

Wouter-Jan Rappel

List of Publications by Citations

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108
papers

5,537
citations

40
h-index

73
g-index

114
ext. papers

6,712
ext. citations

5.8
avg, IF

6
L-index

#	Paper	IF	Citations
108	Treatment of atrial fibrillation by the ablation of localized sources: CONFIRM (Conventional Ablation for Atrial Fibrillation With or Without Focal Impulse and Rotor Modulation) trial. <i>Journal of the American College of Cardiology</i> , 2012 , 60, 628-36	15.1	766
107	Phase-field method for computationally efficient modeling of solidification with arbitrary interface kinetics. <i>Physical Review E</i> , 1996 , 53, R3017-R3020	2.4	561
106	Clinical mapping approach to diagnose electrical rotors and focal impulse sources for human atrial fibrillation. <i>Journal of Cardiovascular Electrophysiology</i> , 2012 , 23, 447-54	2.7	235
105	Coupling actin flow, adhesion, and morphology in a computational cell motility model. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2012 , 109, 6851-6	11.5	182
104	Computational model for cell morphodynamics. <i>Physical Review Letters</i> , 2010 , 105, 108104	7.4	170
103	Phase-field model of dendritic sidebranching with thermal noise. <i>Physical Review E</i> , 1999 , 60, 3614-25	2.4	163
102	Dictyostelium discoideum chemotaxis: threshold for directed motion. <i>European Journal of Cell Biology</i> , 2006 , 85, 981-9	6.1	155
101	CO ₂ Sensing and CO ₂ Regulation of Stomatal Conductance: Advances and Open Questions. <i>Trends in Plant Science</i> , 2016 , 21, 16-30	13.1	147
100	Panoramic electrophysiological mapping but not electrogram morphology identifies stable sources for human atrial fibrillation: stable atrial fibrillation rotors and focal sources relate poorly to fractionated electrograms. <i>Circulation: Arrhythmia and Electrophysiology</i> , 2013 , 6, 58-67	6.4	132
99	Directional sensing in eukaryotic chemotaxis: a balanced inactivation model. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2006 , 103, 9761-6	11.5	128
98	Incoherent feedforward control governs adaptation of activated ras in a eukaryotic chemotaxis pathway. <i>Science Signaling</i> , 2012 , 5, ra2	8.8	117
97	Self-organized Vortex State in Two-Dimensional Dictyostelium Dynamics. <i>Physical Review Letters</i> , 1999 , 83, 1247-1250	7.4	117
96	External and internal constraints on eukaryotic chemotaxis. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2010 , 107, 9656-9	11.5	107
95	Modeling wave propagation in realistic heart geometries using the phase-field method. <i>Chaos</i> , 2005 , 15, 13502	3.3	106
94	Reconstitution of CO ₂ Regulation of SLAC1 Anion Channel and Function of CO ₂ -Permeable PIP ₂ ;1 Aquaporin as CARBONIC ANHYDRASE4 Interactor. <i>Plant Cell</i> , 2016 , 28, 568-82	11.6	88
93	Polarity mechanisms such as contact inhibition of locomotion regulate persistent rotational motion of mammalian cells on micropatterns. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2014 , 111, 14770-5	11.5	87
92	Physical models of collective cell motility: from cell to tissue. <i>Journal Physics D: Applied Physics</i> , 2017 , 50,	3	83

91	Cellular memory in eukaryotic chemotaxis. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2014 , 111, 14448-53	11.5	83
90	Physical limits on cellular sensing of spatial gradients. <i>Physical Review Letters</i> , 2010 , 105, 048104	7.4	80
89	Establishing direction during chemotaxis in eukaryotic cells. <i>Biophysical Journal</i> , 2002 , 83, 1361-7	2.9	77
88	Membrane-bound Turing patterns. <i>Physical Review E</i> , 2005 , 72, 061912	2.4	76
87	Computational mapping identifies localized mechanisms for ablation of atrial fibrillation. <i>PLoS ONE</i> , 2012 , 7, e46034	3.7	75
86	Emergent Collective Chemotaxis without Single-Cell Gradient Sensing. <i>Physical Review Letters</i> , 2016 , 116, 098101	7.4	71
85	Contact inhibition of locomotion determines cell-cell and cell-substrate forces in tissues. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2016 , 113, 2660-5	11.5	69
84	Theoretical considerations for mapping activation in human cardiac fibrillation. <i>Chaos</i> , 2013 , 23, 023113	3.3	63
83	Distinct Cellular Locations of Carbonic Anhydrases Mediate Carbon Dioxide Control of Stomatal Movements. <i>Plant Physiology</i> , 2015 , 169, 1168-78	6.6	59
82	Activated membrane patches guide chemotactic cell motility. <i>PLoS Computational Biology</i> , 2011 , 7, e1002044	3.044	55
81	Computational approach for modeling intra- and extracellular dynamics. <i>Physical Review E</i> , 2003 , 68, 037702	2.4	54
80	Receptor noise and directional sensing in eukaryotic chemotaxis. <i>Physical Review Letters</i> , 2008 , 100, 228401	7.01	53
79	The role of cell contraction and adhesion in dictyostelium motility. <i>Biophysical Journal</i> , 2010 , 99, 50-8	2.9	52
78	Flow photolysis for spatiotemporal stimulation of single cells. <i>Analytical Chemistry</i> , 2007 , 79, 3940-4	7.8	52
77	Quantifying noise levels of intercellular signals. <i>Physical Review E</i> , 2007 , 75, 061905	2.4	51
76	Periodic migration in a physical model of cells on micropatterns. <i>Physical Review Letters</i> , 2013 , 111, 158102	7.02	49
75	Filament instability and rotational tissue anisotropy: A numerical study using detailed cardiac models. <i>Chaos</i> , 2001 , 11, 71-80	3.3	49
74	Mechanisms of Cell Polarization. <i>Current Opinion in Systems Biology</i> , 2017 , 3, 43-53	3.2	48

73	Structural contributions to fibrillatory rotors in a patient-derived computational model of the atria. <i>Europace</i> , 2014 , 16 Suppl 4, iv3-iv10	3.9	48
72	Crawling and turning in a minimal reaction-diffusion cell motility model: Coupling cell shape and biochemistry. <i>Physical Review E</i> , 2017 , 95, 012401	2.4	45
71	Mechanisms for the Termination of Atrial Fibrillation by Localized Ablation: Computational and Clinical Studies. <i>Circulation: Arrhythmia and Electrophysiology</i> , 2015 , 8, 1325-33	6.4	45
70	The physics of eukaryotic chemotaxis. <i>Physics Today</i> , 2013 , 66,	0.9	45
69	Innate non-specific cell substratum adhesion. <i>PLoS ONE</i> , 2012 , 7, e42033	3.7	40
68	Rotor stability separates sustained ventricular fibrillation from self-terminating episodes in humans. <i>Journal of the American College of Cardiology</i> , 2014 , 63, 2712-21	15.1	39
67	Receptor noise limitations on chemotactic sensing. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2008 , 105, 19270-5	11.5	39
66	Two Independent Mapping Techniques Identify Rotational Activity Patterns at Sites of Local Termination During Persistent Atrial Fibrillation. <i>Journal of Cardiovascular Electrophysiology</i> , 2017 , 28, 615-622	2.7	34
65	Gradient sensing in defined chemotactic fields. <i>Integrative Biology (United Kingdom)</i> , 2010 , 2, 659-68	3.7	34
64	Insights into the Molecular Mechanisms of CO-Mediated Regulation of Stomatal Movements. <i>Current Biology</i> , 2018 , 28, R1356-R1363	6.3	34
63	Human atrial fibrillation initiates via organized rather than disorganized mechanisms. <i>Circulation: Arrhythmia and Electrophysiology</i> , 2014 , 7, 816-24	6.4	33
62	Collective Signal Processing in Cluster Chemotaxis: Roles of Adaptation, Amplification, and Co-attraction in Collective Guidance. <i>PLoS Computational Biology</i> , 2016 , 12, e1005008	5	33
61	Comparison of Detailed and Simplified Models of Human Atrial Myocytes to Recapitulate Patient Specific Properties. <i>PLoS Computational Biology</i> , 2016 , 12, e1005060	5	33
60	Identification of SLAC1 anion channel residues required for CO/bicarbonate sensing and regulation of stomatal movements. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2018 , 115, 11129-11137	11.5	32
59	Modifying Ventricular Fibrillation by Targeted Rotor Substrate Ablation: Proof-of-Concept from Experimental Studies to Clinical VF. <i>Journal of Cardiovascular Electrophysiology</i> , 2015 , 26, 1117-26	2.7	27
58	Eukaryotic chemotaxis. <i>Wiley Interdisciplinary Reviews: Systems Biology and Medicine</i> , 2009 , 1, 141-149	6.6	27
57	Intercellular stress reconstitution from traction force data. <i>Biophysical Journal</i> , 2014 , 107, 548-554	2.9	25
56	A comparison of deterministic and stochastic simulations of neuronal vesicle release models. <i>Physical Biology</i> , 2010 , 7, 026008	3	25

55	Modeling Contact Inhibition of Locomotion of Colliding Cells Migrating on Micropatterned Substrates. <i>PLoS Computational Biology</i> , 2016 , 12, e1005239	5	25
54	How geometry and internal bias affect the accuracy of eukaryotic gradient sensing. <i>Physical Review E</i> , 2011 , 83, 021917	2.4	23
53	Quantifying information transmission in eukaryotic gradient sensing and chemotactic response. <i>Journal of Statistical Physics</i> , 2011 , 142, 1167-1186	1.5	20
52	Modeling self-organized spatio-temporal patterns of PIP ₂ and PTEN during spontaneous cell polarization. <i>Physical Biology</i> , 2014 , 11, 046002	3	19
51	Adaptation of Living Systems. <i>Annual Review of Condensed Matter Physics</i> , 2018 , 9, 183-205	19.7	19
50	Flower-like patterns in multi-species bacterial colonies. <i>ELife</i> , 2020 , 9,	8.9	18
49	Machine Learning to Classify Intracardiac Electrical Patterns During Atrial Fibrillation: Machine Learning of Atrial Fibrillation. <i>Circulation: Arrhythmia and Electrophysiology</i> , 2020 , 13, e008160	6.4	17
48	Cell-to-cell variation sets a tissue-rheology-dependent bound on collective gradient sensing. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2017 , 114, E10074-E10082	11.5	17
47	Velocity alignment leads to high persistence in confined cells. <i>Physical Review E</i> , 2014 , 89, 062705	2.4	17
46	Cell motility dependence on adhesive wetting. <i>Soft Matter</i> , 2019 , 15, 2043-2050	3.6	16
45	Cell substratum adhesion during early development of Dictyostelium discoideum. <i>PLoS ONE</i> , 2014 , 9, e106574	3.7	16
44	"Self-assisted" amoeboid navigation in complex environments. <i>PLoS ONE</i> , 2011 , 6, e21955	3.7	16
43	Phenomenological approach to eukaryotic chemotactic efficiency. <i>Physical Review E</i> , 2010 , 81, 031906	2.4	16
42	Plasticity of cell migration resulting from mechanochemical coupling. <i>ELife</i> , 2019 , 8,	8.9	15
41	Tissue topography steers migrating border cells. <i>Science</i> , 2020 , 370, 987-990	33.3	14
40	A minimal computational model for three-dimensional cell migration. <i>Journal of the Royal Society Interface</i> , 2019 , 16, 20190619	4.1	14
39	Excitable waves and direction-sensing in Dictyostelium discoideum: steps towards a chemotaxis model. <i>Physical Biology</i> , 2016 , 13, 016002	3	13
38	Cell-cell communication during collective migration. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2016 , 113, 1471-3	11.5	12

37	Systematic reduction of a detailed atrial myocyte model. <i>Chaos</i> , 2017 , 27, 093914	3.3	10
36	Phase synchrony reveals organization in human atrial fibrillation. <i>American Journal of Physiology - Heart and Circulatory Physiology</i> , 2015 , 309, H2118-26	5.2	10
35	How input fluctuations reshape the dynamics of a biological switching system. <i>Physical Review E</i> , 2012 , 86, 061910	2.4	10
34	Noise effects in nonlinear biochemical signaling. <i>Physical Review E</i> , 2012 , 85, 011901	2.4	10
33	Machine Learned Cellular Phenotypes in Cardiomyopathy Predict Sudden Death. <i>Circulation Research</i> , 2021 , 128, 172-184	15.7	10
32	Inferring single-cell behaviour from large-scale epithelial sheet migration patterns. <i>Journal of the Royal Society Interface</i> , 2017 , 14,	4.1	7
31	Wavefront Field Mapping Reveals a Physiologic Network Between Drivers Where Ablation Terminates Atrial Fibrillation. <i>Circulation: Arrhythmia and Electrophysiology</i> , 2019 , 12, e006835	6.4	6
30	Rotors exhibit greater surface ECG variation during ventricular fibrillation than focal sources due to wavebreak, secondary rotors, and meander. <i>Journal of Cardiovascular Electrophysiology</i> , 2017 , 28, 1158-1166	2.7	6
29	The mechanics and dynamics of cancer cells sensing noisy 3D contact guidance. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2021 , 118,	11.5	6
28	Extinction dynamics of spiral defect chaos. <i>Physical Review E</i> , 2019 , 99, 012407	2.4	6
27	Spatiotemporal Progression of Early Human Ventricular Fibrillation. <i>JACC: Clinical Electrophysiology</i> , 2017 , 3, 1437-1446	4.6	5
26	Determining conduction patterns on a sparse electrode grid: Implications for the analysis of clinical arrhythmias. <i>Physical Review E</i> , 2016 , 94, 050401	2.4	5
25	Minimal Network Topologies for Signal Processing during Collective Cell Chemotaxis. <i>Biophysical Journal</i> , 2018 , 114, 2986-2999	2.9	5
24	Electrical Substrate Ablation for Refractory Ventricular Fibrillation: Results of the AVATAR Study. <i>Circulation: Arrhythmia and Electrophysiology</i> , 2021 , 14, e008868	6.4	5
23	Swarming patterns in Microorganisms: Some new modeling results 2006 ,		4
22	Termination of persistent atrial fibrillation by ablating sites that control large atrial areas. <i>Europace</i> , 2020 , 22, 897-905	3.9	3
21	The cAMP-induced G protein subunits dissociation monitored in live Dictyostelium cells by BRET reveals two activation rates, a positive effect of caffeine and potential role of microtubules. <i>Cellular Signalling</i> , 2018 , 48, 25-37	4.9	3
20	Chaotic tip trajectories of a single spiral wave in the presence of heterogeneities. <i>Physical Review E</i> , 2019 , 99, 062409	2.4	3

19	To the Editor- On the deformation and interpolation of phase maps. <i>Heart Rhythm</i> , 2018 , 15, e3	6.7	3
18	Successful ventricular fibrillation functional substrate ablation via a single vascular access site. <i>HeartRhythm Case Reports</i> , 2018 , 4, 173-176	1	2
17	How input noise limits biochemical sensing in ultrasensitive systems. <i>Physical Review E</i> , 2014 , 90, 032702.	2.4	2
16	Novel micropatterning technique reveals dependence of cell-substrate adhesion and migration of social amoebas on parental strain, development, and fluorescent markers. <i>PLoS ONE</i> , 2020 , 15, e0236174	3.7	2
15	Three dimensional reconstruction to visualize atrial fibrillation activation patterns on curved atrial geometry. <i>PLoS ONE</i> , 2021 , 16, e0249873	3.7	2
14	Rotor Mapping in Patients with Atrial Fibrillation 2019 , 482-495		1
13	Rotors in Human Atrial Fibrillation 2018 , 426-436		1
12	Adaptation in a eukaryotic pathway: combining experiments with modeling. <i>Cell Cycle</i> , 2012 , 11, 1051-2	4.7	1
11	Cell dispersal by localized degradation of a chemoattractant. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2021 , 118,	11.5	1
10	Characterizing Electrogram Signal Fidelity and the Effects of Signal Contamination on Mapping Human Persistent Atrial Fibrillation. <i>Frontiers in Physiology</i> , 2018 , 9, 1232	4.6	1
9	Deep dive into CO ₂ -dependent molecular mechanisms driving stomatal responses in plants.. <i>Plant Physiology</i> , 2021 , 187, 2032-2042	6.6	1
8	Cellular memory in eukaryotic chemotaxis depends on the background chemoattractant concentration. <i>Physical Review E</i> , 2021 , 103, 012402	2.4	1
7	Intermittent trapping of spiral waves in a cardiac model.. <i>Physical Review E</i> , 2022 , 105, 014404	2.4	0
6	Boolink: a graphical interface for open access Boolean network simulations and use in guard cell CO ₂ signaling. <i>Plant Physiology</i> , 2021 , 187, 2311-2322	6.6	0
5	Coupling traction force patterns and actomyosin wave dynamics reveals mechanics of cell motion.. <i>Molecular Systems Biology</i> , 2021 , 17, e10505	12.2	0
4	Contact Mapping and Ablation of Complex Cardiac Arrhythmias 2019 , 236-251		
3	Response by Bhatia et al to Letter Regarding Article, "Wavefront Field Mapping Reveals a Physiologic Network Between Drivers Where Ablation Terminates Atrial Fibrillation". <i>Circulation: Arrhythmia and Electrophysiology</i> , 2019 , 12, e008022	6.4	
2	Directed Motility and Dictyostelium Aggregation 2008 , 59-92		

- 1 The Role of Receptor Occupancy Noise in Eukaryotic Chemotaxis. *Understanding Complex Systems*,
2009, 61-69

0.4