

Boris I Shraiman

List of Publications by Year in descending order

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94
papers

17,314
citations

26567

56
h-index

39575

94
g-index

100
all docs

100
docs citations

100
times ranked

12516
citing authors

#	ARTICLE	IF	CITATIONS
1	Fractal measures and their singularities: The characterization of strange sets. <i>Physical Review A</i> , 1986, 33, 1141-1151.	1.0	3,059
2	Dynamic Jahn-Teller Effect and Colossal Magnetoresistance in $\text{La}_{1-x}\text{Sr}_x\text{MnO}_3$. <i>Physical Review Letters</i> , 1996, 77, 175-178.	2.9	1,297
3	Multistability in the lactose utilization network of <i>Escherichia coli</i> . <i>Nature</i> , 2004, 427, 737-740.	13.7	932
4	Viscous flows in two dimensions. <i>Reviews of Modern Physics</i> , 1986, 58, 977-999.	16.4	674
5	â€˜Infotaxisâ€™ as a strategy for searching without gradients. <i>Nature</i> , 2007, 445, 406-409.	13.7	653
6	Scalar turbulence. <i>Nature</i> , 2000, 405, 639-646.	13.7	639
7	Mechanical feedback as a possible regulator of tissue growth. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2005, 102, 3318-3323.	3.3	533
8	Assigning numbers to the arrows: Parameterizing a gene regulation network by using accurate expression kinetics. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2002, 99, 10555-10560.	3.3	479
9	Heat transport in high-Rayleigh-number convection. <i>Physical Review A</i> , 1990, 42, 3650-3653.	1.0	394
10	Spiral phase of a doped quantum antiferromagnet. <i>Physical Review Letters</i> , 1989, 62, 1564-1567.	2.9	385
11	Mobile Vacancies in a Quantum Heisenberg Antiferromagnet. <i>Physical Review Letters</i> , 1988, 61, 467-470.	2.9	383
12	Collective and single cell behavior in epithelial contact inhibition. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2012, 109, 739-744.	3.3	374
13	Fermi-liquid-to-polaron crossover. II. Double exchange and the physics of colossal magnetoresistance. <i>Physical Review B</i> , 1996, 54, 5405-5417.	1.1	354
14	Assembly of ordered colloidal aggregates by electric-field-induced fluid flow. <i>Nature</i> , 1997, 386, 57-59.	13.7	348
15	On the mechanism of wing size determination in fly development. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2007, 104, 3835-3840.	3.3	327
16	Two-particle excitations in antiferromagnetic insulators. <i>Physical Review Letters</i> , 1988, 60, 740-743.	2.9	287
17	Theory of Raman scattering in Mott-Hubbard systems. <i>Physical Review Letters</i> , 1990, 65, 1068-1071.	2.9	258
18	Fermi-liquid-to-polaron crossover. I. General results. <i>Physical Review B</i> , 1996, 54, 5389-5404.	1.1	218

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19	The role of nonlinear dynamics of the syrinx in the vocalizations of a songbird. <i>Nature</i> , 1998, 395, 67-71.	13.7	217
20	Velocity Selection and the Saffman-Taylor Problem. <i>Physical Review Letters</i> , 1986, 56, 2028-2031.	2.9	204
21	Intergrain Magnetoresistance via Second-Order Tunneling in Perovskite Manganites. <i>Physical Review Letters</i> , 1999, 82, 4508-4511.	2.9	190
22	Scaling Theory for Noisy Period-Doubling Transitions to Chaos. <i>Physical Review Letters</i> , 1981, 46, 935-939.	2.9	187
23	Lagrangian path integrals and fluctuations in random flow. <i>Physical Review E</i> , 1994, 49, 2912-2927.	0.8	180
24	A Biophysical Approach to Transcription Factor Binding Site Discovery. <i>Genome Research</i> , 2003, 13, 2381-2390.	2.4	179
25	Prediction, dynamics, and visualization of antigenic phenotypes of seasonal influenza viruses. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2016, 113, E1701-9.	3.3	165
26	Predicting evolution from the shape of genealogical trees. <i>ELife</i> , 2014, 3, .	2.8	159
27	Chaotic behavior of an extended system. <i>Physica D: Nonlinear Phenomena</i> , 1989, 37, 109-115.	1.3	146
28	Global morphogenetic flow is accurately predicted by the spatial distribution of myosin motors. <i>ELife</i> , 2018, 7, .	2.8	146
29	Diffusive transport in a Rayleigh-Bénard convection cell. <i>Physical Review A</i> , 1987, 36, 261-267.	1.0	140
30	Engineering Aspects of Enzymatic Signal Transduction: Photoreceptors in the Retina. <i>Biophysical Journal</i> , 2000, 79, 2801-2817.	0.2	136
31	Mechanical Stress Inference for Two Dimensional Cell Arrays. <i>PLoS Computational Biology</i> , 2012, 8, e1002512.	1.5	135
32	Towards the clarity limit in optical fibre. <i>Nature</i> , 2000, 404, 262-264.	13.7	132
33	Differential growth triggers mechanical feedback that elevates Hippo signaling. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2016, 113, E6974-E6983.	3.3	124
34	A model for velocity fluctuations in sedimentation. <i>Journal of Fluid Mechanics</i> , 2004, 501, 71-104.	1.4	118
35	Olfactory search at high Reynolds number. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2002, 99, 12589-12593.	3.3	114
36	Exponential tails and random advection. <i>Physical Review Letters</i> , 1991, 66, 2984-2987.	2.9	110

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37	Two-dimensional XY magnets with random Dzyaloshinskii-Moriya interactions. <i>Physical Review B</i> , 1983, 27, 1800-1811.	1.1	109
38	Human neural tube morphogenesis in vitro by geometric constraints. <i>Nature</i> , 2021, 599, 268-272.	13.7	107
39	Persistent Small Scale Anisotropy in Homogeneous Shear Flows. <i>Physical Review Letters</i> , 1995, 75, 3114-3117.	2.9	101
40	Competition between recombination and epistasis can cause a transition from allele to genotype selection. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2009, 106, 6866-6871.	3.3	99
41	MicroRNA Profiling Reveals Two Distinct p53-Related Human Pluripotent Stem Cell States. <i>Cell Stem Cell</i> , 2010, 7, 671-681.	5.2	98
42	Scaling Laws for Mode Lockings in Circle Maps. <i>Physica Scripta</i> , 1985, 32, 263-270.	1.2	97
43	Nonadiabatic effects in convection. <i>Physical Review A</i> , 1988, 38, 5461-5464.	1.0	96
44	Dynamic Mutation—Selection Balance as an Evolutionary Attractor. <i>Genetics</i> , 2012, 191, 1309-1319.	1.2	96
45	Mechanical control of growth: ideas, facts and challenges. <i>Development (Cambridge)</i> , 2017, 144, 4238-4248.	1.2	92
46	Geometry of Lagrangian Dispersion in Turbulence. <i>Physical Review Letters</i> , 2000, 85, 5324-5327.	2.9	87
47	Statistical genetics and evolution of quantitative traits. <i>Reviews of Modern Physics</i> , 2011, 83, 1283-1300.	16.4	87
48	Order, Disorder, and Phase Turbulence. <i>Physical Review Letters</i> , 1986, 57, 325-328.	2.9	85
49	Mobile vacancy in a quantum antiferromagnet: Effective Hamiltonian. <i>Physical Review B</i> , 1990, 42, 2485-2500.	1.1	85
50	Faraday rotation and the Hall constant in strongly correlated Fermi systems. <i>Physical Review Letters</i> , 1993, 70, 2004-2007.	2.9	83
51	Polygenicity and Epistasis Underlie Fitness-Proximal Traits in the <i>Caenorhabditis elegans</i> Multiparental Experimental Evolution (CeMEE) Panel. <i>Genetics</i> , 2017, 207, 1663-1685.	1.2	81
52	Inferring Cell-State Transition Dynamics from Lineage Trees and Endpoint Single-Cell Measurements. <i>Cell Systems</i> , 2016, 3, 419-433.e8.	2.9	79
53	Specificity and robustness in transcription control networks. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2002, 99, 2072-2077.	3.3	76
54	Active tension network model suggests an exotic mechanical state realized in epithelial tissues. <i>Nature Physics</i> , 2017, 13, 1221-1226.	6.5	73

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55	Symmetry and Scaling of Turbulent Mixing. <i>Physical Review Letters</i> , 1996, 77, 2463-2466.	2.9	71
56	Ground state of a mobile vacancy in a quantum antiferromagnet: Small-cluster study. <i>Physical Review B</i> , 1990, 41, 6715-6723.	1.1	68
57	Fluctuations of Fitness Distributions and the Rate of Muller's Ratchet. <i>Genetics</i> , 2012, 191, 1283-1293.	1.2	63
58	Mean-field theory for vacancies in a quantum antiferromagnet. <i>Physical Review B</i> , 1989, 40, 9162-9166.	1.1	62
59	Curie and non-Curie behavior of impurity spins in quantum antiferromagnets. <i>Physical Review B</i> , 1993, 48, 7070-7076.	1.1	62
60	A dynamical model of ommatidial crystal formation. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2011, 108, 11145-11150.	3.3	62
61	Order and Stochastic Dynamics in <i>Drosophila</i> Planar Cell Polarity. <i>PLoS Computational Biology</i> , 2009, 5, e1000628.	1.5	61
62	Detection of a MicroRNA Signal in an In Vivo Expression Set of mRNAs. <i>PLoS ONE</i> , 2007, 2, e804.	1.1	61
63	Coalescence and genetic diversity in sexual populations under selection. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2013, 110, 15836-15841.	3.3	60
64	Metabolic Switching in the Sugar Phosphotransferase System of <i>Escherichia coli</i> . <i>Biophysical Journal</i> , 2003, 85, 744-754.	0.2	55
65	Perturbation theory for the $\hat{\gamma}$ -correlated model of passive scalar advection near the Batchelor limit. <i>Physical Review E</i> , 1997, 55, R1263-R1266.	0.8	53
66	On the role of glypicans in the process of morphogen gradient formation. <i>Developmental Biology</i> , 2006, 300, 512-522.	0.9	53
67	Correlated Evolution of Nearby Residues in <i>Drosophilid</i> Proteins. <i>PLoS Genetics</i> , 2011, 7, e1001315.	1.5	48
68	Excitation spectrum of the spiral state of a doped antiferromagnet. <i>Physical Review B</i> , 1992, 46, 8305-8311.	1.1	43
69	Structures and Multipoint Correlators for Turbulent Advection: Predictions and Experiments. <i>Physical Review Letters</i> , 1998, 81, 4373-4376.	2.9	39
70	Collective polarization model for gradient sensing via <i>Drosophila</i> -Fat intercellular signaling. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2013, 110, 20420-20425.	3.3	31
71	Systems analysis of the single photon response in invertebrate photoreceptors. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2008, 105, 10354-10359.	3.3	30
72	Emergent gene order in a model of modular polyketide synthases. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2009, 106, 19410-19415.	3.3	30

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73	Phyldynamic theory of persistence, extinction and speciation of rapidly adapting pathogens. <i>ELife</i> , 2019, 8, .	2.8	30
74	Vortex morphology and Kelvin's theorem. <i>Physical Review A</i> , 1992, 45, R5351-R5354.	1.0	29
75	The tale of two RNA polymerases: transcription profiling and gene expression strategy of bacteriophage Xp10. <i>Molecular Microbiology</i> , 2004, 55, 764-777.	1.2	29
76	On the Role of Assembly Kinetics in Determining the Structure of Clathrin Cages. <i>Biophysical Journal</i> , 1997, 72, 953-957.	0.2	26
77	Inferring epigenetic dynamics from kin correlations. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2015, 112, E2281-9.	3.3	25
78	Anomalous scaling for a passive scalar near the Batchelor limit. <i>Physical Review E</i> , 1998, 57, 2965-2977.	0.8	23
79	How to Infer Relative Fitness from a Sample of Genomic Sequences. <i>Genetics</i> , 2014, 197, 913-923.	1.2	21
80	Transition from quasiperiodicity to chaos: A perturbative renormalization-group approach. <i>Physical Review A</i> , 1984, 29, 3464-3466.	1.0	17
81	G-Protein-Coupled Enzyme Cascades Have Intrinsic Properties that Improve Signal Localization and Fidelity. <i>Biophysical Journal</i> , 2005, 88, 3063-3071.	0.2	17
82	Visceral organ morphogenesis via calcium-patterned muscle constrictions. <i>ELife</i> , 2022, 11, .	2.8	17
83	Emergence of clones in sexual populations. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2013, 2013, P01008.	0.9	16
84	Epistasis in a Model of Molecular Signal Transduction. <i>PLoS Computational Biology</i> , 2011, 7, e1001134.	1.5	14
85	Leaf growth is conformal. <i>Physical Biology</i> , 2016, 13, 05LT01.	0.8	13
86	Variational Method for Image-Based Inference of Internal Stress in Epithelial Tissues. <i>Physical Review X</i> , 2020, 10, .	2.8	11
87	Sector search strategies for odor trail tracking. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2022, 119, .	3.3	11
88	Lagrangian Particle Approach to Large Eddy Simulations of Hydrodynamic Turbulence. <i>Journal of Statistical Physics</i> , 2003, 113, 693-700.	0.5	10
89	Fluctuations can induce local nematic order and extensile stress in monolayers of motile cells. <i>Soft Matter</i> , 2021, 17, 3068-3073.	1.2	9
90	Shastry, Shraiman, and Singh reply. <i>Physical Review Letters</i> , 1993, 71, 2838-2838.	2.9	8

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91	Evolutionary dynamics and statistical physics. Journal of Statistical Mechanics: Theory and Experiment, 2013, 2013, N01001.	0.9	8
92	Theory of optical absorption by a localized carrier in an antiferromagnetic insulator. Physical Review B, 1992, 46, 14834-14841.	1.1	5
93	High Rayleigh number convection and passive scalar mixing. Physica D: Nonlinear Phenomena, 1996, 97, 286-290.	1.3	5
94	Turbulent mixing of a passive scalar. Physica A: Statistical Mechanics and Its Applications, 1999, 263, 95-103.	1.2	3