

Stanford



Eric S.G. Shaqfeh

Lester Levi Carter Professor of Chemical Engineering and Professor of Mechanical Engineering

 Curriculum Vitae available Online

Bio

BIO

Eric Shaqfeh is the Lester Levi Carter Professor of Chemical Engineering at Stanford University. He earned a B.S.E. summa cum laude from Princeton University (1981), and a M.S. (1982) and Ph.D. (1986) from Stanford University all in Chemical Engineering. In 1986, he was a NATO postdoctoral fellow at the Department of Applied Mathematics and Theoretical Physics at the University of Cambridge. From 1987 through 1989 he was employed as a Member of Technical Staff at AT&T Bell Laboratories in Murray Hill, NJ before joining the Stanford Chemical Engineering faculty in early 1990. In 2001 he received a dual appointment and became Professor of Mechanical Engineering. He is most recently (as of 2004) a faculty member in the Institute of Computational and Mathematical Engineering at Stanford.

Shaqfeh's current research interests include non-Newtonian fluid mechanics (especially in the area of elastic instabilities, and turbulent drag reduction), nonequilibrium polymer statistical dynamics (focusing on single molecules studies of DNA), and suspension mechanics (particularly of fiber suspensions and particles/vesicles in microfluidics). He has authored or co-authored over 200 publications and has been an Associate Editor of the *Physical Review Fluids* since 2016.

Shaqfeh has received the APS Francois N. Frenkiel Award 1989, the NSF Presidential Young Investigator Award 1990, the David and Lucile Packard Fellowship in Science and Engineering 1991, the Camille and Henry Dreyfus Teacher--Scholar Award 1994, the W.M. Keck Foundation Engineering Teaching Excellence Award 1994, the 1998 ASEE Curtis W. McGraw Award, the 2011 Bingham Medal from the Society of Rheology, and the 2018 Alpha Chi Sigma Award from the AICHE. A Fellow of the American Physical Society (2001) and a member of the National Academy of Engineering (2013), he has held a number of professional lectureships, most recently the Merck Distinguished Lectureship, Rutgers (2003), the Corrsin Lectureship, Johns Hopkins (2003) and the Katz Lectureship, CCNY (2004). He was also the Hougren Professor of Chemical Engineering at the University of Wisconsin (2004) and the Probstein Lecturer at MIT (2011).

ACADEMIC APPOINTMENTS

- Professor, Chemical Engineering
- Professor, Mechanical Engineering
- Member, Bio-X
- Member, Institute for Computational and Mathematical Engineering (ICME)

HONORS AND AWARDS

- Alpha Chi Sigma Award, American Institute of Chemical Engineering (2018)
- Associate Editor, *Physical Review Fluids* (2016-present)
- Member, National Academy of Engineering (2013-present)
- Lester Levi Carter Endowed Professorship, Stanford University (2011-present)

- E.C. Bingham Medal (for Outstanding Contributions to Rheology), Society of Rheology (2011)
- Ronald Probstein Lecturer in Engineering Science, MIT (2011)
- Hougén Professor, Department of Chemical Engineering, University of Wisconsin (2004)
- Stanley Corrsin Lectureship, Department of Chemical and Biomolecular Engineering, Johns Hopkins University (2003)
- Van Ness Lectureship, Department of Chemical Engineering, Rensselaer Polytechnic Institute (2001)
- Fellow, American Physical Society (2000)
- Curtis W. McGraw Research Award, American Society of Engineering Education (1998)
- David and Lucile Packard Fellow in Science and Engineering, Stanford University (1991-96)

PROFESSIONAL EDUCATION

- BS, Princeton University, Chemical Engineering (and Engineering Physics) (1981)
- MS, Stanford University, Chemical Engineering (1982)
- PhD, Stanford University, Chemical Engineering (1986)

LINKS

- My Research Site: <https://shaqfehgroup.stanford.edu/>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

I have over 25 years experience in theoretical and computational research related to complex fluids following my PhD in 1986. This includes work in suspension mechanics of rigid particles (rods), solution mechanics of polymers and most recently suspensions of vesicles, capsules and mixtures of these with rigid particles. My research group is internationally known for pioneering work in all these areas.

Teaching

COURSES

2019-20

- Chemical Process Modeling, Dynamics, and Control: CHEMENG 100 (Aut)
- Graduate Practical Training: CHEMENG 299 (Sum)
- Special Topics in Transport Mechanics: CHEMENG 510 (Aut, Win, Spr, Sum)

2018-19

- Complex Fluids and Non-Newtonian Flows: CHEMENG 462, ME 455 (Win)
- Special Topics in Transport Mechanics: CHEMENG 510 (Aut, Win, Spr, Sum)

2017-18

- Special Topics in Transport Mechanics: CHEMENG 510 (Aut, Win, Spr, Sum)

2016-17

- Microhydrodynamics: CHEMENG 310, ME 451D (Win)
- Seminar in Fluid Mechanics: ENGR 298 (Aut)
- Special Topics in Transport Mechanics: CHEMENG 510 (Aut, Win, Spr, Sum)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Vinny Chandran Suja

Postdoctoral Faculty Sponsor

Mehdi Niazi Ardekani

Doctoral Dissertation Advisor (AC)

Jeremy Binagia, Anika Jain, Boon Siong Neo, Xingyi Shi, Zach Zajo

Master's Program Advisor

Adelia Carragher, German Soto, Jonathan Yeung

Postdoctoral Research Mentor

Mehdi Niazi Ardekani

Doctoral (Program)

Anni Zhang

Publications

PUBLICATIONS

- **Lift and drag force on a spherical particle in a viscoelastic shear flow** *JOURNAL OF NON-NEWTONIAN FLUID MECHANICS*
Zhang, A., Murch, W. L., Einarsson, J., Shaqfeh, E. G.
2020; 280
- **Extravasation of PEGylated Spherical Nanoparticles through a Circular Pore of Similar Size** *MACROMOLECULES*
Lin, T. Y., Klass, S., Francis, M. B., Shaqfeh, E. G.
2020; 53 (8): 2991–3006
- **Oscillatory spontaneous dimpling in evaporating curved thin films** *JOURNAL OF FLUID MECHANICS*
Shi, X., Fuller, G. G., Shaqfeh, E. G.
2020; 889
- **A system for the high-throughput measurement of the shear modulus distribution of human red blood cells. Lab on a chip**
Saadat, A., Huyke, D. A., Oyarzun, D. I., Escobar, P. V., Øvreeide, I. H., Shaqfeh, E. S., Santiago, J. G.
2020
- **The rheology of soft bodies suspended in the simple shear flow of a viscoelastic fluid** *JOURNAL OF NON-NEWTONIAN FLUID MECHANICS*
Guido, C. J., Shaqfeh, E. G.
2019; 273
- **Extensional rheology of a dilute particle-laden viscoelastic solution** *PHYSICAL REVIEW FLUIDS*
Jain, A., Einarsson, J., Shaqfeh, E. G.
2019; 4 (9)
- **Simulation of microparticle inhalation in rhesus monkey airways** *PHYSICAL REVIEW FLUIDS*
Geisler, T. S., Majji, M., Kesavan, J. S., Alstadt, V. J., Shaqfeh, E. G., Iaccarino, G.
2019; 4 (8)
- **Drag coefficient for a sedimenting and rotating sphere in a viscoelastic fluid** *PHYSICAL REVIEW FLUIDS*
Castillo, A., Murch, W. L., Einarsson, J., Mena, B., Shaqfeh, E. G., Zenit, R.
2019; 4 (6)
- **On the rheology of particle suspensions in viscoelastic fluids** *AICHE JOURNAL*
Shaqfeh, E. G.
2019; 65 (5)
- **Blood group alters platelet binding kinetics to von Willebrand factor and consequently platelet function** *BLOOD*

-
- Dunne, E., Qi, Q. M., Shaqfeh, E. S., O'Sullivan, J. M., Schoen, I., Ricco, A. J., O'Donnell, J. S., Kenny, D.
2019; 133 (12): 1371–77
- **In Vitro Measurement and Modeling of Platelet Adhesion on VWF-Coated Surfaces in Channel Flow** *BIOPHYSICAL JOURNAL*
Qi, Q. M., Dunne, E., Oglesby, I., Schoen, I., Ricco, A. J., Kenny, D., Shaqfeh, E. G.
2019; 116 (6): 1136–51
 - **Evaporation-driven solutocapillary flow of thin liquid films over curved substrates** *PHYSICAL REVIEW FLUIDS*
Rodriguez-Hakim, M., Barakat, J. M., Shi, X., Shaqfeh, E. G., Fuller, G. G.
2019; 4 (3)
 - **Taylor dispersion in the presence of cross flow and interfacial mass transfer** *PHYSICAL REVIEW FLUIDS*
Lin, T. Y., Shaqfeh, E. G.
2019; 4 (3)
 - **In Vitro Measurement and Modeling of Platelet Adhesion on VWF-Coated Surfaces in Channel Flow.** *Biophysical journal*
Qi, Q. M., Dunne, E., Oglesby, I., Schoen, I., Ricco, A. J., Kenny, D., Shaqfeh, E. S.
2019
 - **Blood group alters platelet binding kinetics to von Willebrand Factor and consequently platelet function.** *Blood*
Dunne, E., Qi, Q. M., Shaqfeh, E. S., O'Sullivan, J. M., Schoen, I., Ricco, A. J., O'Donnell, J. S., Kenny, D.
2019
 - **Three-dimensional simulations of undulatory and amoeboid swimmers in viscoelastic fluids.** *Soft matter*
Binagia, J. P., Guido, C. J., Shaqfeh, E. S.
2019
 - **Immersed-finite-element method for deformable particle suspensions in viscous and viscoelastic media** *PHYSICAL REVIEW E*
Saadat, A., Guido, C. J., Iaccarino, G., Shaqfeh, E. G.
2018; 98 (6)
 - **Pressure-driven flow of a vesicle through a square microchannel** *JOURNAL OF FLUID MECHANICS*
Barakat, J. M., Ahmmed, S. M., Vanapalli, S. A., Shaqfeh, E. G.
2018; 861: 447–83
 - **Mechanism of shear thickening in suspensions of rigid spheres in Boger fluids. Part I: Dilute suspensions** *JOURNAL OF RHEOLOGY*
Yang, M., Shaqfeh, E. G.
2018; 62 (6): 1363–77
 - **Mechanism of shear thickening in suspensions of rigid spheres in Boger fluids. Part II: Suspensions at finite concentration** *JOURNAL OF RHEOLOGY*
Yang, M., Shaqfeh, E. G.
2018; 62 (6): 1379–96
 - **Extravasation of Brownian Spheroidal Nanoparticles through Vascular Pores** *BIOPHYSICAL JOURNAL*
Shah, P. N., Lin, T. Y., Aanei, I. L., Klass, S. H., Smith, B., Shaqfeh, E. G.
2018; 115 (6): 1103–15
 - **Extravasation of Brownian Spheroidal Nanoparticles through Vascular Pores.** *Biophysical journal*
Shah, P. N., Lin, T. Y., Aanei, I. L., Klass, S. H., Smith, B. R., Shaqfeh, E. S.
2018
 - **Stokes flow of vesicles in a circular tube** *JOURNAL OF FLUID MECHANICS*
Barakat, J. M., Shaqfeh, E. G.
2018; 851: 606–35
 - **Time-dependent particle migration and margination in the pressure-driven channel flow of blood** *PHYSICAL REVIEW FLUIDS*
Qi, Q. M., Shaqfeh, E. G.
2018; 3 (3)
 - **The steady motion of a closely fitting vesicle in a tube** *JOURNAL OF FLUID MECHANICS*
Barakat, J. M., Shaqfeh, E. G.

2018; 835: 721–61

- **Einstein viscosity with fluid elasticity** *PHYSICAL REVIEW FLUIDS*
Einarsson, J., Yang, M., Shaqfeh, E. G.
2018; 3 (1)
- **Effect of Length on the Dynamics of Wall Tethered Polymers in Shear Flow** *MACROMOLECULES*
Lin, T. Y., Saadat, A., Kushwaha, A., Shaqfeh, E. G.
2018; 51 (1): 254–65
- **Suspension flow through an asymmetric T-junction** *Journal of Fluid Mechanics*
Manoorkar, S., Krishnan, S., Sedes, O., Shaqfeh, E., Iaccarino, G.
2018; 844
- **Growth of viscoelastic wings and the reduction of particle mobility in a viscoelastic shear flow** *PHYSICAL REVIEW FLUIDS*
Murch, W. L., Krishnan, S., Shaqfeh, E. G., Iaccarino, G.
2017; 2 (10)
- **Theory to predict particle migration and margination in the pressure-driven channel flow of blood** *PHYSICAL REVIEW FLUIDS*
Qi, Q. M., Shaqfeh, E. G.
2017; 2 (9)
- **Study of the flow unsteadiness in the human airway using large eddy simulation** *PHYSICAL REVIEW FLUIDS*
Bernate, J. A., Geisler, T. S., Padhy, S., Shaqfeh, E. G., Iaccarino, G.
2017; 2 (8)
- **Fully resolved viscoelastic particulate simulations using unstructured grids** *JOURNAL OF COMPUTATIONAL PHYSICS*
Krishnan, S., Shaqfeh, E. S., Iaccarino, G.
2017; 338: 313-338
- **Heat/mass transport in shear flow over a reactive surface with inert defects** *JOURNAL OF FLUID MECHANICS*
Shah, P. N., Lin, T. Y., Shaqfeh, E. S.
2017; 811: 372-399
- **Numerical simulation of the deterministic vector separation of particles flowing over slanted open cavities** *PHYSICAL REVIEW FLUIDS*
Shaqfeh, E. S., Bernate, J. A., Yang, M.
2016; 1 (8)
- **The Effect of Hematocrit on Platelet Adhesion: Experiments and Simulations.** *Biophysical journal*
Spann, A. P., Campbell, J. E., Fitzgibbon, S. R., Rodriguez, A., Cap, A. P., Blackbourne, L. H., Shaqfeh, E. S.
2016; 111 (3): 577-588
- **Numerical simulations of the rheology of suspensions of rigid spheres at low volume fraction in a viscoelastic fluid under shear** *JOURNAL OF NON-NEWTONIAN FLUID MECHANICS*
Yang, M., Krishnan, S., Shaqfeh, E. S.
2016; 234: 51-68
- **Numerical simulations of the rheology of suspensions of rigid spheres at low volume fraction in a viscoelastic fluid under shear** *JOURNAL OF NON-NEWTONIAN FLUID MECHANICS*
Yang, M., Krishnan, S., Shaqfeh, E. S.
2016; 233: 181-197
- **Experimental observation of the asymmetric instability of intermediate-reduced-volume vesicles in extensional flow** *SOFT MATTER*
Dahl, J. B., Narsimhan, V., Gouveia, B., Kumar, S., Shaqfeh, E. S., Muller, S. J.
2016; 12 (16): 3787-3796
- **Heat/mass transport in shear flow over a heterogeneous surface with first-order surface-reactive domains** *JOURNAL OF FLUID MECHANICS*
Shah, P. N., Shaqfeh, E. S.
2015; 782: 260-299
- **Pearling, wrinkling, and buckling of vesicles in elongational flows** *JOURNAL OF FLUID MECHANICS*

- Narsimhan, V., Spann, A. P., Shaqfeh, E. S.
2015; 777
- **In Vitro Measurement of Particle Margination in the Microchannel Flow: Effect of Varying Hematocrit** *BIOPHYSICAL JOURNAL*
FitzGibbon, S., Spann, A. P., Qi, Q. M., Shaqfeh, E. S.
2015; 108 (10): 2601-2608
 - **Examining platelet adhesion via Stokes flow simulations and microfluidic experiments.** *Soft matter*
FitzGibbon, S., Cowman, J., Ricco, A. J., Kenny, D., Shaqfeh, E. S.
2015; 11 (2): 355-367
 - **Examining platelet adhesion via Stokes flow simulations and microfluidic experiments** *SOFT MATTER*
FitzGibbon, S., Cowman, J., Ricco, A. J., Kenny, D., Shaqfeh, E. S.
2015; 11 (2): 355-367
 - **Nonlinear instability of a supersonic boundary layer with two-dimensional roughness** *JOURNAL OF FLUID MECHANICS*
Marxen, O., Iaccarino, G., Shaqfeh, E. S.
2014; 752: 497-520
 - **Scaling analysis and mathematical theory of the interfacial stress rheometer** *JOURNAL OF RHEOLOGY*
FitzGibbon, S., Shaqfeh, E. S., Fuller, G. G., Walker, T. W.
2014; 58 (4): 999-1038
 - **The mechanism of shape instability for a vesicle in extensional flow** *JOURNAL OF FLUID MECHANICS*
Narsimhan, V., Spann, A. P., Shaqfeh, E. S.
2014; 750: 144-190
 - **Loop subdivision surface boundary integral method simulations of vesicles at low reduced volume ratio in shear and extensional flow** *PHYSICS OF FLUIDS*
Spann, A. P., Zhao, H., Shaqfeh, E. S.
2014; 26 (3)
 - **Singular perturbation theory for predicting extravasation of Brownian particles** *JOURNAL OF ENGINEERING MATHEMATICS*
Shah, P., FitzGibbon, S., Narsimhan, V., Shaqfeh, E. S.
2014; 84 (1): 155-171
 - **Singular perturbation theory for predicting extravasation of Brownian particles.** *Journal of engineering mathematics*
Shah, P., Fitzgibbon, S., Narsimhan, V., Shaqfeh, E. S.
2014; 84 (1): 155-71
 - **A method for the direct numerical simulation of hypersonic boundary-layer instability with finite-rate chemistry** *JOURNAL OF COMPUTATIONAL PHYSICS*
Marxen, O., Magin, T. E., Shaqfeh, E. S., Iaccarino, G.
2013; 255: 572-589
 - **The effect of shear thinning and walls on the sedimentation of a sphere in an elastic fluid under orthogonal shear** *JOURNAL OF NON-NEWTONIAN FLUID MECHANICS*
Padhy, S., Rodriguez, M., Shaqfeh, E. S., Iaccarino, G., Morris, J. F., Tonmukayakul, N.
2013; 201: 120-129
 - **Simulations of a sphere sedimenting in a viscoelastic fluid with cross shear flow** *JOURNAL OF NON-NEWTONIAN FLUID MECHANICS*
Padhy, S., Shaqfeh, E. S., Iaccarino, G., Morris, J. F., Tonmukayakul, N.
2013; 197: 48-60
 - **The dynamics of a non-dilute vesicle suspension in a simple shear flow** *JOURNAL OF FLUID MECHANICS*
Zhao, H., Shaqfeh, E. S.
2013; 725: 709-731
 - **Coarse-grained theory to predict the concentration distribution of red blood cells in wall-bounded Couette flow at zero Reynolds number** *PHYSICS OF FLUIDS*
Narsimhan, V., Zhao, H., Shaqfeh, E. S.

2013; 25 (6)

- **The shape stability of a lipid vesicle in a uniaxial extensional flow** *JOURNAL OF FLUID MECHANICS*
Zhao, H., Shaqfeh, E. S.
2013; 719: 345-361
- **Singular Perturbation Theory for Predicting the Extravasation of Brownian Particles** *Journal of Engineering Mathematics*
Shah, P., Fitzgibbon, S., Narsimhan, V., Shaqfeh, E., S.G.
2013
- **A Conversation with Andreas Acrivos** *ANNUAL REVIEW OF CHEMICAL AND BIOMOLECULAR ENGINEERING, VOL 4*
Acrivos, A., Shaqfeh, E., Prausnitz, J. M.
2013; 4: 1–21
- **The effect of shear thinning and walls on the sedimentation of a sphere in an elastic fluid under orthogonal shear** *J. NonNewt. Fluid Mech.*
Padhy, S., Rodriguez, M., Shaqfeh, E., S.G., Iaccarino, G., Morris, J., Tonmukayakul, N.
2013; 201: 120 - 129
- **A Conversation with Andreas Acrivos** *Annual Reviews of Chemical and Biomolecular Engineering*
Acrivos, A., Shaqfeh, E., S.G.
2013; 1 (16): 1-21
- **Coarse-grained theory to predict the concentration distribution of red blood cells in wall-bound Couette flow at zero Reynolds number** *Phys. Fluids*
Narsimhan, V., Zhao, H., Shaqfeh, E., S.G.
2013; 25: 061901
- **The rheology of a non-dilute vesicle suspension in a simple shear flow** *J. Fluid Mech.*
Zhao, H., Shaqfeh, E., S.G.
2013; 725: 709 - 731
- **A method for the direct numerical simulation of hypersonic boundary-layer instability with finite-rate chemistry** *J. Comp. Phys.*
Marxen, O., Magin, T., Shaqfeh, E., S.G., Iaccarino, G.
2013; 255: 572-589
- **Flow of power-law fluids in fixed beds of cylinders or spheres** *JOURNAL OF FLUID MECHANICS*
Singh, J. P., Padhy, S., Shaqfeh, E. S., Koch, D. L.
2012; 713: 491-527
- **Buckling transitions of an elastic filament in a viscous stagnation point flow** *PHYSICS OF FLUIDS*
Guglielmini, L., Kushwaha, A., Shaqfeh, E. S., Stone, H. A.
2012; 24 (12)
- **Effects of viscoelasticity in the high Reynolds number cylinder wake** *JOURNAL OF FLUID MECHANICS*
Richter, D., Iaccarino, G., Shaqfeh, E. S.
2012; 693: 297-318
- **Shear-induced particle migration and margination in a cellular suspension** *PHYSICS OF FLUIDS*
Zhao, H., Shaqfeh, E. S., Narsimhan, V.
2012; 24 (1)
- **The effects of viscoelasticity in the high Reynolds number cylinder wake** *J. Fluid Mech.*
Richter, D., Iaccarino, G., Shaqfeh, E., S.G.
2012; 693: 297-318
- **The dynamics of a vesicle in a wall-bound shear flow** *PHYSICS OF FLUIDS*
Zhao, H., Spann, A. P., Shaqfeh, E. S.
2011; 23 (12)
- **Numerical Simulation of Polymer Injection in Turbulent Flow Past a Circular Cylinder** *JOURNAL OF FLUIDS ENGINEERING-TRANSACTIONS OF THE ASME*
Richter, D., Shaqfeh, E. S., Iaccarino, G.

2011; 133 (10)

- **A high-order numerical method to study hypersonic boundary-layer instability including high-temperature gas effects** *PHYSICS OF FLUIDS*
Marxen, O., Magin, T., Iaccarino, G., Shaqfeh, E. S.
2011; 23 (8)
- **A computational study of the influence of viscoelasticity on the interfacial dynamics of dip coating flow** *JOURNAL OF NON-NEWTONIAN FLUID MECHANICS*
Abedijaberi, A., Bhatara, G., Shaqfeh, E. S., Khomami, B.
2011; 166 (12-13): 614-627
- **Shear-induced platelet margination in a microchannel** *PHYSICAL REVIEW E*
Zhao, H., Shaqfeh, E. S.
2011; 83 (6)
- **Floquet stability analysis of viscoelastic flow over a cylinder** *16th International Workshop on Numerical Methods for Non-Newtonian Flows*
Richter, D., Shaqfeh, E. S., Iaccarino, G.
ELSEVIER SCIENCE BV.2011: 554-65
- **Slip-link simulations of entangled polymers in planar extensional flow: Disentanglement modified extensional thinning** *JOURNAL OF RHEOLOGY*
Kushwaha, A., Shaqfeh, E. S.
2011; 55 (3): 463-483
- **The dynamics of a vesicle in simple shear flow** *JOURNAL OF FLUID MECHANICS*
Zhao, H., Shaqfeh, E. S.
2011; 674: 578-604
- **The Shear Flow Processing of Controlled DNA Tethering and Stretching for Organic Molecular Electronics** *ACS NANO*
Yu, G., Kushwaha, A., Lee, J. K., Shaqfeh, E. S., Bao, Z.
2011; 5 (1): 275-282
- **Conformational hysteresis of flexible polymers in 3-D, incompressible, linear flows** *J. Chem. Phys.*
Somani, S., Shaqfeh, E., S.G.
2011
- **Buckling transitions of a beam at a stagnation point**
Guglielmini, L., Kushwaha, A., Shaqfeh, E., Stone, H., A.
2011
- **Numerical simulations of hypersonic boundary-layer instability with localized roughness**
Marxen, O., Iaccarino, G., Shaqfeh, E., S.G.
2011
- **Effect of Solvent Quality on the Coil-Stretch Transition** *MACROMOLECULES*
Somani, S., Shaqfeh, E. S., Prakash, J. R.
2010; 43 (24): 10679-10691
- **Lateral drift and concentration instability in a suspension of bubbles induced by Marangoni stresses at zero Reynolds number** *PHYSICS OF FLUIDS*
Narsimhan, V., Shaqfeh, E. S.
2010; 22 (10)
- **Simulations of three-dimensional viscoelastic flows past a circular cylinder at moderate Reynolds numbers** *JOURNAL OF FLUID MECHANICS*
Richter, D., Iaccarino, G., Shaqfeh, E. S.
2010; 651: 415-442
- **Disturbance evolution in a Mach 4.8 boundary layer with two-dimensional roughness-induced separation and shock** *JOURNAL OF FLUID MECHANICS*
Marxen, O., Iaccarino, G., Shaqfeh, E. S.
2010; 648: 435-469
- **Reynolds-averaged modeling of polymer drag reduction in turbulent flows** *JOURNAL OF NON-NEWTONIAN FLUID MECHANICS*
Iaccarino, G., Shaqfeh, E. S., Dubief, Y.

2010; 165 (7-8): 376-384

- **Flow controlled coil-to-stretch transition of a single DNA molecule: A brownian dynamics study**
Somani, S., Shaqfeh, E. S., Jagadeeshan, R. P.
AMER CHEMICAL SOC.2010
- **Linear and non-linear disturbance evolution in a compressible boundary-layer with localized roughness** *7th IUTAM Symposium on Laminar-Turbulent Transition*
Marxen, O., Iaccarino, G., Shaqfeh, E. S.
SPRINGER.2010: 271–276
- **A numerical method to simulate hypersonic boundary layers with finite-rate chemistry**
Marxen, O., Iaccarino, G., Shaqfeh, E., S.G.
2010
- **Numerical simulations of hypersonic boundary-layer instability with wall blowing**
Ghaffari, S., Marxen, O., Iaccarino, G., Shaqfeh, Eric, S.G.
2010
- **Hypersonic boundary-layer instability with chemical reactions**
Marxen, O., Magin, T., Iaccarino, G., Shaqfeh, E., S.G.
2010
- **Numerical simulation of the margination of platelets in the microvasculature**
Zhao, H., Shaqfeh, E., S.G.
2010
- **The conformational dynamics of lambda-DNA in the anti-Brownian electrokinetic trap: Brownian dynamics and Monte Carlo simulation** *JOURNAL OF CHEMICAL PHYSICS*
Dambal, A., Shaqfeh, E. S.
2009; 131 (22)
- **Experimental and Numerical Studies of Tethered DNA Shear Dynamics in the Flow-Gradient Plane** *MACROMOLECULES*
Lueth, C. A., Shaqfeh, E. S.
2009; 42 (22): 9170-9182
- **Slip-Link Simulations of Entangled, Finitely Extensible, Wormlike Chains in Shear Flow** *MACROMOLECULES*
Dambal, A., Kushwaha, A., Shaqfeh, E. S.
2009; 42 (18): 7168-7183
- **The effect of Brownian motion on the stability of sedimenting suspensions of polarizable rods in an electric field** *JOURNAL OF FLUID MECHANICS*
Hoffman, B. D., Shaqfeh, E. S.
2009; 624: 361-388
- **Hydrodynamic interactions in metal rodlike-particle suspensions due to induced charge electroosmosis** *PHYSICAL REVIEW E*
Rose, K. A., Hoffman, B., Saintillan, D., Shaqfeh, E. S., Santiago, J. G.
2009; 79 (1)
- **Micro- and Nanouidic Simulations for BWA Sensing and Blood Additive Development**
Shaqfeh, E., Darve, E.
2009
- **The Dynamics of Vesicles in Shear Flow**
Zhao, H., Shaqfeh, E., S.G.
2009
- **Uncertainty quantification for linear and weakly non-linear supersonic boundary-layer instability**
Marxen, O., Iaccarino, G., Shaqfeh, E., S.G.
2009
- **Brownian demixing and wall effects in sedimenting suspensions of orientable particles** *PHYSICAL REVIEW E*

- Hoffman, B. D., Shaqfeh, E. S.
2008; 78 (5)
- **International workshop on mesoscale and multiscale description of complex fluids (IWMMCOF'06), Prato, Italy, July 5-8, 2006** *JOURNAL OF NON-NEWTONIAN FLUID MECHANICS*
Shaqfeh, E. S., Jagadeeshan, R. P.
2008; 149 (1-3): 1-2
 - **Tethered DNA shear dynamics in the flow gradient plane: application to double tethering** *Korea-Australia Rheology Conference*
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