Tsvi Tlusty

List of Publications by Year
in descending order

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	Defect-Induced Phase Separation in Dipolar Fluids. Science, 2000, 290, 1328-1331.	12.6	280
2	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
3	Development of input connections in neural cultures. Proceedings of the National Academy of Sciences of the United States of America, 2008, 105, 13758-13763.	7.1	163
4	Phonons in a one-dimensional microfluidic crystal. Nature Physics, 2006, 2, 743-748.	16.7	157
5	Pearling in cells: A clue to understanding cell shape. Proceedings of the National Academy of Sciences of the United States of America, 1999, 96, 10140-10145.	7.1	144
6	Optical Gradient Forces of Strongly Localized Fields. Physical Review Letters, 1998, 81, 1738-1741.	7.8	116
7	Conformational Proofreading: The Impact of Conformational Changes on the Specificity of Molecular Recognition. PLoS ONE, 2007, 2, e468.	2.5	115
8	The physics of living neural networks. Physics Reports, 2007, 449, 54-76.	25.6	110
9	Enzyme leaps fuel antichemotaxis. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 14-18.	7.1	110
10	Evolution of Bow-Tie Architectures in Biology. PLoS Computational Biology, 2015, 11, e1004055.	3.2	101
11	Percolation in Living Neural Networks. Physical Review Letters, 2006, 97, 188102.	7.8	98
12	Catalytic enzymes are active matter. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, E10812-E10821.	7.1	98
13	The physics of 2D microfluidic droplet ensembles. Physics Reports, 2012, 516, 103-145.	25.6	93
14	Topology, Phase Instabilities, and Wetting of Microemulsion Networks. Physical Review Letters, 2000, 84, 1244-1247.	7.8	84
15	Direct Observation of Phase Separation in Microemulsion Networks. Langmuir, 1999, 15, 5448-5453.	3.5	83
16	Coding limits on the number of transcription factors. BMC Genomics, 2006, 7, 239.	2.8	78
17	Effects of long DNA folding and small RNA stemâ€"loop in thermophoresis. Proceedings of the National Academy of Sciences of the United States of America, 2012, 109, 17972-17977.	7.1	71
18	Scaling Laws for Microemulsions Governed by Spontaneous Curvature. Physical Review Letters, 1997, 78, 2616-2619.	7.8	66

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19	Physics of cell elasticity, shape and adhesion. Physica A: Statistical Mechanics and Its Applications, 2005, 352, 171-201.	2.6	65
20	Boosted molecular mobility during common chemical reactions. Science, 2020, 369, 537-541.	12.6	62
21	Strain analysis of protein structures and low dimensionality of mechanical allosteric couplings. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, E5847-E5855.	7.1	61
22	A model for the emergence of the genetic code as a transition in a noisy information channel. Journal of Theoretical Biology, 2007, 249, 331-342.	1.7	60
23	Anomalous Microfluidic Phonons Induced by the Interplay of Hydrodynamic Screening and Incompressibility. Physical Review Letters, 2007, 99, 124502.	7.8	58
24	The Ribosome as an Optimal Decoder: A Lesson in Molecular Recognition. Cell, 2013, 153, 471-479.	28.9	58
25	RecA-Mediated Homology Search as a Nearly Optimal Signal Detection System. Molecular Cell, 2010, 40, 388-396.	9.7	55
26	Widom Delta of Supercritical Gasâ€"Liquid Coexistence. Journal of Physical Chemistry Letters, 2018, 9, 1734-1738.	4.6	55
27	Lossless Brownian Information Engine. Physical Review Letters, 2018, 120, 020601.	7.8	54
28	High fidelity of RecA-catalyzed recombination: a watchdog of genetic diversity. Nucleic Acids Research, 2006, 34, 5021-5031.	14.5	53
29	Rules for biological regulation based on error minimization. Proceedings of the National Academy of Sciences of the United States of America, 2006, 103, 3999-4004.	7.1	52
30	Localized Dynamic Light Scattering: Probing Single Particle Dynamics at the Nanoscale. Physical Review Letters, 1997, 78, 154-157.	7.8	50
31	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
32	Screening by Symmetry of Long-Range Hydrodynamic Interactions of Polymers Confined in Sheets. Macromolecules, 2006, 39, 3927-3930.	4.8	42
33	Microemulsion networks: the onset of bicontinuity. Journal of Physics Condensed Matter, 2000, 12, A253-A262.	1.8	41
34	Burgers Shock Waves and Sound in a 2D Microfluidic Droplets Ensemble. Physical Review Letters, 2009, 103, 114502.	7.8	41
35	Long-range orientational order in two-dimensional microfluidic dipoles. Nature Physics, 2014, 10, 140-144.	16.7	39
36	Remarks on bootstrap percolation in metric networks. Journal of Physics A: Mathematical and Theoretical, 2009, 42, 205004.	2.1	38

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37	Protein-DNA computation by stochastic assembly cascade. Proceedings of the National Academy of Sciences of the United States of America, 2002, 99, 11589-11592.	7.1	37
38	Quorum percolation in living neural networks. Europhysics Letters, 2010, 89, 18008.	2.0	37
39	Critical Dynamics in the Pearling Instability of Membranes. Physical Review Letters, 1997, 79, 1158-1161.	7.8	34
40	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
41	A Coarse-Grained Biophysical Model of E. coli and Its Application to Perturbation of the rRNA Operon Copy Number. PLoS Computational Biology, 2008, 4, e1000038.	3.2	31
42	Enhanced Diffusion and Oligomeric Enzyme Dissociation. Journal of the American Chemical Society, 2019, 141, 20062-20068.	13.7	31
43	Green function of correlated genes in a minimal mechanical model of protein evolution. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, E4559-E4568.	7.1	30
44	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
45	Mutation Rules and the Evolution of Sparseness and Modularity in Biological Systems. PLoS ONE, 2013, 8, e70444.	2.5	29
46	Molecular Model of the Contractile Ring. Physical Review Letters, 2005, 95, 098102.	7.8	28
47	Physical Model of the Genotype-to-Phenotype Map of Proteins. Physical Review X, 2017, 7, .	8.9	27
48	<i>Colloquium</i>: Proteins: The physics of amorphous evolving matter. Reviews of Modern Physics, 2019, 91, .	45.6	27
49	Localized Dynamic Light Scattering: A New Approach to Dynamic Measurements in Optical Microscopy. Biophysical Journal, 1998, 74, 1541-1548.	0.5	25
50	Rate-Distortion Scenario for the Emergence and Evolution of Noisy Molecular Codes. Physical Review Letters, 2008, 100, 048101.	7.8	25
51	Efficiency fluctuations and noise induced refrigerator-to-heater transition in information engines. Nature Communications, 2020, 11, 1012.	12.8	25
52	A simple model for the evolution of molecular codes driven by the interplay of accuracy, diversity and cost. Physical Biology, 2008, 5, 016001.	1.8	24
53	Leaders of neuronal cultures in a quorum percolation model. Frontiers in Computational Neuroscience, 2010, 4, .	2.1	24
54	Modeling and Experimental Methods to Probe the Link between Global Transcription and Spatial Organization of Chromosomes. PLoS ONE, 2012, 7, e46628.	2.5	24

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55	Casting polymer nets to optimize noisy molecular codes. Proceedings of the National Academy of Sciences of the United States of America, 2008, 105, 8238-8243.	7.1	23
56	Kinetic proofreading and the limits of thermodynamic uncertainty. Physical Review E, 2020, 101, 022415.	2.1	20
57	Response to Comment on â€œBoosted molecular mobility during common chemical reactionsâ€. Science, 2021, 371, .	12.6	20
58	High-Fidelity DNA Sensing by Protein Binding Fluctuations. Physical Review Letters, 2004, 93, 258103.	7.8	18
59	Universality, Scaling, and Collapse in Supercritical Fluids. Journal of Physical Chemistry Letters, 2020, 11, 451-455.	4.6	18
60	Two-dimensional flow of driven particles: a microfluidic pathway to the non-equilibrium frontier. Chemical Society Reviews, 2017, 46, 5620-5646.	38.1	16
61	Reaching and violating thermodynamic uncertainty bounds in information engines. Physical Review E, 2020, 102, 032126.	2.1	16
62	Dimensional reduction in complex living systems: Where, why, and how. BioEssays, 2021, 43, e2100062.	2.5	16
63	Curvature Elasticity Models of Microemulsions. Zeitschrift Fur Elektrotechnik Und Elektrochemie, 1996, 100, 252-263.	0.9	15
64	Optimal Design of a Molecular Recognizer: Molecular Recognition as a Bayesian Signal Detection Problem. IEEE Journal on Selected Topics in Signal Processing, 2008, 2, 390-399.	10.8	15
65	Loops and Self-Reference in the Construction of Dictionaries. Physical Review X, 2012, 2, .	8.9	14
66	Asymmetric Effect of Mechanical Stress on the Forward and Reverse Reaction Catalyzed by an Enzyme. PLoS ONE, 2014, 9, e101442.	2.5	14
67	Self-referring DNA and protein: a remark on physical and geometrical aspects. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2016, 374, 20150070.	3.4	14
68	Entropic networks in colloidal self-assembly. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2001, 359, 879-881.	3.4	13
69	Will biologists become computer scientists?. EMBO Reports, 2018, 19, .	4.5	13
70	Balancing speed and accuracy of polyclonal T cell activation: a role for extracellular feedback. BMC Systems Biology, 2012, 6, 111.	3.0	12
71	Messenger RNA fluctuations and regulatory RNAs shape the dynamics of a negative feedback loop. Physical Review E, 2010, 81, 031924.	2.1	9
72	DENSITY-DEPENDENT COOPERATION AS A MECHANISM FOR PERSISTENCE AND COEXISTENCE. Evolution; International Journal of Organic Evolution, 2011, 65, 2750-2759.	2.3	9

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73	Walking droplets, swimming microbes: onÂmemory in physics and life. Comptes Rendus - Mecanique, 2020, 348, 545-554.	0.7	8
74	Spontaneous chiral symmetry breaking in a random driven chemical system. Nature Communications, 2022, 13, 2244.	12.8	8
75	Acceleration of enzymatic catalysis by active hydrodynamic fluctuations. Communications Physics, 2022, 5, .	5.3	8
76	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
77	Molecular recognition as an information channel: The role of conformational changes. , 2009, , .		4
78	Inverse design of nonequilibrium steady states: A large-deviation approach. Physical Review E, 2021, 103, 022101.	2.1	4
79	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
80	A topological look into the evolution ofÂdevelopmental programs. Biophysical Journal, 2021, 120, 4193-4201.	0.5	4
81	Slowest-first protein translation scheme: Structural asymmetry and co-translational folding. Biophysical Journal, 2021, 120, 5466-5477.	0.5	4
82	Mutability as an altruistic trait in finite asexual populations. Journal of Theoretical Biology, 2009, 261, 414-422.	1.7	3
83	Binding of Transcription Factors Adapts to Resolve Information-Energy Tradeoff. Journal of Statistical Physics, 2016, 162, 1383-1394.	1.2	3
84	Exceptional topology in ordinary soft matter. Physical Review E, 2021, 104, 025002.	2.1	3
85	One-Dimensional Microfluidic Crystals Far from Equilibrium. Progress of Theoretical Physics Supplement, 2008, 175, 123-130.	0.1	2
86	Percolation approach to study connectivity in living neural networks. AIP Conference Proceedings, 2007, , .	0.4	1
87	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
88	A simple maximization technique for statistical mechanics expressions. American Journal of Physics, 1992, 60, 379-380.	0.7	0
89	The physical language of molecular codes: A rate-distortion approach to the evolution and emergence of biological codes. , 2009, , .		0
90	Where Two Are Fighting, the Third Wins: Stronger Selection Facilitates Greater Polymorphism in Traits Conferring Competition-Dispersal Tradeoffs. PLoS ONE, 2016, 11, e0147970.	2.5	0

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91	Comment on â€œRibosome utilizes the minimum free energy changes to achieve the highest decoding rate and fidelityâ€. Physical Review E, 2016, 93, 056401.	2.1	0
92	Î±Î²DCA method identifies unspecific binding but specific disruption of the group I intron by the StpA chaperone. Rna, 2020, 26, 1530-1540.	3.5	0