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	Self-Interacting Random Walks: Aging, Exploration, and First-Passage Times. Physical Review X, 2022, 12, .	8.9	5
2	Joint statistics of space and time exploration of one-dimensional random walks. Physical Review E, 2022, 105, 034116.	2.1	6
3	Crosslinking and depletion determine spatial instabilities in cytoskeletal active matter. Soft Matter, 2022, 18, 3793-3800.	2.7	6
4	Self-generated gradients steer collective migration on viscoelastic collagen networks. Nature Materials, 2022, 21, 1200-1210.	27.5	29
5	Elasticity of podosome actin networks produces nanonewton protrusive forces. Nature Communications, 2022, 13, .	12.8	14
6	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
7	Distribution of the span of one-dimensional confined random processes before hitting a target. Physical Review E, 2021, 103, 032107.	2.1	8
8	Universality Classes of Hitting Probabilities of Jump Processes. Physical Review Letters, 2021, 126, 100602.	7.8	6
9	Cell migration guided by long-lived spatial memory. Nature Communications, 2021, 12, 4118.	12.8	32
10	Universal kinetics of imperfect reactions in confinement. Communications Chemistry, 2021, 4, .	4.5	10
11	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
12	Anomalous persistence exponents for normal yet aging diffusion. Physical Review E, 2020, 102, 062115.	2.1	8
13	Chiral Active Hexatics: Giant Number Fluctuations, Waves, and Destruction of Order. Physical Review Letters, 2020, 125, 238005.	7.8	17
14	Cellular locomotion using environmental topography. Nature, 2020, 582, 582-585.	27.8	150
15	Collective Dynamics of Focal Adhesions Regulate Direction of Cell Motion. Cell Systems, 2020, 10, 535-542.e4.	6.2	17
16	Motility and morphodynamics of confined cells. Physical Review E, 2020, 101, 022404.	2.1	13
17	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
18	Enhanced Orientational Ordering Induced by an Active yet Isotropic Bath. Physical Review Letters, 2020, 124, 048003.	7.8	8

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19	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
20	Active diffusion in oocytes nonspecifically centers large objects during prophase I and meiosis I. Journal of Cell Biology, 2020, 219, .	5.2	33
21	One-dimensional cell motility patterns. Physical Review Research, 2020, 2, .	3.6	40
22	Kinetics of rare events for non-Markovian stationary processes and application to polymer dynamics. Physical Review Research, 2020, 2, .	3.6	2
23	Survival probability of stochastic processes beyond persistence exponents. Nature Communications, 2019, 10, 2990.	12.8	16
24	Actomyosin-driven force patterning controls endocytosis at the immune synapse. Nature Communications, 2019, 10, 2870.	12.8	53
25	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
26	Active Fluctuations of the Nuclear Envelope Shape the Transcriptional Dynamics in Oocytes. Developmental Cell, 2019, 51, 145-157.e10.	7.0	46
27	Diffusion through Nanopores in Connected Lipid Bilayer Networks. Physical Review Letters, 2019, 123, 088101.	7.8	7
28	Large-scale curvature sensing by directional actin flow drives cellular migration mode switching. Nature Physics, 2019, 15, 393-402.	16.7	78
29	Cell shape and substrate stiffness drive actin-based cell polarity. Physical Review E, 2019, 99, 012412.	2.1	39
30	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
31	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
32	Time rescaling reproduces EEG behavior during transition from propofol anesthesia-induced unconsciousness to consciousness. Scientific Reports, 2018, 8, 6015.	3.3	3
33	Dynamics of run-and-tumble particles in dense single-file systems. New Journal of Physics, 2018, 20, 113045.	2.9	11
34	Tracer diffusion in crowded narrow channels. Journal of Physics Condensed Matter, 2018, 30, 443001.	1.8	34
35	Nonequilibrium Fluctuations and Enhanced Diffusion of a Driven Particle in a Dense Environment. Physical Review Letters, 2018, 120, 200606.	7.8	26
36	Integrating Physical and Molecular Insights on Immune Cell Migration. Trends in Immunology, 2018, 39, 632-643.	6.8	73

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37	Intermittent Pili-Mediated Forces Fluidize Neisseria meningitidis Aggregates Promoting Vascular Colonization. Cell, 2018, 174, 143-155.e16.	28.9	78
38	Directed Flow of Micromotors through Alignment Interactions with Micropatterned Ratchets. ACS Nano, 2018, 12, 7282-7291.	14.6	55
39	Optimized Diffusion of Run-and-Tumble Particles in Crowded Environments. Physical Review Letters, 2018, 120, 198103.	7.8	49
40	Universal first-passage statistics in aging media. Physical Review E, 2018, 98, 022125.	2.1	22
41	Ependymal cilia beating induces an actin network to protect centrioles against shear stress. Nature Communications, 2018, 9, 2279.	12.8	66
42	Mean first-passage time of an anisotropic diffusive searcher. Journal of Physics A: Mathematical and Theoretical, 2017, 50, 024001.	2.1	2
43	Myofibril contraction and crosslinking drive nuclear movement to the periphery of skeletal muscle. Nature Cell Biology, 2017, 19, 1189-1201.	10.3	100
44	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
45	Optimal search strategies of run-and-tumble walks. Physical Review E, 2016, 94, 012117.	2.1	34
46	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
47	Callan-JonesetÂal.Reply:. Physical Review Letters, 2016, 117, 139802.	7.8	0
48	Deterministic patterns in cell motility. Nature Physics, 2016, 12, 1146-1152.	16.7	40
49	Active Particles with Soft and Curved Walls: Equation of State, Ratchets, and Instabilities. Physical Review Letters, 2016, 117, 098001.	7.8	132
50	Nonlinear response and emerging nonequilibrium microstructures for biased diffusion in confined crowded environments. Physical Review E, 2016, 93, 032128.	2.1	37
51	Cortical Flow-Driven Shapes of Nonadherent Cells. Physical Review Letters, 2016, 116, 028102.	7.8	37
52	Mean first-passage times of non-Markovian random walkers in confinement. Nature, 2016, 534, 356-359.	27.8	105
53	Innate control of actin nucleation determines two distinct migration behaviours in dendritic cells. Nature Cell Biology, 2016, 18, 43-53.	10.3	184
54	ESCRT III repairs nuclear envelope ruptures during cell migration to limit DNA damage and cell death. Science, 2016, 352, 359-362.	12.6	738

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55	Actin flows in cell migration: from locomotion and polarity to trajectories. Current Opinion in Cell Biology, 2016, 38, 12-17.	5.4	74
56	F-actin mechanics control spindle centring in the mouse zygote. Nature Communications, 2016, 7, 10253.	12.8	75
57	Contact Kinetics in Fractal Macromolecules. Physical Review Letters, 2015, 115, 208301.	7.8	13
58	Diffusion and Subdiffusion of Interacting Particles on Comblike Structures. Physical Review Letters, 2015, 115, 220601.	7.8	48
59	Non-Markovian closure kinetics of flexible polymers with hydrodynamic interactions. Journal of Chemical Physics, 2015, 143, 204108.	3.0	4
60	Confinement and Low Adhesion Induce Fast Amoeboid Migration of Slow Mesenchymal Cells. Cell, 2015, 160, 659-672.	28.9	674
61	Cortical Contractility Triggers a Stochastic Switch to Fast Amoeboid Cell Motility. Cell, 2015, 160, 673-685.	28.9	345
62	A narrow window of cortical tension guides asymmetric spindle positioning in the mouse oocyte. Nature Communications, 2015, 6, 6027.	12.8	66
63	Exit Time Distribution in Spherically Symmetric Two-Dimensional Domains. Journal of Statistical Physics, 2015, 158, 192-230.	1.2	43
64	Cover times of random searches. Nature Physics, 2015, 11, 844-847.	16.7	83
65	Cell migration and antigen capture are antagonistic processes coupled by myosin II in dendritic cells. Nature Communications, 2015, 6, 7526.	12.8	143
66	Adaptive rheology and ordering of cell cytoskeleton govern matrix rigidity sensing. Nature Communications, 2015, 6, 7525.	12.8	233
67	Actin Flows Mediate a Universal Coupling between Cell Speed and Cell Persistence. Cell, 2015, 161, 374-386.	28.9	369
68	Active diffusion positions the nucleus in mouse oocytes. Nature Cell Biology, 2015, 17, 470-479.	10.3	139
69	Working Together: Spatial Synchrony in the Force and Actin Dynamics of Podosome First Neighbors. ACS Nano, 2015, 9, 3800-3813.	14.6	49
70	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
71	The cell ratchet: Interplay between efficient protrusions and adhesion determines cell motion. Cell Adhesion and Migration, 2015, 9, 327-334.	2.7	25
72	Ratchetaxis: Long-Range Directed Cell Migration by Local Cues. Trends in Cell Biology, 2015, 25, 815-827.	7.9	54

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73	Single-molecule tracking in live cells reveals distinct target-search strategies of transcription factors in the nucleus. ELife, 2014, 3, .	6.0	273
74	Microscopic Theory for Negative Differential Mobility in Crowded Environments. Physical Review Letters, 2014, 113, 268002.	7.8	62
75	Splitting probabilities and interfacial territory covered by two-dimensional and three-dimensional surface-mediated diffusion. Physical Review E, 2014, 89, 012149.	2.1	10
76	Gaussian semiflexible rings under angular and dihedral restrictions. Journal of Chemical Physics, 2014, 141, 014901.	3.0	10
77	From first-passage times of random walks in confinement to geometry-controlled kinetics. Physics Reports, 2014, 539, 225-284.	25.6	197
78	Active polar fluid flow in finite droplets. European Physical Journal E, 2014, 37, 8.	1.6	28
79	Liposome adhesion generates traction stress. Nature Physics, 2014, 10, 163-169.	16.7	62
80	Cyclization kinetics of Gaussian semiflexible polymer chains. Physical Review E, 2014, 90, 052601.	2.1	13
81	Cells as Active Particles in Asymmetric Potentials: Motility under External Gradients. Biophysical Journal, 2014, 107, 1513-1522.	0.5	36
82	Protrusion Fluctuations Direct Cell Motion. Biophysical Journal, 2014, 107, 34-42.	0.5	60
83	Accelerating search kinetics by following boundaries. Physical Review Letters, 2014, 112, 230601.	7.8	17
84	First-Passage Times of Intermittent Random Walks. , 2014, , 70-95.		0
85	First-Passage Statistics for Random Walks in Bounded Domains. , 2014, , 145-174.		1
86	Active Transport in Dense Diffusive Single-File Systems. Physical Review Letters, 2013, 111, 038102.	7.8	63
87	A soft cortex is essential for asymmetric spindle positioning in mouse oocytes. Nature Cell Biology, 2013, 15, 958-966.	10.3	145
88	Migration of dendritic cells: physical principles, molecular mechanisms, and functional implications. Immunological Reviews, 2013, 256, 240-254.	6.0	111
89	Geometry-Induced Superdiffusion in Driven Crowded Systems. Physical Review Letters, 2013, 111, 260601.	7.8	74
90	Geometric Friction Directs Cell Migration. Physical Review Letters, 2013, 111, 198101.	7.8	42

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91	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
92	Reactive conformations and non-Markovian cyclization kinetics of a Rouse polymer. Journal of Chemical Physics, 2013, 138, 094908.	3.0	23
93	Active gel model of amoeboid cell motility. New Journal of Physics, 2013, 15, 025022.	2.9	59
94	Activation-dependent plasticity of polarized GPCR distribution on the neuronal surface. Journal of Molecular Cell Biology, 2013, 5, 250-265.	3.3	27
95	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
96	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
97	Non-Gaussianity and dynamical trapping in locally activated random walks. Physical Review E, 2012, 85, 021137.	2.1	5
98	Exact calculations of first-passage quantities on recursive networks. Physical Review E, 2012, 85, 026113.	2.1	75
99	Optimizing Persistent Random Searches. Physical Review Letters, 2012, 108, 088103.	7.8	78
100	Non-Markovian polymer reaction kinetics. Nature Chemistry, 2012, 4, 568-573.	13.6	97
101	Geometry-Induced Bursting Dynamics in Gene Expression. Biophysical Journal, 2012, 102, 2186-2191.	0.5	28
102	Spatial log-periodic oscillations of first-passage observables in fractals. Physical Review E, 2012, 86, 061125.	2.1	23
103	Classes of fast and specific search mechanisms for proteins on DNA. Reports on Progress in Physics, 2012, 75, 026601.	20.1	102
104	Kinetics of Active Surface-Mediated Diffusion in Spherically Symmetric Domains. Journal of Statistical Physics, 2012, 147, 891-918.	1.2	37
105	Facilitated Diffusion of Proteins on Chromatin. Physical Review Letters, 2011, 106, 038102.	7.8	62
106	Intermittent search strategies. Reviews of Modern Physics, 2011, 83, 81-129.	45.6	571
107	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
108	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

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109	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
110	Spontaneous Contractility-Mediated Cortical Flow Generates Cell Migration in Three-Dimensional Environments. Biophysical Journal, 2011, 101, 1041-1045.	0.5	119
111	Universality classes of first-passage-time distribution in confined media. Physical Review E, 2011, 83, 051116.	2.1	40
112	Mean First-Passage Time of Surface-Mediated Diffusion in Spherical Domains. Journal of Statistical Physics, 2011, 142, 657-685.	1.2	65
113	Close or connected: Distance and connectivity effects on transport in networks. Physical Review E, 2011, 83, 066102.	2.1	36
114	A one-dimensional Kellerâ€“Segel equation with a drift issued from the boundary. Comptes Rendus Mathematique, 2010, 348, 629-634.	0.3	11
115	Geometry-controlled kinetics. Nature Chemistry, 2010, 2, 472-477.	13.6	295
116	Mechanisms of Cell Motion in Confined Geometries. Mathematical Modelling of Natural Phenomena, 2010, 5, 84-105.	2.4	8
117	Optimal Reaction Time for Surface-Mediated Diffusion. Physical Review Letters, 2010, 105, 150606.	7.8	112
118	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
119	Quantitative Analysis of Single Particle Trajectories: Mean Maximal Excursion Method. Biophysical Journal, 2010, 98, 1364-1372.	0.5	188
120	Response to targeted perturbations for random walks on networks. Physical Review E, 2010, 82, 056106.	2.1	4
121	Rebuilding cytoskeleton roads: Active-transport-induced polarization of cells. Physical Review E, 2009, 80, 040903.	2.1	38
122	Robustness of optimal intermittent search strategies in one, two, and three dimensions. Physical Review E, 2009, 80, 031146.	2.1	41
123	Global mean first-passage times of random walks on complex networks. Physical Review E, 2009, 80, 065104.	2.1	148
124	Pushing off the Walls: A Mechanism of Cell Motility in Confinement. Physical Review Letters, 2009, 102, 058103.	7.8	164
125	Dynamical and spatial disorder in an intermittent search process. Journal of Physics A: Mathematical and Theoretical, 2009, 42, 434007.	2.1	5
126	Chance and strategy in search processes. Journal of Statistical Mechanics: Theory and Experiment, 2009, 2009, P12006.	2.3	11

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127	Optimization of the residence time of a Brownian particle in a spherical subdomain. Journal of Chemical Physics, 2009, 131, 181104.	3.0	7
128	Searching Fast for a Target on DNA without Falling to Traps. Physical Review Letters, 2009, 103, 138102.	7.8	75
129	Quantifying Hopping and Jumping in Facilitated Diffusion of DNA-Binding Proteins. Physical Review Letters, 2009, 102, 188101.	7.8	97
130	Reaction kinetics in active media. Journal of Statistical Mechanics: Theory and Experiment, 2009, 2009, P02045.	2.3	6
131	Enhanced reaction kinetics in biological cells. Nature Physics, 2008, 4, 134-137.	16.7	155
132	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
133	Optimizing intermittent reaction paths. Physical Chemistry Chemical Physics, 2008, 10, 7059.	2.8	53
134	Spontaneous flow of active polar gels in undulated channels. Faraday Discussions, 2008, 139, 369.	3.2	12
135	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
136	Sliding and jumping of single EcoRV restriction enzymes on non-cognate DNA. Nucleic Acids Research, 2008, 36, 4118-4127.	14.5	196
137	Zero Constant Formula for First-Passage Observables in Bounded Domains. Physical Review Letters, 2008, 101, 130601.	7.8	39
138	Intermittent search process and teleportation. Journal of Chemical Physics, 2007, 126, 234109.	3.0	28
139	A minimal model of intermittent search in dimension two. Journal of Physics Condensed Matter, 2007, 19, 065141.	1.8	41
140	Comment on â€œLocalization Transition of Biased Random Walks on Random Networksâ€• Physical Review Letters, 2007, 99, 209801.	7.8	3
141	First-passage times in complex scale-invariant media. Nature, 2007, 450, 77-80.	27.8	520
142	Two-dimensional intermittent search processes: An alternative to LÃ©vy flight strategies. Physical Review E, 2006, 74, 020102.	2.1	138
143	Intermittent search strategies: When losing time becomes efficient. Europhysics Letters, 2006, 75, 349-354.	2.0	56
144	Generic Phase Diagram of Active Polar Films. Physical Review Letters, 2006, 96, 028102.	7.8	122

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145	Spontaneous flow transition in active polar gels. Europhysics Letters, 2005, 70, 404-410.	2.0	295
146	Optimal Search Strategies for Hidden Targets. Physical Review Letters, 2005, 94, 198101.	7.8	270
147	Averaged residence times of stochastic motions in bounded domains. Europhysics Letters, 2005, 70, 42-48.	2.0	66
148	A stochastic model for intermittent search strategies. Journal of Physics Condensed Matter, 2005, 17, S4275-S4286.	1.8	40
149	Kinetics of Target Site Localization of a Protein on DNA: A Stochastic Approach. Biophysical Journal, 2004, 87, 1640-1649.	0.5	204