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	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
2	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
3	The Diffusion Limit of Transport Equations Derived from Velocity-Jump Processes. SIAM Journal on Applied Mathematics, 2000, 61, 751-775.	0.8	331
4	The Diffusion Limit of Transport Equations II: Chemotaxis Equations. SIAM Journal on Applied Mathematics, 2002, 62, 1222-1250.	0.8	297
5	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
6	Mathematical modeling of tumor-induced angiogenesis. Journal of Mathematical Biology, 2004, 49, 111-87.	0.8	277
7	Shaping BMP morphogen gradients in the Drosophila embryo and pupal wing. Development (Cambridge), 2006, 133, 183-193.	1.2	266
8	From Individual to Collective Behavior in Bacterial Chemotaxis. SIAM Journal on Applied Mathematics, 2004, 65, 361-391.	0.8	229
9	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
10	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
11	Multiscale Models of Taxis-Driven Patterning in Bacterial Populations. SIAM Journal on Applied Mathematics, 2009, 70, 133-167.	0.8	145
12	The role of the microenvironment in tumor growth and invasion. Progress in Biophysics and Molecular Biology, 2011, 106, 353-379.	1.4	145
13	A stochastic analysis of first-order reaction networks. Bulletin of Mathematical Biology, 2005, 67, 901-946.	0.9	144
14	A continuum model of motility in ameboid cells. Bulletin of Mathematical Biology, 2004, 66, 167-193.	0.9	132
15	A Mathematical Model for Outgrowth and Spatial Patterning of the Vertebrate Limb Bud. Journal of Theoretical Biology, 1999, 197, 295-330.	0.8	117
16	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
17	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
18	How cellular movement determines the collective force generated by the Dictyostelium discoideum slug. Journal of Theoretical Biology, 2004, 231, 203-222.	0.8	106

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19	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
20	Mechanisms of scaling in pattern formation. Development (Cambridge), 2013, 140, 4830-4843.	1.2	94
21	Multi-scale models of cell and tissue dynamics. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2009, 367, 3525-3553.	1.6	93
22	Organism-Scale Modeling of Early Drosophila Patterning via Bone Morphogenetic Proteins. Developmental Cell, 2010, 18, 260-274.	3.1	85
23	A G protein-based model of adaptation in Dictyostelium discoideum. Mathematical Biosciences, 1994, 120, 25-76.	0.9	65
24	A Hybrid Model of Tumorâ€“Stromal Interactions in Breast Cancer. Bulletin of Mathematical Biology, 2013, 75, 1304-1350.	0.9	62
25	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
26	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
27	Taxis equations for amoeboid cells. Journal of Mathematical Biology, 2007, 54, 847-885.	0.8	52
28	A multi-time-scale analysis of chemical reaction networks: I. Deterministic systems. Journal of Mathematical Biology, 2010, 60, 387-450.	0.8	51
29	The role of the tumor microenvironment in glioblastoma: A mathematical model. IEEE Transactions on Biomedical Engineering, 2016, 64, 1-1.	2.5	46
30	The effects of cell density and metabolite flux on cellular dynamics. Journal of Mathematical Biology, 1978, 5, 169-200.	0.8	42
31	A Theoretical Approach to Actin Filament Dynamics. Journal of Statistical Physics, 2007, 128, 111-138.	0.5	41
32	Robustness of Embryonic Spatial Patterning in Drosophila melanogaster. Current Topics in Developmental Biology, 2008, 81, 65-111.	1.0	41
33	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
34	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
35	Radial and Spiral Stream Formation in Proteus mirabilis Colonies. PLoS Computational Biology, 2011, 7, e1002332.	1.5	34
36	A Continuum Model of Actin Waves in Dictyostelium discoideum. PLoS ONE, 2013, 8, e64272.	1.1	34

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37	A mathematical model of saltâ€sensitive hypertension: the neurogenic hypothesis. Journal of Physiology, 2015, 593, 3065-3075.	1.3	32
38	Aggregation under local reinforcement: From lattice to continuum. European Journal of Applied Mathematics, 2004, 15, 545-576.	1.4	31
39	A Continuum Analysis of the Chemotactic Signal Seen byDictyostelium discoideum. Journal of Theoretical Biology, 1998, 194, 461-483.	0.8	29
40	The Role of Mathematical Models in Understanding Pattern Formation in Developmental Biology. Bulletin of Mathematical Biology, 2015, 77, 817-845.	0.9	27
41	Hybrid models of cell and tissue dynamics in tumor growth. Mathematical Biosciences and Engineering, 2015, 12, 1141-1156.	1.0	25
42	Dynamic Receptor Team Formation Can Explain the High Signal Transduction Gain in Escherichia coli. Biophysical Journal, 2004, 86, 2650-2659.	0.2	23
43	A new method for choosing the computational cell in stochastic reactionâ€“diffusion systems. Journal of Mathematical Biology, 2012, 65, 1017-1099.	0.8	23
44	A multi-time-scale analysis of chemical reaction networks: II. Stochastic systems. Journal of Mathematical Biology, 2016, 73, 1081-1129.	0.8	22
45	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
46	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
47	Computational analysis of amoeboid swimming at low Reynolds number. Journal of Mathematical Biology, 2016, 72, 1893-1926.	0.8	20
48	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
49	A model for signal-relay adaptation in Dictyostelium discoideum. II. Analytical and numerical results. Mathematical Biosciences, 1985, 77, 79-139.	0.9	18
50	A stochastic analysis of actin polymerization in the presence of twinfilin and gelsolin. Journal of Theoretical Biology, 2007, 249, 723-736.	0.8	18
51	A model for pattern formation in Dictyostelium discoideum. Differentiation, 1996, 60, 1-16.	1.0	17
52	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
53	The Roles of Signaling in Cytoskeletal Changes, Random Movement, Direction-Sensing and Polarization of Eukaryotic Cells. Cells, 2020, 9, 1437.	1.8	16
54	The importance of geometry in mathematical models of developing systems. Current Opinion in Genetics and Development, 2012, 22, 547-552.	1.5	15

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55	Stochastic Analysis of Reactionâ€"Diffusion Processes. Bulletin of Mathematical Biology, 2014, 76, 854-894.	0.9	15
56	Synergistic Effects of Bortezomib-OV Therapy and Anti-Invasive Strategies in Glioblastoma: A Mathematical Model. Cancers, 2019, 11, 215.	1.7	15
57	The effect of the signalling scheme on the robustness of pattern formation in development. Interface Focus, 2012, 2, 465-486.	1.5	14
58	Growth control in the Drosophila wing disk. Wiley Interdisciplinary Reviews: Systems Biology and Medicine, 2020, 12, e1478.	6.6	14
59	A theoretical analysis of filament length fluctuations in actin and other polymers. Journal of Mathematical Biology, 2011, 63, 1001-1049.	0.8	13
60	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
61	Visualizing mesoderm and neural crest cell dynamics during chick head morphogenesis. Developmental Biology, 2020, 461, 184-196.	0.9	12
62	The Mathematical Analysis of Biological Aggregation and Dispersal: Progress, Problems and Perspectives. Lecture Notes in Mathematics, 2013, , 79-127.	0.1	11
63	Noise-induced mixing and multimodality in reaction networks. European Journal of Applied Mathematics, 2019, 30, 887-911.	1.4	11
64	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
65	A Model for the Hippo Pathway in the Drosophila Wing Disc. Biophysical Journal, 2018, 115, 737-747.	0.2	10
66	Analysis of a model microswimmer with applications to blebbing cells and mini-robots. Journal of Mathematical Biology, 2018, 76, 1699-1763.	0.8	9
67	The performance of discrete models of low reynolds number swimmers. Mathematical Biosciences and Engineering, 2015, 12, 1303-1320.	1.0	8
68	Constant-complexity stochastic simulation algorithm with optimal binning. Journal of Chemical Physics, 2015, 143, 074108.	1.2	7
69	From Individual to Collective Behavior of Unicellular Organisms: Recent Results and Open Problems. , 2009, , .		5
70	Editorial: Special Issue on Stochastic Modelling of Reactionâ€"Diffusion Processes in Biology. Bulletin of Mathematical Biology, 2014, 76, 761-765.	0.9	4
71	Scale invariance of morphogen-mediated patterning by flux optimization. , 2012, , .		3
72	A phosphoinositide-based model of actin waves in frustrated phagocytosis. Journal of Theoretical Biology, 2021, 527, 110764.	0.8	3

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73	How surrogates for cortical forces determine cell shape. International Journal of Non-Linear Mechanics, 2022, 140, 103907.	1.4	3
74	Models of Low Reynolds Number Swimmers Inspired by Cell Blebbing. The IMA Volumes in Mathematics and Its Applications, 2012, , 185-195.	0.5	2
75	The Status of the QSSA Approximation in Stochastic Simulations of Reaction Networks. MATRIX Book Series, 2020, , 137-147.	0.2	2
76	A Model for Pattern Formation in Dictyostelium Discoideum. Lecture Notes in Biomathematics, 1987, , 224-233.	0.3	2
77	Actin Cytoskeleton, Multi-scale Modeling. , 2015, , 17-23.		1
78	Cell-Based, Continuum and Hybrid Models of Tissue Dynamics. Lecture Notes in Mathematics, 2016, , 1-72.	0.1	1
79	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
80	Leveraging Compute Clusters for Large-Scale Parametric Screens of Reaction-Diffusion Systems. , 2018, , .		0