

Michael D Graham

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143
papers

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44
h-index

73
g-index

155
ext. papers

6,651
ext. citations

5
avg, IF

6.23
L-index

#	Paper	IF	Citations
143	Transport and collective dynamics in suspensions of confined swimming particles. <i>Physical Review Letters</i> , 2005 , 95, 204501	7.4	302
142	A single-molecule barcoding system using nanoslits for DNA analysis. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2007 , 104, 2673-8	11.5	265
141	Stochastic simulations of DNA in flow: Dynamics and the effects of hydrodynamic interactions. <i>Journal of Chemical Physics</i> , 2002 , 116, 7752-7759	3.9	232
140	Shear-induced migration in flowing polymer solutions: simulation of long-chain DNA in microchannels [corrected]. <i>Journal of Chemical Physics</i> , 2004 , 120, 2513-29	3.9	208
139	Diffusion and spatial correlations in suspensions of swimming particles. <i>Physical Review Letters</i> , 2008 , 100, 248101	7.4	161
138	A microfluidic system for large DNA molecule arrays. <i>Analytical Chemistry</i> , 2004 , 76, 5293-301	7.8	155
137	DNA dynamics in a microchannel. <i>Physical Review Letters</i> , 2003 , 91, 038102	7.4	152
136	Effect of confinement on DNA dynamics in microfluidic devices. <i>Journal of Chemical Physics</i> , 2003 , 119, 1165-1173	3.9	152
135	Theory of shear-induced migration in dilute polymer solutions near solid boundaries. <i>Physics of Fluids</i> , 2005 , 17, 083103	4.4	148
134	Conformation and dynamics of single DNA molecules in parallel-plate slit microchannels. <i>Physical Review E</i> , 2004 , 70, 060901	2.4	135
133	Hydrodynamic interactions in long chain polymers: Application of the Chebyshev polynomial approximation in stochastic simulations. <i>Journal of Chemical Physics</i> , 2000 , 113, 2894-2900	3.9	135
132	Effects of Boundaries on Pattern Formation: Catalytic Oxidation of CO on Platinum. <i>Science</i> , 1994 , 264, 80-2	33.3	133
131	Alternative approaches to the Karhunen-Lo�ve decomposition for model reduction and data analysis. <i>Computers and Chemical Engineering</i> , 1996 , 20, 495-506	4	124
130	Fast computation of many-particle hydrodynamic and electrostatic interactions in a confined geometry. <i>Physical Review Letters</i> , 2007 , 98, 140602	7.4	119
129	Mechanism of margination in confined flows of blood and other multicomponent suspensions. <i>Physical Review Letters</i> , 2012 , 109, 108102	7.4	110
128	Margination and segregation in confined flows of blood and other multicomponent suspensions. <i>Soft Matter</i> , 2012 , 8, 10536	3.6	110
127	Fluid Dynamics of Dissolved Polymer Molecules in Confined Geometries. <i>Annual Review of Fluid Mechanics</i> , 2011 , 43, 273-298	22	109

126	Drag reduction and the dynamics of turbulence in simple and complex fluids). <i>Physics of Fluids</i> , 2014 , 26, 101301	4.4	103
125	Wall slip and the nonlinear dynamics of large amplitude oscillatory shear flows. <i>Journal of Rheology</i> , 1995 , 39, 697-712	4.1	86
124	An externally driven magnetic microstirrer. <i>Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences</i> , 2004 , 362, 1059-68	3	79
123	Symmetric diblock copolymer thin films confined between homogeneous and patterned surfaces: Simulations and theory. <i>Journal of Chemical Physics</i> , 2000 , 112, 9996-10010	3.9	78
122	Coarse Brownian dynamics for nematic liquid crystals: Bifurcation, projective integration, and control via stochastic simulation. <i>Journal of Chemical Physics</i> , 2003 , 118, 10149-10156	3.9	73
121	Dynamics of confined suspensions of swimming particles. <i>Journal of Physics Condensed Matter</i> , 2009 , 21, 204107	1.8	72
120	Active and hibernating turbulence in minimal channel flow of newtonian and polymeric fluids. <i>Physical Review Letters</i> , 2010 , 104, 218301	7.4	71
119	Concentration dependence of shear and extensional rheology of polymer solutions: Brownian dynamics simulations. <i>Journal of Rheology</i> , 2006 , 50, 137-167	4.1	68
118	Cellular softening mediates leukocyte demargination and trafficking, thereby increasing clinical blood counts. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2016 , 113, 1987-92	11.5	63
117	Polymer drag reduction in exact coherent structures of plane shear flow. <i>Physics of Fluids</i> , 2004 , 16, 3470-3482	4.4	62
116	Pattern selection in controlled reaction-diffusion systems. <i>Journal of Chemical Physics</i> , 1993 , 98, 2823-2836	3.6	62
115	Cross-stream migration of flexible molecules in a nanochannel. <i>Physical Review Letters</i> , 2006 , 96, 224505	7.4	60
114	Catalysis on microstructured surfaces: Pattern formation during CO oxidation in complex Pt domains. <i>Physical Review E</i> , 1995 , 52, 76-93	2.4	60
113	DNA Molecules in Microfluidic Oscillatory Flow. <i>Macromolecules</i> , 2005 , 38, 6680-6687	5.5	57
112	Flow-induced segregation in confined multicomponent suspensions: effects of particle size and rigidity. <i>Journal of Fluid Mechanics</i> , 2014 , 738, 423-462	3.7	56
111	Segregation by membrane rigidity in flowing binary suspensions of elastic capsules. <i>Physical Review E</i> , 2011 , 84, 066316	2.4	56
110	The effect of hydrodynamic interactions on the dynamics of DNA translocation through pores. <i>Journal of Chemical Physics</i> , 2008 , 128, 085102	3.9	55
109	Toward a structural understanding of turbulent drag reduction: nonlinear coherent states in viscoelastic shear flows. <i>Physical Review Letters</i> , 2002 , 89, 208301	7.4	55

108	Dynamics on the laminar-turbulent boundary and the origin of the maximum drag reduction asymptote. <i>Physical Review Letters</i> , 2012 , 108, 028301	7.4	52
107	A model for slip at polymer/solid interfaces. <i>Journal of Rheology</i> , 1998 , 42, 1491-1504	4.1	52
106	Cross-stream-line migration in confined flowing polymer solutions: Theory and simulation. <i>Physics of Fluids</i> , 2006 , 18, 123101	4.4	49
105	Accelerated boundary integral method for multiphase flow in non-periodic geometries. <i>Journal of Computational Physics</i> , 2012 , 231, 6682-6713	4.1	48
104	Turbulent drag reduction and multistage transitions in viscoelastic minimal flow units. <i>Journal of Fluid Mechanics</i> , 2010 , 647, 421-452	3.7	48
103	Structure evolution in electrorheological and magnetorheological suspensions from a continuum perspective. <i>Journal of Applied Physics</i> , 2003 , 93, 5769-5779	2.5	47
102	Plume formation and resonant bifurcations in porous-media convection. <i>Journal of Fluid Mechanics</i> , 1994 , 272, 67-90	3.7	46
101	Mass transport in a novel two-fluid Taylor vortex extractor. <i>AIChE Journal</i> , 2000 , 46, 2395-2407	3.6	45
100	Two-fluid Taylor-Couette flow: Experiments and linear theory for immiscible liquids between corotating cylinders. <i>Physics of Fluids</i> , 1998 , 10, 3045-3055	4.4	44
99	Exact coherent states and connections to turbulent dynamics in minimal channel flow. <i>Journal of Fluid Mechanics</i> , 2015 , 782, 430-454	3.7	43
98	Depletion layer formation in suspensions of elastic capsules in Newtonian and viscoelastic fluids. <i>Physics of Fluids</i> , 2012 , 24, 061902	4.4	43
97	Pattern formation in flowing electrorheological fluids. <i>Physical Review Letters</i> , 2002 , 88, 188301	7.4	42
96	Proper orthogonal decomposition analysis of spatiotemporal temperature patterns. <i>The Journal of Physical Chemistry</i> , 1993 , 97, 889-894		42
95	Polymer induced drag reduction in exact coherent structures of plane Poiseuille flow. <i>Physics of Fluids</i> , 2007 , 19, 083101	4.4	41
94	Patterns of temperature pulses on electrically heated catalytic ribbons. <i>Physica D: Nonlinear Phenomena</i> , 1993 , 63, 393-409	3.3	41
93	Dynamics of a single red blood cell in simple shear flow. <i>Physical Review E</i> , 2015 , 92, 042710	2.4	40
92	An immersed boundary method for Brownian dynamics simulation of polymers in complex geometries: application to DNA flowing through a nanoslit with embedded nanopits. <i>Journal of Chemical Physics</i> , 2012 , 136, 014901	3.9	40
91	Interfacial hoop stress and instability of viscoelastic free surface flows. <i>Physics of Fluids</i> , 2003 , 15, 1702	4.4	40

90	Polymer dynamics in a model of the turbulent buffer layer. <i>Physics of Fluids</i> , 2003 , 15, 1247-1256	4.4	40
89	Wall-Slip and Polymer-Melt Flow Instability. <i>Physical Review Letters</i> , 1996 , 77, 956-959	7.4	40
88	Microhydrodynamics, Brownian Motion, and Complex Fluids 2018 ,		40
87	Intermittent dynamics of turbulence hibernation in Newtonian and viscoelastic minimal channel flows. <i>Journal of Fluid Mechanics</i> , 2012 , 693, 433-472	3.7	39
86	The sharkskin instability of polymer melt flows. <i>Chaos</i> , 1999 , 9, 154-163	3.3	39
85	Critical-Layer Structures and Mechanisms in Elastoinertial Turbulence. <i>Physical Review Letters</i> , 2019 , 122, 124503	7.4	37
84	A mechanism for oscillatory instability in viscoelastic cross-slot flow. <i>Journal of Fluid Mechanics</i> , 2009 , 622, 145-165	3.7	36
83	Modeling DNA in Confinement: A Comparison between the Brownian Dynamics and Lattice Boltzmann Method. <i>Macromolecules</i> , 2007 , 40, 5978-5984	5.5	36
82	Prediction of mass transfer rates in spatially periodic flows. <i>Chemical Engineering Science</i> , 1999 , 54, 343-355	3.5	36
81	Temperature pulse dynamics on a catalytic ring. <i>The Journal of Physical Chemistry</i> , 1993 , 97, 7564-7571		36
80	Tethered DNA dynamics in shear flow. <i>Journal of Chemical Physics</i> , 2009 , 130, 234902	3.9	35
79	Computational efficiency and approximate inertial manifolds for a Bärard convection system. <i>Journal of Nonlinear Science</i> , 1993 , 3, 153-167	2.8	33
78	Pair collisions of fluid-filled elastic capsules in shear flow: Effects of membrane properties and polymer additives. <i>Physics of Fluids</i> , 2010 , 22, 123103	4.4	32
77	Nonlinear travelling waves as a framework for understanding turbulent drag reduction. <i>Journal of Fluid Mechanics</i> , 2006 , 565, 353	3.7	32
76	N log N method for hydrodynamic interactions of confined polymer systems: Brownian dynamics. <i>Journal of Chemical Physics</i> , 2006 , 125, 164906	3.9	30
75	Time-series and extended Karhunen-Loève analysis of turbulent drag reduction in polymer solutions. <i>AIChE Journal</i> , 2014 , 60, 1460-1475	3.6	27
74	Coexistence of tight and loose bundled states in a model of bacterial flagellar dynamics. <i>Physical Review E</i> , 2011 , 84, 011910	2.4	27
73	Streamwise variation of turbulent dynamics in boundary layer flow of drag-reducing fluid. <i>Journal of Fluid Mechanics</i> , 2011 , 686, 352-377	3.7	25

72	Two-fluid Taylor-Couette flow with countercurrent axial flow: Linear theory for immiscible liquids between corotating cylinders. <i>Physics of Fluids</i> , 2000 , 12, 294-303	4.4	25
71	Mechanistic theory of margination and flow-induced segregation in confined multicomponent suspensions: Simple shear and Poiseuille flows*. <i>Physical Review Fluids</i> , 2016 , 1,	2.8	25
70	Exact Coherent States and the Nonlinear Dynamics of Wall-Bounded Turbulent Flows. <i>Annual Review of Fluid Mechanics</i> , 2021 , 53, 227-253	22	23
69	Correlations and fluctuations of stress and velocity in suspensions of swimming microorganisms. <i>Physics of Fluids</i> , 2011 , 23, 121902	4.4	22
68	Shear-induced diffusion in dilute suspensions of spherical or nonspherical particles: Effects of irreversibility and symmetry breaking. <i>Physics of Fluids</i> , 2007 , 19, 073602	4.4	21
67	Predicting Emissions from the Thermal Processing of Hazardous Wastes. <i>Hazardous Waste and Hazardous Materials</i> , 1986 , 3, 293-307		21
66	Margination regimes and drainage transition in confined multicomponent suspensions. <i>Physical Review Letters</i> , 2015 , 114, 188101	7.4	20
65	Slip, Concentration Fluctuations, and Flow Instability in Sheared Polymer Solutions. <i>Macromolecules</i> , 2001 , 34, 5731-5733	5.5	20
64	Low-drag events in transitional wall-bounded turbulence. <i>Physical Review Fluids</i> , 2017 , 2,	2.8	20
63	Spatiotemporal dynamics of viscoelastic turbulence in transitional channel flow. <i>Journal of Non-Newtonian Fluid Mechanics</i> , 2017 , 244, 104-122	2.7	19
62	Flipping, scooping, and spinning: Drift of rigid curved nonchiral fibers in simple shear flow. <i>Physics of Fluids</i> , 2012 , 24, 123304	4.4	19
61	A method for multiscale simulation of flowing complex fluids. <i>Journal of Non-Newtonian Fluid Mechanics</i> , 2002 , 108, 123-142	2.7	18
60	Temporal and spatial intermittencies within channel flow turbulence near transition. <i>Physical Review Fluids</i> , 2017 , 2,	2.8	18
59	Enhancement of mixing and adsorption in microfluidic devices by shear-induced diffusion and topography-induced secondary flow. <i>Physics of Fluids</i> , 2008 , 20, 053304	4.4	17
58	Strongly interacting travelling waves and quasiperiodic dynamics in porous medium convection. <i>Physica D: Nonlinear Phenomena</i> , 1992 , 54, 331-350	3.3	17
57	Solitary coherent structures in viscoelastic shear flow: computation and mechanism. <i>Physical Review Letters</i> , 2000 , 85, 4056-9	7.4	16
56	Spatiotemporal temperature patterns during hydrogen oxidation on a nickel disk. <i>AIChE Journal</i> , 1993 , 39, 1497-1508	3.6	16
55	Simulation of nonlinear shear rheology of dilute salt-free polyelectrolyte solutions. <i>Journal of Chemical Physics</i> , 2007 , 126, 124906	3.9	15

54	Self-sustained elastoinertial Tollmien-Schlichting waves. <i>Journal of Fluid Mechanics</i> , 2020 , 897,	3.7	14
53	Effect of pressure-dependent slip on flow curve multiplicity. <i>Rheologica Acta</i> , 1998 , 37, 245-255	2.3	14
52	Finite-amplitude solitary states in viscoelastic shear flow: computation and mechanism. <i>Journal of Fluid Mechanics</i> , 2001 , 443, 301-328	3.7	14
51	Effect of wall slip on the stability of viscoelastic plane shear flow. <i>Physics of Fluids</i> , 1999 , 11, 1749-1756	4.4	14
50	Deep learning to discover and predict dynamics on an inertial manifold. <i>Physical Review E</i> , 2020 , 101, 062209	2.4	13
49	Exact coherent states with hairpin-like vortex structure in channel flow. <i>Journal of Fluid Mechanics</i> , 2018 , 849, 76-89	3.7	13
48	Mechanistic constitutive model for wormlike micelle solutions with flow-induced structure formation. <i>Journal of Non-Newtonian Fluid Mechanics</i> , 2018 , 251, 97-106	2.7	12
47	Role of desorption kinetics in determining marangoni flows generated by using electrochemical methods and redox-active surfactants. <i>Langmuir</i> , 2005 , 21, 2235-41	4	12
46	Buckling instabilities in models of viscoelastic free surface flows. <i>Journal of Non-Newtonian Fluid Mechanics</i> , 2000 , 89, 337-351	2.7	12
45	Time-periodic thermal convection in Hele-Shaw slots: The diagonal oscillation. <i>Physics of Fluids A, Fluid Dynamics</i> , 1992 , 4, 2382-2393		12
44	Low-dimensional representations of exact coherent states of the Navier-Stokes equations from the resolvent model of wall turbulence. <i>Physical Review E</i> , 2016 , 93, 021102	2.4	11
43	Shape-mediated margination and demargination in flowing multicomponent suspensions of deformable capsules. <i>Soft Matter</i> , 2016 , 12, 1683-700	3.6	11
42	Numerical modeling of two-fluid Taylor-Couette flow with deformable capillary liquid-liquid interface. <i>Physics of Fluids</i> , 2004 , 16, 4066-4074	4.4	11
41	Pulses and global bifurcations in a nonlocal reaction-diffusion system. <i>Physical Review E</i> , 1993 , 48, 2917-2923	2.7	11
40	Dynamics of virus spread in the presence of fluid flow. <i>Integrative Biology (United Kingdom)</i> , 2009 , 1, 664-371	3.7	10
39	Bursting and critical layer frequencies in minimal turbulent dynamics and connections to exact coherent states. <i>Physical Review Fluids</i> , 2018 , 3,	2.8	10
38	Impacts of multiflagellarity on stability and speed of bacterial locomotion. <i>Physical Review E</i> , 2018 , 98,	2.4	10
37	Buckling Instabilities and Complex Trajectories in a Simple Model of Uniflagellar Bacteria. <i>Biophysical Journal</i> , 2017 , 112, 1010-1022	2.9	9

36	An experimental investigation into spatiotemporal intermittencies in turbulent channel flow close to transition. <i>Experiments in Fluids</i> , 2019 , 60, 1	2.5	8
35	Fluid dynamics: Turbulence spreads like wildfire. <i>Nature</i> , 2015 , 526, 508-9	50.4	8
34	Influence of Surface Tension-Driven Convection on Cyclic Voltammograms of Langmuir Films of Redox-Active Amphiphiles. <i>Langmuir</i> , 2002 , 18, 9882-9887	4	7
33	Dynamics of concentration patterns of the NO + CO reaction on Pt: Analysis with the Karhunen-Loève decomposition. <i>Chaos, Solitons and Fractals</i> , 1995 , 5, 1817-1831	9.3	7
32	Structure and mechanism of oscillatory convection in a cube of fluid-saturated porous material heated from below. <i>Journal of Fluid Mechanics</i> , 1991 , 232, 591	3.7	7
31	Methods for generation of spatial gradients in concentration of monomeric surfactants and micelles in microfluidic systems. <i>Langmuir</i> , 2007 , 23, 9578-85	4	6
30	Dynamics of deformable straight and curved prolate capsules in simple shear flow. <i>Physical Review Fluids</i> , 2019 , 4,	2.8	6
29	Coil-stretch-like transition of elastic sheets in extensional flows. <i>Soft Matter</i> , 2021 , 17, 543-553	3.6	6
28	Dynamics of Miura-patterned foldable sheets in shear flow. <i>Soft Matter</i> , 2017 , 13, 2620-2633	3.6	5
27	Shear-induced diffusion in dilute curved fiber suspensions in simple shear flow. <i>Physics of Fluids</i> , 2014 , 26, 033301	4.4	5
26	Comment on "Convective nonlinearity in non-Newtonian fluids". <i>Physical Review Letters</i> , 2001 , 86, 744-57.4		5
25	Viscoelastic Nonlinear Traveling Waves and Drag Reduction in Plane Poiseuille Flow 2005 , 289-312		5
24	Low- and High-Drag Intermittencies in Turbulent Channel Flows. <i>Entropy</i> , 2020 , 22,	2.8	4
23	Pressure-driven flow of lignocellulosic biomass: A compressible Bingham fluid. <i>Journal of Rheology</i> , 2018 , 62, 801-815	4.1	4
22	Polymer turbulence with Reynolds and Riemann. <i>Journal of Fluid Mechanics</i> , 2018 , 848, 1-4	3.7	4
21	Multiple free energy minima in systems of confined tethered polymers toward soft nanomechanical bistable elements. <i>Soft Matter</i> , 2009 , 5, 3694	3.6	4
20	Stability of viscoelastic shear flows subjected to parallel flow superposition. <i>Physics of Fluids</i> , 2000 , 12, 2702	4.4	4
19	Tollmien-Schlichting route to elastoinertial turbulence in channel flow. <i>Physical Review Fluids</i> , 2021 , 6,	2.8	4

18	Cell Distribution and Segregation Phenomena During Blood Flow 2015 , 399-435		3
17	Multiplicity of stable orbits for deformable prolate capsules in shear flow. <i>Physical Review Fluids</i> , 2020 , 5,	2.8	3
16	Symmetry reduction for deep reinforcement learning active control of chaotic spatiotemporal dynamics. <i>Physical Review E</i> , 2021 , 104, 014210	2.4	3
15	Constitutive modeling of dilute wormlike micelle solutions: Shear-induced structure and transient dynamics. <i>Journal of Non-Newtonian Fluid Mechanics</i> , 2021 , 295, 104606	2.7	3
14	A TWO-FLUID MODEL FOR ELECTRO- AND MAGNETORHEOLOGICAL SUSPENSIONS. <i>International Journal of Modern Physics B</i> , 2002 , 16, 2669-2675	1.1	2
13	Flow-induced segregation and dynamics of red blood cells in sickle cell disease. <i>Physical Review Fluids</i> , 2020 , 5,	2.8	2
12	Wrinkling and multiplicity in the dynamics of deformable sheets in uniaxial extensional flow. <i>Physical Review Fluids</i> , 2022 , 7,	2.8	1
11	Stiff Erythrocyte Subpopulations Biomechanically Induce Endothelial Inflammation in Sickle Cell Disease. <i>Blood</i> , 2019 , 134, 3560-3560	2.2	1
10	Discovering multiscale and self-similar structure with data-driven wavelets. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2021 , 118,	11.5	1
9	General Equations of Newtonian Fluid Dynamics 2016 , 3-1-3-18		
8	Kinematics, Balance Equations, and Principles of Stokes Flow1-25		
7	Fundamental Solutions of the Stokes Equation and the Point-Particle Approximation26-54		
6	Beyond Point Particles55-89		
5	Fundamental Solutions for Bounded Geometries90-103		
4	First Effects of Inertia104-113		
3	Thermal Fluctuations and Brownian Motion114-138		
2	Coarse-Grained Models of Polymers in Dilute Solution170-200		
1	Rheology and Viscoelastic Flow Phenomena201-236		

