

Eric S G Shaqfeh

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135 papers	5,745 citations	40 h-index	72 g-index
140 ext. papers	6,216 ext. citations	4.1 avg, IF	5.91 L-index

#	Paper	IF	Citations
135	A purely elastic instability in Taylor-Couette flow. <i>Journal of Fluid Mechanics</i> , 1990 , 218, 573	3.7	403
134	Observation of polymer conformation hysteresis in extensional flow. <i>Science</i> , 2003 , 301, 1515-9	33.3	295
133	The hydrodynamic stress in a suspension of rods. <i>Physics of Fluids A, Fluid Dynamics</i> , 1990 , 2, 7-24		239
132	On the coherent drag-reducing and turbulence-enhancing behaviour of polymers in wall flows. <i>Journal of Fluid Mechanics</i> , 2004 , 514, 271-280	3.7	193
131	Dynamic simulation of freely draining flexible polymers in steady linear flows. <i>Journal of Fluid Mechanics</i> , 1997 , 334, 251-291	3.7	165
130	Shear Thinning and Tumbling Dynamics of Single Polymers in the Flow-Gradient Plane. <i>Macromolecules</i> , 2005 , 38, 581-592	5.5	133
129	Shear-induced particle migration and margination in a cellular suspension. <i>Physics of Fluids</i> , 2012 , 24, 011902	4.4	129
128	Effect of Hydrodynamic Interactions on DNA Dynamics in Extensional Flow: Simulation and Single Molecule Experiment. <i>Macromolecules</i> , 2004 , 37, 9242-9256	5.5	129
127	Dynamics of dilute and semidilute DNA solutions in the start-up of shear flow. <i>Journal of Rheology</i> , 2001 , 45, 421-450	4.1	124
126	A smooth particle-mesh Ewald algorithm for Stokes suspension simulations: The sedimentation of fibers. <i>Physics of Fluids</i> , 2005 , 17, 033301	4.4	119
125	Dynamics of DNA in the Flow-Gradient Plane of Steady Shear Flow: Observations and Simulations. <i>Macromolecules</i> , 2005 , 38, 1967-1978	5.5	113
124	The effect of hydrodynamic interactions on the orientation distribution in a fiber suspension subject to simple shear flow. <i>Physics of Fluids</i> , 1995 , 7, 487-506	4.4	109
123	The instability of a dispersion of sedimenting spheroids. <i>Journal of Fluid Mechanics</i> , 1989 , 209, 521-542	3.7	106
122	Shear-induced platelet margination in a microchannel. <i>Physical Review E</i> , 2011 , 83, 061924	2.4	104
121	Shear Forces between Tethered Polymer Chains as a Function of Compression, Sliding Velocity, and Solvent Quality. <i>Macromolecules</i> , 2003 , 36, 389-398	5.5	101
120	Simulation of reactive ion etching pattern transfer. <i>Journal of Applied Physics</i> , 1989 , 66, 4664-4675	2.5	98
119	Hydrodynamic interactions in the induced-charge electrophoresis of colloidal rod dispersions. <i>Journal of Fluid Mechanics</i> , 2006 , 563, 223	3.7	96

118	Dynamic simulations of the inhomogeneous sedimentation of rigid fibres. <i>Journal of Fluid Mechanics</i> , 2002 , 468, 205-237	3.7	94
117	The dynamics of a vesicle in simple shear flow. <i>Journal of Fluid Mechanics</i> , 2011 , 674, 578-604	3.7	90
116	The Individualistic Dynamics of Entangled DNA in Solution. <i>Macromolecules</i> , 2007 , 40, 2461-2476	5.5	88
115	The effects of gap width and dilute solution properties on the viscoelastic Taylor-Couette instability. <i>Journal of Fluid Mechanics</i> , 1992 , 235, 285	3.7	88
114	A numerical study of the rheological properties of suspensions of rigid, non-Brownian fibres. <i>Journal of Fluid Mechanics</i> , 1996 , 329, 155-186	3.7	85
113	Visualization of Molecular Fluctuations near the Critical Point of the Coil-Stretch Transition in Polymer Elongation. <i>Macromolecules</i> , 2003 , 36, 4544-4548	5.5	81
112	A purely elastic instability in Dean and Taylor-Dean flow. <i>Physics of Fluids A, Fluid Dynamics</i> , 1992 , 4, 524-543		81
111	A numerical study of the sedimentation of fibre suspensions. <i>Journal of Fluid Mechanics</i> , 1998 , 376, 149-182	3.7	77
110	Relating the microscopic and macroscopic response of a polymeric fluid in a shearing flow. <i>Physical Review Letters</i> , 2000 , 85, 2018-21	7.4	76
109	Rheology of Polymer Brushes: A Brownian Dynamics Study. <i>Macromolecules</i> , 1998 , 31, 5474-5486	5.5	75
108	Numerical simulation of turbulent drag reduction using rigid fibres. <i>Journal of Fluid Mechanics</i> , 2004 , 518, 281-317	3.7	74
107	Experimental Investigation of the Sedimentation of a Dilute Fiber Suspension. <i>Physical Review Letters</i> , 1996 , 77, 290-293	7.4	74
106	Observations of purely elastic instabilities in the Taylor-Dean flow of a Boger fluid. <i>Journal of Fluid Mechanics</i> , 1994 , 262, 27-73	3.7	66
105	Simulations of three-dimensional viscoelastic flows past a circular cylinder at moderate Reynolds numbers. <i>Journal of Fluid Mechanics</i> , 2010 , 651, 415-442	3.7	65
104	Rheology of Wet Polymer Brushes via Brownian Dynamics Simulation: Steady vs Oscillatory Shear. <i>Physical Review Letters</i> , 1997 , 78, 1182-1185	7.4	55
103	The effects of inertia on the viscoelastic Dean and Taylor-Couette flow instabilities with application to coating flows. <i>Physics of Fluids A, Fluid Dynamics</i> , 1992 , 4, 2415-2431		52
102	A computational study of DNA separations in sparse disordered and periodic arrays of posts. <i>Journal of Chemical Physics</i> , 2003 , 118, 2941	3.9	48
101	Disturbance evolution in a Mach 4.8 boundary layer with two-dimensional roughness-induced separation and shock. <i>Journal of Fluid Mechanics</i> , 2010 , 648, 435-469	3.7	47

100	The Effect of Hematocrit on Platelet Adhesion: Experiments and Simulations. <i>Biophysical Journal</i> , 2016 , 111, 577-588	2.9	47
99	Effect of flexibility on the shear-induced migration of short-chain polymers in parabolic channel flow. <i>Journal of Fluid Mechanics</i> , 2006 , 557, 297	3.7	46
98	The dynamics of a vesicle in a wall-bound shear flow. <i>Physics of Fluids</i> , 2011 , 23, 121901	4.4	44
97	The growth of concentration fluctuations in dilute dispersions of orientable and deformable particles under sedimentation. <i>Journal of Fluid Mechanics</i> , 2006 , 553, 347	3.7	43
96	The dynamics of a non-dilute vesicle suspension in a simple shear flow. <i>Journal of Fluid Mechanics</i> , 2013 , 725, 709-731	3.7	42
95	In vitro measurement of particle margination in the microchannel flow: effect of varying hematocrit. <i>Biophysical Journal</i> , 2015 , 108, 2601-2608	2.9	40
94	Direct numerical simulation of polymer-induced drag reduction in turbulent boundary layer flow of inhomogeneous polymer solutions. <i>Journal of Fluid Mechanics</i> , 2006 , 566, 153	3.7	40
93	The average rotation rate of a fiber in the linear flow of a semidilute suspension. <i>Physics of Fluids A, Fluid Dynamics</i> , 1990 , 2, 2093-2102		39
92	Electrophoresis of DNA Adsorbed to a Cationic Supported Bilayer. <i>Langmuir</i> , 2001 , 17, 7396-7401	4	38
91	Orientational dispersion of fibers in extensional flows. <i>Physics of Fluids A, Fluid Dynamics</i> , 1990 , 2, 1077-1093		38
90	Simulations of a sphere sedimenting in a viscoelastic fluid with cross shear flow. <i>Journal of Non-Newtonian Fluid Mechanics</i> , 2013 , 197, 48-60	2.7	37
89	An experimental and numerical investigation of drag reduction in a turbulent boundary layer using a rigid rodlike polymer. <i>Physics of Fluids</i> , 2005 , 17, 085101	4.4	37
88	A nonlocal theory for stress in bound, Brownian suspensions of slender, rigid fibres. <i>Journal of Fluid Mechanics</i> , 1995 , 296, 271-324	3.7	34
87	Theory to predict particle migration and margination in the pressure-driven channel flow of blood. <i>Physical Review Fluids</i> , 2017 , 2,	2.8	34
86	Effect of Solvent Quality on the CoilStretch Transition. <i>Macromolecules</i> , 2010 , 43, 10679-10691	5.5	33
85	Buckling transitions of an elastic filament in a viscous stagnation point flow. <i>Physics of Fluids</i> , 2012 , 24, 123601	4.4	33
84	Pearling, wrinkling, and buckling of vesicles in elongational flows. <i>Journal of Fluid Mechanics</i> , 2015 , 777, 1-26	3.7	32
83	Dynamics of DNA Polymers in Post Arrays: Comparison of Single Molecule Experiments and Simulations. <i>Macromolecules</i> , 2007 , 40, 3848-3859	5.5	32

82	Heat and mass transport in composites of aligned slender fibers. <i>Physics of Fluids A, Fluid Dynamics</i> , 1989 , 1, 3-20		32
81	Viscoelastic Poiseuille flow through a curved channel: A new elastic instability. <i>Physics of Fluids A, Fluid Dynamics</i> , 1991 , 3, 1691-1694		32
80	Einstein viscosity with fluid elasticity. <i>Physical Review Fluids</i> , 2018 , 3,	2.8	31
79	The dynamic mechanism for turbulent drag reduction using rigid fibers based on Lagrangian conditional statistics. <i>Physics of Fluids</i> , 2005 , 17, 063102	4.4	30
78	Nonlocal transport models of the self-consistent potential distribution in a plasma sheath with charge transfer collisions. <i>Journal of Applied Physics</i> , 1988 , 64, 6200-6209	2.5	30
77	The shape stability of a lipid vesicle in a uniaxial extensional flow. <i>Journal of Fluid Mechanics</i> , 2013 , 719, 345-361	3.7	28
76	Cross-streamline migration of slender Brownian fibres in plane Poiseuille flow. <i>Journal of Fluid Mechanics</i> , 1997 , 332, 23-39	3.7	28
75	Fully resolved viscoelastic particulate simulations using unstructured grids. <i>Journal of Computational Physics</i> , 2017 , 338, 313-338	4.1	27
74	Coarse-grained theory to predict the concentration distribution of red blood cells in wall-bounded Couette flow at zero Reynolds number. <i>Physics of Fluids</i> , 2013 , 25, 061901	4.4	27
73	A nonlocal theory for the heat transport in composites containing highly conducting fibrous inclusions. <i>Physics of Fluids</i> , 1988 , 31, 2405-2425		26
72	Mechanism of shear thickening in suspensions of rigid spheres in Boger fluids. Part II: Suspensions at finite concentration. <i>Journal of Rheology</i> , 2018 , 62, 1379-1396	4.1	26
71	Stabilization of a suspension of sedimenting rods by induced-charge electrophoresis. <i>Physics of Fluids</i> , 2006 , 18, 121701	4.4	25
70	Experimental observation of the asymmetric instability of intermediate-reduced-volume vesicles in extensional flow. <i>Soft Matter</i> , 2016 , 12, 3787-96	3.6	24
69	Mechanism of shear thickening in suspensions of rigid spheres in Boger fluids. Part I: Dilute suspensions. <i>Journal of Rheology</i> , 2018 , 62, 1363-1377	4.1	24
68	The effect of shear thinning and walls on the sedimentation of a sphere in an elastic fluid under orthogonal shear. <i>Journal of Non-Newtonian Fluid Mechanics</i> , 2013 , 201, 120-129	2.7	23
67	Experimental and Numerical Studies of Tethered DNA Shear Dynamics in the Flow-Gradient Plane. <i>Macromolecules</i> , 2009 , 42, 9170-9182	5.5	23
66	Loop subdivision surface boundary integral method simulations of vesicles at low reduced volume ratio in shear and extensional flow. <i>Physics of Fluids</i> , 2014 , 26, 031902	4.4	22
65	The mechanism of shape instability for a vesicle in extensional flow. <i>Journal of Fluid Mechanics</i> , 2014 , 750, 144-190	3.7	22

64	The configurational phase transitions of flexible polymers in planar mixed flows near simple shear. <i>Journal of Chemical Physics</i> , 2003 , 119, 2908-2914	3.9	22
63	Observations of ribbing instabilities in elastic fluid flows with gravity stabilization. <i>Journal of Fluid Mechanics</i> , 1999 , 399, 49-83	3.7	22
62	Viscoelastic Poiseuille flow through a curved channel: A new elastic instability. <i>Physics of Fluids A, Fluid Dynamics</i> , 1991 , 3, 2043-2046		20
61	Immersed-finite-element method for deformable particle suspensions in viscous and viscoelastic media. <i>Physical Review E</i> , 2018 , 98,	2.4	20
60	On the rheology of particle suspensions in viscoelastic fluids. <i>AIChE Journal</i> , 2019 , 65, e16575	3.6	19
59	On the polymer entropic force singularity and its relation to extensional stress relaxation and filament recoil. <i>Journal of Rheology</i> , 2004 , 48, 209-221	4.1	19
58	Effect of surface re-emission on the surface roughness of film growth in low pressure chemical vapor deposition. <i>Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films</i> , 1993 , 11, 557-568	2.9	19
57	Averaged-equation and diagrammatic approximations to the average concentration of a tracer dispersed by a Gaussian random velocity field. <i>Physics of Fluids A, Fluid Dynamics</i> , 1992 , 4, 887-894		19
56	Observations of polymer conformation during flow through a fixed fibre bed. <i>Journal of Fluid Mechanics</i> , 1994 , 281, 319-356	3.7	18
55	Floquet stability analysis of viscoelastic flow over a cylinder. <i>Journal of Non-Newtonian Fluid Mechanics</i> , 2011 , 166, 554-565	2.7	17
54	The effect of stratification on the wave number selection in the instability of sedimenting spheroids. <i>Physics of Fluids</i> , 2006 , 18, 121503	4.4	17
53	Polymer stretch in dilute fixed beds of fibres or spheres. <i>Journal of Fluid Mechanics</i> , 1992 , 244, 17	3.7	17
52	Slip-Link Simulations of Entangled, Finitely Extensible, Wormlike Chains in Shear Flow. <i>Macromolecules</i> , 2009 , 42, 7168-7183	5.5	15
51	A computational study of the influence of viscoelasticity on the interfacial dynamics of dip coating flow. <i>Journal of Non-Newtonian Fluid Mechanics</i> , 2011 , 166, 614-627	2.7	14
50	Examining platelet adhesion via Stokes flow simulations and microfluidic experiments. <i>Soft Matter</i> , 2015 , 11, 355-67	3.6	13
49	The dynamics of the coil-stretch transition for long, flexible polymers in planar mixed flows. <i>Journal of Rheology</i> , 2007 , 51, 947-969	4.1	13
48	Extravasation of Brownian Spheroidal Nanoparticles through Vascular Pores. <i>Biophysical Journal</i> , 2018 , 115, 1103-1115	2.9	13
47	Lift and drag force on a spherical particle in a viscoelastic shear flow. <i>Journal of Non-Newtonian Fluid Mechanics</i> , 2020 , 280, 104279	2.7	12

46	The combined effects of hydrodynamic interactions and Brownian motion on the orientation of particles flowing through fixed beds. <i>Physics of Fluids</i> , 1988 , 31, 2769		12
45	Study of the flow unsteadiness in the human airway using large eddy simulation. <i>Physical Review Fluids</i> , 2017 , 2,	2.8	12
44	Evaporation-driven solutocapillary flow of thin liquid films over curved substrates. <i>Physical Review Fluids</i> , 2019 , 4,	2.8	12
43	Drag coefficient for a sedimenting and rotating sphere in a viscoelastic fluid. <i>Physical Review Fluids</i> , 2019 , 4,	2.8	12
42	Observations of axisymmetric tracer particle orientation during flow through a dilute fixed bed of fibers. <i>Physics of Fluids A, Fluid Dynamics</i> , 1991 , 3, 2516-2528		11
41	Lateral drift and concentration instability in a suspension of bubbles induced by Marangoni stresses at zero Reynolds number. <i>Physics of Fluids</i> , 2010 , 22, 101702	4.4	10
40	The effect of Brownian motion on the stability of sedimenting suspensions of polarizable rods in an electric field. <i>Journal of Fluid Mechanics</i> , 2009 , 624, 361-388	3.7	10
39	The conformation change of model polymers in stochastic flow fields: Flow through fixed beds. <i>Physics of Fluids</i> , 1997 , 9, 1222-1234	4.4	10
38	Ergodicity-breaking and the unraveling dynamics of a polymer in linear and nonlinear extensional flows. <i>Journal of Rheology</i> , 2007 , 51, 561-574	4.1	10
37	A system for the high-throughput measurement of the shear modulus distribution of human red blood cells. <i>Lab on A Chip</i> , 2020 , 20, 2927-2936	7.2	9
36	Nonlinear instability of a supersonic boundary layer with two-dimensional roughness. <i>Journal of Fluid Mechanics</i> , 2014 , 752, 497-520	3.7	9
35	Effects of viscoelasticity in the high Reynolds number cylinder wake. <i>Journal of Fluid Mechanics</i> , 2012 , 693, 297-318	3.7	9
34	The shear flow processing of controlled DNA tethering and stretching for organic molecular electronics. <i>ACS Nano</i> , 2011 , 5, 275-82	16.7	9
33	The steady motion of a closely fitting vesicle in a tube. <i>Journal of Fluid Mechanics</i> , 2018 , 835, 721-761	3.7	9
32	Suspension flow through an asymmetric T-junction. <i>Journal of Fluid Mechanics</i> , 2018 , 844, 247-273	3.7	8
31	Heat/mass transport in shear flow over a heterogeneous surface with first-order surface-reactive domains. <i>Journal of Fluid Mechanics</i> , 2015 , 782, 260-299	3.7	8
30	Drop breakup in the flow through fixed beds via stochastic simulation in model Gaussian fields. <i>Physics of Fluids</i> , 1997 , 9, 3209-3226	4.4	8
29	Effect of elasticity on mixing torque requirements for rushton turbine impellers. <i>AIChE Journal</i> , 1984 , 30, 485-486	3.6	8

28	Growth of viscoelastic wings and the reduction of particle mobility in a viscoelastic shear flow. <i>Physical Review Fluids</i> , 2017 , 2,	2.8	8
27	In Vitro Measurement and Modeling of Platelet Adhesion on VWF-Coated Surfaces in Channel Flow. <i>Biophysical Journal</i> , 2019 , 116, 1136-1151	2.9	7
26	Stokes flow of vesicles in a circular tube. <i>Journal of Fluid Mechanics</i> , 2018 , 851, 606-635	3.7	7
25	Oscillatory shear of a confined fiber suspension. <i>Journal of Rheology</i> , 1997 , 41, 445-466	4.1	7
24	Viscoelastic effects on interfacial dynamics in air-liquid displacement under gravity stabilization. <i>Journal of Fluid Mechanics</i> , 2005 , 531, 59-83	3.7	7
23	Factors controlling the etching rate and etching profile in the O ₂ reactive ion etching pattern transfer step in multilevel lithography. <i>Polymer Engineering and Science</i> , 1989 , 29, 878-881	2.3	7
22	Swimming with swirl in a viscoelastic fluid. <i>Journal of Fluid Mechanics</i> , 2020 , 900,	3.7	7
21	An experimental and simulation study of dilute polymer solutions in exponential shear flow: Comparison to uniaxial and planar extensional flows. <i>Journal of Rheology</i> , 2001 , 45, 321-349	4.1	6
20	Three-dimensional simulations of undulatory and amoeboid swimmers in viscoelastic fluids. <i>Soft Matter</i> , 2019 , 15, 4836-4855	3.6	5
19	Oscillatory spontaneous dimpling in evaporating curved thin films. <i>Journal of Fluid Mechanics</i> , 2020 , 889,	3.7	5
18	Flow of power-law fluids in fixed beds of cylinders or spheres. <i>Journal of Fluid Mechanics</i> , 2012 , 713, 491-527	3.7	5
17	Extensional rheology of a dilute particle-laden viscoelastic solution. <i>Physical Review Fluids</i> , 2019 , 4,	2.8	5
16	Pressure-driven flow of a vesicle through a square microchannel. <i>Journal of Fluid Mechanics</i> , 2019 , 861, 447-483	3.7	5
15	A conversation with Andreas Acrivos. <i>Annual Review of Chemical and Biomolecular Engineering</i> , 2013 , 4, 1-21	8.9	4
14	The extensional viscosity and effective thermal conductivity of a dispersion of aligned disks. <i>Physics of Fluids</i> , 1994 , 6, 1955-1962	4.4	4
13	Collective effects in the sedimentation of particles in a viscoelastic fluid. <i>Physical Review Fluids</i> , 2020 , 5,	2.8	4
12	Transient and steady shear rheology of particle-laden viscoelastic suspensions. <i>Journal of Rheology</i> , 2021 , 65, 1269-1295	4.1	4
11	Singular perturbation theory for predicting extravasation of Brownian particles. <i>Journal of Engineering Mathematics</i> , 2014 , 84, 155-171	1.2	3

10	The conformational dynamics of lambda-DNA in the anti-Brownian electrokinetic trap: Brownian dynamics and Monte Carlo simulation. <i>Journal of Chemical Physics</i> , 2009 , 131, 224905	3.9	3
9	Taylor dispersion in the presence of cross flow and interfacial mass transfer. <i>Physical Review Fluids</i> , 2019 , 4,	2.8	3
8	Self-propulsion of a freely suspended swimmer by a swirling tail in a viscoelastic fluid. <i>Physical Review Fluids</i> , 2021 , 6,	2.8	3
7	Heat/mass transport in shear flow over a reactive surface with inert defects. <i>Journal of Fluid Mechanics</i> , 2017 , 811, 372-399	3.7	2
6	Effect of Length on the Dynamics of Wall Tethered Polymers in Shear Flow. <i>Macromolecules</i> , 2018 , 51, 254-265	5.5	2
5	Brownian demixing and wall effects in sedimenting suspensions of orientable particles. <i>Physical Review E</i> , 2008 , 78, 055301	2.4	2
4	A theory for the coexistence of coiled and stretched configurational phases in the extensional flow of entangled polymer melts. <i>Journal of Chemical Physics</i> , 2021 , 154, 204907	3.9	2
3	Numerical Simulation of Polymer Injection in Turbulent Flow Past a Circular Cylinder. <i>Journal of Fluids Engineering, Transactions of the ASME</i> , 2011 , 133,	2.1	1
2	Effect of Cytoplasmic Viscosity on Red Blood Cell Migration in Small Arteriole-level Confinements		1
1	Extravasation of PEGylated Spherical Nanoparticles through a Circular Pore of Similar Size. <i>Macromolecules</i> , 2020 , 53, 2991-3006	5.5	0