Hans G Othmer

List of Publications by Year
in descending order

80 papers	6,054 citations	126858 33 h-index	71651 76 g-index
85 all docs	85 docs citations	85 times ranked	4081 citing authors

#	Article	IF	Citations
1	How surrogates for cortical forces determine cell shape. International Journal of Non-Linear Mechanics, 2022, 140, 103907.	1.4	3
2	A Random Walk Approach to Transport in Tissues and Complex Media: From Microscale Descriptions to Macroscale Models. Bulletin of Mathematical Biology, 2021, 83, 92.	0.9	1
3	The discrete-time Kermackâ€“McKendrick model: A versatile and computationally attractive framework for modeling epidemics. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	3.3	21
4	A phosphoinositide-based model of actin waves in frustrated phagocytosis. Journal of Theoretical Biology, 2021, 527, 110764.	0.8	3
5	Growth control in the Drosophila wing disk. Wiley Interdisciplinary Reviews: Systems Biology and Medicine, 2020, 12, e1478.	6.6	14
6	The Roles of Signaling in Cytoskeletal Changes, Random Movement, Direction-Sensing and Polarization of Eukaryotic Cells. Cells, 2020, 9, 1437.	1.8	16
7	Visualizing mesoderm and neural crest cell dynamics during chick head morphogenesis. Developmental Biology, 2020, 461, 184-196.	0.9	12
8	The Status of the QSSA Approximation in Stochastic Simulations of Reaction Networks. MATRIX Book Series, 2020, , 137-147.	0.2	2
9	Synergistic Effects of Bortezomib-OV Therapy and Anti-Invasive Strategies in Glioblastoma: A Mathematical Model. Cancers, 2019, 11, 215.	1.7	15
10	Noise-induced mixing and multimodality in reaction networks. European Journal of Applied Mathematics, 2019, 30, 887-911.	1.4	11
11	Analysis of a model microswimmer with applications to blebbing cells and mini-robots. Journal of Mathematical Biology, 2018, 76, 1699-1763.	0.8	9
12	Getting in shape and swimming: the role of cortical forces and membrane heterogeneity in eukaryotic cells. Journal of Mathematical Biology, 2018, 77, 595-626.	0.8	13
13	Leveraging Compute Clusters for Large-Scale Parametric Screens of Reaction-Diffusion Systems. , 2018, , .		0
14	A Model for the Hippo Pathway in the Drosophila Wing Disc. Biophysical Journal, 2018, 115, 737-747.	0.2	10
15	Improving Parameter Inference from FRAP Data: an Analysis Motivated by Pattern Formation in the Drosophila Wing Disc. Bulletin of Mathematical Biology, 2017, 79, 448-497.	0.9	10
16	The role of the tumor microenvironment in glioblastoma: A mathematical model. IEEE Transactions on Biomedical Engineering, 2016, 64, 1-1.	2.5	46
17	Progress and perspectives in signal transduction, actin dynamics, and movement at the cell and tissue level: lessons from<i>Dictyostelium</i>. Interface Focus, 2016, 6, 20160047.	1.5	41
18	Cell-Based, Continuum and Hybrid Models of Tissue Dynamics. Lecture Notes in Mathematics, 2016, , 1-72.	0.1	1

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19	Computational analysis of amoeboid swimming at low Reynolds number. Journal of Mathematical Biology, 2016, 72, 1893-1926.	0.8	20
20	A multi-time-scale analysis of chemical reaction networks: II. Stochastic systems. Journal of Mathematical Biology, 2016, 73, 1081-1129.	0.8	22
21	A Model for Direction Sensing in Dictyostelium discoideum: Ras Activity and Symmetry Breaking Driven by a GÎ²Î³-Mediated, GÎ±2-Ric8 -- Dependent Signal Transduction Network. PLoS Computational Biology, 2016, 12, e1004900.	1.5	20
22	Actin Cytoskeleton, Multi-scale Modeling. , 2015, , 17-23.		1
23	Constant-complexity stochastic simulation algorithm with optimal binning. Journal of Chemical Physics, 2015, 143, 074108.	1.2	7
24	The Role of Mathematical Models in Understanding Pattern Formation in Developmental Biology. Bulletin of Mathematical Biology, 2015, 77, 817-845.	0.9	27
25	A mathematical model of saltâ€sensitive hypertension: the neurogenic hypothesis. Journal of Physiology, 2015, 593, 3065-3075.	1.3	32
26	Hybrid models of cell and tissue dynamics in tumor growth. Mathematical Biosciences and Engineering, 2015, 12, 1141-1156.	1.0	25
27	The performance of discrete models of low reynolds number swimmers. Mathematical Biosciences and Engineering, 2015, 12, 1303-1320.	1.0	8
28	Editorial: Special Issue on Stochastic Modelling of Reactionâ€"Diffusion Processes in Biology. Bulletin of Mathematical Biology, 2014, 76, 761-765.	0.9	4
29	Stochastic Analysis of Reactionâ€"Diffusion Processes. Bulletin of Mathematical Biology, 2014, 76, 854-894.	0.9	15
30	A Hybrid Model of Tumorâ€"Stromal Interactions in Breast Cancer. Bulletin of Mathematical Biology, 2013, 75, 1304-1350.	0.9	62
31	Mechanisms of scaling in pattern formation. Development (Cambridge), 2013, 140, 4830-4843.	1.2	94
32	The Mathematical Analysis of Biological Aggregation and Dispersal: Progress, Problems and Perspectives. Lecture Notes in Mathematics, 2013, , 79-127.	0.1	11
33	Excitation and Adaptation in Bacteriaâ€"a Model Signal Transduction System that Controls Taxis and Spatial Pattern Formation. International Journal of Molecular Sciences, 2013, 14, 9205-9248.	1.8	21
34	A Continuum Model of Actin Waves in Dictyostelium discoideum. PLoS ONE, 2013, 8, e64272.	1.1	34
35	Scale invariance of morphogen-mediated patterning by flux optimization. , 2012, , .		3
36	The effect of the signalling scheme on the robustness of pattern formation in development. Interface Focus, 2012, 2, 465-486.	1.5	14

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37	A â€œTrimer of Dimersâ€â€"Based Model for the Chemotactic Signal Transduction Network in Bacterial Chemotaxis. Bulletin of Mathematical Biology, 2012, 74, 2339-2382.	0.9	17
38	A new method for choosing the computational cell in stochastic reactionâ€"diffusion systems. Journal of Mathematical Biology, 2012, 65, 1017-1099.	0.8	23
39	The importance of geometry in mathematical models of developing systems. Current Opinion in Genetics and Development, 2012, 22, 547-552.	1.5	15
40	Models of Low Reynolds Number Swimmers Inspired by Cell Blebbing. The IMA Volumes in Mathematics and Its Applications, 2012, , 185-195.	0.5	2
41	The role of the microenvironment in tumor growth and invasion. Progress in Biophysics and Molecular Biology, 2011, 106, 353-379.	1.4	145
42	A theoretical analysis of filament length fluctuations in actin and other polymers. Journal of Mathematical Biology, 2011, 63, 1001-1049.	0.8	13
43	Radial and Spiral Stream Formation in Proteus mirabilis Colonies. PLoS Computational Biology, 2011, 7, e1002332.	1.5	34
44	A multi-time-scale analysis of chemical reaction networks: I. Deterministic systems. Journal of Mathematical Biology, 2010, 60, 387-450.	0.8	51
45	Organism-Scale Modeling of Early Drosophila Patterning via Bone Morphogenetic Proteins. Developmental Cell, 2010, 18, 260-274.	3.1	85
46	The Intersection of Theory and Application in Elucidating Pattern Formation in Developmental Biology. Mathematical Modelling of Natural Phenomena, 2009, 4, 3-82.	0.9	61
47	Multi-scale models of cell and tissue dynamics. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2009, 367, 3525-3553.	1.6	93
48	From Individual to Collective Behavior of Unicellular Organisms: Recent Results and Open Problems. , 2009, , .		5
49	Multiscale Models of Taxis-Driven Patterning in Bacterial Populations. SIAM Journal on Applied Mathematics, 2009, 70, 133-167.	0.8	145
50	The BMP-Binding Protein Crossveinless 2 Is a Short-Range, Concentration-Dependent, Biphasic Modulator of BMP Signaling in Drosophila. Developmental Cell, 2008, 14, 940-953.	3.1	157
51	Robustness of Embryonic Spatial Patterning in Drosophila melanogaster. Current Topics in Developmental Biology, 2008, 81, 65-111.	1.0	41
52	A HYBRID MODEL FOR TUMOR SPHEROID GROWTH <i>IN VITRO</i> I: THEORETICAL DEVELOPMENT AND EARLY RESULTS. Mathematical Models and Methods in Applied Sciences, 2007, 17, 1773-1798.	1.7	152
53	A stochastic analysis of actin polymerization in the presence of twinfilin and gelsolin. Journal of Theoretical Biology, 2007, 249, 723-736.	0.8	18
54	Taxis equations for amoeboid cells. Journal of Mathematical Biology, 2007, 54, 847-885.	0.8	52

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55	A Theoretical Approach to Actin Filament Dynamics. Journal of Statistical Physics, 2007, 128, 111-138.	0.5	41
56	An equation-free computational approach for extracting population-level behavior from individual-based models of biological dispersal. Physica D: Nonlinear Phenomena, 2006, 215, 1-24.	1.3	35
57	Shaping BMP morphogen gradients in the Drosophila embryo and pupal wing. Development (Cambridge), 2006, 133, 183-193.	1.2	266
58	Robust, bistable patterning of the dorsal surface of the Drosophila embryo. Proceedings of the National Academy of Sciences of the United States of America, 2006, 103, 11613-11618.	3.3	114
59	A stochastic analysis of first-order reaction networks. Bulletin of Mathematical Biology, 2005, 67, 901-946.	0.9	144
60	From Signal Transduction to Spatial Pattern Formation inE. coli: A Paradigm for Multiscale Modeling in Biology. Multiscale Modeling and Simulation, 2005, 3, 362-394.	0.6	105
61	Facilitated Transport of a Dpp/Scw Heterodimer by Sog/Tsg Leads to Robust Patterning of the Drosophila Blastoderm Embryo. Cell, 2005, 120, 873-886.	13.5	287
62	Aggregation under local reinforcement: From lattice to continuum. European Journal of Applied Mathematics, 2004, 15, 545-576.	1.4	31
63	Mathematical modeling of tumor-induced angiogenesis. Journal of Mathematical Biology, 2004, 49, 111-87.	0.8	277
64	How cellular movement determines the collective force generated by the Dictyostelium discoideum slug. Journal of Theoretical Biology, 2004, 231, 203-222.	0.8	106
65	A continuum model of motility in ameboid cells. Bulletin of Mathematical Biology, 2004, 66, 167-193.	0.9	132
66	From Individual to Collective Behavior in Bacterial Chemotaxis. SIAM Journal on Applied Mathematics, 2004, 65, 361-391.	0.8	229
67	Dynamic Receptor Team Formation Can Explain the High Signal Transduction Gain in Escherichia coli. Biophysical Journal, 2004, 86, 2650-2659.	0.2	23
68	The topology of the regulatory interactions predicts the expression pattern of the segment polarity genes in Drosophila melanogaster. Journal of Theoretical Biology, 2003, 223, 1-18.	0.8	827
69	Short- and long-range effects of Sonic hedgehog in limb development. Proceedings of the National Academy of Sciences of the United States of America, 2003, 100, 10152-10157.	3.3	54
70	The Diffusion Limit of Transport Equations II: Chemotaxis Equations. SIAM Journal on Applied Mathematics, 2002, 62, 1222-1250.	0.8	297
71	The Diffusion Limit of Transport Equations Derived from Velocity-Jump Processes. SIAM Journal on Applied Mathematics, 2000, 61, 751-775.	0.8	331
72	A Mathematical Model for Outgrowth and Spatial Patterning of the Vertebrate Limb Bud. Journal of Theoretical Biology, 1999, 197, 295-330.	0.8	117

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73	A Continuum Analysis of the Chemotactic Signal Seen byDictyostelium discoideum. Journal of Theoretical Biology, 1998, 194, 461-483.	0.8	29
74	A discrete cell model with adaptive signalling for aggregation ofDictyostelium discoideum. Philosophical Transactions of the Royal Society B: Biological Sciences, 1997, 352, 391-417.	1.8	111
75	Aggregation, Blowup, and Collapse: The ABC's of Taxis in Reinforced Random Walks. SIAM Journal on Applied Mathematics, 1997, 57, 1044-1081.	0.8	589
76	A model for pattern formation in Dictyostelium discoideum. Differentiation, 1996, 60, 1-16.	1.0	17
77	A G protein-based model of adaptation in Dictyostelium discoideum. Mathematical Biosciences, 1994, 120, 25-76.	0.9	65
78	A Model for Pattern Formation in Dictyostelium Discoideum. Lecture Notes in Biomathematics, 1987, , 224-233.	0.3	2
79	A model for signal-relay adaptation in Dictyostelium discoideum. II. Analytical and numerical results. Mathematical Biosciences, 1985, 77, 79-139.	0.9	18
80	The effects of cell density and metabolite flux on cellular dynamics. Journal of Mathematical Biology, 1978, 5, 169-200.	0.8	42