

# Stanford

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## Eric S.G. Shaqfeh

Lester Levi Carter Professor and Professor of Mechanical Engineering  
Chemical Engineering

 Curriculum Vitae available Online

### Bio

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#### 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, Wu Tsai Human Performance Alliance
- Member, Institute for Computational and Mathematical Engineering (ICME)

#### HONORS AND AWARDS

- William Schowalter Lectureship, American Institute of Chemical Engineering (2021)
- 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)
- Hougen 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

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### 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

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### COURSES

#### 2022-23

- Applied Mathematics in the Chemical and Biological Sciences: CHEMENG 300, CME 330 (Aut)
- Complex Fluids and Non-Newtonian Flows: CHEMENG 462 (Spr)
- Microhydrodynamics: CHEMENG 310, ME 451D (Spr)
- Partial Differential Equations in Engineering: CME 204, ME 300B (Win)
- Special Topics in Transport Mechanics: CHEMENG 510 (Aut)

#### 2021-22

- Partial Differential Equations in Engineering: CME 204, ME 300B (Win)
- Seminar in Fluid Mechanics: ENGR 298 (Spr)
- Special Topics in Transport Mechanics: CHEMENG 510 (Aut, Win, Spr, Sum)

#### 2020-21

- 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)

#### 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)

### STANFORD ADVISEES

#### Doctoral Dissertation Reader (AC)

Alp Sunol

#### Doctoral Dissertation Advisor (AC)

Boon Siong Neo, Zach Zajo, Anni Zhang

#### Master's Program Advisor

Hoda Nahhas, Phuong Nguyen, German Soto, Jonathan Yeung

#### Doctoral (Program)

Anjini Chandra, Cody Moose

## Publications

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### PUBLICATIONS

- **Injection continuous liquid interface production of 3D objects.** *Science advances*  
Lipkowitz, G., Samuelsen, T., Hsiao, K., Lee, B., Dulay, M. T., Coates, I., Lin, H., Pan, W., Toth, G., Tate, L., Shaqfeh, E. S., DeSimone, J. M.  
2022; 8 (39): eabq3917
- **Perspectives on viscoelastic flow instabilities and elastic turbulence** *PHYSICAL REVIEW FLUIDS*  
Datta, S. S., Ardekani, A. M., Arratia, P. E., Beris, A. N., Bischofberger, I., McKinley, G. H., Eggers, J. G., Lopez-Aguilar, J., Fielding, S. M., Frishman, A., Graham, M. D., Guasto, J. S., Haward, et al  
2022; 7 (8)
- **A freely suspended robotic swimmer propelled by viscoelastic normal stresses** *JOURNAL OF FLUID MECHANICS*  
Kroo, L. A., Binagia, J. P., Eckman, N., Prakash, M., Shaqfeh, E. G.  
2022; 944
- **The Oldroyd-B fluid in elastic instabilities, turbulence and particle suspensions (vol 298, 104672, 2021)** *JOURNAL OF NON-NEWTONIAN FLUID MECHANICS*  
Shaqfeh, E. G., Khomami, B.  
2022; 304
- **The Oldroyd-B fluid in elastic instabilities, turbulence and particle suspensions** *JOURNAL OF NON-NEWTONIAN FLUID MECHANICS*  
Shaqfeh, E. G., Khomami, B.  
2021; 298
- **Transient and steady shear rheology of particle-laden viscoelastic suspensions** *JOURNAL OF RHEOLOGY*  
Jain, A., Shaqfeh, E. G.  
2021; 65 (6): 1269-1295
- **A theory for the coexistence of coiled and stretched configurational phases in the extensional flow of entangled polymer melts.** *The Journal of chemical physics*  
Nafar Sefiddashti, M. H., Edwards, B. J., Khomami, B., Shaqfeh, E. S.  
2021; 154 (20): 204907
- **Self-propulsion of a freely suspended swimmer by a swirling tail in a viscoelastic fluid** *PHYSICAL REVIEW FLUIDS*

- 
- Binagia, J. P., Shaqfeh, E. G.  
2021; 6 (5)
- **Instability and symmetry breaking in binary evaporating thin films over a solid spherical dome** *JOURNAL OF FLUID MECHANICS*  
Shi, X., Rodriguez-Hakim, M., Shaqfeh, E. G., Fuller, G. G.  
2021; 915
  - **Squirmlers with swirl at low Weissenberg number** *JOURNAL OF FLUID MECHANICS*  
Housiadas, K. D., Binagia, J. P., Shaqfeh, E. G.  
2021; 911
  - **Swimming with swirl in a viscoelastic fluid** *JOURNAL OF FLUID MECHANICS*  
Binagia, J. P., Phoa, A., Housiadas, K. D., Shaqfeh, E. G.  
2020; 900
  - **Lift and drag force on a spherical particle in a viscoelastic shear flow (vol 280, 104279, 2020)** *JOURNAL OF NON-NEWTONIAN FLUID MECHANICS*  
Zhang, A., Murch, W. L., Einarsson, J., Shaqfeh, E. G.  
2020; 282
  - **Collective effects in the sedimentation of particles in a viscoelastic fluid** *PHYSICAL REVIEW FLUIDS*  
Murch, W. L., Shaqfeh, E. G.  
2020; 5 (7)
  - **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. n., Huyke, D. A., Oyarzun, D. I., Escobar, P. V., Øvreeide, I. H., Shaqfeh, E. S., Santiago, J. G.  
2020
  - **Correction: A system for the high-throughput measurement of the shear modulus distribution of human red blood cells.** *Lab on a chip*  
Saadat, A. n., 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., Ahmed, 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., Blackburne, 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): 155-171
  - **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**  
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## **PRESENTATIONS**

- Computer Simulation of Vesicles and Vesicle Suspensions in Flow - Biological Complex Fluids - Softflow 2012 (7/2/2012)
- The local and nonlocal rheology of vesicle and capsule suspensions - The Bingham Lecture, Annual Society of Rheology Meeting (October 11, 2011)