

David A Sivak

List of Publications by Year in descending order

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Version: 2024-02-01

47
papers

1,762
citations

361388

20
h-index

289230

40
g-index

51
all docs

51
docs citations

51
times ranked

1616
citing authors

#	ARTICLE	IF	CITATIONS
1	Thermodynamic Metrics and Optimal Paths. <i>Physical Review Letters</i> , 2012, 108, 190602.	7.8	236
2	Thermodynamics of Prediction. <i>Physical Review Letters</i> , 2012, 109, 120604.	7.8	173
3	Controlling DNA Capture and Propagation through Artificial Nanopores. <i>Nano Letters</i> , 2007, 7, 2824-2830.	9.1	132
4	Crystal Cryocooling Distorts Conformational Heterogeneity in a Model Michaelis Complex of DHFR. <i>Structure</i> , 2014, 22, 899-910.	3.3	131
5	Geometry of thermodynamic control. <i>Physical Review E</i> , 2012, 86, 041148.	2.1	100
6	Theory of Nonequilibrium Free Energy Transduction by Molecular Machines. <i>Chemical Reviews</i> , 2020, 120, 434-459.	47.7	90
7	Probing the Conformational Distributions of Subpersistence Length DNA. <i>Biophysical Journal</i> , 2009, 97, 1408-1417.	0.5	75
8	Transcription Factor Competition Allows Embryonic Stem Cells to Distinguish Authentic Signals from Noise. <i>Cell Systems</i> , 2015, 1, 117-129.	6.2	73
9	Time Step Rescaling Recovers Continuous-Time Dynamical Properties for Discrete-Time Langevin Integration of Nonequilibrium Systems. <i>Journal of Physical Chemistry B</i> , 2014, 118, 6466-6474.	2.6	56
10	E pluribus unum, no more: from one crystal, many conformations. <i>Current Opinion in Structural Biology</i> , 2014, 28, 56-62.	5.7	53
11	Near-Equilibrium Measurements of Nonequilibrium Free Energy. <i>Physical Review Letters</i> , 2012, 108, 150601.	7.8	46
12	Using Nonequilibrium Fluctuation Theorems to Understand and Correct Errors in Equilibrium and Nonequilibrium Simulations of Discrete Langevin Dynamics. <i>Physical Review X</i> , 2013, 3, .	8.9	43
13	Thermodynamic geometry of minimum-dissipation driven barrier crossing. <i>Physical Review E</i> , 2016, 94, 052106.	2.1	42
14	Stochastic microbiome assembly depends on context. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2022, 119, .	7.1	36
15	Allocating dissipation across a molecular machine cycle to maximize flux. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2017, 114, 11057-11062.	7.1	35
16	Using a system's equilibrium behavior to reduce its energy dissipation in nonequilibrium processes. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2019, 116, 5920-5924.	7.1	35
17	Maximizing power and velocity of an information engine. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2021, 118, .	7.1	34
18	Quantifying Configuration-Sampling Error in Langevin Simulations of Complex Molecular Systems. <i>Entropy</i> , 2018, 20, 318.	2.2	29

#	ARTICLE	IF	CITATIONS
19	Optimal Control of Transitions between Nonequilibrium Steady States. PLoS ONE, 2013, 8, e82754.	2.5	26
20	Optical Measurement of Mechanical Forces Inside Short DNA Loops. Biophysical Journal, 2008, 94, 2179-2186.	0.5	25
21	Environmental Statistics and Optimal Regulation. PLoS Computational Biology, 2014, 10, e1003826.	3.2	20
22	Optimal discrete control: minimizing dissipation in discretely driven nonequilibrium systems. Journal of Statistical Mechanics: Theory and Experiment, 2019, 2019, 083212.	2.3	20
23	Skewed thermodynamic geometry and optimal free energy estimation. Journal of Chemical Physics, 2020, 153, 244119.	3.0	20
24	Stochastic control in microscopic nonequilibrium systems. Europhysics Letters, 2018, 124, 20001.	2.0	19
25	Optimal control of rotary motors. Physical Review E, 2019, 99, 012119.	2.1	19
26	Measures of trajectory ensemble disparity in nonequilibrium statistical dynamics. Journal of Statistical Mechanics: Theory and Experiment, 2011, 2011, P06003.	2.3	18
27	Steps minimize dissipation in rapidly driven stochastic systems. Physical Review E, 2021, 104, L022101.	2.1	16
28	Consequences of local inter-strand dehybridization for large-amplitude bending fluctuations of double-stranded DNA. Journal of Chemical Physics, 2012, 136, 045102.	3.0	15
29	Allocating and Splitting Free Energy to Maximize Molecular Machine Flux. Journal of Physical Chemistry B, 2018, 122, 1387-1393.	2.6	14
30	Nonequilibrium Energy Transduction in Stochastic Strongly Coupled Rotary Motors. Journal of Physical Chemistry Letters, 2020, 11, 5273-5278.	4.6	13
31	Heat fluctuations in a harmonic chain of active particles. Physical Review E, 2021, 104, 024605.	2.1	12
32	Multidimensional minimum-work control of a 2D Ising model. Journal of Chemical Physics, 0, , .	3.0	12
33	Apparent superballistic dynamics in one-dimensional random walks with biased detachment. Physical Review Research, 2020, 2, .	3.6	10
34	Maximal fluctuation exploitation in Gaussian information engines. Physical Review E, 2021, 104, 044122.	2.1	10
35	Performance scaling and trade-offs for collective motor-driven transport. New Journal of Physics, 2022, 24, 013009.	2.9	10
36	Pulling cargo increases the precision of molecular motor progress. Europhysics Letters, 2019, 126, 40004.	2.0	9

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37	Free-energy transduction within autonomous systems. <i>Physical Review E</i> , 2021, 103, 022140.	2.1	8
38	Internal energy and information flows mediate input and output power in bipartite molecular machines. <i>Physical Review E</i> , 2022, 105, 024136.	2.1	7
39	Efficient two-dimensional control of barrier crossing. <i>Europhysics Letters</i> , 2022, 139, 17001.	2.0	7
40	Effective dissipation: Breaking time-reversal symmetry in driven microscopic energy transmission. <i>Physical Review E</i> , 2016, 94, 032137.	2.1	5
41	Optimal control of protein copy number. <i>Physical Review E</i> , 2020, 101, 022118.	2.1	5
42	Modeling work-speed-accuracy trade-offs in a stochastic rotary machine. <i>Physical Review E</i> , 2020, 101, 032110.	2.1	4
43	Energy Dissipation and Information Flow in Coupled Markovian Systems. <i>Entropy</i> , 2018, 20, 707.	2.2	3
44	Hidden energy flows in strongly coupled nonequilibrium systems. <i>Europhysics Letters</i> , 2021, 133, 10003.	2.0	3
45	Information Thermodynamics of the Transition-Path Ensemble. <i>Physical Review Letters</i> , 2022, 128, 170602.	7.8	3
46	Breaking time-reversal symmetry for ratchet models of molecular machines. <i>Physical Review E</i> , 2019, 99, 062127.	2.1	2
47	Using Equilibrium Behavior to Reduce Energy Dissipation in Non-Equilibrium Biomolecular Processes. <i>Biophysical Journal</i> , 2019, 116, 325a.	0.5	1