John Lowengrub

List of Publications by Year
in descending order

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82 papers	4,447 citations	117625 34 h-index	110387 64 g-index
87 all docs	87 docs citations	87 times ranked	3864 citing authors

#	Article	IF	Citations
1	Multiscale modelling and nonlinear simulation of vascular tumour growth. Journal of Mathematical Biology, 2009, 58, 765-798.	1.9	319
2	Conservative multigrid methods for Cahnâ€“Hilliard fluids. Journal of Computational Physics, 2004, 193, 511-543.	3.8	248
3	Nonlinear simulation of tumor growth. Journal of Mathematical Biology, 2003, 46, 191-224.	1.9	247
4	The effect of interstitial pressure on tumor growth: Coupling with the blood and lymphatic vascular systems. Journal of Theoretical Biology, 2013, 320, 131-151.	1.7	183
5	A surfactant-conserving volume-of-fluid method for interfacial flows with insoluble surfactant. Journal of Computational Physics, 2004, 201, 685-722.	3.8	180
6	Nonlinear simulation of the effect of microenvironment on tumor growth. Journal of Theoretical Biology, 2007, 245, 677-704.	1.7	174
7	A level-set method for interfacial flows with surfactant. Journal of Computational Physics, 2006, 212, 590-616.	3.8	162
8	Solving the regularized, strongly anisotropic Cahnâ€“Hilliard equation by an adaptive nonlinear multigrid method. Journal of Computational Physics, 2007, 226, 414-446.	3.8	162
9	A diffuse-interface method for two-phase flows with soluble surfactants. Journal of Computational Physics, 2011, 230, 375-393.	3.8	162
10	Epitaxial Graphene Growth and Shape Dynamics on Copper: Phase-Field Modeling and Experiments. Nano Letters, 2013, 13, 5692-5697.	9.1	142
11	An adaptive coupled level-set/volume-of-fluid interface capturing method for unstructured triangular grids. Journal of Computational Physics, 2006, 217, 364-394.	3.8	140
12	A multiscale model of virus pandemic: Heterogeneous interactive entities in a globally connected world. Mathematical Models and Methods in Applied Sciences, 2020, 30, 1591-1651.	3.3	105
13	Analysis of Cell Growth in Three-Dimensional Scaffolds. Tissue Engineering, 2006, 12, 705-716.	4.6	98
14	Personalized Radiotherapy Design for Glioblastoma: Integrating Mathematical Tumor Models, Multimodal Scans, and Bayesian Inference. IEEE Transactions on Medical Imaging, 2019, 38, 1875-1884.	8.9	96
15	Convergence of the point vortex method for the 2-D euler equations. Communications on Pure and Applied Mathematics, 1990, 43, 415-430.	3.1	93
16	Toward a Mechanistic Understanding of Vertical Growth of van der Waals Stacked 2D Materials: A Multiscale Model and Experiments. ACS Nano, 2017, 11, 12780-12788.	14.6	89
17	A Computational Model for Predicting Nanoparticle Accumulation in Tumor Vasculature. PLoS ONE, 2013, 8, e56876.	2.5	88
18	Adaptive unstructured volume remeshing â€“ II: Application to two- and three-dimensional level-set simulations of multiphase flow. Journal of Computational Physics, 2005, 208, 626-650.	3.8	87

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19	Evolving interfaces via gradients of geometry-dependent interior Poisson problems: application to tumor growth. Journal of Computational Physics, 2005, 203, 191-220.	3.8	83
20	A diffuse-interface approach for modelling transport, diffusion and adsorption/desorption of material quantities on a deformable interface. Communications in Mathematical Sciences, 2009, 7, 1009-1037.	1.0	83
21	Conservative multigrid methods for ternary Cahn-Hilliard systems. Communications in Mathematical Sciences, 2004, 2, 53-77.	1.0	70
22	Mathematical modeling of tumor-associated macrophage interactions with the cancer microenvironment. , 2018, 6, 10.		69
23	An improved geometry-aware curvature discretization for level set methods: Application to tumor growth. Journal of Computational Physics, 2006, 215, 392-401.	3.8	67
24	Anin vitrovascularized micro-tumor model of human colorectal cancer recapitulatesin vivoresponses to standard-of-care therapy. Lab on A Chip, 2021, 21, 1333-1351.	6.0	58
25	Convergence of a Boundary Integral Method for Water Waves. SIAM Journal on Numerical Analysis, 1996, 33, 1797-1843.	2.3	56
26	A level-set continuum method for two-phase flows with insoluble surfactant. Journal of Computational Physics, 2012, 231, 5897-5909.	3.8	56
27	Diffuse interface models of locally inextensible vesicles in a viscous fluid. Journal of Computational Physics, 2014, 277, 32-47.	3.8	52
28	The effects of cell compressibility, motility and contact inhibition on the growth of tumor cell clusters using the Cellular Potts Model. Journal of Theoretical Biology, 2014, 343, 79-91.	1.7	51
29	A grid based particle method for solving partial differential equations on evolving surfaces and modeling high order geometrical motion. Journal of Computational Physics, 2011, 230, 2540-2561.	3.8	50
30	Enhanced performance of macrophage-encapsulated nanoparticle albumin-bound-paclitaxel in hypo-perfused cancer lesions. Nanoscale, 2016, 8, 12544-12552.	5.6	49
31	Analysis of a mixture model of tumor growth. European Journal of Applied Mathematics, 2013, 24, 691-734.	2.9	47
32	A continuum model of colloid-stabilized interfaces. Physics of Fluids, 2011, 23, .	4.0	45
33	Convergence analysis for secondâ€order accurate schemes for the periodic nonlocal Allenâ€Cahn and Cahnâ€Hilliard equations. Mathematical Methods in the Applied Sciences, 2017, 40, 6836-6863.	2.3	45
34	Computational Modeling of Tumor Response to Drug Release from Vasculature-Bound Nanoparticles. PLoS ONE, 2015, 10, e0144888.	2.5	43
35	Feedback Regulation in a Cancer Stem Cell Model can Cause an Allee Effect. Bulletin of Mathematical Biology, 2016, 78, 754-785.	1.9	40
36	Predictions of tumour morphological stability and evaluation against experimental observations. Journal of the Royal Society Interface, 2011, 8, 16-29.	3.4	35

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37	Three-dimensional crystal growthâ€”II: nonlinear simulation and control of the Mullinsâ€“Sekerka instability. Journal of Crystal Growth, 2004, 266, 552-567.	1.5	33
38	Modeling an Elastic Fingering Instability in a Reactive Hele-Shaw Flow. SIAM Journal on Applied Mathematics, 2012, 72, 842-856.	1.8	33
39	An interdisciplinary computational/experimental approach to evaluate drug-loaded gold nanoparticle tumor cytotoxicity. Nanomedicine, 2016, 11, 197-216.	3.3	32
40	A Uniquely Solvable, Energy Stable Numerical Scheme for the Functionalized Cahnâ€“Hilliard Equation and Its Convergence Analysis. Journal of Scientific Computing, 2018, 76, 1938-1967.	2.3	31
41	Mathematical modeling links Wnt signaling to emergent patterns of metabolism in colon cancer. Molecular Systems Biology, 2017, 13, 912.	7.2	30
42	Convergence of the point vortex method for the 3-D euler equations. Communications on Pure and Applied Mathematics, 1990, 43, 965-981.	3.1	28
43	Efficient energy stable schemes for isotropic and strongly anisotropic Cahnâ€“Hilliard systems with the Willmore regularization. Journal of Computational Physics, 2018, 365, 56-73.	3.8	28
44	A Mechanistic Collective Cell Model for Epithelial Colony Growth and Contact Inhibition. Biophysical Journal, 2015, 109, 1347-1357.	0.5	24
45	Nonlinear simulations of elastic fingering in a Hele-Shaw cell. Journal of Computational and Applied Mathematics, 2016, 307, 394-407.	2.0	24
46	Analysis of the diffuse-domain method for solving PDEs in complex geometries. Communications in Mathematical Sciences, 2015, 13, 1473-1500.	1.0	23
47	Cell Surface Mechanochemistry and the Determinants of Bleb Formation, Healing, and Travel Velocity. Biophysical Journal, 2016, 110, 1636-1647.	0.5	22
48	Numerical simulation of endocytosis: Viscous flow driven by membranes with non-uniformly distributed curvature-inducing molecules. Journal of Computational Physics, 2016, 309, 112-128.	3.8	22
49	A diffuse domain method for two-phase flows with large density ratio in complex geometries. Journal of Fluid Mechanics, 2021, 907, .	3.4	19
50	Convergence of a Point Vortex Method for Vortex Sheets. SIAM Journal on Numerical Analysis, 1991, 28, 308-320.	2.3	18
51	Numerical Study of Surfactant-Laden Drop-Drop Interactions. Communications in Computational Physics, 2011, 10, 453-473.	1.7	18
52	Dynamics of a multicomponent vesicle in shear flow. Soft Matter, 2017, 13, 3521-3531.	2.7	15
53	Locomotion, wrinkling, and budding of a multicomponent vesicle in viscous fluids. Communications in Mathematical Sciences, 2012, 10, 645-670.	1.0	15
54	Kinetic density functional theory of freezing. Journal of Chemical Physics, 2014, 141, 174506.	3.0	14

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55	An energy stable, hexagonal finite difference scheme for the 2D phase field crystal amplitude equations. Journal of Computational Physics, 2016, 321, 1026-1054.	3.8	14
56	Energy stable multigrid method for local and non-local hydrodynamic models for freezing. Computer Methods in Applied Mechanics and Engineering, 2016, 299, 22-56.	6.6	12
57	The effect of spontaneous curvature on a two-phase vesicle. Nonlinearity, 2015, 28, 773-793.	1.4	11
58	An Efficient Adaptive Rescaling Scheme for Computing Moving Interface Problems. Communications in Computational Physics, 2017, 21, 679-691.	1.7	11
59	Computation of a Shrinking Interface in a Hele-Shaw Cell. SIAM Journal of Scientific Computing, 2018, 40, B1206-B1228.	2.8	11
60	Stress generation, relaxation and size control in confined tumor growth. PLoS Computational Biology, 2021, 17, e1009701.	3.2	11
61	Electrically controlled self-similar evolution of viscous fingering patterns. Physical Review Fluids, 2022, 7, .	2.5	11
62	Hydrodynamics of transient cell-cell contact: The role of membrane permeability and active protrusion length. PLoS Computational Biology, 2019, 15, e1006352.	3.2	10
63	Higher-order accurate diffuse-domain methods for partial differential equations with Dirichlet boundary conditions in complex, evolving geometries. Journal of Computational Physics, 2020, 406, 109174.	3.8	10
64	Controlling fingering instabilities in Hele-Shaw flows in the presence of wetting film effects. Physical Review E, 2021, 103, 063105.	2.1	10
65	Self-similar evolution of a precipitate in inhomogeneous elastic media. Journal of Crystal Growth, 2012, 351, 62-71.	1.5	8
66	An interface-fitted adaptive mesh method for elliptic problems and its application in free interface problems with surface tension. Advances in Computational Mathematics, 2016, 42, 1225-1257.	1.6	8
67	Nonlinear studies of tumor morphological stability using a two-fluid flow model. Journal of Mathematical Biology, 2018, 77, 671-709.	1.9	8
68	Almost optimal convergence of the point vortex method for vortex sheets using numerical filtering. Mathematics of Computation, 1999, 68, 1465-1497.	2.1	7
69	Nonlinear limiting dynamics of a shrinking interface in a Hele-Shaw cell. Journal of Fluid Mechanics, 2021, 910, .	3.4	7
70	Applications of a new In vivo tumor spheroid based shell-less chorioallantoic membrane 3-D model in bioengineering research. Journal of Biomedical Science and Engineering, 2010, 03, 20-26.	0.4	7
71	Modeling of Tumor Growth with Input from Patient-Specific Metabolomic Data. Annals of Biomedical Engineering, 2022, 50, 314-329.	2.5	7
72	An Efficient Rescaling Algorithm for Simulating the Evolution of Multiple Elastically Stressed Precipitates. Communications in Computational Physics, 2013, 14, 940-959.	1.7	6

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73	Wrinkling dynamics of fluctuating vesicles in time-dependent viscous flow. Soft Matter, 2016, 12, 5663-5675.	2.7	6
74	Efficient simulation of thermally fluctuating biopolymers immersed in fluids on 1-micron, 1-second scales. Journal of Computational Physics, 2019, 386, 248-263.	3.8	5
75	Modelling glioma progression, mass effect and intracranial pressure in patient anatomy. Journal of the Royal Society Interface, 2022, 19, 20210922.	3.4	5
76	Morphological stability of an elastic tumorâ€“host interface. Journal of Computational and Applied Mathematics, 2019, 362, 410-422.	2.0	4
77	Complex Far-Field Geometries Determine the Stability of Solid Tumor Growth with Chemotaxis. Bulletin of Mathematical Biology, 2020, 82, 39.	1.9	4
78	Nonlinear simulation of vascular tumor growth with chemotaxis and the control of necrosis. Journal of Computational Physics, 2022, 459, 111153.	3.8	4
79	Boundary integral methods for dispersive equations, Airy flow and the modified Korteweg de Vries equation. Advances in Computational Mathematics, 2019, 45, 99-135.	1.6	3
80	Spatial dynamics of feedback and feedforward regulation in cell lineages. PLoS Computational Biology, 2022, 18, e1010039.	3.2	3
81	POPE: post optimization posterior evaluation of likelihood free models. BMC Bioinformatics, 2015, 16, 264.	2.6	0
82	EFFECTS OF MOTILITY AND CONTACT INHIBITION ON TUMOR VIABILITY: A DISCRETE SIMULATION USING THE CELLULAR POTTS MODEL. , 2011, , .		0