

Gandhi M Viswanathan

List of Publications by Year in descending order

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123
papers

7,914
citations

117453

34
h-index

54797

84
g-index

127
all docs

127
docs citations

127
times ranked

4702
citing authors

#	ARTICLE	IF	CITATIONS
1	Optimizing the success of random searches. <i>Nature</i> , 1999, 401, 911-914.	13.7	1,370
2	Lévy flight search patterns of wandering albatrosses. <i>Nature</i> , 1996, 381, 413-415.	13.7	1,180
3	Revisiting Lévy flight search patterns of wandering albatrosses, bumblebees and deer. <i>Nature</i> , 2007, 449, 1044-1048.	13.7	736
4	ANIMAL SEARCH STRATEGIES: A QUANTITATIVE RANDOM-WALK ANALYSIS. <i>Ecology</i> , 2005, 86, 3078-3087.	1.5	532
5	Lévy flights and superdiffusion in the context of biological encounters and random searches. <i>Physics of Life Reviews</i> , 2008, 5, 133-150.	1.5	368
6	Optimizing the Encounter Rate in Biological Interactions: Lévy versus Brownian Strategies. <i>Physical Review Letters</i> , 2002, 88, 097901.	2.9	281
7	Anomalous fluctuations in the dynamics of complex systems: from DNA and physiology to econophysics. <i>Physica A: Statistical Mechanics and Its Applications</i> , 1996, 224, 302-321.	1.2	199
8	Lévy flights in random searches. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2000, 282, 1-12.	1.2	199
9	Analysis of DNA sequences using methods of statistical physics. <i>Physica A: Statistical Mechanics and Its Applications</i> , 1998, 249, 430-438.	1.2	140
10	Average time spent by Lévy flights and walks on an interval with absorbing boundaries. <i>Physical Review E</i> , 2001, 64, 041108.	0.8	112
11	The influence of turning angles on the success of non-oriented animal searches. <i>Journal of Theoretical Biology</i> , 2008, 252, 43-55.	0.8	107
12	Dynamical Robustness of Lévy Search Strategies. <i>Physical Review Letters</i> , 2003, 91, 240601.	2.9	106
13	Shannon entropy of brain functional complex networks under the influence of the psychedelic Ayahuasca. <i>Scientific Reports</i> , 2017, 7, 7388.	1.6	98
14	Lévy flight random searches in biological phenomena. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2002, 314, 208-213.	1.2	94
15	Deviations from uniform power law scaling in nonstationary time series. <i>Physical Review E</i> , 1997, 55, 845-849.	0.8	92
16	Fish in Lévy-flight foraging. <i>Nature</i> , 2010, 465, 1018-1019.	13.7	78
17	Necessary criterion for distinguishing true superdiffusion from correlated random walk processes. <i>Physical Review E</i> , 2005, 72, 011111.	0.8	70
18	Lévy flights search patterns of biological organisms. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2001, 295, 85-88.	1.2	68

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19	The evolutionary origins of Lévy walk foraging. PLoS Computational Biology, 2017, 13, e1005774.	1.5	67
20	Properties of Lévy flights on an interval with absorbing boundaries. Physica A: Statistical Mechanics and Its Applications, 2001, 302, 148-161.	1.2	66
21	Amnestically Induced Persistence in Random Walks. Physical Review Letters, 2007, 98, 070603.	2.9	64
22	Optimal random searches of revisitable targets: Crossover from superdiffusive to ballistic random walks. Europhysics Letters, 2004, 67, 734-740.	0.7	63
23	Survival in patchy landscapes: the interplay between dispersal, habitat loss and fragmentation. Scientific Reports, 2015, 5, 11898.	1.6	63
24	Stochastic Optimal Foraging: Tuning Intensive and Extensive Dynamics in Random Searches. PLoS ONE, 2014, 9, e106373.	1.1	56
25	Variance fluctuations in nonstationary time series: a comparative study of music genres. Physica A: Statistical Mechanics and Its Applications, 2004, 336, 585-594.	1.2	54
26	Lévy flights and random searches. Journal of Physics A: Mathematical and Theoretical, 2009, 42, 434003.	0.7	54
27	The influence of the environment on Lévy random search efficiency: Fractality and memory effects. Physica A: Statistical Mechanics and Its Applications, 2012, 391, 3234-3246.	1.2	53
28	Improvements in the statistical approach to random Lévy flight searches. Physica A: Statistical Mechanics and Its Applications, 2001, 295, 89-92.	1.2	51
29	Brain complex network analysis by means of resting state fMRI and graph analysis: Will it be helpful in clinical epilepsy?. Epilepsy and Behavior, 2014, 38, 71-80.	0.9	45
30	Quantification of DNA Patchiness Using Long-Range Correlation Measures. Biophysical Journal, 1997, 72, 866-875.	0.2	44
31	Scaling and universality in animate and inanimate systems. Physica A: Statistical Mechanics and Its Applications, 1996, 231, 20-48.	1.2	42
32	Search dynamics at the edge of extinction: Anomalous diffusion as a critical survival state. Europhysics Letters, 2007, 77, 30002.	0.7	42
33	How Landscape Heterogeneity Frames Optimal Diffusivity in Searching Processes. PLoS Computational Biology, 2011, 7, e1002233.	1.5	42
34	Origin of power-law distributions in deterministic walks: The influence of landscape geometry. Physical Review E, 2007, 75, 061114.	0.8	37
35	The origin of fat-tailed distributions in financial time series. Physica A: Statistical Mechanics and Its Applications, 2003, 329, 273-280.	1.2	32
36	Non-Gaussian propagator for elephant random walks. Physical Review E, 2013, 88, 022115.	0.8	31

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37	Robustness of optimal random searches in fragmented environments. <i>Physical Review E</i> , 2015, 91, 052119.	0.8	30
38	Optimization of random searches on regular lattices. <i>Physical Review E</i> , 2005, 72, 046143.	0.8	26
39	Statistical physics of random searches. <i>Brazilian Journal of Physics</i> , 2001, 31, 102-108.	0.7	26
40	Characterizing Complex Networks Using Entropy-Degree Diagrams: Unveiling Changes in Functional Brain Connectivity Induced by Ayahuasca. <i>Entropy</i> , 2019, 21, 128.	1.1	25
41	Long-range correlation measures for quantifying patchiness: Deviations from uniform power-law scaling in genomic DNA. <i>Physica A: Statistical Mechanics and Its Applications</i> , 1998, 249, 581-586.	1.2	24
42	Discrete-time non-Markovian random walks: The effect of memory limitations on scaling. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2006, 364, 70-78.	1.2	21
43	Can collective searches profit from Lévy walk strategies?. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2009, 42, 434017.	0.7	18
44	Ultraslow diffusion in an exactly solvable non-Markovian random walk. <i>Physical Review E</i> , 2014, 89, 052110.	0.8	18
45	Largest and second largest cluster statistics at the percolation threshold of hypercubic lattices. <i>Physical Review E</i> , 2002, 66, 056107.	0.8	17
46	Unveiling a mechanism for species decline in fragmented habitats: fragmentation induced reduction in encounter rates. <i>Journal of the Royal Society Interface</i> , 2014, 11, 20130887.	1.5	17
47	Comment on "Inverse Square Lévy Walks are not Optimal Search Strategies for $d > 2$ ". <i>Physical Review Letters</i> , 2021, 126, 048901.	2.9	17
48	Anomalous diffusion in non-Markovian walks having amnestically induced persistence. <i>Physical Review E</i> , 2010, 81, 011125.	0.8	16
49	And yet it optimizes. <i>Physics of Life Reviews</i> , 2015, 14, 94-98.	1.5	16
50	A Markov model of financial returns. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2006, 363, 393-403.	1.2	15
51	The random search problem: trends and perspectives. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2009, 42, 430301.	0.7	15
52	Efficient search of critical points in Ising-like systems. <i>Physica A: Statistical Mechanics and Its Applications</i> , 1999, 264, 171-179.	1.2	14
53	The universality class of random searches in critically scarce environments. <i>Europhysics Letters</i> , 2012, 97, 50005.	0.7	14
54	Exact solution of an anisotropic 2D random walk model with strong memory correlations. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2013, 46, 505002.	0.7	14

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55	Third law of thermodynamics as a key test of generalized entropies. Physical Review E, 2015, 91, 022105.	0.8	14
56	Effects of finite probing windows on the interpretation of the multifractal properties of random walks. Europhysics Letters, 2007, 77, 40004.	0.7	13
57	Efficient search of multiple types of targets. Physical Review E, 2015, 92, 062135.	0.8	13
58	SCALING AND UNIVERSALITY IN LIVING SYSTEMS. Fractals, 1996, 04, 427-451.	1.8	12
59	Efficient search method for obtaining critical properties. Physica A: Statistical Mechanics and Its Applications, 2000, 284, 223-230.	1.2	12
60	Weakly anomalous diffusion with non-Gaussian propagators. Physical Review E, 2012, 86, 022103.	0.8	11
61	Scale-invariant correlations in the biological and social sciences. The Philosophical Magazine: Physics of Condensed Matter B, Statistical Mechanics, Electronic, Optical and Magnetic Properties, 1998, 77, 1373-1388.	0.6	10
62	Spontaneous symmetry breaking in amnestically induced persistence. Physical Review E, 2008, 77, 040101.	0.8	10
63	Multifractality and heteroscedastic dynamics: An application to time series analysis. Europhysics Letters, 2008, 81, 18002.	0.7	10
64	Optimization of random searches on defective lattice networks. Physical Review E, 2008, 77, 041101.	0.8	10
65	Universal aspects of photocurrent-voltage characteristics in dye-sensitized nanocrystallineTiO ₂ photoelectrochemical cells. Physical Review B, 2009, 79, .	1.1	10
66	Multifractal detrended fluctuation analysis of analog random multiplicative processes. Chaos, Solitons and Fractals, 2009, 41, 2806-2811.	2.5	9
67	Superdiffusion in a non-Markovian random walk model with a Gaussian memory profile. European Physical Journal B, 2012, 85, 1.	0.6	9
68	Stochastic Optimal Foraging Theory. Lecture Notes in Mathematics, 2013, , 3-32.	0.1	9
69	Inferring Lévy walks from curved trajectories: A rescaling method. Physical Review E, 2015, 92, 022147.	0.8	9
70	Quantifying nonstationary radioactivity concentration fluctuations near Chernobyl: A complete statistical description. Physical Review E, 2000, 62, 4389-4392.	0.8	8
71	Conditions under which a superdiffusive random-search strategy is necessary. Physical Review E, 2012, 86, 031133.	0.8	8
72	Activity, diffusion, and correlations in a two-dimensional conserved stochastic sandpile. Journal of Statistical Mechanics: Theory and Experiment, 2014, 2014, P08003.	0.9	8

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73	Superdiffusion driven by exponentially decaying memory. Journal of Statistical Mechanics: Theory and Experiment, 2014, 2014, P04026.	0.9	8
74	A parallel algorithm for random searches. Computer Physics Communications, 2015, 196, 390-397.	3.0	8
75	CRITICAL BEHAVIOR OF AN EPIDEMIC MODEL OF DRUG RESISTANT DISEASES. International Journal of Modern Physics C, 2004, 15, 1279-1290.	0.8	7
76	Dissipative Lévy random searches: Universal behavior at low target density. Physical Review E, 2012, 86, 061102.	0.8	7
77	Alzheimer random walk model: Two previously overlooked diffusion regimes. Physical Review E, 2012, 86, 042101.	0.8	7
78	Information entropy of classical versus explosive percolation. European Physical Journal B, 2015, 88, 1.	0.6	7
79	The hypergeometric series for the partition function of the 2D Ising model. Journal of Statistical Mechanics: Theory and Experiment, 2015, 2015, P07004.	0.9	7
80	Transient superdiffusion in random walks with a $\langle x^2(t) \rangle \sim t^{\alpha}$ -exponentially decaying memory profile. Physica A: Statistical Mechanics and Its Applications, 2016, 453, 259-263.	1.2	7
81	Hurst exponents for interacting random walkers obeying nonlinear Fokker-Planck equations. Physica A: Statistical Mechanics and Its Applications, 2009, 388, 3687-3694.	1.2	6
82	A two-dimensional non-Markovian random walk leading to anomalous diffusion. Physica A: Statistical Mechanics and Its Applications, 2015, 421, 522-532.	1.2	6
83	$\hat{\mu}$ -CDM model with dissipative nonextensive viscous dark matter. Physica A: Statistical Mechanics and Its Applications, 2018, 494, 331-339.	1.2	6
84	Landscape-scaled strategies can outperform Lévy random searches. Physical Review E, 2021, 103, 022105.	0.8	6
85	A STOCHASTIC MODEL FOR MULTIFRACTAL BEHAVIOR OF STOCK PRICES. International Journal of Modern Physics B, 2004, 18, 681-689.	1.0	5
86	The Lévy sections theorem: An application to econophysics. Physica A: Statistical Mechanics and Its Applications, 2007, 386, 756-759.	1.2	5
87	Multifractality of random walks in the theory of vehicular traffic. Physical Review E, 2008, 78, 056110.	0.8	5
88	Fat tails, long-range correlations and multifractality as emergent properties in nonstationary time series. Europhysics Letters, 2011, 93, 58006.	0.7	5
89	Why Lévy $\langle x^2(t) \rangle \sim t^{\alpha}$ -stable distributions lack general closed-form expressions for arbitrary $\langle x^2(t) \rangle \sim t^{\alpha}$. Physical Review E, 2019, 100, 010103.	0.8	5
90	Non-Lévy stable random walk propagators for a non-Markovian walk with both superdiffusive and subdiffusive regimes. Physica A: Statistical Mechanics and Its Applications, 2020, 538, 122793.	1.2	5

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91	Sudden onset of log-periodicity and superdiffusion in non-Markovian random walks with amnestically induced persistence: exact results. <i>European Physical Journal B</i> , 2009, 72, 427-433.	0.6	4
92	Subjective expectation of rewards can change the behavior of smart but impatient foragers. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2016, 113, 8571-8573.	3.3	4
93	Fractal behavior of poly(GC) and poly(TA) DNA segments arranged in quasiperiodic Fibonacci sequence. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2016, 445, 27-34.	1.2	4
94	Correspondence between spanning trees and the Ising model on a square lattice. <i>Physical Review E</i> , 2017, 95, 062138.	0.8	4
95	An efficient series approximation for the L^{∞} -stable symmetric distribution. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 2018, 382, 2408-2413.	0.9	4
96	Eclipse timing variation of GKâ€‰Vir: evidence of a possible Jupiter-like planet in a circumbinary orbit. <i>Monthly Notices of the Royal Astronomical Society</i> , 2020, 497, 4022-4029.	1.6	4
97	A Langevin dynamics approach to the distribution of animal move lengths. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2020, 2020, 023406.	0.9	4
98	Revisiting L^{∞} flights on bounded domains: a Fock space approach. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2020, 2020, 083202.	0.9	4
99	Roughness scaling and sensitivity to initial conditions in a symmetric restricted ballistic deposition model. <i>European Physical Journal B</i> , 2000, 17, 693-697.	0.6	3
100	BOUNDARY CONDITION DEPENDENCE OF CLUSTER SIZE RATIOS IN RANDOM PERCOLATION. <i>International Journal of Modern Physics C</i> , 2000, 11, 1411-1415.	0.8	3
101	A Semi-Classical Approach for Hybrid Ferromagnetic and Antiferromagnetic Superlattices. <i>Physica Status Solidi (B): Basic Research</i> , 2002, 233, 230-237.	0.7	2
102	Spontaneous symmetry breaking and finite-time singularities in d-dimensional incompressible flows with fractional dissipation. <i>Europhysics Letters</i> , 2008, 84, 50006.	0.7	2
103	Bandgap oscillation in quasiperiodic carbon-BN nanoribbons. <i>Solid State Communications</i> , 2014, 180, 28-34.	0.9	2
104	A formal power series expansionâ€“regularization approach for L^{∞} stable distributions: the symmetric case with $\alpha = 2/M$ ($M > 0$ positive integer). <i>Journal of Physics A: Mathematical and Theoretical</i> , 2016, 49, 375001.	0.7	2
105	Surname complex network for Brazil and Portugal. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2018, 499, 198-207.	1.2	2
106	Identifying dynamical structures in the physical space of stochastic processes. <i>Europhysics Letters</i> , 2019, 125, 20004.	0.7	2
107	Mean first passage time and absorption probabilities of a L^{∞} flier on a finite interval: discrete space and continuous limit via Fock space approach. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2021, 54, 325006.	0.7	2
108	The double hypergeometric series for the partition function of the 2D anisotropic Ising model. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2021, 2021, 073104.	0.9	2

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109	Home range evolution and its implication in population outbreaks. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2010, 368, 5661-5677.	1.6	1
110	LÃ©vy sections vs. partial sums of heteroscedastic time series. Europhysics Letters, 2011, 96, 68004.	0.7	1
111	Hydrodynamics at the smallest scales: a solvability criterion for Navierâ€“Stokes equations in high dimensions. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2011, 369, 359-370.	1.6	1
112	Robustness of the non-Markovian Alzheimer walk under stochastic perturbation. Europhysics Letters, 2012, 100, 60003.	0.7	1
113	Reply to â€œComment on â€˜Third law of thermodynamics as a key test of generalized entropiesâ€™â€•. Physical Review E, 2015, 92, 016104.	0.8	1
114	Transient dynamics in a nonequilibrium superdiffusive reaction-diffusion process: Nonequilibrium random search as a case study. Physical Review E, 2020, 102, 012126.	0.8	1
115	Log-periodicity can appear in a non-Markovian random walk even if there is perfect memory of its history. Europhysics Letters, 2020, 130, 20004.	0.7	1
116	Scale-free behavior in hailstone sequences generated by the Collatz map. Physical Review Research, 2021, 3, .	1.3	1
117	Forecasting extreme events in collective dynamics: An analytic signal approach to detecting discrete scale invariance. International Journal of Modern Physics B, 2022, 36, .	1.0	1
118	A random walk model with a mixed memory profile: Exponential and rectangular profile. Physica A: Statistical Mechanics and Its Applications, 2022, 597, 127301.	1.2	1
119	High frequency energy cascades in inviscid hydrodynamics. Physica A: Statistical Mechanics and Its Applications, 2014, 399, 137-146.	1.2	0
120	Hydrodynamics at the smallest scales: a solvability criterion for Navierâ€“Stokes equations in high dimensions. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2014, 372, 20140137.	1.6	0
121	Log-periodicity in piecewise ballistic superdiffusion: Exact results. Physical Review E, 2018, 98, .	0.8	0
122	A New Model to Simulate the Growth of Branched Polymers. Springer Proceedings in Physics, 2000, , 223-227.	0.1	0
123	FÃ­sica de processos estocÃ¡sticos aplicada a opÃ§Ãµes binÃ¡rias no mercado financeiro. Revista Brasileira De Ensino De Fisica, 0, 42, .	0.2	0