Raphael Voituriez

List of Publications by Year
in descending order

149	12,476	28274	29157
papers	citations	55 h-index	104 g-index

160	160	160	9818
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	ESCRT III repairs nuclear envelope ruptures during cell migration to limit DNA damage and cell death. Science, 2016, 352, 359-362.	12.6	738
2	Confinement and Low Adhesion Induce Fast Amoeboid Migration of Slow Mesenchymal Cells. Cell, 2015, 160, 659-672.	28.9	674
3	Intermittent search strategies. Reviews of Modern Physics, 2011, 83, 81-129.	45.6	571
4	First-passage times in complex scale-invariant media. Nature, 2007, 450, 77-80.	27.8	520
5	Evidence of a large-scale mechanosensing mechanism for cellular adaptation to substrate stiffness. Proceedings of the National Academy of Sciences of the United States of America, 2012, 109, 6933-6938.	7.1	474
6	Actin Flows Mediate a Universal Coupling between Cell Speed and Cell Persistence. Cell, 2015, 161, 374-386.	28.9	369
7	Cortical Contractility Triggers a Stochastic Switch to Fast Amoeboid Cell Motility. Cell, 2015, 160, 673-685.	28.9	345
8	Spontaneous flow transition in active polar gels. Europhysics Letters, 2005, 70, 404-410.	2.0	295
9	Geometry-controlled kinetics. Nature Chemistry, 2010, 2, 472-477.	13.6	295
10	Single-molecule tracking in live cells reveals distinct target-search strategies of transcription factors in the nucleus. ELife, 2014, 3, .	6.0	273
11	Optimal Search Strategies for Hidden Targets. Physical Review Letters, 2005, 94, 198101.	7.8	270
12	Adaptive rheology and ordering of cell cytoskeleton govern matrix rigidity sensing. Nature Communications, 2015, 6, 7525.	12.8	233
13	Kinetics of Target Site Localization of a Protein on DNA: A Stochastic Approach. Biophysical Journal, 2004, 87, 1640-1649.	0.5	204
14	From first-passage times of random walks in confinement to geometry-controlled kinetics. Physics Reports, 2014, 539, 225-284.	25.6	197
15	Sliding and jumping of single EcoRV restriction enzymes on non-cognate DNA. Nucleic Acids Research, 2008, 36, 4118-4127.	14.5	196
16	Quantitative Analysis of Single Particle Trajectories: Mean Maximal Excursion Method. Biophysical Journal, 2010, 98, 1364-1372.	0.5	188
17	Innate control of actin nucleation determines two distinct migration behaviours in dendritic cells. Nature Cell Biology, 2016, 18, 43-53.	10.3	184
18	Probing microscopic origins of confined subdiffusion by first-passage observables. Proceedings of the National Academy of Sciences of the United States of America, 2008, 105, 5675-5680.	7.1	179

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19	Pushing off the Walls: A Mechanism of Cell Motility in Confinement. Physical Review Letters, 2009, 102, 058103.	7.8	164
20	Enhanced reaction kinetics in biological cells. Nature Physics, 2008, 4, 134-137.	16.7	155
21	Cellular locomotion using environmental topography. Nature, 2020, 582, 582-585.	27.8	150
22	Global mean first-passage times of random walks on complex networks. Physical Review E, 2009, 80, 065104.	2.1	148
23	Narrow-Escape Time Problem: Time Needed for a Particle to Exit a Confining Domain through a Small Window. Physical Review Letters, 2008, 100, 168105.	7.8	147
24	A soft cortex is essential for asymmetric spindle positioning in mouse oocytes. Nature Cell Biology, 2013, 15, 958-966.	10.3	145
25	Cell migration and antigen capture are antagonistic processes coupled by myosin II in dendritic cells. Nature Communications, 2015, 6, 7526.	12.8	143
26	Active diffusion positions the nucleus in mouse oocytes. Nature Cell Biology, 2015, 17, 470-479.	10.3	139
27	Two-dimensional intermittent search processes: An alternative to LÃ©vy flight strategies. Physical Review E, 2006, 74, 020102.	2.1	138
28	Active Particles with Soft and Curved Walls: Equation of State, Ratchets, and Instabilities. Physical Review Letters, 2016, 117, 098001.	7.8	132
29	Generic Phase Diagram of Active Polar Films. Physical Review Letters, 2006, 96, 028102.	7.8	122
30	Cell response to substrate rigidity is regulated by active and passive cytoskeletal stress. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 12817-12825.	7.1	122
31	Spontaneous Contractility-Mediated Cortical Flow Generates Cell Migration in Three-Dimensional Environments. Biophysical Journal, 2011, 101, 1041-1045.	0.5	119
32	Optimal Reaction Time for Surface-Mediated Diffusion. Physical Review Letters, 2010, 105, 150606.	7.8	112
33	Migration of dendritic cells: physical principles, molecular mechanisms, and functional implications. Immunological Reviews, 2013, 256, 240-254.	6.0	111
34	Mean first-passage times of non-Markovian random walkers in confinement. Nature, 2016, 534, 356-359.	27.8	105
35	Classes of fast and specific search mechanisms for proteins on DNA. Reports on Progress in Physics, 2012, 75, 026601.	20.1	102
36	Cell-sized liposomes reveal how actomyosin cortical tension drives shape change. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 16456-16461.	7.1	102

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37	Myofibril contraction and crosslinking drive nuclear movement to the periphery of skeletal muscle. Nature Cell Biology, 2017, 19, 1189-1201.	10.3	100
38	Quantifying Hopping and Jumping in Facilitated Diffusion of DNA-Binding Proteins. Physical Review Letters, 2009, 102, 188101.	7.8	97
39	Non-Markovian polymer reaction kinetics. Nature Chemistry, 2012, 4, 568-573.	13.6	97
40	Cover times of random searches. Nature Physics, 2015, 11, 844-847.	16.7	83
41	Optimizing Persistent Random Searches. Physical Review Letters, 2012, 108, 088103.	7.8	78
42	Intermittent Pili-Mediated Forces Fluidize Neisseria meningitidis Aggregates Promoting Vascular Colonization. Cell, 2018, 174, 143-155.e16.	28.9	78
43	Large-scale curvature sensing by directional actin flow drives cellular migration mode switching. Nature Physics, 2019, 15, 393-402.	16.7	78
44	Searching Fast for a Target on DNA without Falling to Traps. Physical Review Letters, 2009, 103, 138102.	7.8	75
45	Exact calculations of first-passage quantities on recursive networks. Physical Review E, 2012, 85, 026113.	2.1	75
46	F-actin mechanics control spindle centring in the mouse zygote. Nature Communications, 2016, 7, 10253.	12.8	75
47	Geometry-Induced Superdiffusion in Driven Crowded Systems. Physical Review Letters, 2013, 111, 260601.	7.8	74
48	Actin flows in cell migration: from locomotion and polarity to trajectories. Current Opinion in Cell Biology, 2016, 38, 12-17.	5.4	74
49	Integrating Physical and Molecular Insights on Immune Cell Migration. Trends in Immunology, 2018, 39, 632-643.	6.8	73
50	Macropinocytosis Overcomes Directional Bias in Dendritic Cells Due to Hydraulic Resistance and Facilitates Space Exploration. Developmental Cell, 2019, 49, 171-188.e5.	7.0	71
51	Averaged residence times of stochastic motions in bounded domains. Europhysics Letters, 2005, 70, 42-48.	2.0	66
52	A narrow window of cortical tension guides asymmetric spindle positioning in the mouse oocyte. Nature Communications, 2015, 6, 6027.	12.8	66
53	Ependymal cilia beating induces an actin network to protect centrioles against shear stress. Nature Communications, 2018, 9, 2279.	12.8	66
54	Mean First-Passage Time of Surface-Mediated Diffusion in Spherical Domains. Journal of Statistical Physics, 2011, 142, 657-685.	1.2	65

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55	Active Transport in Dense Diffusive Single-File Systems. Physical Review Letters, 2013, 111, 038102.	7.8	63
56	Facilitated Diffusion of Proteins on Chromatin. Physical Review Letters, 2011, 106, 038102.	7.8	62
57	Microscopic Theory for Negative Differential Mobility in Crowded Environments. Physical Review Letters, 2014, 113, 268002.	7.8	62
58	Liposome adhesion generates traction stress. Nature Physics, 2014, 10, 163-169.	16.7	62
59	First-passage quantities of Brownian motion in a bounded domain with multiple targets: a unified approach. Journal of Physics A: Mathematical and Theoretical, 2011, 44, 025002.	2.1	61
60	Protrusion Fluctuations Direct Cell Motion. Biophysical Journal, 2014, 107, 34-42.	0.5	60
61	Active gel model of amoeboid cell motility. New Journal of Physics, 2013, 15, 025022.	2.9	59
62	Intermittent search strategies: When losing time becomes efficient. Europhysics Letters, 2006, 75, 349-354.	2.0	56
63	Stick-slip dynamics of cell adhesion triggers spontaneous symmetry breaking and directional migration of mesenchymal cells on one-dimensional lines. Science Advances, 2020, 6, eaau5670.	10.3	56
64	Directed Flow of Micromotors through Alignment Interactions with Micropatterned Ratchets. ACS Nano, 2018, 12, 7282-7291.	14.6	55
65	Ratchetaxis: Long-Range Directed Cell Migration by Local Cues. Trends in Cell Biology, 2015, 25, 815-827.	7.9	54
66	Optimizing intermittent reaction paths. Physical Chemistry Chemical Physics, 2008, 10, 7059.	2.8	53
67	Actomyosin-driven force patterning controls endocytosis at the immune synapse. Nature Communications, 2019, 10, 2870.	12.8	53
68	Working Together: Spatial Synchrony in the Force and Actin Dynamics of Podosome First Neighbors. ACS Nano, 2015, 9, 3800-3813.	14.6	49
69	Optimized Diffusion of Run-and-Tumble Particles in Crowded Environments. Physical Review Letters, 2018, 120, 198103.	7.8	49
70	Diffusion and Subdiffusion of Interacting Particles on Comblike Structures. Physical Review Letters, 2015, 115, 220601.	7.8	48
71	Single cell rigidity sensing: A complex relationship between focal adhesion dynamics and large-scale actin cytoskeleton remodeling. Cell Adhesion and Migration, 2016, 10, 554-567.	2.7	47
72	Active Fluctuations of the Nuclear Envelope Shape the Transcriptional Dynamics in Oocytes. Developmental Cell, 2019, 51, 145-157.e10.	7.0	46

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73	Exit Time Distribution in Spherically Symmetric Two-Dimensional Domains. Journal of Statistical Physics, 2015, 158, 192-230.	1.2	43
74	Geometric Friction Directs Cell Migration. Physical Review Letters, 2013, 111, 198101.	7.8	42
75	A minimal model of intermittent search in dimension two. Journal of Physics Condensed Matter, 2007, 19, 065141.	1.8	41
76	Robustness of optimal intermittent search strategies in one, two, and three dimensions. Physical Review E, 2009, 80, 031146.	2.1	41
77	A stochastic model for intermittent search strategies. Journal of Physics Condensed Matter, 2005, 17, S4275-S4286.	1.8	40
78	Universality classes of first-passage-time distribution in confined media. Physical Review E, 2011, 83, 051116.	2.1	40
79	Deterministic patterns in cell motility. Nature Physics, 2016, 12, 1146-1152.	16.7	40
80	One-dimensional cell motility patterns. Physical Review Research, 2020, 2, .	3.6	40
81	Zero Constant Formula for First-Passage Observables in Bounded Domains. Physical Review Letters, 2008, 101, 130601.	7.8	39
82	Mean first-passage times in confined media: from Markovian to non-Markovian processes. Journal of Physics A: Mathematical and Theoretical, 2015, 48, 163001.	2.1	39
83	Cell shape and substrate stiffness drive actin-based cell polarity. Physical Review E, 2019, 99, 012412.	2.1	39
84	Rebuilding cytoskeleton roads: Active-transport-induced polarization of cells. Physical Review E, 2009, 80, 040903.	2.1	38
85	Inverse Square LÃ©vy Walks are not Optimal Search Strategies for <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mi>d</mml:mi><mml:mo>â‰¥</mml:mo><mml:mn>2</mml:mn></mml:math>. Physical Review Letters, 2020, 124, 080601.	7.8	38
86	Kinetics of Active Surface-Mediated Diffusion in Spherically Symmetric Domains. Journal of Statistical Physics, 2012, 147, 891-918.	1.2	37
87	Nonlinear response and emerging nonequilibrium microstructures for biased diffusion in confined crowded environments. Physical Review E, 2016, 93, 032128.	2.1	37
88	Cortical Flow-Driven Shapes of Nonadherent Cells. Physical Review Letters, 2016, 116, 028102.	7.8	37
89	Close or connected: Distance and connectivity effects on transport in networks. Physical Review E, 2011, 83, 066102.	2.1	36
90	Cells as Active Particles in Asymmetric Potentials: Motility under External Gradients. Biophysical Journal, 2014, 107, 1513-1522.	0.5	36

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91	Optimal search strategies of run-and-tumble walks. Physical Review E, 2016, 94, 012117.	2.1	34
92	Tracer diffusion in crowded narrow channels. Journal of Physics Condensed Matter, 2018, 30, 443001.	1.8	34
93	Active diffusion in oocytes nonspecifically centers large objects during prophase I and meiosis I. Journal of Cell Biology, 2020, 219, .	5.2	33
94	Tunable corrugated patterns in an active nematic sheet. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 22464-22470.	7.1	32
95	Cell migration guided by long-lived spatial memory. Nature Communications, 2021, 12, 4118.	12.8	32
96	Self-generated gradients steer collective migration on viscoelastic collagen networks. Nature Materials, 2022, 21, 1200-1210.	27.5	29
97	Intermittent search process and teleportation. Journal of Chemical Physics, 2007, 126, 234109.	3.0	28
98	Geometry-Induced Bursting Dynamics in Gene Expression. Biophysical Journal, 2012, 102, 2186-2191.	0.5	28
99	Active polar fluid flow in finite droplets. European Physical Journal E, 2014, 37, 8.	1.6	28
100	Activation-dependent plasticity of polarized GPCR distribution on the neuronal surface. Journal of Molecular Cell Biology, 2013, 5, 250-265.	3.3	27
101	Nonequilibrium Fluctuations and Enhanced Diffusion of a Driven Particle in a Dense Environment. Physical Review Letters, 2018, 120, 200606.	7.8	26
102	The cell ratchet: Interplay between efficient protrusions and adhesion determines cell motion. Cell Adhesion and Migration, 2015, 9, 327-334.	2.7	25
103	Spatial log-periodic oscillations of first-passage observables in fractals. Physical Review E, 2012, 86, 061125.	2.1	23
104	Reactive conformations and non-Markovian cyclization kinetics of a Rouse polymer. Journal of Chemical Physics, 2013, 138, 094908.	3.0	23
105	Universal first-passage statistics in aging media. Physical Review E, 2018, 98, 022125.	2.1	22
106	Encounter distribution of two random walkers on a finite one-dimensional interval. Journal of Physics A: Mathematical and Theoretical, 2011, 44, 395005.	2.1	19
107	Reactive conformations and non-Markovian reaction kinetics of a Rouse polymer searching for a target in confinement. Physical Review E, 2013, 87, .	2.1	17
108	Accelerating search kinetics by following boundaries. Physical Review Letters, 2014, 112, 230601.	7.8	17

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109	Chiral Active Hexatics: Giant Number Fluctuations, Waves, and Destruction of Order. Physical Review Letters, 2020, 125, 238005.	7.8	17
110	Collective Dynamics of Focal Adhesions Regulate Direction of Cell Motion. Cell Systems, 2020, 10, 535-542.e4.	6.2	17
111	Survival probability of stochastic processes beyond persistence exponents. Nature Communications, 2019, 10, 2990.	12.8	16
112	Signatures of motor susceptibility to forces in the dynamics of a tracer particle in an active gel. Physical Review E, 2019, 99, 022419.	2.1	16
113	Elasticity of podosome actin networks produces nanonewton protrusive forces. Nature Communications, 2022, 13, .	12.8	14
114	Residual mean first-passage time for jump processes: theory and applications to LÃ©vy flights and fractional Brownian motion. Journal of Physics A: Mathematical and Theoretical, 2011, 44, 255003.	2.1	13
115	Cyclization kinetics of Gaussian semiflexible polymer chains. Physical Review E, 2014, 90, 052601.	2.1	13
116	Contact Kinetics in Fractal Macromolecules. Physical Review Letters, 2015, 115, 208301.	7.8	13
117	Motility and morphodynamics of confined cells. Physical Review E, 2020, 101, 022404.	2.1	13
118	Reply to â€œComment on â€˜Inverse Square LÃ©vy Walks are not Optimal Search Strategies for <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mi>d</mml:mi><mml:mo>â‰¥</mml:mo><mml:mn>2</mml:mn></mml:math> â€â€™. Physical Review Letters, 2021, 126, 048902.	7.8	13
119	Spontaneous flow of active polar gels in undulated channels. Faraday Discussions, 2008, 139, 369.	3.2	12
120	Chance and strategy in search processes. Journal of Statistical Mechanics: Theory and Experiment, 2009, 2009, P12006.	2.3	11
121	A one-dimensional Kellerâ€“Segel equation with a drift issued from the boundary. Comptes Rendus Mathematique, 2010, 348, 629-634.	0.3	11
122	Dynamics of run-and-tumble particles in dense single-file systems. New Journal of Physics, 2018, 20, 113045.	2.9	11
123	Splitting probabilities and interfacial territory covered by two-dimensional and three-dimensional surface-mediated diffusion. Physical Review E, 2014, 89, 012149.	2.1	10
124	Gaussian semiflexible rings under angular and dihedral restrictions. Journal of Chemical Physics, 2014, 141, 014901.	3.0	10
125	Universal kinetics of imperfect reactions in confinement. Communications Chemistry, 2021, 4, .	4.5	10
126	Mechanisms of Cell Motion in Confined Geometries. Mathematical Modelling of Natural Phenomena, 2010, 5, 84-105.	2.4	8

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127	Anomalous persistence exponents for normal yet aging diffusion. Physical Review E, 2020, 102, 062115.	2.1	8
128	Enhanced Orientational Ordering Induced by an Active yet Isotropic Bath. Physical Review Letters, 2020, 124, 048003.	7.8	8
129	Distribution of the span of one-dimensional confined random processes before hitting a target. Physical Review E, 2021, 103, 032107.	2.1	8
130	Optimization of the residence time of a Brownian particle in a spherical subdomain. Journal of Chemical Physics, 2009, 131, 181104.	3.0	7
131	Diffusion through Nanopores in Connected Lipid Bilayer Networks. Physical Review Letters, 2019, 123, 088101.	7.8	7
132	Reaction kinetics in active media. Journal of Statistical Mechanics: Theory and Experiment, 2009, 2009, P02045.	2.3	6
133	Universality Classes of Hitting Probabilities of Jump Processes. Physical Review Letters, 2021, 126, 100602.	7.8	6
134	Joint statistics of space and time exploration of one-dimensional random walks. Physical Review E, 2022, 105, 034116.	2.1	6
135	Crosslinking and depletion determine spatial instabilities in cytoskeletal active matter. Soft Matter, 2022, 18, 3793-3800.	2.7	6
136	Dynamical and spatial disorder in an intermittent search process. Journal of Physics A: Mathematical and Theoretical, 2009, 42, 434007.	2.1	5
137	Non-Gaussianity and dynamical trapping in locally activated random walks. Physical Review E, 2012, 85, 021137.	2.1	5
138	Self-Interacting Random Walks: Aging, Exploration, and First-Passage Times. Physical Review X, 2022, 12, .	8.9	5
139	First-passage time distribution for a random walker on a random forcing energy landscape. Journal of Statistical Mechanics: Theory and Experiment, 2010, 2010, P09005.	2.3	4
140	Response to targeted perturbations for random walks on networks. Physical Review E, 2010, 82, 056106.	2.1	4
141	Non-Markovian closure kinetics of flexible polymers with hydrodynamic interactions. Journal of Chemical Physics, 2015, 143, 204108.	3.0	4
142	Analysis of a Nonlocal and Nonlinear Fokker–Planck Model for Cell Crawling Migration. SIAM Journal on Applied Mathematics, 2017, 77, 2040-2065.	1.8	4
143	Comment on â€œLocalization Transition of Biased Random Walks on Random Networksâ€• Physical Review Letters, 2007, 99, 209801.	7.8	3
144	Time rescaling reproduces EEG behavior during transition from propofol anesthesia-induced unconsciousness to consciousness. Scientific Reports, 2018, 8, 6015.	3.3	3

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145	Mean first-passage time of an anisotropic diffusive searcher. Journal of Physics A: Mathematical and Theoretical, 2017, 50, 024001.	2.1	2
146	Kinetics of rare events for non-Markovian stationary processes and application to polymer dynamics. Physical Review Research, 2020, 2, .	3.6	2
147	First-Passage Statistics for Random Walks in Bounded Domains. , 2014, , 145-174.		1
148	First-Passage Times of Intermittent Random Walks. , 2014, , 70-95.		0
149	Callan-JonesetÂal.Reply:. Physical Review Letters, 2016, 117, 139802.	7.8	0