Martin Falcke

List of Publications by Year
in descending order

116 papers	4,234 citations	101496 36 h-index	128225 60 g-index
126 all docs	126 docs citations	126 times ranked	2232 citing authors

#	Article	IF	Citations
1	Reading the patterns in living cells â€"the physics of ca2+signaling. Advances in Physics, 2004, 53, 255-440.	35.9	317
2	Phase Separation of a PKA Regulatory Subunit Controls cAMP Compartmentation and Oncogenic Signaling. Cell, 2020, 182, 1531-1544.e15.	13.5	177
3	On the Role of Stochastic Channel Behavior in Intracellular Ca2+ Dynamics. Biophysical Journal, 2003, 84, 42-56.	0.2	174
4	How Does Intracellular Ca2+ Oscillate: By Chance or by the Clock?. Biophysical Journal, 2008, 94, 2404-2411.	0.2	169
5	Clustering of InsP3 receptors by InsP3 retunes their regulation by InsP3 and Ca2+. Nature, 2009, 458, 655-659.	13.7	165
6	Optical Mapping of cAMP Signaling at the Nanometer Scale. Cell, 2020, 182, 1519-1530.e17.	13.5	125
7	Release Currents of IP3 Receptor Channel Clusters and Concentration Profiles. Biophysical Journal, 2004, 86, 2660-2673.	0.2	111
8	Stochastic spreading of intracellularCa2+release. Physical Review E, 2000, 62, 2636-2643.	0.8	108
9	Chemical turbulence and standing waves in a surface reaction model: The influence of global coupling and wave instabilities. Chaos, 1994, 4, 499-508.	1.0	103
10	Reliable Encoding of Stimulus Intensities Within Random Sequences of Intracellular Ca ²⁺ Spikes. Science Signaling, 2014, 7, ra59.	1.6	101
11	Hybrid Stochastic and Deterministic Simulations of Calcium Blips. Biophysical Journal, 2007, 93, 1847-1857.	0.2	98
12	Models of Calcium Signalling. Interdisciplinary Applied Mathematics, 2016, , .	0.2	90
13	Calcium Signals Driven by Single Channel Noise. PLoS Computational Biology, 2010, 6, e1000870.	1.5	89
14	Buffers and Oscillations in Intracellular Ca2+ Dynamics. Biophysical Journal, 2003, 84, 28-41.	0.2	87
15	Receptor-associated independent cAMP nanodomains mediate spatiotemporal specificity of GPCR signaling. Cell, 2022, 185, 1130-1142.e11.	13.5	85
16	Impact of Mitochondrial Ca 2+ Cycling on Pattern Formation and Stability. Biophysical Journal, 1999, 77, 37-44.	0.2	78
17	Modeling observed chaotic oscillations in bursting neurons: the role of calcium dynamics and IP 3. Biological Cybernetics, 2000, 82, 517-527.	0.6	77
18	Discrete Stochastic Modeling of Calcium Channel Dynamics. Physical Review Letters, 2000, 84, 5664-5667.	2.9	77

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19	Fundamental properties of Ca2+ signals. Biochimica Et Biophysica Acta - General Subjects, 2012, 1820, 1185-1194.	1.1	72
20	Actin Filament Elasticity and Retrograde Flow Shape the Force-Velocity Relation of Motile Cells. Biophysical Journal, 2012, 102, 287-295.	0.2	69
21	Models of the inositol trisphosphate receptor. Progress in Biophysics and Molecular Biology, 2005, 89, 207-245.	1.4	65
22	Pattern formation during the CO oxidation on Pt(110) surfaces under global coupling. Journal of Chemical Physics, 1994, 101, 6255-6263.	1.2	61
23	Cluster formation, standing waves, and stripe patterns in oscillatory active media with local and global coupling. Physical Review E, 1995, 52, 763-771.	0.8	60
24	Dispersion Gap and Localized Spiral Waves in a Model for IntracellularCa2+Dynamics. Physical Review Letters, 2000, 84, 4753-4756.	2.9	60
25	Modeling of Protrusion Phenotypes Driven by the Actin-Membrane Interaction. Biophysical Journal, 2010, 98, 1571-1581.	0.2	55
26	Derivation of Ca ²⁺ signals from puff properties reveals that pathway function is robust against cell variability but sensitive for control. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 427-432.	3.3	54
27	A Stochastic Model of Calcium Puffs Based on Single-Channel Data. Biophysical Journal, 2013, 105, 1133-1142.	0.2	52
28	From puffs to global Ca2+ signals: How molecular properties shape global signals. Chaos, 2009, 19, 037111.	1.0	51
29	Stability of Membrane Bound Reactions. Physical Review Letters, 2004, 93, 188103.	2.9	50
30	Traveling waves in the CO oxidation on Pt(110): Theory. Journal of Chemical Physics, 1992, 97, 4555-4563.	1.2	48
31	Timescales of IP3-Evoked Ca2+ Spikes Emerge from Ca2+ Puffs Only at the Cellular Level. Biophysical Journal, 2011, 101, 2638-2644.	0.2	47
32	Modeling the Dependence of the Period of Intracellular Ca2+ Waves on SERCA Expression. Biophysical Journal, 2003, 85, 1474-1481.	0.2	45
33	Influence of global coupling through the gas phase on the dynamics of CO oxidation on Pt(110). Physical Review E, 1994, 50, 1353-1359.	0.8	43
34	Deterministic and stochastic models of intracellular Ca2Âwaves. New Journal of Physics, 2003, 5, 96-96.	1.2	42
35	A Kinetic Model of the Inositol Trisphosphate Receptor Based on Single-Channel Data. Biophysical Journal, 2009, 96, 4053-4062.	0.2	39
36	A comparison of three models of the inositol trisphosphate receptor. Progress in Biophysics and Molecular Biology, 2004, 85, 121-140.	1.4	37

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37	Quasi-Steady Approximation for Ion Channel Currents. Biophysical Journal, 2007, 93, 2597-2608.	0.2	37
38	Temperature and nitric oxide control spontaneous calcium transients in astrocytes. Cell Calcium, 2008, 43, 285-295.	1.1	37
39	Excitability in the p53 network mediates robust signaling with tunable activation thresholds in single cells. Scientific Reports, 2017, 7, 46571.	1.6	37
40	Frequency of elemental events of intracellularCa2+dynamics. Physical Review E, 2006, 73, 061923.	0.8	35
41	The transcriptome dynamics of single cells during the cell cycle. Molecular Systems Biology, 2020, 16, e9946.	3.2	35
42	Pattern Selection by Gene Expression inDictyostelium Discoideum. Physical Review Letters, 1998, 80, 3875-3878.	2.9	34
43	Leading-edgeâ€"gel coupling in lamellipodium motion. Physical Review E, 2010, 82, 051925.	0.8	34
44	Velocity oscillations in actin-based motility. New Journal of Physics, 2008, 10, 033022.	1.2	33
45	Spiral breakup and defect dynamics in a model for intracellular Ca2+ dynamics. Physica D: Nonlinear Phenomena, 1999, 129, 236-252.	1.3	31
46	Formation of Transient Lamellipodia. PLoS ONE, 2014, 9, e87638.	1.1	31
47	Reaction Rate of Small Diffusing Molecules onÂaÂCylindrical Membrane. Journal of Statistical Physics, 2007, 129, 377-405.	0.5	30
48	Markov chain Monte Carlo fitting of single-channel data from inositol trisphosphate receptors. Journal of Theoretical Biology, 2009, 257, 460-474.	0.8	29
49	Lamellipodin tunes cell migration by stabilizing protrusions and promoting adhesion formation. Journal of Cell Science, 2020, 133, .	1.2	28
50	Toward a predictive model of Ca2+ puffs. Chaos, 2009, 19, 037108.	1.0	26
51	Modeling of the Modulation by Buffers of Ca2+ Release through Clusters of IP3 Receptors. Biophysical Journal, 2009, 97, 992-1002.	0.2	25
52	Dynamic regimes and bifurcations in a model of actin-based motility. Physical Review E, 2008, 78, 031915.	0.8	24
53	On the relation between filament density, force generation, and protrusion rate in mesenchymal cell motility. Molecular Biology of the Cell, 2018, 29, 2674-2686.	0.9	24
54	Non-Markovian approach to globally coupled excitable systems. Physical Review E, 2007, 76, 011118.	0.8	23

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55	Metabolic Synchronization by Traveling Waves in Yeast Cell Layers. Biophysical Journal, 2011, 100, 809-813.	0.2	22
56	Computational toolbox for ultrastructural quantitative analysis of filament networks in cryo-ET data. Journal of Structural Biology, 2021, 213, 107808.	1.3	22
57	Reaction fronts and pulses in the CO oxidation on Pt: theoretical analysis. Surface Science, 1992, 269-270, 471-475.	0.8	20
58	Longâ€term effects of Na⁺/Ca²⁺ exchanger inhibition with ORMâ€1035 improves cardiac function and remodelling without lowering blood pressure in a model of heart failure with preserved ejection fraction. European Journal of Heart Failure, 2019, 21, 1543-1552.	2.9	20
59	Dispersion relation and spiral rotation in an excitable surface reaction. Physica A: Statistical Mechanics and Its Applications, 1992, 188, 78-88.	1.2	19
60	Waiting time distributions for clusters of complex molecules. Europhysics Letters, 2007, 79, 38003.	0.7	17
61	Hierarchic Stochastic Modelling Applied to Intracellular Ca2+ Signals. PLoS ONE, 2012, 7, e51178.	1.1	17
62	On the adhesionâ€“velocity relation and length adaptation of motile cells on stepped fibronectin lanes. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	3.3	17
63	Membrane waves driven by forces from actin filaments. New Journal of Physics, 2012, 14, 115002.	1.2	16
64	Traveling pulses in anisotropic oscillatory media with global coupling. Physical Review E, 1997, 56, 635-641.	0.8	15
65	Waiting time distributions for clusters of receptors. Journal of Theoretical Biology, 2009, 259, 338-349.	0.8	15
66	Statistical analysis of calcium oscillations. European Physical Journal: Special Topics, 2010, 187, 231-240.	1.2	15
67	A multiscale computational model of spatially resolved calcium cycling in cardiac myocytes: from detailed cleft dynamics to the whole cell concentration profiles. Frontiers in Physiology, 2015, 6, 255.	1.3	15
68	Mechanical properties of branched actin filaments. Physical Biology, 2015, 12, 046007.	0.8	15
69	Statistical properties and information content of calcium oscillations. Genome Informatics, 2007, 18, 44-53.	0.4	14
70	Wave trains in an excitable FitzHugh-Nagumo model: Bistable dispersion relation and formation of isolas. Physical Review E, 2007, 75, 036202.	0.8	13
71	A Statistical View on Calcium Oscillations. Advances in Experimental Medicine and Biology, 2020, 1131, 799-826.	0.8	12
72	STATISTICAL PROPERTIES AND INFORMATION CONTENT OF CALCIUM OSCILLATIONS. , 2007, , .		12

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73	Reactive clusters on a membrane. Physical Biology, 2005, 2, 51-59.	0.8	11
74	Adaptive numerical simulation of intracellular calcium dynamics using domain decomposition methods. Applied Numerical Mathematics, 2008, 58, 1658-1674.	1.2	11
75	Introduction to Focus Issue: Intracellular Ca2+ Dynamicsâ€"A Change of Modeling Paradigm?. Chaos, 2009, 19, 037101.	1.0	11
76	How does the ryanodine receptor in the ventricular myocyte wake up: by a single or by multiple open L-type Ca2+ channels?. European Biophysics Journal, 2012, 41, 27-39.	1.2	11
77	Adaptive space and time numerical simulation of reactionâ€"diffusion models for intracellular calcium dynamics. Applied Mathematics and Computation, 2012, 218, 10194-10210.	1.4	10
78	Reversible clustering under the influence of a periodically modulated binding rate. Physical Review E, 2007, 76, 010402.	0.8	9
79	Actin-based propulsion of spatially extended objects. New Journal of Physics, 2011, 13, 053040.	1.2	9
80	On the phase space structure of IP3induced Ca2+signalling and concepts for predictive modeling. Chaos, 2018, 28, 045115.	1.0	9
81	Models of stochastic $$hbox {Ca}^{2+}$$ spiking. European Physical Journal: Special Topics, 2021, 230, 2911-2928.	1.2	9
82	Mapping Interpuff Interval Distribution to the Properties of Inositol Trisphosphate Receptors. Biophysical Journal, 2017, 112, 2138-2146.	0.2	8
83	Multiscale Modeling of Dyadic Structure-Function Relation in Ventricular Cardiac Myocytes. Biophysical Journal, 2019, 117, 2409-2419.	0.2	8
84	Polymerization, bending, tension: What happens at the leading edge of motile cells?. European Physical Journal: Special Topics, 2014, 223, 1353-1372.	1.2	7
85	The stretch to stray on time: Resonant length of random walks in a transient. Chaos, 2018, 28, 053117.	1.0	7
86	Modeling Morphodynamic Phenotypes and Dynamic Regimes of Cell Motion. Advances in Experimental Medicine and Biology, 2012, 736, 337-358.	0.8	7
87	Concentration profiles of actin-binding molecules in lamellipodia. Physica D: Nonlinear Phenomena, 2016, 318-319, 50-57.	1.3	6
88	Proteomic Analysis Reveals Upregulation of ACE2 (Angiotensin-Converting Enzyme 2), the Putative SARS-CoV-2 Receptor in Pressureâ€"but Not Volume-Overloaded Human Hearts. Hypertension, 2020, 76, e41-e43.	1.3	6
89	Stochastic reaction-diffusion modeling of calcium dynamics in 3D dendritic spines of Purkinje cells. Biophysical Journal, 2021, 120, 2112-2123.	0.2	6
90	Filament capping and nucleation in actin-based motility. European Physical Journal: Special Topics, 2010, 191, 147-158.	1.2	5

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91	On the existence and strength of stable membrane protrusions. New Journal of Physics, 2013, 15, 015021.	1.2	5
92	Efficient and detailed model of the local Ca2+ release unit in the ventricular cardiac myocyte. Genome Informatics, 2010, 22, 142-55.	0.4	4
93	Quantification of transients using empirical orthogonal functions. Chaos, Solitons and Fractals, 1997, 8, 1911-1920.	2.5	3
94	Stochastic Hierarchical Systems: Excitable Dynamics. Journal of Biological Physics, 2008, 34, 521-538.	0.7	3
95	THE ROLE OF IP₃R CLUSTERING IN Ca²⁺ SIGNALING. , 2008, , .		3
96	EFFICIENT AND DETAILED MODEL OF THE LOCAL Ca2+ RELEASE UNIT IN THE VENTRICULAR CARDIAC MYOCYTE. , 2010, , .		3
97	Rahman et al. reply. Nature, 2011, 478, E2-E3.	13.7	3
98	Neurons and Other Excitable Cells. Interdisciplinary Applied Mathematics, 2016, , 337-385.	0.2	2
99	The Calcium Toolbox. Interdisciplinary Applied Mathematics, 2016, , 29-96.	0.2	2
100	Basic Modelling Principles: Deterministic Models. Interdisciplinary Applied Mathematics, 2016, , 97-161.	0.2	2
101	Multiscale Modeling and Numerical Simulation of Calcium Cycling in Cardiac Myocytes. Multiscale Modeling and Simulation, 2018, 16, 1115-1145.	0.6	2
102	Mechanism of intracellular Ca2+oscillations and interspike interval distributions. , 2007, , .		1
103	Reply to comment on â€œPolymerization, bending, tension: What happens at the leading edge of motile cells?â€•by Falko Ziebert and Igor S. Aranson. European Physical Journal: Special Topics, 2014, 223, 1433-1435.	1.2	1
104	Hierarchical and Stochastic Modelling. Interdisciplinary Applied Mathematics, 2016, , 163-205.	0.2	1
105	Nonlinear Dynamics of Calcium. Interdisciplinary Applied Mathematics, 2016, , 207-242.	0.2	1
106	Parallel Numerical Solution of Intracellular Calcium Dynamics. Lecture Notes in Computational Science and Engineering, 2008, , 607-614.	0.1	1
107	On the relation between input and output distributions of scRNA-seq experiments. Bioinformatics, 2022, 38, 1336-1343.	1.8	1
108	Adaptive numerical simulation of intracellular calcium dynamics. Proceedings in Applied Mathematics and Mechanics, 2007, 7, 2010029-2010030.	0.2	0

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109	Announcement: Focus issue on â€œIntracellular Ca2+ Dynamicsâ€” A Change of Modeling Paradigm?â€• Chaos, 2008, 18, .	1.0	0
110	Reliable Encoding of Stimulus Intensities by Random Sequences of Ca2+ Spikes. Biophysical Journal, 2014, 106, 241a.	0.2	0
111	Concentration Profiles of Actin-Binding Molecules in Lamellipodia with Retrograde Flow. Biophysical Journal, 2015, 108, 139a.	0.2	0
112	Some Background Physiology. Interdisciplinary Applied Mathematics, 2016, , 3-27.	0.2	0
113	Nonexcitable Cells. Interdisciplinary Applied Mathematics, 2016, , 245-294.	0.2	0
114	Multiscale Modeling of Dyadic Structure-Function Relation in Ventricular Cardiac Myocytes. Biophysical Journal, 2021, 120, 280a.	0.2	0
115	On the Adhesion-Velocity Relation and Length Adaption of Motile Cells on Stepped Fibronectin Lanes. Biophysical Journal, 2021, 120, 65a.	0.2	0
116	Stochastic Reaction-Diffusion Modeling of Calcium Dynamics in 3D-Dendritic Spines of Purkinje Cells. Biophysical Journal, 2021, 120, 282a.	0.2	0