

Eli Barkai

List of Publications by Year in descending order

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157
papers

10,047
citations

44069

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docs citations

159
times ranked

4146
citing authors

#	ARTICLE	IF	CITATIONS
1	Anomalous diffusion models and their properties: non-stationarity, non-ergodicity, and ageing at the centenary of single particle tracking. <i>Physical Chemistry Chemical Physics</i> , 2014, 16, 24128-24164.	2.8	1,286
2	Anomalous Diffusion and Relaxation Close to Thermal Equilibrium: A Fractional Fokker-Planck Equation Approach. <i>Physical Review Letters</i> , 1999, 82, 3563-3567.	7.8	678
3	From continuous time random walks to the fractional Fokker-Planck equation. <i>Physical Review E</i> , 2000, 61, 132-138.	2.1	621
4	Strange kinetics of single molecules in living cells. <i>Physics Today</i> , 2012, 65, 29-35.	0.3	476
5	Random Time-Scale Invariant Diffusion and Transport Coefficients. <i>Physical Review Letters</i> , 2008, 101, 058101.	7.8	464
6	Single particle tracking in systems showing anomalous diffusion: the role of weak ergodicity breaking. <i>Physical Chemistry Chemical Physics</i> , 2011, 13, 1800.	2.8	325
7	Deriving fractional Fokker-Planck equations from a generalised master equation. <i>Europhysics Letters</i> , 1999, 46, 431-436.	2.0	267
8	THEORY OF SINGLE-MOLECULE SPECTROSCOPY: Beyond the Ensemble Average. <i>Annual Review of Physical Chemistry</i> , 2004, 55, 457-507.	10.8	266
9	Weak Ergodicity Breaking in the Continuous-Time Random Walk. <i>Physical Review Letters</i> , 2005, 94, .	7.8	253
10	Beyond quantum jumps: Blinking nanoscale light emitters. <i>Physics Today</i> , 2009, 62, 34-39.	0.3	199
11	Fractional Kramers Equation. <i>Journal of Physical Chemistry B</i> , 2000, 104, 3866-3874.	2.6	184
12	Nonergodicity of Blinking Nanocrystals and Other Lévy-Walk Processes. <i>Physical Review Letters</i> , 2005, 94, 080601.	7.8	154
13	Ageing and nonergodicity beyond the Khinchin theorem. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2010, 107, 13228-13233.	7.1	148
14	Ageing in Subdiffusion Generated by a Deterministic Dynamical System. <i>Physical Review Letters</i> , 2003, 90, 104101.	7.8	141
15	Ageing continuous time random walks. <i>Journal of Chemical Physics</i> , 2003, 118, 6167-6178.	3.0	132
16	Distribution of Time-Averaged Observables for Weak Ergodicity Breaking. <i>Physical Review Letters</i> , 2007, 99, 210601.	7.8	124
17	CTRW pathways to the fractional diffusion equation. <i>Chemical Physics</i> , 2002, 284, 13-27.	1.9	117
18	Lineshape theory and photon counting statistics for blinking quantum dots: a Lévy walk process. <i>Chemical Physics</i> , 2002, 284, 181-194.	1.9	110

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19	Aging Renewal Theory and Application to Random Walks. <i>Physical Review X</i> , 2014, 4, .	8.9	102
20	Aging correlation functions for blinking nanocrystals, and other on&off stochastic processes. <i>Journal of Chemical Physics</i> , 2004, 121, 1566-1577.	3.0	101
21	Infinite Covariant Density for Diffusion in Logarithmic Potentials and Optical Lattices. <i>Physical Review Letters</i> , 2010, 105, 120602.	7.8	100
22	Theory of Fractional Lévy Kinetics for Cold Atoms Diffusing in Optical Lattices. <i>Physical Review Letters</i> , 2012, 108, 230602.	7.8	89
23	Non-Normalizable Densities in Strong Anomalous Diffusion: Beyond the Central Limit Theorem. <i>Physical Review Letters</i> , 2014, 112, 110601.	7.8	83
24	Broken symmetries in multilayered perceptrons. <i>Physical Review A</i> , 1992, 45, 4146-4161.	2.5	82
25	Generalized Einstein relation: A stochastic modeling approach. <i>Physical Review E</i> , 1998, 58, 1296-1310.	2.1	81
26	From the Area under the Bessel Excursion to Anomalous Diffusion of Cold Atoms. <i>Physical Review X</i> , 2014, 4, .	8.9	81
27	Fluctuations of $\langle \text{mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"> \langle \text{mml:mn}>1 \langle \text{mml:mn}> \langle \text{mml:mo}> \langle \text{mml:mo}> \langle \text{mml:mi}>f \langle \text{mml:mi}> \langle \text{mml:math}> \text{Noise and the Low-Frequency Cutoff Paradox. } \text{Physical Review Letters, 2013, 110, 140603.}$	7.8	79
28	Statistical mechanics of a multilayered neural network. <i>Physical Review Letters</i> , 1990, 65, 2312-2315.	7.8	77
29	Time-Dependent Fluctuations in Single Molecule Spectroscopy: A Generalized Wiener-Khintchine Approach. <i>Physical Review Letters</i> , 2001, 87, 207403.	7.8	75
30	Anomalous transport in disordered systems under the influence of external fields. <i>Physica A: Statistical Mechanics and Its Applications</i> , 1999, 266, 343-350.	2.6	74
31	Lévy Distribution of Single Molecule Line Shape Cumulants in Glasses. <i>Physical Review Letters</i> , 2000, 84, 5339-5342.	7.8	74
32	Weakly Non-Ergodic Statistical Physics. <i>Journal of Statistical Physics</i> , 2008, 133, 565-586.	1.2	73
33	Fractional Feynman-Kac Equation for Non-Brownian Functionals. <i>Physical Review Letters</i> , 2009, 103, 190201.	7.8	73
34	Current status of single-molecule spectroscopy: Theoretical aspects. <i>Journal of Chemical Physics</i> , 2002, 117, 10980-10995.	3.0	71
35	Pesin-Type Identity for Intermittent Dynamics with a Zero Lyapunov Exponent. <i>Physical Review Letters</i> , 2009, 102, 050601.	7.8	71
36	Nonergodicity of a Time Series Obeying Lévy Statistics. <i>Journal of Statistical Physics</i> , 2006, 122, 137-167.	1.2	70

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37	Packets of Diffusing Particles Exhibit Universal Exponential Tails. <i>Physical Review Letters</i> , 2020, 124, 060603.	7.8	70
38	Occupation Time Statistics in the Quenched Trap Model. <i>Physical Review Letters</i> , 2007, 98, 250601.	7.8	68
39	On Distributions of Functionals of Anomalous Diffusion Paths. <i>Journal of Statistical Physics</i> , 2010, 141, 1071-1092.	1.2	66
40	One-dimensional stochastic Lévy-Lorentz gas. <i>Physical Review E</i> , 2000, 61, 1164-1169.	2.1	65
41	Fractional dynamics approach to diffusion-assisted reactions in disordered media. <i>Journal of Chemical Physics</i> , 2002, 116, 2338-2341.	3.0	64
42	Photon Counting Statistics for Blinking CdSe/ZnS Quantum Dots: A Lévy Walk Process. <i>Journal of Physical Chemistry B</i> , 2006, 110, 19053-19060.	2.6	63
43	Infinite ergodic theory for heterogeneous diffusion processes. <i>Physical Review E</i> , 2019, 99, 042138.	2.1	63
44	Single-big-jump principle in physical modeling. <i>Physical Review E</i> , 2019, 100, 012108.	2.1	61
45	Lévy flights versus Lévy walks in bounded domains. <i>Physical Review E</i> , 2017, 95, 052102.	2.1	57
46	Tempered fractional Feynman-Kac equation: Theory and examples. <i>Physical Review E</i> , 2016, 93, 032151.	2.1	54
47	Crossover from Dispersive to Regular Transport in Biased Maps. <i>Physical Review Letters</i> , 1997, 79, 2245-2248.	7.8	50
48	Solution of the Fokker-Planck Equation with a Logarithmic Potential. <i>Journal of Statistical Physics</i> , 2011, 145, 1524-1545.	1.2	50
49	Paradoxes of Subdiffusive Infiltration in Disordered Systems. <i>Physical Review Letters</i> , 2010, 104, 170603.	7.8	49
50	Infinite densities for Lévy walks. <i>Physical Review E</i> , 2014, 90, 062135.	2.1	46
51	Quantum walks: The first detected passage time problem. <i>Physical Review E</i> , 2017, 95, 032141.	2.1	46
52	Weak ergodicity breaking with deterministic dynamics. <i>Europhysics Letters</i> , 2006, 74, 15-21.	2.0	45
53	Random time averaged diffusivities for Lévy walks. <i>European Physical Journal B</i> , 2013, 86, 1.	1.5	45
54	Diffusion of tagged particle in an exclusion process. <i>Physical Review E</i> , 2010, 81, 041129.	2.1	44

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55	Aging Wiener-Khinchin Theorem. Physical Review Letters, 2015, 115, 080602.	7.8	44
56	Residence Time Statistics for Normal and Fractional Diffusion in a Force Field. Journal of Statistical Physics, 2006, 123, 883-907.	1.2	42
57	First Detected Arrival of a Quantum Walker on an Infinite Line. Physical Review Letters, 2018, 120, 040502.	7.8	41
58	Asymptotic densities of ballistic Lévy walks. Physical Review E, 2015, 91, 022131.	2.1	40
59	From Non-Normalizable Boltzmann-Gibbs Statistics to Infinite-Ergodic Theory. Physical Review Letters, 2019, 122, 010601.	7.8	40
60	1/fnoise for intermittent quantum dots exhibits non-stationarity and critical exponents. New Journal of Physics, 2014, 16, 113054.	2.9	39
61	Hitchhiker model for Laplace diffusion processes. Physical Review E, 2020, 102, 012109.	2.1	39
62	Fluctuations of Time Averages for Langevin Dynamics in a Binding Force Field. Physical Review Letters, 2011, 107, 240603.	7.8	38
63	Localisation and universal fluctuations in ultraslow diffusion processes. Journal of Physics A: Mathematical and Theoretical, 2014, 47, 492002.	2.1	38
64	Scaling Green-Kubo Relation and Application to Three Aging Systems. Physical Review X, 2014, 4, .	8.9	36
65	Storage Capacity of a Multilayer Neural Network with Binary Weights. Europhysics Letters, 1991, 14, 107-112.	2.0	35
66	Aging Wiener-Khinchin theorem and critical exponents of $\langle mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML">\langle mml:mrow>\langle mml:mn>1\langle mml:mn>\langle mml:mo>/\langle mml:mo>\langle mml:msup>\langle mml:m$ noise. Physical Review E, 2016, 94, 052130.	2.1	33
67	Comment on "Subdiffusion and Anomalous Local Viscoelasticity in Actin Networks". Physical Review Letters, 1998, 81, 1134-1134.	7.8	32
68	Superdiffusive Dispersals Impart the Geometry of Underlying Random Walks. Physical Review Letters, 2016, 117, 270601.	7.8	32
69	Super- and sub-Poissonian photon statistics for single molecule spectroscopy. Journal of Chemical Physics, 2005, 122, 184703.	3.0	30
70	Aging generates regular motions in weakly chaotic systems. Physical Review E, 2013, 87, .	2.1	29
71	Time Transformation for Random Walks in the Quenched Trap Model. Physical Review Letters, 2011, 106, 140602.	7.8	28
72	Universal Fluctuations of Single-Particle Diffusivity in a Quenched Environment. Physical Review Letters, 2016, 117, 180602.	7.8	28

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73	Fractional Advection-Diffusion-Asymmetry Equation. <i>Physical Review Letters</i> , 2020, 125, 240606.	7.8	28
74	Lévy walks and generalized stochastic collision models. <i>Physical Review E</i> , 1997, 56, 6355-6361.	2.1	27
75	Distribution of single-molecule line widths. <i>Chemical Physics Letters</i> , 1999, 310, 287-295.	2.6	27
76	Numerical Algorithms for the Forward and Backward Fractional Feynman-Kac Equations. <i>Journal of Scientific Computing</i> , 2015, 62, 718-746.	2.3	27
77	Properties of sparsely connected excitatory neural networks. <i>Physical Review A</i> , 1990, 41, 590-597.	2.5	26
78	Renewal theory with fat-tailed distributed sojourn times: Typical versus rare. <i>Physical Review E</i> , 2018, 98, .	2.1	26
79	Multi-point distribution function for the continuous time random walk. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2007, 2007, P08001-P08001.	2.3	25
80	Large Deviations for Continuous Time Random Walks. <i>Entropy</i> , 2020, 22, 697.	2.2	25
81	Aging power spectrum of membrane protein transport and other subordinated random walks. <i>Nature Communications</i> , 2021, 12, 6162.	12.8	24
82	Transition from simple to complex behavior of single molecule line shapes in disordered condensed phase. <i>Journal of Chemical Physics</i> , 2000, 113, 5853-5867.	3.0	23
83	Anomalous infiltration. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2011, 2011, P05022.	2.3	23
84	Large fluctuations of the first detected quantum return time. <i>Physical Review Research</i> , 2019, 1, .	3.6	23
85	Large Fluctuations for Spatial Diffusion of Cold Atoms. <i>Physical Review Letters</i> , 2017, 118, 260601.	7.8	22
86	Transport in disordered systems: The single big jump approach. <i>Physical Review Research</i> , 2019, 1, .	3.6	22
87	Infinite invariant density in a semi-Markov process with continuous state variables. <i>Physical Review E</i> , 2020, 101, 052112.	2.1	21
88	Rare events in generalized Lévy Walks and the Big Jump principle. <i>Scientific Reports</i> , 2020, 10, 2732.	3.3	21
89	Scale-invariant Green-Kubo relation for time-averaged diffusivity. <i>Physical Review E</i> , 2017, 96, 062122.	2.1	20
90	Occupation times and ergodicity breaking in biased continuous time random walks. <i>Journal of Physics Condensed Matter</i> , 2005, 17, S4287-S4304.	1.8	19

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91	Deviations from Boltzmann-Gibbs Statistics in Confined Optical Lattices. Physical Review Letters, 2015, 115, 173006.	7.8	19
92	Infinite ergodic theory meets Boltzmann statistics. Chaos, Solitons and Fractals, 2020, 138, 109890.	5.1	19
93	Occupation times on a comb with ramified teeth. Physical Review E, 2013, 88, 052126.	2.1	18
94	Bidirectional shot noise in a singly occupied channel. Physical Review E, 1996, 54, 1161-1175.	2.1	17
95	Stable Equilibrium Based on Lévy Statistics: A Linear Boltzmann Equation Approach. Journal of Statistical Physics, 2004, 115, 1537-1565.	1.2	17
96	Heavy-tailed phase-space distributions beyond Boltzmann-Gibbs: Confined laser-cooled atoms in a nonthermal state. Physical Review E, 2016, 94, 022151.	2.1	16
97	Cusp of Non-Gaussian Density of Particles for a Diffusing Diffusivity Model. Entropy, 2021, 23, 231.	2.2	16
98	Dark states of quantum search cause imperfect detection. Physical Review Research, 2020, 2, .	3.6	16
99	Dissipation and fluctuation for a randomly kicked particle: Normal and anomalous diffusion. Chemical Physics, 1996, 212, 69-88.	1.9	15
100	Transitions in the Ergodicity of Subrecoil-Laser-Cooled Gases. Physical Review Letters, 2021, 127, 140605.	7.8	15
101	Uncertainty and symmetry bounds for the quantum total detection probability. Physical Review Research, 2020, 2, .	3.6	15
102	Quantum walks: The mean first detected transition time. Physical Review Research, 2020, 2, .	3.6	15
103	Photon Statistics for Single-Molecule Nonlinear Spectroscopy. Physical Review Letters, 2007, 99, 208302.	7.8	14
104	Residence Time Statistics for N Renewal Processes. Physical Review Letters, 2011, 107, 170601.	7.8	14
105	Asymptotic densities from the modified Montroll-Weiss equation for coupled CTRWs. European Physical Journal B, 2018, 91, 1.	1.5	13
106	Non-self-averaging behaviors and ergodicity in quenched trap models with finite system sizes. Physical Review E, 2018, 97, 052143.	2.1	13
107	Extreme value theory for constrained physical systems. Physical Review E, 2020, 102, 042141.	2.1	13
108	Dispersion of particles in an infinite-horizon Lorentz gas. Physical Review E, 2018, 98, 010101.	2.1	12

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109	Infinite horizon billiards: Transport at the border between Gauss and Lévy universality classes. <i>Physical Review E</i> , 2019, 100, 042140.	2.1	12
110	Regularized Boltzmann-Gibbs statistics for a Brownian particle in a nonconfining field. <i>Physical Review Research</i> , 2020, 2, .	3.6	11
111	Simulating a Brownian type of motion: The rescaling-velocity approach versus the Langevin approach. <i>Physical Review E</i> , 1995, 52, 137-147.	2.1	10
112	Theory of single photon on demand from a single molecule source. <i>Physical Chemistry Chemical Physics</i> , 2006, 8, 5056.	2.8	10
113	Brownian type of motion of a randomly kicked particle far from and close to the diffusion limit. <i>Physical Review E</i> , 1995, 52, 1558-1570.	2.1	9
114	Experimental evidence for Lévy statistics in single-molecule spectroscopy in a low-temperature glass—manifestation of long-range interactions. <i>Journal of Luminescence</i> , 2004, 107, 21-31.	3.1	9
115	Theory of single-photon control from a two-level system source. <i>Physical Review A</i> , 2006, 74, .	2.5	9
116	The Distribution of the Area Under a Bessel Excursion and its Moments. <i>Journal of Statistical Physics</i> , 2014, 156, 686-706.	1.2	9
117	Fluctuations around equilibrium laws in ergodic continuous-time random walks. <i>Physical Review E</i> , 2015, 91, 062129.	2.1	9
118	Renewal Theory for a System with Internal States. <i>Mathematical Modelling of Natural Phenomena</i> , 2016, 11, 191-239.	2.4	9
119	On Hilfer's objection to the fractional time diffusion equation. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2007, 373, 231-236.	2.6	8
120	Fractional Edgeworth expansion: Corrections to the Gaussian-Lévy central-limit theorem. <i>Physical Review E</i> , 2015, 91, 052124.	2.1	8
121	$\hat{1} \cdot \hat{f}^2$ noise for scale-invariant processes: how long you wait matters. <i>European Physical Journal B</i> , 2017, 90, 1.	1.5	8
122	Measurement-induced quantum walks. <i>Physical Review E</i> , 2022, 105, .	2.1	8
123	Stochastic One-Dimensional Lorentz Gas on a Lattice. <i>Journal of Statistical Physics</i> , 1999, 96, 325-359.	1.2	7
124	Aging, non-ergodicity, and Lévy statistics for blinking nanocrystals. <i>Israel Journal of Chemistry</i> , 2004, 44, 353-362.	2.3	7
125	Strong correlations between fluctuations and response in aging transport. <i>Physical Review E</i> , 2007, 75, 060104.	2.1	7
126	Limit theorems for Lévy walks in dimensions: rare and bulk fluctuations. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2017, 50, 154002.	2.1	7

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145	Photon statistics for a two-level system interacting with a sequence of two laser pulses. Physical Review A, 2008, 77, .	2.5	3
146	Probing dynamics of single molecules: Nonlinear spectroscopy approach. Journal of Chemical Physics, 2008, 129, 244702.	3.0	3
147	Accurately approximating extreme value statistics. Journal of Physics A: Mathematical and Theoretical, 2021, 54, 315205.	2.1	3
148	Publisher's Note: Aging generates regular motions in weakly chaotic systems [Phys. Rev. E87, 032915 (2013)]. Physical Review E, 2013, 87, .	2.1	2
149	Big jump principle for heavy-tailed random walks with correlated increments. European Physical Journal B, 2021, 94, 1.	1.5	2
150	Biased chaotic diffusion. Physica A: Statistical Mechanics and Its Applications, 1998, 249, 156-161.	2.6	1
151	Electrostatic effects in living cells. Physics Today, 2013, 66, 11-11.	0.3	1
152	Universal exploration. Nature Physics, 2015, 11, 807-808.	16.7	1
153	Weak Ergodicity Breaking in Single-Particle Dynamics. , 2008, , 365-391.		1
154	Fractional Feynmanâ€“Kac Equation for Anomalous Diffusion Functionals. , 2011, , 185-207.		1
155	Local equilibrium properties of ultraslow diffusion in the Sinai model. New Journal of Physics, 2022, 24, 073026.	2.9	1
156	DETERMINISTIC AGING. , 2005, , .		0
157	Pitfalls In Single Particle Tracking In Living Cells. Biophysical Journal, 2009, 96, 385a.	0.5	0