vol. 22, No.4, 2001, p 468-477.
- [56] Xu Shengli, Yue Pengtao, Han Zhaoyuan. Study on the fuel mixing induced by a shock wave propagating into the H₂/air interface. *Applied Mathematics and Mechanics*. Vol. 22, No.4, 2001, p 460-467.
- [57] Yue Pengtao, Xu Shengli, Zhang Peng. Numerical study on a moving shock diffracted over the cylinder/square column in hydrogen air mixture. *Chinese Journal of Computational Physics*. Vol. 18, No.1, 2001, p 10-16.
- [58] Yue Pentao, Xu Shengli, Zhang Shudao, Han Zhaoyuan. Numerical simulation of a dual-combustor scramjet flow-field. *Acta Mechanica Sinica*. Vol.32, No.6, 2000, p 657-666.
- [59] Xu Shengli, Zhang Hongjie, Yue Pengtao, Han Zhaoyuan. Study on properties of pressure waves generated by steady flames in a duct. *Journal of University of Science and Technology of China*. Vol.30, No.4, 2000, p 387-392.
- [60] Xu Shengli, Yue Pengtao, Archer R D, Milton B E. Experimental study on the unsteady transverse injection of diesel into a subsonic and supersonic flow. *Journal of Combustion*

- Science and Technology*. Vol.6, No.2, 2000, p 101-106.
- [61] Xu Shengli, Archer R D, Milton B E, Yue Pengtao. Experimental study on unsteady transverse injection of kerosene into a supersonic flow. *Science in China (Series E)*. Vol.43, No.2, 2000, p 206-214.
- [62] Yue Pengtao, Xu Shengli, Peng Jinhua. Three dimensional computation on the interaction between FAE blast waves and the target on the ground. *Explosion and Shock Waves*. Vol.20, No.2, 2000, p 1-6.
- [63] Xu Shengli, Yue Pengtao, Peng Jinhua. Three dimensional computation on the interaction of blast waves generated by multi-sources of FAE. *Explosion and Shock Waves*. Vol.20, No.1, 2000, p 1-6.
- [64] Xu Shengli, Yue Pengtao, Sun Yingying, Han Zhaoyuan. Three dimensional numerical simulation of atomized fuels injected into a supersonic flow. *Chinese Journal of Applied Mechanics*. Vol.17, No.2, 2000, p 19-23.
- [65] Xu Shengli, Yue Pengtao, Han Zhaoyuan, Sun Yingying. Numerical simulation of atomized fuels transversely injected into a supersonic flow. *Acta Aerodynamica Sinica*. Vol.18, No.1, 2000, p 39-45.

Book chapters and others

- [66] Y. Hou, L. Zhang, P. Yue, T. Pauli, F. Sun, and L. Wang, Mode II cracking failure in asphalt concrete by using a non-conserved phase field model. Multiscale Modeling and Characterization: Proceedings of the International RILEM Symposium Stockholm, June 2013, editors: N. Kringos, B. Birgisson, D. Frost, and L. Wang, Springer Netherlands, 2013, pages 127-138. (DOI: 10.1007/978-94-007-6878-9_10).
- [67] Y. Hou, P. Yue, L. Wang, W. Sun, T. Pauli, D. Wang, W. Zhou, and M. Hu. Phase field modeling of Mode I cracking failure in asphalt binder. The 92nd Annual Meeting of Transportation Research Board Compendium of Papers, Paper #13-1554, 2013.
- [68] J.J. Feng, X. Chen, P. Yue, C. Zhou, Drop dynamics in complex fluids. in Understanding Soft Condensed Matter via Modeling and Computations (Series in Soft Condensed Matter Vol. 3), editors: Wenbing Hu and An-Chang Shi. World Scientific, 2011.
- [69] J.J. Feng, C. Liu, J. Shen, and P. Yue. An energetic variational formulation with phase field methods for interfacial dynamics of complex fluids: advantages and challenges, in *Modeling of Soft Matter* (IMA Volumes in Mathematics and its Applications), editors: M.-C. T. Calderer and E. Terentjev, Springer, New York, 2005.
- [70] C. Liu, J. Shen, J.J. Feng, and P. Yue. Variational approach in two-phase flows of complex fluids: transport and induced elastic stress, Chapter 11 in *Mathematical Models and Methods in Phase Transitions*, editor: Alain Miranville, Nova Publishers, New York, 2005.

CONFERENCE PRESENTATIONS

- [1] “Numerical simulations of contact angle hysteresis”. Workshop on modeling and numerical methods for interfacial dynamics, South University of Science and Technology of China, China, December 15-17, 2018.
- [2] “Phase-field simulations of contact angle hysteresis”. The 71st APS/DFD Annual Meeting, Atlanta, GA, November 18-20, 2018
- [3] “Phase-field simulation of moving contact lines with contact angle hysteresis”. The 42nd SIAM Southeastern Atlantic Sectional Conference, Chapel Hill, NC, March 9-11, 2018
- [4] “An energy-stable phase-field method for moving contact line problems”. The 70th APS/DFD Annual Meeting, Denver, CO, November 19-21, 2017.
- [5] “An immersed discontinuous finite element method for the Stokes problem with a moving

- interface". The 3rd Annual Meeting of SIAM Central States Section, Fort Collins, CO, September 30-October 1, 2017.
- [6] "Hybrid numerical methods for particle dynamics at a fluid interface". BIRS workshop on Mathematics Approaches to Interfacial Dynamics in Complex Fluids, Banff, AB, Canada, June 25-30, 2017.
 - [7] "An ALE-level-set method for moving boundary problems". SIAM conference on Computational Science and Engineering, Atlanta, GA, February 27-March 3, 2017. (poster)
 - [8] "Numerical simulation of particle dynamics at a fluid interface". 69th APS/DFD Annual Meeting, Portland, OR. November 20-22, 2016.
 - [9] "An arbitrary-Lagrangian-Eulerian-phase-field method for contact-line dynamics on moving particles". 11th AIMS Conference on Dynamic Systems, Differential Equations and Applications, Orlando, FL. July 1-5, 2016.
 - [10] "ALE-phase-field simulations of floating particles". 68th APS/DFD Annual Meeting, Boston, MA. November 22-24, 2015.
 - [11] "An ALE-Phase-Field Method for Dynamic Wetting of Moving Particles". SIAM Conference on Computational Science and Engineering, Salt Lake City, UT, March 14-18, 2015.
 - [12] "Phase-field simulations of contact-line dynamics on rough surfaces". 68th APS/DFD Annual Meeting, Boston, MA. November 22-24, 2015.
 - [13] "Arbitrary Lagrangian-Eulerian simulations of particle and bubble dynamics in non-Newtonian fluids". 66th APS/DFD Annual Meeting, Pittsburgh, PA. November 24-26, 2013.
 - [14] "An arbitrary Lagrangian-Eulerian method for the direct numerical simulation of particle-bubble interactions". 2013 NETL workshop on Multiphase Flow Science, Morgantown, WV. August 6-7, 2013.
 - [15] "Phase field modeling of Mode I cracking failure in asphalt binder". 92nd Transportation Research Board Annual Meeting, Washington, DC. January 13-17, 2013. (poster)
 - [16] "Spontaneous penetration of a non-wetting drop into an exposed pore". 65th APS/DFD Annual Meeting, San Diego, CA, November 18-20, 2012.
 - [17] "A residual thermal stress analysis of asphalt binder by phase field". Society of Engineering Science 49th Annual Technical Meeting, Georgia Tech. October 10-12, 2012.
 - [18] "Direct numerical simulation of rigid particle-free surface interaction". The 23rd International Congress on Theoretical and Applied Mechanics (ICTAM), Beijing, China. August 19-24, 2012.
 - [19] "Computational analysis of asphalt binder by phase field method". 2012 Joint Conference of the Engineering Mechanics Institute & 11th ASCE Joint Specialty Conference on Probabilistic Mechanics and Structural Reliability (EMI-PMC 2012), Notre Dame, IN. June 17-20, 2012.
 - [20] "Phase-field simulations of dynamic wetting of viscoelastic fluids". 36th Annual SIAM Southeastern Atlantic Section Conference, Huntsville, AL, March 24-25, 2012
 - [21] "An arbitrary Lagrangian-Eulerian method for flows with particles and bubbles". 11th U.S. National Congress on Computational Mechanics, Minneapolis, MN, July 25-29, 2011
 - [22] "Several issues in the diffuse-interface modeling of moving contact lines". 7th International Congress on Industrial and Applied Mathematics - ICIAM 2011, Vancouver, BC, Canada, July 18-22, 2011
 - [23] "An arbitrary-Lagrangian-Eulerian method for simulating particle-bubble interactions". APS/DFD Annual meeting, Long Beach, CA. November 2010.
 - [24] "Numerical simulation of the motion of superparamagnetic nanoparticle clusters in a pressure-driven channel flow with an external magnet". APS/DFD Annual Meeting, Long Beach, CA. November, 2010.
 - [25] "Wall energy relaxation in Cahn-Hilliard model for moving contact lines". APS/DFD Annual Meeting, Minneapolis, MN. November, 2009.

- [26] "A numerical study of the hydrodynamic interaction of bubble pairs ascending in non-Newtonian liquids". APS/DFD Annual Meeting, Minneapolis, MN. November, 2009.
- [27] "Cahn-Hilliard simulation of moving contact lines in viscoelastic fluids". SoR Annual Meeting, Madison, WI. October, 2009. (poster)
- [28] "Cahn-Hilliard model for moving contact lines". American Mathematical Society 2009 Spring Southeastern Sectional Meeting, Rayleigh, NC. April 4-5, 2009.
- [29] "Can the Cahn-Hilliard model quantitatively describe moving contact lines?" APS/DFD Annual Meeting, San Antonio, TX. November, 2008
- [30] "3D Phase-Field Simulations of Interfacial Dynamics in Viscoelastic Fluids with Adaptive Meshing". APS/DFD Annual Meeting, San Antonio, TX. November, 2008
- [31] "Viscoelastic secondary flows in homogeneous and stratified pipe flows". APS/DFD Annual Meeting, Salt Lake City, UT. November, 2007
- [32] "Self-assembly of droplets in a nematic liquid crystal". APS/DFD Annual Meeting, Salt Lake City, UT. November, 2007
- [33] "Self-assembly of droplets in a nematic liquid crystal". AIChE Annual Meeting, Salt Lake City, UT. November, 2007
- [34] "Simulation of bubble growth in polymer foaming". APS/DFD Annual Meeting, Tampa, FL. November, 2006
- [35] "Drop-interface partial coalescence in polymeric fluids". APS/DFD Annual Meeting, Tampa, FL. November, 2006
- [36] "The shape of bubbles and drops rising in a nematic liquid crystal". APS/DFD Annual Meeting, Tampa, FL. November, 2006
- [37] "Simulation of bubble growth in polymer foaming". SoR Annual Meeting, Portland, ME. October, 2006
- [38] "The shape of bubbles and drops rising in a nematic liquid crystal". SoR Annual Meeting, Portland, ME. October, 2006
- [39] "Simulation of bubble growth in polymer foaming". Interfacial Dynamics in Complex Fluids Workshop, Banff, AB, Canada. May 2006.
- [40] "A finite-element phase-field method for simulating interfacial dynamics in complex fluids". APS/DFD Annual Meeting, Chicago, IL. November 2005.
- [41] "A computational study of drop formation in microfluidic devices". APS/DFD Annual Meeting, Chicago, IL. November 2005.
- [42] "Viscoelastic compound-drop models for neutrophil deformation and transport in capillaries". APS/DFD Annual Meeting, Chicago, IL. November 2005.
- [43] "A finite-element phase-field method for simulating interfacial dynamics in complex fluids". AIChE Annual Meeting, Cincinnati, OH. November 2005.
- [44] "A finite-element phase-field method for simulating interfacial dynamics in complex fluids". SoR Annual Meeting, Vancouver, BC, Canada. October 2005.
- [45] "A computational study of drop formation in microfluidic devices". SoR Annual Meeting, Vancouver, BC, Canada. October 2005.
- [46] "Shape of rising bubbles in a nematic liquid crystal". APS/DFD Annual Meeting, Seattle, WA. Nov, 2004
- [47] "Simulation of drop dynamics in complex fluids: drop coalescence and retraction". APS/DFD Annual Meeting, Seattle, WA. Nov, 2004
- [48] "Self-assembly of isotropic drops in a nematic matrix simulated by a diffuse-interface method". APS/DFD Annual Meeting, Seattle, WA. November 2004.
- [49] "Simulation of drop dynamics in complex fluid: shear-induced deformation". APS/DFD Annual Meeting, Seattle, WA. November 2004.
- [50] "Self-assembly of isotropic drops in a nematic matrix simulated by a diffuse-interface method". AIChE Annual Meeting, Austin, TX. November, 2004.
- [51] "Simulation of drop and bubble dynamics using a diffuse-interface model". AIChE Annual

- Meeting, Austin, TX. November, 2004.
- [52] “A diffuse-interface method for simulating the dynamics of drops of complex fluids”. AIChE Annual Meeting, San Francisco, CA. November, 2003.
- [53] “A diffuse-interface method for simulating the deformation and retraction of liquid crystal-line drops”. SoR Annual Meeting, Pittsburgh, PA. October, 2003.
- [54] “A diffuse-interface method for simulating two-phase flows of complex fluids”. 7th U.S. National Congress on Computational Mechanics, Albuquerque, New Mexico. July, 2003.

INVITED TALKS

- [1] “Numerical simulations of moving boundary problems in complex fluids”. Oak Ridge National Laboratory, January 14, 2019.
- [2] “Numerical simulations of contact angle hysteresis”. Department of Mathematics, Hong Kong University of Science and Technology, December 19, 2018
- [3] “Phase-field modeling of contact angle hysteresis”. University of British Columbia, July 5, 2018.
- [4] “ALE-phase-field simulations of moving contact lines on moving particles”. Department of Mechanical Engineering, Eindhoven University of Technology, Eindhoven, Netherlands, June 27, 2016.
- [5] “ALE-phase-field simulations of moving contact lines on moving particles”. Department of Modern Mechanics, University of Science and Technology of China, Hefei, China, June 13, 2016.
- [6] “ALE-phase-field simulations of moving contact lines on moving particles”. Beijing Computational Science Research Center, Beijing, China, June 2, 2016.
- [7] “ALE-phase-field simulations of moving contact lines on moving particles”. Institute of Mechanics, Chinese Academy of Sciences, Beijing, China, May 31, 2016.
- [8] “ALE-phase-field simulations of moving contact lines on moving particles”. Department of Mathematics, University of Tennessee, Knoxville, November 11, 2015.
- [9] “ALE-phase-field simulations of moving contact lines on moving particles”. Department of Mathematics, Purdue University, April 20, 2015.
- [10] “Phase-field method for moving contact lines”. Department of Physics, Virginia Tech, December 9, 2013.
- [11] “Phase-field modeling of thermal stress and cracking in asphalt binders”. International Society for Asphalt Pavements (ISAP) Technical Committee Day, Washington, DC. January 13, 2013.
- [12] “Diffuse-interface simulations of moving contact lines”. Department of Mathematics, Hong Kong University of Science and Technology, June 22, 2011
- [13] “Diffuse-interface simulations of moving contact lines”. Department of Mathematical Sciences, New Jersey Institute of Technology, November 5, 2010
- [14] “Diffuse-interface simulations of moving contact lines”. Department of Mechanical Engineering, City College of New York, May 6, 2010
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