Wouter-Jan Rappel

List of Publications by Year in Descending Order

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	Intermittent trapping of spiral waves in a cardiac model.. *Physical Review E*, **2022**, 105, 014404	2.4	0
107	The mechanics and dynamics of cancer cells sensing noisy 3D contact guidance. *Proceedings of the National Academy of Sciences of the United States of America*, **2021**, 118,	11.5	6
106	Electrical Substrate Ablation for Refractory Ventricular Fibrillation: Results of the AVATAR Study. *Circulation: Arrhythmia and Electrophysiology*, **2021**, 14, e008868	6.4	5
105	Three dimensional reconstruction to visualize atrial fibrillation activation patterns on curved atrial geometry. *PLoS ONE*, **2021**, 16, e0249873	3.7	2
104	Boolink: a graphical interface for open access Boolean network simulations and use in guard cell CO2 signaling. *Plant Physiology*, **2021**, 187, 2311-2322	6.6	0
103	Machine Learned Cellular Phenotypes in Cardiomyopathy Predict Sudden Death. *Circulation Research*, **2021**, 128, 172-184	15.7	10
102	Cell dispersal by localized degradation of a chemoattractant. *Proceedings of the National Academy of Sciences of the United States of America*, **2021**, 118,	11.5	1
101	Deep dive into CO2-dependent molecular mechanisms driving stomatal responses in plants.. *Plant Physiology*, **2021**, 187, 2032-2042	6.6	1
100	Cellular memory in eukaryotic chemotaxis depends on the background chemoattractant concentration. *Physical Review E*, **2021**, 103, 012402	2.4	1
99	Coupling traction force patterns and actomyosin wave dynamics reveals mechanics of cell motion.. *Molecular Systems Biology*, **2021**, 17, e10505	12.2	0
98	Machine Learning to Classify Intracardiac Electrical Patterns During Atrial Fibrillation: Machine Learning of Atrial Fibrillation. *Circulation: Arrhythmia and Electrophysiology*, **2020**, 13, e008160	6.4	17
97	Termination of persistent atrial fibrillation by ablating sites that control large atrial areas. *Europace*, **2020**, 22, 897-905	3.9	3
96	Flower-like patterns in multi-species bacterial colonies. *ELife*, **2020**, 9,	8.9	18
95	Tissue topography steers migrating border cells. *Science*, **2020**, 370, 987-990	33.3	14
94	Novel micropatterning technique reveals dependence of cell-substrate adhesion and migration of social amoebas on parental strain, development, and fluorescent markers. *PLoS ONE*, **2020**, 15, e0236171	3.7	2
93	Cell motility dependence on adhesive wetting. *Soft Matter*, **2019**, 15, 2043-2050	3.6	16
92	Contact Mapping and Ablation of Complex Cardiac Arrhythmias **2019**, 236-251		

91	Rotor Mapping in Patients with Atrial Fibrillation **2019**, 482-495		1
90	Wavefront Field Mapping Reveals a Physiologic Network Between Drivers Where Ablation Terminates Atrial Fibrillation. *Circulation: Arrhythmia and Electrophysiology*, **2019**, 12, e006835	6.4	6
89	Chaotic tip trajectories of a single spiral wave in the presence of heterogeneities. *Physical Review E*, **2019**, 99, 062409	2.4	3
88	Response by Bhatia et al to Letter Regarding Article, "Wavefront Field Mapping Reveals a Physiologic Network Between Drivers Where Ablation Terminates Atrial Fibrillation". *Circulation: Arrhythmia and Electrophysiology*, **2019**, 12, e008022	6.4	
87	Plasticity of cell migration resulting from mechanochemical coupling. *ELife*, **2019**, 8,	8.9	15
86	A minimal computational model for three-dimensional cell migration. *Journal of the Royal Society Interface*, **2019**, 16, 20190619	4.1	14
85	Extinction dynamics of spiral defect chaos. *Physical Review E*, **2019**, 99, 012407	2.4	6
84	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. *Cellular Signalling*, **2018**, 48, 25-37	4.9	3
83	Rotors in Human Atrial Fibrillation **2018**, 426-436		1
82	Successful ventricular fibrillation functional substrate ablation via a single vascular access site. *HeartRhythm Case Reports*, **2018**, 4, 173-176	1	2
81	Minimal Network Topologies for Signal Processing during Collective Cell Chemotaxis. *Biophysical Journal*, **2018**, 114, 2986-2999	2.9	5
80	Adaptation of Living Systems. *Annual Review of Condensed Matter Physics*, **2018**, 9, 183-205	19.7	19
79	To the Editor- On the deformation and interpolation of phase maps. *Heart Rhythm*, **2018**, 15, e3	6.7	3
78	Insights into the Molecular Mechanisms of CO-Mediated Regulation of Stomatal Movements. *Current Biology*, **2018**, 28, R1356-R1363	6.3	34
77	Identification of SLAC1 anion channel residues required for CO/bicarbonate sensing and regulation of stomatal movements. *Proceedings of the National Academy of Sciences of the United States of America*, **2018**, 115, 11129-11137	11.5	32
76	Characterizing Electrogram Signal Fidelity and the Effects of Signal Contamination on Mapping Human Persistent Atrial Fibrillation. *Frontiers in Physiology*, **2018**, 9, 1232	4.6	1
75	Crawling and turning in a minimal reaction-diffusion cell motility model: Coupling cell shape and biochemistry. *Physical Review E*, **2017**, 95, 012401	2.4	45
74	Physical models of collective cell motility: from cell to tissue. *Journal Physics D: Applied Physics*, **2017**, 50,	3	83

73	Two Independent Mapping Techniques Identify Rotational Activity Patterns at Sites of Local Termination During Persistent Atrial Fibrillation. *Journal of Cardiovascular Electrophysiology*, **2017**, 28, 615-622	2.7	34
72	Mechanisms of Cell Polarization. *Current Opinion in Systems Biology*, **2017**, 3, 43-53	3.2	48
71	Inferring single-cell behaviour from large-scale epithelial sheet migration patterns. *Journal of the Royal Society Interface*, **2017**, 14,	4.1	7
70	Spatiotemporal Progression of Early Human Ventricular Fibrillation. *JACC: Clinical Electrophysiology* , **2017**, 3, 1437-1446	4.6	5
69	Systematic reduction of a detailed atrial myocyte model. *Chaos*, **2017**, 27, 093914	3.3	10
68	Rotors exhibit greater surface ECG variation during ventricular fibrillation than focal sources due to wavebreak, secondary rotors, and meander. *Journal of Cardiovascular Electrophysiology*, **2017**, 28, 1158-1166	2.7	6
67	Cell-to-cell variation sets a tissue-rheology-dependent bound on collective gradient sensing. *Proceedings of the National Academy of Sciences of the United States of America*, **2017**, 114, E10074-E10082	11.5	17
66	CO2 Sensing and CO2 Regulation of Stomatal Conductance: Advances and Open Questions. *Trends in Plant Science*, **2016**, 21, 16-30	13.1	147
65	Emergent Collective Chemotaxis without Single-Cell Gradient Sensing. *Physical Review Letters*, **2016**, 116, 098101	7.4	71
64	Determining conduction patterns on a sparse electrode grid: Implications for the analysis of clinical arrhythmias. *Physical Review E*, **2016**, 94, 050401	2.4	5
63	Reconstitution of CO2 Regulation of SLAC1 Anion Channel and Function of CO2-Permeable PIP2;1 Aquaporin as CARBONIC ANHYDRASE4 Interactor. *Plant Cell*, **2016**, 28, 568-82	11.6	88
62	Cell-cell communication during collective migration. *Proceedings of the National Academy of Sciences of the United States of America*, **2016**, 113, 1471-3	11.5	12
61	Contact inhibition of locomotion determines cell-cell and cell-substrate forces in tissues. *Proceedings of the National Academy of Sciences of the United States of America*, **2016**, 113, 2660-5	11.5	69
60	Excitable waves and direction-sensing in Dictyostelium discoideum: steps towards a chemotaxis model. *Physical Biology*, **2016**, 13, 016002	3	13
59	Collective Signal Processing in Cluster Chemotaxis: Roles of Adaptation, Amplification, and Co-attraction in Collective Guidance. *PLoS Computational Biology*, **2016**, 12, e1005008	5	33
58	Comparison of Detailed and Simplified Models of Human Atrial Myocytes to Recapitulate Patient Specific Properties. *PLoS Computational Biology*, **2016**, 12, e1005060	5	33
57	Modeling Contact Inhibition of Locomotion of Colliding Cells Migrating on Micropatterned Substrates. *PLoS Computational Biology*, **2016**, 12, e1005239	5	25
56	Mechanisms for the Termination of Atrial Fibrillation by Localized Ablation: Computational and Clinical Studies. *Circulation: Arrhythmia and Electrophysiology*, **2015**, 8, 1325-33	6.4	45

55	Distinct Cellular Locations of Carbonic Anhydrases Mediate Carbon Dioxide Control of Stomatal Movements. *Plant Physiology*, **2015**, 169, 1168-78	6.6	59
54	Modifying Ventricular Fibrillation by Targeted Rotor Substrate Ablation: Proof-of-Concept from Experimental Studies to Clinical VF. *Journal of Cardiovascular Electrophysiology*, **2015**, 26, 1117-26	2.7	27
53	Phase synchrony reveals organization in human atrial fibrillation. *American Journal of Physiology - Heart and Circulatory Physiology*, **2015**, 309, H2118-26	5.2	10
52	Cellular memory in eukaryotic chemotaxis. *Proceedings of the National Academy of Sciences of the United States of America*, **2014**, 111, 14448-53	11.5	83
51	Human atrial fibrillation initiates via organized rather than disorganized mechanisms. *Circulation: Arrhythmia and Electrophysiology*, **2014**, 7, 816-24	6.4	33
50	Polarity mechanisms such as contact inhibition of locomotion regulate persistent rotational motion of mammalian cells on micropatterns. *Proceedings of the National Academy of Sciences of the United States of America*, **2014**, 111, 14770-5	11.5	87
49	Intercellular stress reconstitution from traction force data. *Biophysical Journal*, **2014**, 107, 548-554	2.9	25
48	How input noise limits biochemical sensing in ultrasensitive systems. *Physical Review E*, **2014**, 90, 032702	2.4	2
47	Rotor stability separates sustained ventricular fibrillation from self-terminating episodes in humans. *Journal of the American College of Cardiology*, **2014**, 63, 2712-21	15.1	39
46	Cell substratum adhesion during early development of Dictyostelium discoideum. *PLoS ONE*, **2014**, 9, e106574	3.7	16
45	Modeling self-organized spatio-temporal patterns of PIP□and PTEN during spontaneous cell polarization. *Physical Biology*, **2014**, 11, 046002	3	19
44	Structural contributions to fibrillatory rotors in a patient-derived computational model of the atria. *Europace*, **2014**, 16 Suppl 4, iv3-iv10	3.9	48
43	Velocity alignment leads to high persistence in confined cells. *Physical Review E*, **2014**, 89, 062705	2.4	17
42	The physics of eukaryotic chemotaxis. *Physics Today*, **2013**, 66,	0.9	45
41	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. *Circulation: Arrhythmia and Electrophysiology*, **2013**, 6, 58-67	6.4	132
40	Periodic migration in a physical model of cells on micropatterns. *Physical Review Letters*, **2013**, 111, 158102	7.4	49
39	Theoretical considerations for mapping activation in human cardiac fibrillation. *Chaos*, **2013**, 23, 023113	3.3	63
38	Clinical mapping approach to diagnose electrical rotors and focal impulse sources for human atrial fibrillation. *Journal of Cardiovascular Electrophysiology*, **2012**, 23, 447-54	2.7	235

37	How input fluctuations reshape the dynamics of a biological switching system. *Physical Review E*, **2012**, 86, 061910	2.4	10
36	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. *Journal of the American College of Cardiology*, **2012**, 60, 628-36	15.1	766
35	Innate non-specific cell substratum adhesion. *PLoS ONE*, **2012**, 7, e42033	3.7	40
34	Computational mapping identifies localized mechanisms for ablation of atrial fibrillation. *PLoS ONE*, **2012**, 7, e46034	3.7	75
33	Adaptation in a eukaryotic pathway: combining experiments with modeling. *Cell Cycle*, **2012**, 11, 1051-2	4.7	1
32	Noise effects in nonlinear biochemical signaling. *Physical Review E*, **2012**, 85, 011901	2.4	10
31	Coupling actin flow, adhesion, and morphology in a computational cell motility model. *Proceedings of the National Academy of Sciences of the United States of America*, **2012**, 109, 6851-6	11.5	182
30	Incoherent feedforward control governs adaptation of activated ras in a eukaryotic chemotaxis pathway. *Science Signaling*, **2012**, 5, ra2	8.8	117
29	"Self-assisted" amoeboid navigation in complex environments. *PLoS ONE*, **2011**, 6, e21955	3.7	16
28	Quantifying information transmission in eukaryotic gradient sensing and chemotactic response. *Journal of Statistical Physics*, **2011**, 142, 1167-1186	1.5	20
27	How geometry and internal bias affect the accuracy of eukaryotic gradient sensing. *Physical Review E*, **2011**, 83, 021917	2.4	23
26	Activated membrane patches guide chemotactic cell motility. *PLoS Computational Biology*, **2011**, 7, e1002044	5	55
25	External and internal constraints on eukaryotic chemotaxis. *Proceedings of the National Academy of Sciences of the United States of America*, **2010**, 107, 9656-9	11.5	107
24	Phenomenological approach to eukaryotic chemotactic efficiency. *Physical Review E*, **2010**, 81, 031906	2.4	16
23	Computational model for cell morphodynamics. *Physical Review Letters*, **2010**, 105, 108104	7.4	170
22	Physical limits on cellular sensing of spatial gradients. *Physical Review Letters*, **2010**, 105, 048104	7.4	80
21	The role of cell contraction and adhesion in dictyostelium motility. *Biophysical Journal*, **2010**, 99, 50-8	2.9	52
20	A comparison of deterministic and stochastic simulations of neuronal vesicle release models. *Physical Biology*, **2010**, 7, 026008	3	25

19	Gradient sensing in defined chemotactic fields. *Integrative Biology (United Kingdom)*, **2010**, 2, 659-68	3.7	34
18	Eukaryotic chemotaxis. *Wiley Interdisciplinary Reviews: Systems Biology and Medicine*, **2009**, 1, 141-149	6.6	27
17	The Role of Receptor Occupancy Noise in Eukaryotic Chemotaxis. *Understanding Complex Systems*, **2009**, 61-69	0.4	
16	Receptor noise and directional sensing in eukaryotic chemotaxis. *Physical Review Letters*, **2008**, 100, 228101	7.4	53
15	Receptor noise limitations on chemotactic sensing. *Proceedings of the National Academy of Sciences of the United States of America*, **2008**, 105, 19270-5	11.5	39
14	Directed Motility and Dictyostelium Aggregation **2008**, 59-92		
13	Flow photolysis for spatiotemporal stimulation of single cells. *Analytical Chemistry*, **2007**, 79, 3940-4	7.8	52
12	Quantifying noise levels of intercellular signals. *Physical Review E*, **2007**, 75, 061905	2.4	51
11	Dictyostelium discoideum chemotaxis: threshold for directed motion. *European Journal of Cell Biology*, **2006**, 85, 981-9	6.1	155
10	Swarming patterns in Microorganisms: Some new modeling results **2006**,		4
9	Directional sensing in eukaryotic chemotaxis: a balanced inactivation model. *Proceedings of the National Academy of Sciences of the United States of America*, **2006**, 103, 9761-6	11.5	128
8	Modeling wave propagation in realistic heart geometries using the phase-field method. *Chaos*, **2005**, 15, 13502	3.3	106
7	Membrane-bound Turing patterns. *Physical Review E*, **2005**, 72, 061912	2.4	76
6	Computational approach for modeling intra- and extracellular dynamics. *Physical Review E*, **2003**, 68, 037702	2.4	54
5	Establishing direction during chemotaxis in eukaryotic cells. *Biophysical Journal*, **2002**, 83, 1361-7	2.9	77
4	Filament instability and rotational tissue anisotropy: A numerical study using detailed cardiac models. *Chaos*, **2001**, 11, 71-80	3.3	49
3	Self-organized Vortex State in Two-Dimensional Dictyostelium Dynamics. *Physical Review Letters*, **1999**, 83, 1247-1250	7.4	117
2	Phase-field model of dendritic sidebranching with thermal noise. *Physical Review E*, **1999**, 60, 3614-25	2.4	163

1	Phase-field method for computationally efficient modeling of solidification with arbitrary interface kinetics. *Physical Review E*, **1996**, 53, R3017-R3020	2.4	561