

Toshiyuki Nakagaki

List of Publications by Year in descending order

Source: <https://exaly.com/author-pdf/4045851/publications.pdf>

Version: 2024-02-01

97
papers

5,187
citations

159585

30
h-index

85541

71
g-index

103
all docs

103
docs citations

103
times ranked

2318
citing authors

#	ARTICLE	IF	CITATIONS
1	Binocular stereo-microscopy for deforming intact amoeba. <i>Optics Express</i> , 2022, 30, 2424.	3.4	2
2	Gait switching with phase reversal of locomotory waves in the centipede <i>Scolopocryptops rubiginosus</i> . <i>Bioinspiration and Biomimetics</i> , 2022, 17, 026005.	2.9	4
3	Dynamic control of microbial movement by photoswitchable ATP antagonists. <i>Chemistry - A European Journal</i> , 2022, , .	3.3	1
4	A model for simulating emergent patterns of cities and roads on real-world landscapes. <i>Scientific Reports</i> , 2022, 12, .	3.3	0
5	Slime mold on the rise: the physics of <i>Physarum polycephalum</i> . <i>Journal Physics D: Applied Physics</i> , 2020, 53, 310201.	2.8	7
6	Does being multi-headed make you better at solving problems? A survey of <i>Physarum</i> -based models and computations. <i>Physics of Life Reviews</i> , 2019, 29, 1-26.	2.8	48
7	<i>Physarum</i> inspires research beyond biomimetic algorithms. <i>Physics of Life Reviews</i> , 2019, 29, 51-54.	2.8	3
8	Uni-cellular integration of complex spatial information in slime moulds and ciliates. <i>Current Opinion in Genetics and Development</i> , 2019, 57, 78-83.	3.3	8
9	Experimental models for Murray's law. <i>Journal Physics D: Applied Physics</i> , 2017, 50, 024001.	2.8	18
10	Response to various periods of mechanical stimuli in <i>Physarum plasmodium</i> . <i>Journal Physics D: Applied Physics</i> , 2017, 50, 254002.	2.8	3
11	Automated analysis of <i>Physarum</i> network structure and dynamics. <i>Journal Physics D: Applied Physics</i> , 2017, 50, 254005.	2.8	19
12	Studies of the phase gradient at the boundary of the phase diffusion equation, motivated by peculiar wave patterns of rhythmic contraction in the amoeboid movement of <i>Physarum polycephalum</i> . <i>Journal Physics D: Applied Physics</i> , 2017, 50, 154004.	2.8	3
13	Direct observation of orientation distributions of actin filaments in a solution undergoing shear banding. <i>Soft Matter</i> , 2017, 13, 2708-2716.	2.7	4
14	A mathematical model for adaptive vein formation during exploratory migration of <i>Physarum polycephalum</i> : routing while scouting. <i>Journal Physics D: Applied Physics</i> , 2017, 50, 434001.	2.8	9
15	Current reinforcement model reproduces center-to-center vein trajectory of <i>Physarum polycephalum</i> . <i>Development Growth and Differentiation</i> , 2017, 59, 465-470.	1.5	3
16	Behavioural differentiation induced by environmental variation when crossing a toxic zone in an amoeba. <i>Journal Physics D: Applied Physics</i> , 2017, 50, 354002.	2.8	2
17	The role of noise in self-organized decision making by the true slime mold <i>Physarum polycephalum</i> . <i>PLoS ONE</i> , 2017, 12, e0172933.	2.5	23
18	A ciliate memorizes the geometry of a swimming arena. <i>Journal of the Royal Society Interface</i> , 2016, 13, 20160155.	3.4	23

#	ARTICLE	IF	CITATIONS
19	BIO-MIMETIC DESIGN FOR OPTIMAL SHAPE AND STRUCTURE BASED ON THE ADAPTABILITY OF USE-AND-GROWTH RULE IN A PRIMITIVE ORGANISM OF <i>PHYSARUM</i> . Journal of Japan Society of Civil Engineers Ser A2 (Applied Mechanics (AM)), 2016, 72, I_3-I_11.	0.1	0
20	Adaptive dynamics for shape optimization inspired by the use-and-growth rule in a simple organism of slime mold. , 2016, , .		0
21	Automated analysis of Physarum network structure and dynamics. , 2016, , .		0
22	Allometry in <i>Physarum</i> plasmodium during free locomotion: size versus shape, speed and rhythm. Journal of Experimental Biology, 2015, 218, 3729-38.	1.7	20
23	Periodic traction in migrating large amoeba of <i>Physarum polycephalum</i> . Journal of the Royal Society Interface, 2015, 12, 20150099.	3.4	31
24	Common mechanics of mode switching in locomotion of limbless and legged animals. Journal of the Royal Society Interface, 2014, 11, 20140205.	3.4	35
25	Attempts to retreat from a dead-ended long capillary by backward swimming in Paramecium. Frontiers in Microbiology, 2014, 5, 270.	3.5	23
26	1P277 The effect of a chemical bump on a migrating amoeba(24. Mathematical biology,Poster,The 52nd Tj ETQq0,0,0 rgBT /Overlock 1	0.1	0
27	2P231 The analyses based on a membrane excitation model for Longterm Backward Swimming in a protozoa Paramecium(17. Behavior,Poster). Seibutsu Butsuri, 2014, 54, S233.	0.1	0
28	1P178 Coiling of catenaries made from Physarum tube(12. Cell biology,Poster,The 52nd Annual Meeting) Tj ETQq0,0,0 rgBT /Overlock 1	0.1	0
29	Current-reinforced random walks for constructing transport networks. Journal of the Royal Society Interface, 2013, 10, 20120864.	3.4	30
30	A design principle of the decentralized control and its applications. , 2013, , .		0
31	Adaptive Path-Finding and Transport Network Formation by the Amoeba-Like Organism Physarum. Proceedings in Information and Communications Technology, 2013, , 14-29.	0.2	8
32	Ethological Response to Periodic Stimulation in Chara and Blepharisma. Proceedings in Information and Communications Technology, 2013, , 3-13.	0.2	0
33	Peristaltic transport and mixing of cytosol through the whole body of Physarum plasmodium. Mathematical Medicine and Biology, 2012, 29, 263-281.	1.2	11
34	Mechanics of peristaltic locomotion and role of anchoring. Journal of the Royal Society Interface, 2012, 9, 222-233.	3.4	88
35	Shear Banding in an F-Actin Solution. Physical Review Letters, 2012, 109, 248303.	7.8	19
36	Analysis of fungal networks. Fungal Biology Reviews, 2012, 26, 12-29.	4.7	103

#	ARTICLE	IF	CITATIONS
37	Fluid-Filled Soft-Bodied Amoeboid Robot Inspired by Plasmodium of True Slime Mold. <i>Advanced Robotics</i> , 2012, 26, 693-707.	1.8	9
38	Tactic direction determined by the interaction between oscillatory chemical waves and rheological deformation in an amoeba. <i>Physical Review E</i> , 2012, 86, 011927.	2.1	1
39	1SF-06 Towards understanding the locomotion of animals by limbless crawling(1SF Theoretical) Tj ETQq1 1 0.784314 rgBT /Overlock 0.1	0.1	0
40	Honor speech. <i>Japanese Journal of Physiological Psychology and Psychophysiology</i> , 2012, 30, 103-104.	0.1	0
41	Cellular Computation Realizing Intelligence of Slime Mold <l>Physarum Polycephalum</l>. <i>Journal of Computational and Theoretical Nanoscience</i> , 2011, 8, 383-390.	0.4	5
42	Traffic optimization in railroad networks using an algorithm mimicking an amoeba-like organism, <i>Physarum plasmodium</i> . <i>BioSystems</i> , 2011, 105, 225-232.	2.0	52
43	Flow-induced channel formation in the cytoplasm of motile cells. <i>Physical Review E</i> , 2011, 84, 016310.	2.1	31
44	Mathematical model for contemplative amoeboid locomotion. <i>Physical Review E</i> , 2011, 83, 021916.	2.1	23
45	Structure and formation of ant transportation networks. <i>Journal of the Royal Society Interface</i> , 2011, 8, 1298-1306.	3.4	64
46	Smart Network of True Slime Mold. <i>Seibutsu Butsuri</i> , 2011, 51, 178-181.	0.1	0
47	The Interconnected Network of Tubes Constructed by a Mass of Amoebae Provides Clues Regarding the Natural Design of Structures for Optimal Transportation. <i>JPSJ News and Comments</i> , 2011, 8, 10.	0.1	0
48	Risk management in spatio-temporally varying field by true slime mold. <i>Nonlinear Theory and Its Applications IEICE</i> , 2010, 1, 26-36.	0.6	12
49	Fully decentralized control of a soft-bodied robot inspired by true slime mold. <i>Biological Cybernetics</i> , 2010, 102, 261-269.	1.3	71
50	Kinetic study of anti-viral ribavirin uptake mediated by hCNT3 and hENT1 in <i>Xenopus laevis</i> oocytes. <i>Biophysical Chemistry</i> , 2010, 147, 59-65.	2.8	7
51	Taming large degrees of freedom. , 2010, , .		5
52	Rules for Biologically Inspired Adaptive Network Design. <i>Science</i> , 2010, 327, 439-442.	12.6	685
53	1A1-E20 A Fluid-driven Amoeboid Robot That Exploits Law of Conservation of Protoplasmic Mass. The Proceedings of JSME Annual Conference on Robotics and Mechatronics (Robomec), 2010, 2010, _1A1-E20_1-_1A1-E20_4.	0.0	0
54	Experimental Verification of Fully Decentralized Control Inspired by Plasmodium of True Slime Mold. <i>Transactions of the Society of Instrument and Control Engineers</i> , 2010, 46, 706-712.	0.2	0

#	ARTICLE	IF	CITATIONS
55	Time recoder system of protozoa. <i>Biophysical Journal</i> , 2009, 96, 308a.	0.5	0
56	A Modular Robot Driven by Protoplasmic Streaming. , 2009, , 193-202.		8
57	Adaptive Biological Networks. <i>Understanding Complex Systems</i> , 2009, , 51-70.	0.6	21
58	Protoplasmic Computing to Memorize and Recall Periodic Environmental Events. <i>Proceedings in Information and Communications Technology</i> , 2009, , 213-221.	0.2	0
59	2A2-F22 Experimental Verification of a Soft-bodied Robot with Large D. O. F. Inspired by True Slime Mold. <i>The Proceedings of JSME Annual Conference on Robotics and Mechatronics (Robomec)</i> , 2009, _2A2-F22_1-_2A2-F22_4.	0.0	0
60	Computational Ability of Cells based on Cell Dynamics and Adaptability. <i>New Generation Computing</i> , 2008, 27, 57-81.	3.3	31
61	Flow-network adaptation in <i>Physarum amoebae</i> . <i>Theory in Biosciences</i> , 2008, 127, 89-94.	1.4	89
62	Locomotive Mechanism of <i>Physarum Plasmodia</i> Based on Spatiotemporal Analysis of Protoplasmic Streaming. <i>Biophysical Journal</i> , 2008, 94, 2492-2504.	0.5	57
63	Amoebae Anticipate Periodic Events. <i>Physical Review Letters</i> , 2008, 100, 018101.	7.8	268
64	Intelligent behaviors of amoeboid movement based on complex dynamics of soft matter. <i>Soft Matter</i> , 2008, 4, 57-67.	2.7	58
65	Flow Rate Driven by Peristaltic Movement in Plasmodial Tube of <i>Physarum Polycephalum</i> . <i>AIP Conference Proceedings</i> , 2008, , .	0.4	0
66	Failure to the shortest path decision of an adaptive transport network with double edges in Plasmodium system. <i>International Journal of Dynamical Systems and Differential Equations</i> , 2008, 1, 210.	0.0	4
67	3P-245 Ability of memorizing time period in the unicellate(The 46th Annual Meeting of the Tj ETQq1 1 0.784314 rgBT /Overlock 10	0.1	0
68	Anticipation of periodic environmental changes in an amoeba. <i>AIP Conference Proceedings</i> , 2007, , .	0.4	0
69	Minimum-Risk Path Finding by an Adaptive Amoebal Network. <i>Physical Review Letters</i> , 2007, 99, 068104.	7.8	157
70	A mathematical model for adaptive transport network in path finding by true slime mold. <i>Journal of Theoretical Biology</i> , 2007, 244, 553-564.	1.7	323
71	Dispersion relation in oscillatory reaction-diffusion systems with self-consistent flow in true slime mold. <i>Journal of Mathematical Biology</i> , 2007, 54, 745-760.	1.9	26
72	1P495 Solving the shortest path problem by <i>Physarum</i> solver - Modeling of the Adaptive Network of True Slime Mold(24. Mathematical biology,Poster Session,Abstract,Meeting Program of EABS & BSI) Tj ETQq0 0.0 rgBT /Overlock 1	0.0	0

#	ARTICLE	IF	CITATIONS
73	1P451 The true slime mold shows the response to periodic environmental change(19. Behavior) Tj ETQq1 1 0.784314 rgBT /Qoverlock 10	0.1	0
74	Super water-repellent surfaces with fractal structures and their potential application to biological studies. Colloids and Surfaces A: Physicochemical and Engineering Aspects, 2006, 284-285, 490-494.	4.7	19
75	Physarum solver: A biologically inspired method of road-network navigation. Physica A: Statistical Mechanics and Its Applications, 2006, 363, 115-119.	2.6	190
76	Mathematical Model for Rhythmic Protoplasmic Movement in the True Slime Mold. Journal of Mathematical Biology, 2006, 53, 273-286.	1.9	86
77	A coupled-oscillator model with a conservation law for the rhythmic amoeboid movements of plasmodial slime molds. Physica D: Nonlinear Phenomena, 2005, 205, 125-135.	2.8	53
78	Collective Movement of Epithelial Cells on a Collagen Gel Substrate. Biophysical Journal, 2005, 88, 2250-2256.	0.5	126
79	Obtaining multiple separate food sources: behavioural intelligence in the Physarum plasmodium. Proceedings of the Royal Society B: Biological Sciences, 2004, 271, 2305-2310.	2.6	183
80	Smart network solutions in an amoeboid organism. Biophysical Chemistry, 2004, 107, 1-5.	2.8	146
81	Sequences of symmetry-breaking in phyllotactic transitions. Bulletin of Mathematical Biology, 2004, 66, 779-789.	1.9	6
82	Path finding by tube morphogenesis in an amoeboid organism. Biophysical Chemistry, 2001, 92, 47-52.	2.8	257
83	Smart behavior of true slime mold in a labyrinth. Research in Microbiology, 2001, 152, 767-770.	2.1	142
84	Spatiotemporal Symmetry in Rings of Coupled Biological Oscillators of Physarum Plasmodial Slime Mold. Physical Review Letters, 2001, 87, 078102.	7.8	138
85	Interaction between cell shape and contraction pattern in the Physarum plasmodium. Biophysical Chemistry, 2000, 84, 195-204.	2.8	168
86	Maze-solving by an amoeboid organism. Nature, 2000, 407, 470-470.	27.8	795
87	Modulation of cellular rhythm and photoavoidance by oscillatory irradiation in the Physarum plasmodium. Biophysical Chemistry, 1999, 82, 23-28.	2.8	50
88	Reaction-Diffusion-Advection Model for Pattern Formation of Rhythmic Contraction in a Giant Amoeboid Cell of the Physarum Plasmodium. Journal of Theoretical Biology, 1999, 197, 497-506.	1.7	42
89	Pattern formation of a reaction-diffusion system with self-consistent flow in the amoeboid organism Physarum plasmodium. Physical Review E, 1999, 59, 1009-1014.	2.1	10
90	Action Spectrum for Sporulation and Photoavoidance in the Plasmodium of Physarum polycephalum, as Modified Differentially by Temperature and Starvation. Photochemistry and Photobiology, 1996, 64, 859-862.	2.5	47

#	ARTICLE	IF	CITATIONS
91	Phase Switching of Oscillatory Contraction in Relation to the Regulation of Amoeboid Behavior by the Plasmodium of <i>Physarum polycephalum</i> . <i>Journal of Theoretical Biology</i> , 1996, 179, 261-267.	1.7	21
92	Non-specific activity of in models of pain and inflammation. <i>Regulatory Peptides</i> , 1993, 46, 433-436.	1.9	4
93	Non-specific activity of (±)-CP96,345 in models of pain and inflammation. <i>British Journal of Pharmacology</i> , 1992, 107, 273-275.	5.4	54
94	Dynamic organization of ATP and birefringent fibrils during free locomotion and galvanotaxis in the plasmodium of <i>Physarum polycephalum</i> .. <i>Journal of Cell Biology</i> , 1990, 110, 1097-1102.	5.2	25
95	Ultraviolet action spectrum for intracellular free Ca ²⁺ increase in human epidermal keratinocytes.. <i>Cell Structure and Function</i> , 1990, 15, 175-179.	1.1	14
96	CHANGES IN cAMP AND cGMP CONCENTRATION, BIREFRINGENT FIBRILS AND CONTRACTILE ACTIVITY ACCOMPANYING UV AND BLUE LIGHT PHOTOAVOIDANCE IN PLASMODIA OF AN ALBINO STRAIN OF <i>Physarum polycephalum</i> . <i>Photochemistry and Photobiology</i> , 1988, 47, 271-275.	2.5	19
97	ACTION SPECTRA FOR SUPEROXIDE GENERATION AND UV AND VISIBLE LIGHT PHOTOAVOIDANCE IN PLASMODIA OF <i>Physarum polycephalum</i> . <i>Photochemistry and Photobiology</i> , 1988, 48, 705-709.	2.5	35