

Tsvi Tlusty

List of Publications by Year in descending order

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92
papers

4,033
citations

109321

35
h-index

133252

59
g-index

112
all docs

112
docs citations

112
times ranked

4028
citing authors

#	ARTICLE	IF	CITATIONS
1	Spontaneous chiral symmetry breaking in a random driven chemical system. Nature Communications, 2022, 13, 2244.	12.8	8
2	Acceleration of enzymatic catalysis by active hydrodynamic fluctuations. Communications Physics, 2022, 5, .	5.3	8
3	Response to Comment on "Boosted molecular mobility during common chemical reactions". Science, 2021, 371, .	12.6	20
4	Inverse design of nonequilibrium steady states: A large-deviation approach. Physical Review E, 2021, 103, 022101.	2.1	4
5	A comprehensive survey of developmental programs reveals a dearth of tree-like lineage graphs and ubiquitous regeneration. BMC Biology, 2021, 19, 111.	3.8	4
6	Dimensional reduction in complex living systems: Where, why, and how. BioEssays, 2021, 43, e2100062.	2.5	16
7	Exceptional topology in ordinary soft matter. Physical Review E, 2021, 104, 025002.	2.1	3
8	A topological look into the evolution of developmental programs. Biophysical Journal, 2021, 120, 4193-4201.	0.5	4
9	Slowest-first protein translation scheme: Structural asymmetry and co-translational folding. Biophysical Journal, 2021, 120, 5466-5477.	0.5	4
10	Universality, Scaling, and Collapse in Supercritical Fluids. Journal of Physical Chemistry Letters, 2020, 11, 451-455.	4.6	18
11	Boosted molecular mobility during common chemical reactions. Science, 2020, 369, 537-541.	12.6	62
12	Reaching and violating thermodynamic uncertainty bounds in information engines. Physical Review E, 2020, 102, 032126.	2.1	16
13	Efficiency fluctuations and noise induced refrigerator-to-heater transition in information engines. Nature Communications, 2020, 11, 1012.	12.8	25
14	Kinetic proofreading and the limits of thermodynamic uncertainty. Physical Review E, 2020, 101, 022415.	2.1	20
15	Master curve of boosted diffusion for 10 catalytic enzymes. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 29435-29441.	7.1	30
16	Walking droplets, swimming microbes: on memory in physics and life. Comptes Rendus - Mecanique, 2020, 348, 545-554.	0.7	8
17	$\hat{\mu}^2$ DCA method identifies unspecific binding but specific disruption of the group I intron by the StpA chaperone. Rna, 2020, 26, 1530-1540.	3.5	0
18	Colloquium: Proteins: The physics of amorphous evolving matter. Reviews of Modern Physics, 2019, 91, .	45.6	27

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19	Enhanced Diffusion and Oligomeric Enzyme Dissociation. <i>Journal of the American Chemical Society</i> , 2019, 141, 20062-20068.	13.7	31
20	Enzyme leaps fuel antichemotaxis. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2018, 115, 14-18.	7.1	110
21	Lossless Brownian Information Engine. <i>Physical Review Letters</i> , 2018, 120, 020601.	7.8	54
22	Green function of correlated genes in a minimal mechanical model of protein evolution. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2018, 115, E4559-E4568.	7.1	30
23	Widom Delta of Supercritical Gas-Liquid Coexistence. <i>Journal of Physical Chemistry Letters</i> , 2018, 9, 1734-1738.	4.6	55
24	Catalytic enzymes are active matter. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2018, 115, E10812-E10821.	7.1	98
25	Will biologists become computer scientists?. <i>EMBO Reports</i> , 2018, 19, .	4.5	13
26	Physical Model of the Genotype-to-Phenotype Map of Proteins. <i>Physical Review X</i> , 2017, 7, .	8.9	27
27	Two-dimensional flow of driven particles: a microfluidic pathway to the non-equilibrium frontier. <i>Chemical Society Reviews</i> , 2017, 46, 5620-5646.	38.1	16
28	Where Two Are Fighting, the Third Wins: Stronger Selection Facilitates Greater Polymorphism in Traits Conferring Competition-Dispersal Tradeoffs. <i>PLoS ONE</i> , 2016, 11, e0147970.	2.5	0
29	Strain analysis of protein structures and low dimensionality of mechanical allosteric couplings. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2016, 113, E5847-E5855.	7.1	61
30	Comment on "Ribosome utilizes the minimum free energy changes to achieve the highest decoding rate and fidelity". <i>Physical Review E</i> , 2016, 93, 056401.	2.1	0
31	Binding of Transcription Factors Adapts to Resolve Information-Energy Tradeoff. <i>Journal of Statistical Physics</i> , 2016, 162, 1383-1394.	1.2	3
32	Self-referring DNA and protein: a remark on physical and geometrical aspects. <i>Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences</i> , 2016, 374, 20150070.	3.4	14
33	Evolution of Bow-Tie Architectures in Biology. <i>PLoS Computational Biology</i> , 2015, 11, e1004055.	3.2	101
34	Asymmetric Effect of Mechanical Stress on the Forward and Reverse Reaction Catalyzed by an Enzyme. <i>PLoS ONE</i> , 2014, 9, e101442.	2.5	14
35	Long-range orientational order in two-dimensional microfluidic dipoles. <i>Nature Physics</i> , 2014, 10, 140-144.	16.7	39
36	The Ribosome as an Optimal Decoder: A Lesson in Molecular Recognition. <i>Cell</i> , 2013, 153, 471-479.	28.9	58

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37	Resonance-induced multimodal body-size distributions in ecosystems. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 205-209.	7.1	7
38	Mutation Rules and the Evolution of Sparseness and Modularity in Biological Systems. PLoS ONE, 2013, 8, e70444.	2.5	29
39	Loops and Self-Reference in the Construction of Dictionaries. Physical Review X, 2012, 2, .	8.9	14
40	Effects of long DNA folding and small RNA stem-loop in thermophoresis. Proceedings of the National Academy of Sciences of the United States of America, 2012, 109, 17972-17977.	7.1	71
41	The physics of 2D microfluidic droplet ensembles. Physics Reports, 2012, 516, 103-145.	25.6	93
42	Balancing speed and accuracy of polyclonal T cell activation: a role for extracellular feedback. BMC Systems Biology, 2012, 6, 111.	3.0	12
43	Modeling and Experimental Methods to Probe the Link between Global Transcription and Spatial Organization of Chromosomes. PLoS ONE, 2012, 7, e46628.	2.5	24
44	DENSITY-DEPENDENT COOPERATION AS A MECHANISM FOR PERSISTENCE AND COEXISTENCE. Evolution; International Journal of Organic Evolution, 2011, 65, 2750-2759.	2.3	9
45	Leaders of neuronal cultures in a quorum percolation model. Frontiers in Computational Neuroscience, 2010, 4, .	2.1	24
46	A colorful origin for the genetic code: Information theory, statistical mechanics and the emergence of molecular codes. Physics of Life Reviews, 2010, 7, 362-376.	2.8	46
47	How could prebiotic molecules make the code and how all this is related to proteins?. Physics of Life Reviews, 2010, 7, 381-384.	2.8	1
48	Quorum percolation in living neural networks. Europhysics Letters, 2010, 89, 18008.	2.0	37
49	Messenger RNA fluctuations and regulatory RNAs shape the dynamics of a negative feedback loop. Physical Review E, 2010, 81, 031924.	2.1	9
50	Cross-species analysis traces adaptation of Rubisco toward optimality in a low-dimensional landscape. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 3475-3480.	7.1	249
51	RecA-Mediated Homology Search as a Nearly Optimal Signal Detection System. Molecular Cell, 2010, 40, 388-396.	9.7	55
52	Burgers Shock Waves and Sound in a 2D Microfluidic Droplets Ensemble. Physical Review Letters, 2009, 103, 114502.	7.8	41
53	The physical language of molecular codes: A rate-distortion approach to the evolution and emergence of biological codes. , 2009, , .		0
54	Molecular recognition as an information channel: The role of conformational changes. , 2009, , .		4

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55	Remarks on bootstrap percolation in metric networks. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2009, 42, 205004.	2.1	38
56	Mutability as an altruistic trait in finite asexual populations. <i>Journal of Theoretical Biology</i> , 2009, 261, 414-422.	1.7	3
57	Optimal Design of a Molecular Recognizer: Molecular Recognition as a Bayesian Signal Detection Problem. <i>IEEE Journal on Selected Topics in Signal Processing</i> , 2008, 2, 390-399.	10.8	15
58	Casting polymer nets to optimize noisy molecular codes. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2008, 105, 8238-8243.	7.1	23
59	A simple model for the evolution of molecular codes driven by the interplay of accuracy, diversity and cost. <i>Physical Biology</i> , 2008, 5, 016001.	1.8	24
60	Development of input connections in neural cultures. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2008, 105, 13758-13763.	7.1	163
61	One-Dimensional Microfluidic Crystals Far from Equilibrium. <i>Progress of Theoretical Physics Supplement</i> , 2008, 175, 123-130.	0.1	2
62	A Coarse-Grained Biophysical Model of E. coli and Its Application to Perturbation of the rRNA Operon Copy Number. <i>PLoS Computational Biology</i> , 2008, 4, e1000038.	3.2	31
63	Rate-Distortion Scenario for the Emergence and Evolution of Noisy Molecular Codes. <i>Physical Review Letters</i> , 2008, 100, 048101.	7.8	25
64	Anomalous Microfluidic Phonons Induced by the Interplay of Hydrodynamic Screening and Incompressibility. <i>Physical Review Letters</i> , 2007, 99, 124502.	7.8	58
65	Conformational Proofreading: The Impact of Conformational Changes on the Specificity of Molecular Recognition. <i>PLoS ONE</i> , 2007, 2, e468.	2.5	115
66	Percolation approach to study connectivity in living neural networks. <i>AIP Conference Proceedings</i> , 2007, , .	0.4	1
67	A model for the emergence of the genetic code as a transition in a noisy information channel. <i>Journal of Theoretical Biology</i> , 2007, 249, 331-342.	1.7	60
68	The physics of living neural networks. <i>Physics Reports</i> , 2007, 449, 54-76.	25.6	110
69	Percolation in Living Neural Networks. <i>Physical Review Letters</i> , 2006, 97, 188102.	7.8	98
70	Screening by Symmetry of Long-Range Hydrodynamic Interactions of Polymers Confined in Sheets. <i>Macromolecules</i> , 2006, 39, 3927-3930.	4.8	42
71	Phonons in a one-dimensional microfluidic crystal. <i>Nature Physics</i> , 2006, 2, 743-748.	16.7	157
72	Coding limits on the number of transcription factors. <i>BMC Genomics</i> , 2006, 7, 239.	2.8	78

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73	High fidelity of RecA-catalyzed recombination: a watchdog of genetic diversity. <i>Nucleic Acids Research</i> , 2006, 34, 5021-5031.	14.5	53
74	Rules for biological regulation based on error minimization. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2006, 103, 3999-4004.	7.1	52
75	Physics of cell elasticity, shape and adhesion. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2005, 352, 171-201.	2.6	65
76	Molecular Model of the Contractile Ring. <i>Physical Review Letters</i> , 2005, 95, 098102.	7.8	28
77	High-Fidelity DNA Sensing by Protein Binding Fluctuations. <i>Physical Review Letters</i> , 2004, 93, 258103.	7.8	18
78	Protein-DNA computation by stochastic assembly cascade. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2002, 99, 11589-11592.	7.1	37
79	Entropic networks in colloidal self-assembly. <i>Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences</i> , 2001, 359, 879-881.	3.4	13
80	Microemulsion networks: the onset of bicontinuity. <i>Journal of Physics Condensed Matter</i> , 2000, 12, A253-A262.	1.8	41
81	Topology, Phase Instabilities, and Wetting of Microemulsion Networks. <i>Physical Review Letters</i> , 2000, 84, 1244-1247.	7.8	84
82	Defect-Induced Phase Separation in Dipolar Fluids. <i>Science</i> , 2000, 290, 1328-1331.	12.6	280
83	Pearling in cells: A clue to understanding cell shape. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 1999, 96, 10140-10145.	7.1	144
84	Direct Observation of Phase Separation in Microemulsion Networks. <i>Langmuir</i> , 1999, 15, 5448-5453.	3.5	83
85	Localized Dynamic Light Scattering: A New Approach to Dynamic Measurements in Optical Microscopy. <i>Biophysical Journal</i> , 1998, 74, 1541-1548.	0.5	25
86	Optical Gradient Forces of Strongly Localized Fields. <i>Physical Review Letters</i> , 1998, 81, 1738-1741.	7.8	116
87	Scaling Laws for Microemulsions Governed by Spontaneous Curvature. <i>Physical Review Letters</i> , 1997, 78, 2616-2619.	7.8	66
88	Localized Dynamic Light Scattering: Probing Single Particle Dynamics at the Nanoscale. <i>Physical Review Letters</i> , 1997, 78, 154-157.	7.8	50
89	Critical Dynamics in the Pearling Instability of Membranes. <i>Physical Review Letters</i> , 1997, 79, 1158-1161.	7.8	34
90	Curvature Elasticity Models of Microemulsions. <i>Zeitschrift Fur Elektrotechnik Und Elektrochemie</i> , 1996, 100, 252-263.	0.9	15

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91	A simple maximization technique for statistical mechanics expressions. American Journal of Physics, 1992, 60, 379-380.	0.7	0
92	A relation between the multiplicity of the second eigenvalue of a graph Laplacian, Courant's nodal line theorem and the substantial dimension of tight polyhedral surfaces. Electronic Journal of Linear Algebra, 0, 16, .	0.6	33