Sarah L Waters

List of Publications by Year
in descending order

109 papers	2,883 citations	172457 29 h-index	223800 46 g-index
111 all docs	111 docs citations	111 times ranked	2876 citing authors

#	Article	IF	Citations
1	Mechanics of the brain: perspectives, challenges, and opportunities. Biomechanics and Modeling in Mechanobiology, 2015, 14, 931-965.	2.8	289
2	Chaste: A test-driven approach to software development for biological modelling. Computer Physics Communications, 2009, 180, 2452-2471.	7.5	207
3	An integrative computational model for intestinal tissue renewal. Cell Proliferation, 2009, 42, 617-636.	5.3	142
4	Homogenization via formal multiscale asymptotics and volume averaging: How do the two techniques compare?. Advances in Water Resources, 2013, 62, 178-206.	3.8	123
5	The propagation of a liquid bolus along a liquid-lined flexible tube. Journal of Fluid Mechanics, 2000, 406, 309-335.	3.4	64
6	Theoretical models for coronary vascular biomechanics: Progress & challenges. Progress in Biophysics and Molecular Biology, 2011, 104, 49-76.	2.9	62
7	Mathematical modelling reveals cellular dynamics within tumour spheroids. PLoS Computational Biology, 2020, 16, e1007961.	3.2	56
8	Local and global instabilities of flow in a flexible-walled channel. European Journal of Mechanics, B/Fluids, 2009, 28, 541-557.	2.5	52
9	The effect of ureteric stents on urine flow: Reflux. Journal of Mathematical Biology, 2004, 49, 56-82.	1.9	47
10	Steady flows in pipes with finite curvature. Physics of Fluids, 2005, 17, 077102.	4.0	47
11	The propagation of a surfactant laden liquid plug in a capillary tube. Physics of Fluids, 2002, 14, 471-480.	4.0	45
12	Is the Donnan effect sufficient to explain swelling in brain tissue slices?. Journal of the Royal Society Interface, 2014, 11, 20140123.	3.4	41
13	Mathematical modelling of fibre-enhanced perfusion inside a tissue-engineering bioreactor. Journal of Theoretical Biology, 2009, 256, 533-546.	1.7	39
14	A continuum model of cell proliferation and nutrient transport in a perfusion bioreactor. Mathematical Medicine and Biology, 2013, 30, 21-44.	1.2	39
15	A multiphase model for tissue construct growth in a perfusion bioreactor. Mathematical Medicine and Biology, 2010, 27, 95-127.	1.2	38
16	Flow dynamics in a stented ureter. Mathematical Medicine and Biology, 2008, 26, 1-24.	1.2	37
17	Non-local models for the formation of hepatocyteâ€"stellate cell aggregates. Journal of Theoretical Biology, 2010, 267, 106-120.	1.7	37
18	A Rational Derivation of a Tube Law from Shell Theory. Quarterly Journal of Mechanics and Applied Mathematics, 2010, 63, 465-496.	1.3	37

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19	Predicting the onset of high-frequency self-excited oscillations in elastic-walled tubes. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2010, 466, 3635-3657.	2.1	37
20	A strategy to determine operating parameters in tissue engineering hollow fiber bioreactors. Biotechnology and Bioengineering, 2011, 108, 1450-1461.	3.3	37
21	Oscillatory flow in a tube of time-dependent curvature. Part 1. Perturbation to flow in a stationary curved tube. Journal of Fluid Mechanics, 1999, 383, 327-352.	3.4	36
22	Unsteady flows in pipes with finite curvature. Journal of Fluid Mechanics, 2008, 600, 133-165.	3.4	36
23	Tissue growth in a rotating bioreactor. Part I: mechanical stability. Mathematical Medicine and Biology, 2006, 23, 311-337.	1.2	33
24	Growth-induced buckling of an epithelial layer. Biomechanics and Modeling in Mechanobiology, 2011, 10, 883-900.	2.8	33
25	A multiscale analysis of nutrient transport and biological tissue growth<i>in vitro</i>. Mathematical Medicine and Biology, 2015, 32, 345-366.	1.2	33
26	Flow in a tube with non-uniform, time-dependent curvature: governing equations and simple examples. Journal of Fluid Mechanics, 1996, 323, 237-265.	3.4	32
27	Mathematical modelling of human mesenchymal stem cell proliferation and differentiation inside artificial porous scaffolds. Journal of Theoretical Biology, 2007, 249, 543-553.	1.7	31
28	Mathematical modelling of tissue-engineered angiogenesis. Mathematical Biosciences, 2009, 221, 101-120.	1.9	31
29	Regenerative medicine meets mathematical modelling: developing symbiotic relationships. Npj Regenerative Medicine, 2021, 6, 24.	5.2	31
30	Ureteric stents: Investigating flow and encrustation. Proceedings of the Institution of Mechanical Engineers, Part H: Journal of Engineering in Medicine, 2008, 222, 551-561.	1.8	30
31	Continuum Modelling of In Vitro Tissue Engineering: A Review. Studies in Mechanobiology, Tissue Engineering and Biomaterials, 2012, , 229-266.	1.0	30
32	Tissue growth in a rotating bioreactor. Part II: fluid flow and nutrient transport problems. Mathematical Medicine and Biology, 2007, 24, 169-208.	1.2	29
33	A two-fluid model for tissue growth within a dynamic flow environment. European Journal of Applied Mathematics, 2008, 19, 607-634.	2.9	29
34	Fluid and mass transport modelling to drive the design of cell-packed hollow fibre bioreactors for tissue engineering applications. Mathematical Medicine and Biology, 2012, 29, 329-359.	1.2	29
35	Coriolis effects in a rotating Hele-Shaw cell. Physics of Fluids, 2005, 17, 048101.	4.0	28
36	A Mathematical Model of Liver Cell Aggregation In Vitro. Bulletin of Mathematical Biology, 2009, 71, 906-930.	1.9	28

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37	Definition and validation of operating equations for poly(vinyl alcohol)â€poly(lactideâ€coâ€glycolide) microfiltration membraneâ€scaffold bioreactors. Biotechnology and Bioengineering, 2010, 107, 382-392.	3.3	28
38	Sloshing and slamming oscillations in a collapsible channel flow. Journal of Fluid Mechanics, 2010, 662, 288-319.	3.4	28
39	The energetics of flow through a rapidly oscillating tube. Part 1. General theory. Journal of Fluid Mechanics, 2010, 648, 83-121.	3.4	27
40	Evaluation of the Growth Environment of a Hydrostatic Force Bioreactor for Preconditioning of Tissue-Engineered Constructs. Tissue Engineering - Part C: Methods, 2015, 21, 1-14.	2.1	27
41	Transient elastohydrodynamic drag on a particle moving near a deformable wall. Quarterly Journal of Mechanics and Applied Mathematics, 2006, 59, 277-300.	1.3	26
42	T-cell motility in the early stages of the immune response modeled as a random walk amongst targets. Physical Review E, 2006, 74, 011910.	2.1	26
43	Flow in a wavy-walled channel lined with a poroelastic layer. Journal of Fluid Mechanics, 2003, 492, 23-45.	3.4	25
44	How rapidly oscillating collapsible tubes extract energy from a viscous mean flow. Journal of Fluid Mechanics, 2008, 601, 199-227.	3.4	25
45	Multiscale modelling and homogenisation of fibre-reinforced hydrogels for tissue engineering. European Journal of Applied Mathematics, 2020, 31, 143-171.	2.9	25
46	Transverse flows in rapidly oscillating elastic cylindrical shells. Journal of Fluid Mechanics, 2006, 547, 185.	3.4	24
47	Cellular blebs: pressure-driven, axisymmetric, membrane protrusions. Biomechanics and Modeling in Mechanobiology, 2014, 13, 463-476.	2.8	24
48	Solute uptake through the walls of a pulsating channel. Journal of Fluid Mechanics, 2001, 433, 193-208.	3.4	23
49	On the predictions and limitations of the Beckerâ€"DÃ¶ring model for reaction kinetics in micellar surfactant solutions. Journal of Colloid and Interface Science, 2011, 360, 662-671.	9.4	23
50	Growth-induced axial buckling of a slender elastic filament embedded in an isotropic elastic matrix. International Journal of Non-Linear Mechanics, 2013, 56, 94-104.	2.6	23
51	The Influence of Bioreactor Geometry and the Mechanical Environment on Engineered Tissues. Journal of Biomechanical Engineering, 2010, 132, 051006.	1.3	22
52	Multiphase modelling of the influence of fluid flow and chemical concentration on tissue growth in a hollow fibre membrane bioreactor. Mathematical Medicine and Biology, 2014, 31, 393-430.	1.2	21
53	The interplay between tissue growth and scaffold degradation in engineered tissue constructs. Journal of Mathematical Biology, 2013, 67, 1199-1225.	1.9	20
54	Global contraction or local growth, bleb shape depends on more than just cell structure. Journal of Theoretical Biology, 2015, 380, 83-97.	1.7	20

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55	The Fluid Mechanics of Ureteroscope Irrigation. Journal of Endourology, 2019, 33, 28-34.	2.1	20
56	Combining multiple spatial statistics enhances the description of immune cell localisation within tumours. Scientific Reports, 2020, 10, 18624.	3.3	20
57	Optimising Cell Aggregate Expansion in a Perfused Hollow Fibre Bioreactor via Mathematical Modelling. PLoS ONE, 2014, 9, e105813.	2.5	19
58	Wrinkling, creasing, and folding in fiber-reinforced soft tissues. Extreme Mechanics Letters, 2016, 8, 22-29.	4.1	18
59	Fluid mechanical modeling of the upper urinary tract. WIREs Mechanisms of Disease, 2021, 13, e1523.	3.3	18
60	Experimental and theoretical modelling of blind-ended vessels within a developing angiogenic plexus. Microvascular Research, 2008, 76, 161-168.	2.5	17
61	Curvature- and fluid-stress-driven tissue growth in a tissue-engineering scaffold pore. Biomechanics and Modeling in Mechanobiology, 2019, 18, 589-605.	2.8	17
62	In situ monitoring of 3D in vitro cell aggregation using an optical imaging system. Biotechnology and Bioengineering, 2008, 100, 159-167.	3.3	16
63	The energetics of flow through a rapidly oscillating tube. Part 2. Application to an elliptical tube. Journal of Fluid Mechanics, 2010, 648, 123-153.	3.4	16
64	Propagation of damage in brain tissue: coupling the mechanics of oedema and oxygen delivery. Biomechanics and Modeling in Mechanobiology, 2015, 14, 1197-1216.	2.8	16
65	Multiple travelling-wave solutions in a minimal model for cell motility. Mathematical Medicine and Biology, 2013, 30, 241-272.	1.2	15
66	Three mechanical models for blebbing and multi-blebbing. IMA Journal of Applied Mathematics, 2014, 79, 636-660.	1.6	15
67	Multiphase modelling of the effect of fluid shear stress on cell yield and distribution in a hollow fibre membrane bioreactor. Biomechanics and Modeling in Mechanobiology, 2015, 14, 387-402.	2.8	14
68	Shock formation and non-linear dispersion in a microvascular capillary network. Mathematical Medicine and Biology, 2007, 24, 379-400.	1.2	13
69	Tracking large solid constructs suspended in a rotating bioreactor: A combined experimental and theoretical study. Biotechnology and Bioengineering, 2009, 104, 1224-1234.	3.3	13
70	Heat or mass transfer at low PÃ©clet number for Brinkman and Darcy flow round a sphere. International Journal of Heat and Mass Transfer, 2014, 68, 247-258.	4.8	12
71	Mathematical modelling of cell layer growth in a hollow fibre bioreactor. Journal of Theoretical Biology, 2017, 418, 36-56.	1.7	11
72	Local instabilities of flow in a flexible channel: Asymmetric flutter driven by a weak critical layer. Physics of Fluids, 2010, 22, 031902.	4.0	10

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73	An Asymptotic Theory for the Re-Equilibration of a Micellar Surfactant Solution. SIAM Journal on Applied Mathematics, 2012, 72, 201-215.	1.8	10
74	A kinetic model of a polyelectrolyte gel undergoing phase separation. Journal of the Mechanics and Physics of Solids, 2022, 160, 104771.	4.8	10
75	On the liquid lining in fluid-conveying curved tubes. Journal of Fluid Mechanics, 2012, 705, 213-233.	3.4	9
76	Mathematical Model of Growth Factor Driven Haptotaxis and Proliferation in a Tissue Engineering Scaffold. Bulletin of Mathematical Biology, 2013, 75, 393-427.	1.9	9
77	On a poroviscoelastic model for cell crawling. Journal of Mathematical Biology, 2015, 70, 133-171.	1.9	9
78	On the boundary layer structure near a highly permeable porous interface. Journal of Fluid Mechanics, 2016, 798, 88-139.	3.4	9
79	A mathematical model for the laser treatment of heart disease. Journal of Biomechanics, 2004, 37, 281-288.	2.1	8
80	The influence of hydrostatic pressure on tissue engineered bone development. Journal of Theoretical Biology, 2016, 394, 149-159.	1.7	8
81	Cavity flow characteristics and applications to kidney stone removal. Journal of Fluid Mechanics, 2020, 902, .	3.4	8
82	Effects of geometry on resistance in elliptical pipe flows. Journal of Fluid Mechanics, 2020, 891, .	3.4	8
83	Mathematical modelling of bloodâ€“brain barrier failure and oedema. Mathematical Medicine and Biology, 2016, 34, dqw009.	1.2	7
84	Axonal Buckling Following Stretch Injury. Journal of Elasticity, 2017, 129, 239-256.	1.9	7
85	A Systematically Reduced Mathematical Model for Organoid Expansion. Frontiers in Bioengineering and Biotechnology, 2021, 9, 670186.	4.1	7
86	Flow and solute uptake in a twisting tube. Journal of Fluid Mechanics, 2006, 562, 173.	3.4	6
87	Mathematical modelling of autoimmune myocarditis and the effects of immune checkpoint inhibitors. Journal of Theoretical Biology, 2022, 537, 111002.	1.7	6
88	Mathematical challenges in integrative physiology. Journal of Mathematical Biology, 2008, 56, 893-896.	1.9	5
89	Modelling crystal aggregation and deposition in the catheterised lower urinary tract. Journal of Mathematical Biology, 2009, 59, 809-840.	1.9	5
90	The energetics of flow through a rapidly oscillating tube with slowly varying amplitude. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2011, 369, 2989-3006.	3.4	5

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91	Steady symmetric low-Reynolds-number flow past a film-coated cylinder. European Journal of Applied Mathematics, 2013, 24, 1-24.	2.9	5
92	Dispersion-enhanced solute transport in a cell-seeded hollow fibre membrane bioreactor. Journal of Engineering Mathematics, 2016, 99, 29-63.	1.2	5
93	Pattern formation in multiphase models of chemotactic cell aggregation. Mathematical Medicine and Biology, 2018, 35, 319-346.	1.2	5
94	The effect of weak inertia in rotating high-aspect-ratio vessel bioreactors. Journal of Fluid Mechanics, 2018, 835, 674-720.	3.4	4
95	Shape optimisation for faster washout in recirculating flows. Journal of Fluid Mechanics, 2021, 914, .	3.4	4
96	Annular Thin-Film Flows Driven by Azimuthal Variations in Interfacial Tension. Quarterly Journal of Mechanics and Applied Mathematics, 2009, 62, 403-430.	1.3	3
97	Heat or mass transfer from a sphere in Stokes flow at low PÃ©clet number. Applied Mathematics Letters, 2013, 26, 392-396.	2.7	3
98	A multiphase model for chemically- and mechanically- induced cell differentiation in a hollow fibre membrane bioreactor: minimising growth factor consumption. Biomechanics and Modeling in Mechanobiology, 2016, 15, 683-700.	2.8	3
99	Lattice and continuum modelling of a bioactive porous tissue scaffold. Mathematical Medicine and Biology, 2019, 36, 325-360.	1.2	3
100	Predicting Bone Formation in Mesenchymal Stromal Cell-Seeded Hydrogels Using Experiment-Based Mathematical Modeling. Tissue Engineering - Part A, 2020, 26, 1014-1023.	3.1	3
101	Experimental and mathematical modelling of magnetically labelled mesenchymal stromal cell delivery. Journal of the Royal Society Interface, 2021, 18, 20200558.	3.4	3
102	Growth of the chorioallantoic membrane into a rapid-prototyped model pore system: experiments and mathematical model. Biomechanics and Modeling in Mechanobiology, 2011, 10, 539-558.	2.8	2
103	Approaches to myosin modelling in a two-phase flow model for cell motility. Physica D: Nonlinear Phenomena, 2016, 318-319, 34-49.	2.8	2
104	A lumped-parameter model for kidney pressure during stone removal. IMA Journal of Applied Mathematics, 2020, 85, 703-723.	1.6	2
105	The effect of membrane-regulated actin polymerization on a two-phase flow model for cell motility. IMA Journal of Applied Mathematics, 2014, 79, 603-635.	1.6	1
106	Bifurcations and Dynamics Emergent From Lattice and Continuum Models of Bioactive Porous Media. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 2018, 28, 1830037.	1.7	1
107	Title is missing!. , 2018, , .		1
108	Remedi: A Research Consortium Applying Engineering Strategies to Establish Regenerative Medicine as a New Industry. IFMBE Proceedings, 2009, , 2209-2212.	0.3	0

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109	A Mathematical Model of a Valve-Controlled Bioreactor for Platelet Production. Frontiers in Mechanical Engineering, 2022, 8, .	1.8	0