

Eric S G Shaqfeh

List of Publications by Year in descending order

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137
papers

6,686
citations

57758

44
h-index

69250

77
g-index

140
all docs

140
docs citations

140
times ranked

3582
citing authors

#	ARTICLE	IF	CITATIONS
1	A purely elastic instability in Taylor–Couette flow. <i>Journal of Fluid Mechanics</i> , 1990, 218, 573.	3.4	449
2	Observation of Polymer Conformation Hysteresis in Extensional Flow. <i>Science</i> , 2003, 301, 1515-1519.	12.6	321
3	The hydrodynamic stress in a suspension of rods. <i>Physics of Fluids A, Fluid Dynamics</i> , 1990, 2, 7-24.	1.6	271
4	On the coherent drag-reducing and turbulence-enhancing behaviour of polymers in wall flows. <i>Journal of Fluid Mechanics</i> , 2004, 514, 271-280.	3.4	224
5	Dynamic simulation of freely draining flexible polymers in steady linear flows. <i>Journal of Fluid Mechanics</i> , 1997, 334, 251-291.	3.4	187
6	Shear-induced particle migration and margination in a cellular suspension. <i>Physics of Fluids</i> , 2012, 24, .	4.0	156
7	Effect of Hydrodynamic Interactions on DNA Dynamics in Extensional Flow: A Simulation and Single Molecule Experiment. <i>Macromolecules</i> , 2004, 37, 9242-9256.	4.8	155
8	Shear Thinning and Tumbling Dynamics of Single Polymers in the Flow-Gradient Plane. <i>Macromolecules</i> , 2005, 38, 581-592.	4.8	154
9	A smooth particle-mesh Ewald algorithm for Stokes suspension simulations: The sedimentation of fibers. <i>Physics of Fluids</i> , 2005, 17, 033301.	4.0	138
10	The instability of a dispersion of sedimenting spheroids. <i>Journal of Fluid Mechanics</i> , 1989, 209, 521-542.	3.4	134
11	Dynamics of dilute and semidilute DNA solutions in the start-up of shear flow. <i>Journal of Rheology</i> , 2001, 45, 421-450.	2.6	134
12	Dynamics of DNA in the Flow-Gradient Plane of Steady Shear Flow: Observations and Simulations. <i>Macromolecules</i> , 2005, 38, 1967-1978.	4.8	126
13	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.	4.0	117
14	Shear-induced platelet margination in a microchannel. <i>Physical Review E</i> , 2011, 83, 061924.	2.1	115
15	Simulation of reactive ion etching pattern transfer. <i>Journal of Applied Physics</i> , 1989, 66, 4664-4675.	2.5	107
16	Shear Forces between Tethered Polymer Chains as a Function of Compression, Sliding Velocity, and Solvent Quality. <i>Macromolecules</i> , 2003, 36, 389-398.	4.8	107
17	Hydrodynamic interactions in the induced-charge electrophoresis of colloidal rod dispersions. <i>Journal of Fluid Mechanics</i> , 2006, 563, 223.	3.4	106
18	The dynamics of a vesicle in simple shear flow. <i>Journal of Fluid Mechanics</i> , 2011, 674, 578-604.	3.4	104

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19	Dynamic simulations of the inhomogeneous sedimentation of rigid fibres. <i>Journal of Fluid Mechanics</i> , 2002, 468, 205-237.	3.4	102
20	The effects of gap width and dilute solution properties on the viscoelastic Taylor-Couette instability. <i>Journal of Fluid Mechanics</i> , 1992, 235, 285.	3.4	100
21	A numerical study of the rheological properties of suspensions of rigid, non-Brownian fibres. <i>Journal of Fluid Mechanics</i> , 1996, 329, 155-186.	3.4	99
22	The Individualistic Dynamics of Entangled DNA in Solution. <i>Macromolecules</i> , 2007, 40, 2461-2476.	4.8	99
23	A purely elastic instability in Dean and Taylor's "Dean flow. <i>Physics of Fluids A, Fluid Dynamics</i> , 1992, 4, 524-543.	1.6	92
24	Visualization of Molecular Fluctuations near the Critical Point of the Coil-Stretch Transition in Polymer Elongation. <i>Macromolecules</i> , 2003, 36, 4544-4548.	4.8	87
25	A numerical study of the sedimentation of fibre suspensions. <i>Journal of Fluid Mechanics</i> , 1998, 376, 149-182.	3.4	85
26	Numerical simulation of turbulent drag reduction using rigid fibres. <i>Journal of Fluid Mechanics</i> , 2004, 518, 281-317.	3.4	85
27	Rheology of Polymer Brushes: A Brownian Dynamics Study. <i>Macromolecules</i> , 1998, 31, 5474-5486.	4.8	83
28	Experimental Investigation of the Sedimentation of a Dilute Fiber Suspension. <i>Physical Review Letters</i> , 1996, 77, 290-293.	7.8	82
29	Relating the Microscopic and Macroscopic Response of a Polymeric Fluid in a Shearing Flow. <i>Physical Review Letters</i> , 2000, 85, 2018-2021.	7.8	81
30	Simulations of three-dimensional viscoelastic flows past a circular cylinder at moderate Reynolds numbers. <i>Journal of Fluid Mechanics</i> , 2010, 651, 415-442.	3.4	80
31	Observations of purely elastic instabilities in the Taylor's "Dean flow of a Boger fluid. <i>Journal of Fluid Mechanics</i> , 1994, 262, 27-73.	3.4	70
32	Rheology of "Wet" Polymer Brushes via Brownian Dynamics Simulation: Steady vs Oscillatory Shear. <i>Physical Review Letters</i> , 1997, 78, 1182-1185.	7.8	62
33	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.	3.4	60
34	The Effect of Hematocrit on Platelet Adhesion: Experiments and Simulations. <i>Biophysical Journal</i> , 2016, 111, 577-588.	0.5	59
35	The effects of inertia on the viscoelastic Dean and Taylor's "Couette flow instabilities with application to coating flows. <i>Physics of Fluids A, Fluid Dynamics</i> , 1992, 4, 2415-2431.	1.6	56
36	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.	3.4	54

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37	The dynamics of a vesicle in a wall-bound shear flow. <i>Physics of Fluids</i> , 2011, 23, .	4.0	51
38	Theory to predict particle migration and margination in the pressure-driven channel flow of blood. <i>Physical Review Fluids</i> , 2017, 2, .	2.5	51
39	A computational study of DNA separations in sparse disordered and periodic arrays of posts. <i>Journal of Chemical Physics</i> , 2003, 118, 2941.	3.0	50
40	InÂVitro Measurement of Particle Margination in the Microchannel Flow: Effect of Varying Hematocrit. <i>Biophysical Journal</i> , 2015, 108, 2601-2608.	0.5	50
41	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.	3.4	49
42	The dynamics of a non-dilute vesicle suspension in a simple shear flow. <i>Journal of Fluid Mechanics</i> , 2013, 725, 709-731.	3.4	47
43	Oriental dispersion of fibers in extensional flows. <i>Physics of Fluids A, Fluid Dynamics</i> , 1990, 2, 1077-1093.	1.6	44
44	The growth of concentration fluctuations in dilute dispersions of orientable and deformable particles under sedimentation. <i>Journal of Fluid Mechanics</i> , 2006, 553, 347.	3.4	44
45	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.	2.4	44
46	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.	1.6	41
47	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.	4.0	41
48	Pearling, wrinkling, and buckling of vesicles in elongational flows. <i>Journal of Fluid Mechanics</i> , 2015, 777, 1-26.	3.4	41
49	A nonlocal theory for stress in bound, Brownian suspensions of slender, rigid fibres. <i>Journal of Fluid Mechanics</i> , 1995, 296, 271-324.	3.4	40
50	Buckling transitions of an elastic filament in a viscous stagnation point flow. <i>Physics of Fluids</i> , 2012, 24, .	4.0	40
51	Einstein viscosity with fluid elasticity. <i>Physical Review Fluids</i> , 2018, 3, .	2.5	40
52	Electrophoresis of DNA Adsorbed to a Cationic Supported Bilayer. <i>Langmuir</i> , 2001, 17, 7396-7401.	3.5	39
53	Fully resolved viscoelastic particulate simulations using unstructured grids. <i>Journal of Computational Physics</i> , 2017, 338, 313-338.	3.8	38
54	Heat and mass transport in composites of aligned slender fibers. <i>Physics of Fluids A, Fluid Dynamics</i> , 1989, 1, 3-20.	1.6	35

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55	Viscoelastic Poiseuille flow through a curved channel: A new elastic instability. <i>Physics of Fluids A, Fluid Dynamics</i> , 1991, 3, 1691-1694.	1.6	35
56	Effect of Solvent Quality on the Coil~Stretch Transition. <i>Macromolecules</i> , 2010, 43, 10679-10691.	4.8	35
57	The shape stability of a lipid vesicle in a uniaxial extensional flow. <i>Journal of Fluid Mechanics</i> , 2013, 719, 345-361.	3.4	34
58	Dynamics of DNA Polymers in Post Arrays:~Comparison of Single Molecule Experiments and Simulations. <i>Macromolecules</i> , 2007, 40, 3848-3859.	4.8	33
59	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.	4.0	33
60	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.	2.6	33
61	On the rheology of particle suspensions in viscoelastic fluids. <i>AIChE Journal</i> , 2019, 65, e16575.	3.6	33
62	Experimental observation of the asymmetric instability of intermediate-reduced-volume vesicles in extensional flow. <i>Soft Matter</i> , 2016, 12, 3787-3796.	2.7	32
63	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	31
64	Immersed-finite-element method for deformable particle suspensions in viscous and viscoelastic media. <i>Physical Review E</i> , 2018, 98, .	2.1	31
65	Cross-streamline migration of slender Brownian fibres in plane Poiseuille flow. <i>Journal of Fluid Mechanics</i> , 1997, 332, 23-39.	3.4	30
66	The dynamic mechanism for turbulent drag reduction using rigid fibers based on Lagrangian conditional statistics. <i>Physics of Fluids</i> , 2005, 17, 063102.	4.0	30
67	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.	2.6	30
68	A nonlocal theory for the heat transport in composites containing highly conducting fibrous inclusions. <i>Physics of Fluids</i> , 1988, 31, 2405-2425.	1.4	29
69	Observations of ribbing instabilities in elastic fluid flows with gravity stabilization. <i>Journal of Fluid Mechanics</i> , 1999, 399, 49-83.	3.4	29
70	The mechanism of shape instability for a vesicle in extensional flow. <i>Journal of Fluid Mechanics</i> , 2014, 750, 144-190.	3.4	28
71	Stabilization of a suspension of sedimenting rods by induced-charge electrophoresis. <i>Physics of Fluids</i> , 2006, 18, 121701.	4.0	26
72	Viscoelastic Poiseuille flow through a curved channel: A new elastic instability. <i>Physics of Fluids A, Fluid Dynamics</i> , 1991, 3, 2043-2046.	1.6	24

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73	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.	2.4	24
74	Lift and drag force on a spherical particle in a viscoelastic shear flow. <i>Journal of Non-Newtonian Fluid Mechanics</i> , 2020, 280, 104279.	2.4	24
75	Experimental and Numerical Studies of Tethered DNA Shear Dynamics in the Flow-Gradient Plane. <i>Macromolecules</i> , 2009, 42, 9170-9182.	4.8	23
76	Effects of viscoelasticity in the high Reynolds number cylinder wake. <i>Journal of Fluid Mechanics</i> , 2012, 693, 297-318.	3.4	23
77	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, .	4.0	23
78	Swimming with swirl in a viscoelastic fluid. <i>Journal of Fluid Mechanics</i> , 2020, 900, .	3.4	23
79	The configurational phase transitions of flexible polymers in planar mixed flows near simple shear. <i>Journal of Chemical Physics</i> , 2003, 119, 2908-2914.	3.0	22
80	Self-propulsion of a freely suspended swimmer by a swirling tail in a viscoelastic fluid. <i>Physical Review Fluids</i> , 2021, 6, .	2.5	22
81	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.	2.1	21
82	Floquet stability analysis of viscoelastic flow over a cylinder. <i>Journal of Non-Newtonian Fluid Mechanics</i> , 2011, 166, 554-565.	2.4	21
83	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.	1.6	20
84	Polymer stretch in dilute fixed beds of fibres or spheres. <i>Journal of Fluid Mechanics</i> , 1992, 244, 17.	3.4	20
85	Observations of polymer conformation during flow through a fixed fibre bed. <i>Journal of Fluid Mechanics</i> , 1994, 281, 319-356.	3.4	20
86	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.	2.6	19
87	Extravasation of Brownian Spheroidal Nanoparticles through Vascular Pores. <i>Biophysical Journal</i> , 2018, 115, 1103-1115.	0.5	19
88	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.	6.0	19
89	The effect of stratification on the wave number selection in the instability of sedimenting spheroids. <i>Physics of Fluids</i> , 2006, 18, 121503.	4.0	18
90	Study of the flow unsteadiness in the human airway using large eddy simulation. <i>Physical Review Fluids</i> , 2017, 2, .	2.5	18

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91	Drag coefficient for a sedimenting and rotating sphere in a viscoelastic fluid. <i>Physical Review Fluids</i> , 2019, 4, .	2.5	17
92	Slip-Link Simulations of Entangled, Finitely Extensible, Wormlike Chains in Shear Flow. <i>Macromolecules</i> , 2009, 42, 7168-7183.	4.8	16
93	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.	2.4	16
94	InÂVitro Measurement and Modeling of Platelet Adhesion on VWF-Coated Surfaces in Channel Flow. <i>Biophysical Journal</i> , 2019, 116, 1136-1151.	0.5	16
95	Examining platelet adhesion via Stokes flow simulations and microfluidic experiments. <i>Soft Matter</i> , 2015, 11, 355-367.	2.7	15
96	The steady motion of a closely fitting vesicle in a tube. <i>Journal of Fluid Mechanics</i> , 2018, 835, 721-761.	3.4	15
97	The dynamics of the coil-stretch transition for long, flexible polymers in planar mixed flows. <i>Journal of Rheology</i> , 2007, 51, 947-969.	2.6	14
98	Effect of elasticity on mixing torque requirements for rushton turbine impellers. <i>AIChE Journal</i> , 1984, 30, 485-486.	3.6	13
99	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.	1.4	13
100	The conformation change of model polymers in stochastic flow fields: Flow through fixed beds. <i>Physics of Fluids</i> , 1997, 9, 1222-1234.	4.0	13
101	Three-dimensional simulations of undulatory and amoeboid swimmers in viscoelastic fluids. <i>Soft Matter</i> , 2019, 15, 4836-4855.	2.7	13
102	Evaporation-driven solutocapillary flow of thin liquid films over curved substrates. <i>Physical Review Fluids</i> , 2019, 4, .	2.5	13
103	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.	1.6	12
104	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.	3.4	12
105	Nonlinear instability of a supersonic boundary layer with two-dimensional roughness. <i>Journal of Fluid Mechanics</i> , 2014, 752, 497-520.	3.4	12
106	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.	3.4	12
107	Ergodicity-breaking and the unraveling dynamics of a polymer in linear and nonlinear extensional flows. <i>Journal of Rheology</i> , 2007, 51, 561-574.	2.6	11
108	Stokes flow of vesicles in a circular tube. <i>Journal of Fluid Mechanics</i> , 2018, 851, 606-635.	3.4	11

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109	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.	3.1	10
110	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.	4.0	10
111	The Shear Flow Processing of Controlled DNA Tethering and Stretching for Organic Molecular Electronics. <i>ACS Nano</i> , 2011, 5, 275-282.	14.6	10
112	Transient and steady shear rheology of particle-laden viscoelastic suspensions. <i>Journal of Rheology</i> , 2021, 65, 1269-1295.	2.6	10
113	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.	2.6	9
114	Suspension flow through an asymmetric T-junction. <i>Journal of Fluid Mechanics</i> , 2018, 844, 247-273.	3.4	9
115	Pressure-driven flow of a vesicle through a square microchannel. <i>Journal of Fluid Mechanics</i> , 2019, 861, 447-483.	3.4	9
116	Drop breakup in the flow through fixed beds via stochastic simulation in model Gaussian fields. <i>Physics of Fluids</i> , 1997, 9, 3209-3226.	4.0	8
117	Oscillatory shear of a confined fiber suspension. <i>Journal of Rheology</i> , 1997, 41, 445-466.	2.6	8
118	Viscoelastic effects on interfacial dynamics in air-liquid displacement under gravity stabilization. <i>Journal of Fluid Mechanics</i> , 2005, 531, 59-83.	3.4	8
119	Flow of power-law fluids in fixed beds of cylinders or spheres. <i>Journal of Fluid Mechanics</i> , 2012, 713, 491-527.	3.4	8
120	Growth of viscoelastic wings and the reduction of particle mobility in a viscoelastic shear flow. <i>Physical Review Fluids</i> , 2017, 2, .	2.5	8
121	Extensional rheology of a dilute particle-laden viscoelastic solution. <i>Physical Review Fluids</i> , 2019, 4, .	2.5	8
122	Collective effects in the sedimentation of particles in a viscoelastic fluid. <i>Physical Review Fluids</i> , 2020, 5, .	2.5	8
123	Taylor dispersion in the presence of cross flow and interfacial mass transfer. <i>Physical Review Fluids</i> , 2019, 4, .	2.5	8
124	Oscillatory spontaneous dimpling in evaporating curved thin films. <i>Journal of Fluid Mechanics</i> , 2020, 889, .	3.4	7
125	The extensional viscosity and effective thermal conductivity of a dispersion of aligned disks. <i>Physics of Fluids</i> , 1994, 6, 1955-1962.	4.0	6
126	A Conversation with Andreas Acrivos. <i>Annual Review of Chemical and Biomolecular Engineering</i> , 2013, 4, 1-21.	6.8	4

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127	Heat/mass transport in shear flow over a reactive surface with inert defects. <i>Journal of Fluid Mechanics</i> , 2017, 811, 372-399.	3.4	4
128	Effect of Length on the Dynamics of Wall Tethered Polymers in Shear Flow. <i>Macromolecules</i> , 2018, 51, 254-265.	4.8	4
129	The conformational dynamics of λ -DNA in the anti-Brownian electrokinetic trap: Brownian dynamics and Monte Carlo simulation. <i>Journal of Chemical Physics</i> , 2009, 131, 224905.	3.0	3
130	Singular perturbation theory for predicting extravasation of Brownian particles. <i>Journal of Engineering Mathematics</i> , 2014, 84, 155-171.	1.2	3
131	Brownian demixing and wall effects in sedimenting suspensions of orientable particles. <i>Physical Review E</i> , 2008, 78, 055301.	2.1	2
132	Numerical Simulation of Polymer Injection in Turbulent Flow Past a Circular Cylinder. <i>Journal of Fluids Engineering, Transactions of the ASME</i> , 2011, 133, .	1.5	2
133	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.	3.0	2
134	Simulation of microparticle inhalation in rhesus monkey airways. <i>Physical Review Fluids</i> , 2019, 4, .	2.5	2
135	Extravasation of PEGylated Spherical Nanoparticles through a Circular Pore of Similar Size. <i>Macromolecules</i> , 2020, 53, 2991-3006.	4.8	1
136	International Workshop on Mesoscale and Multiscale Description of Complex Fluids â€“ IWMMCOF â€™06. <i>Applied Rheology</i> , 2006, 16, 340-341.	5.2	0
137	Numerical simulation of the deterministic vector separation of particles flowing over slanted open cavities. <i>Physical Review Fluids</i> , 2016, 1, .	2.5	0