

David Hochberg

List of Publications by Year in descending order

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113
papers

2,716
citations

218677

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114
all docs

114
docs citations

114
times ranked

1094
citing authors

#	ARTICLE	IF	CITATIONS
1	Spontaneous Deracemizations. <i>Chemical Reviews</i> , 2021, 121, 2147-2229.	47.7	111
2	The Coordinate Reaction Model: An Obstacle to Interpreting the Emergence of Chemical Complexity. <i>Chemistry - A European Journal</i> , 2021, 27, 13098-13106.	3.3	2
3	Entropic analysis of bistability and the general evolution criterion. <i>Physical Chemistry Chemical Physics</i> , 2021, 23, 14051-14063.	2.8	2
4	Does Pressure Break Mirror Image Symmetry? A Perspective and New Insights. <i>ChemPhysChem</i> , 2020, 21, 633-642.	2.1	1
5	Chaotic oscillations, dissipation and mirror symmetry breaking in a chiral catalytic network. <i>Physical Chemistry Chemical Physics</i> , 2020, 22, 27214-27223.	2.8	5
6	Spontaneous mirror symmetry breaking: an entropy production survey of the racemate instability and the emergence of stable scalemic stationary states. <i>Physical Chemistry Chemical Physics</i> , 2020, 22, 14013-14025.	2.8	16
7	Thermodynamic evolution theorem for chemical reactions. <i>Physical Review Research</i> , 2020, 2, .	3.6	4
8	Renormalization of stochastic differential equations with multiplicative noise using effective potential methods. <i>Physical Review E</i> , 2020, 102, 062142.	2.1	0
9	Chemical Basis of Biological Homochirality during the Abiotic Evolution Stages on Earth. <i>Symmetry</i> , 2019, 11, 814.	2.2	20
10	Open Prebiotic Environments Drive Emergent Phenomena and Complex Behavior. <i>Life</i> , 2019, 9, 45.	2.4	21
11	Spontaneous Mirror Symmetry Breaking from Recycling in Enantioselective Polymerization. <i>SEMA SIMAI Springer Series</i> , 2019, , 39-57.	0.7	2
12	Entropic Analysis of Mirror Symmetry Breaking in Chiral Hypercycles. <i>Life</i> , 2019, 9, 28.	2.4	18
13	Selection and control of pathways by using externally adjustable noise on a stochastic cubic autocatalytic chemical system. <i>Physical Review E</i> , 2018, 98, .	2.1	4
14	Stoichiometric network analysis of entropy production in chemical reactions. <i>Physical Chemistry Chemical Physics</i> , 2018, 20, 23726-23739.	2.8	17
15	Open flow non-enzymatic template catalysis and replication. <i>Physical Chemistry Chemical Physics</i> , 2018, 20, 14864-14875.	2.8	7
16	Mechanically Induced Homochirality in Nucleated Enantioselective Polymerization. <i>Journal of Physical Chemistry B</i> , 2017, 121, 942-955.	2.6	17
17	Stoichiometric network analysis of spontaneous mirror symmetry breaking in chemical reactions. <i>Physical Chemistry Chemical Physics</i> , 2017, 19, 17618-17636.	2.8	27
18	Effects of spatial and temporal noise on a cubic-autocatalytic reaction-diffusion model. <i>Physical Review E</i> , 2017, 95, 032106.	2.1	6

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19	Spontaneous mirror symmetry breaking and origin of biological homochirality. <i>Journal of the Royal Society Interface</i> , 2017, 14, 20170699.	3.4	53
20	Spontaneous mirror symmetry breaking in heterocatalytically coupled enantioselective replicators. <i>Chemical Science</i> , 2017, 8, 763-769.	7.4	39
21	Abiotic Emergence of Biological Homochirality. , 2017, , 299-316.		0
22	Necessary conditions for the emergence of homochirality <i>via</i> autocatalytic self-replication. <i>Journal of Chemical Physics</i> , 2016, 145, 074111.	3.0	29
23	Small-scale properties of a stochastic cubic-autocatalytic reaction-diffusion model. <i>Physical Review E</i> , 2015, 92, 042114.	2.1	10
24	Competitive Exclusion Principle in Ecology and Absolute Asymmetric Synthesis in Chemistry. <i>Chirality</i> , 2015, 27, 722-727.	2.6	10
25	Modeling spontaneous chiral symmetry breaking and deracemization phenomena: Discrete versus continuum approaches. <i>Physical Review E</i> , 2015, 91, 022801.	2.1	19
26	Absolute Asymmetric Synthesis in Enantioselective Autocatalytic Reaction Networks: Theoretical Games, Speculations on Chemical Evolution and Perhaps a Synthetic Option. <i>Chemistry - A European Journal</i> , 2014, 20, 17250-17271.	3.3	67
27	Drying Bacterial Biosaline Patterns Capable of Vital Reanimation upon Rehydration: Novel Hibernating Biomineralogical Life Formations. <i>Astrobiology</i> , 2014, 14, 589-602.	3.0	3
28	Aiming for Transdisciplinary Science: Reflections and Guidelines. <i>Interdisciplinary Science Reviews</i> , 2014, 39, 130-142.	1.4	0
29	Mirror symmetry breaking with limited enantioselective autocatalysis and temperature gradients: a stability survey. <i>Physical Chemistry Chemical Physics</i> , 2013, 15, 1546-1556.	2.8	23
30	Chiral and chemical oscillations in a simple dimerization model. <i>Physical Chemistry Chemical Physics</i> , 2013, 15, 255-261.	2.8	17
31	Spontaneous Mirror Symmetry Breaking in the Limited Enantioselective Autocatalysis Model: Abyssal Hydrothermal Vents as Scenario for the Emergence of Chirality in Prebiotic Chemistry. <i>Astrobiology</i> , 2013, 13, 132-142.	3.0	23
32	The Viedma Deracemization of Racemic Conglomerate Mixtures as a Paradigm of Spontaneous Mirror Symmetry Breaking in Aggregation and Polymerization. <i>ChemPhysChem</i> , 2013, 14, 3982-3993.	2.1	35
33	Spontaneous Emergence of Chirality in the Limited Enantioselectivity Model: Autocatalytic Cycle Driven by an External Reagent. <i>ChemPhysChem</i> , 2013, 14, 2432-2440.	2.1	24
34	Multistate transitions and quantum oscillations of optical activity. <i>Physical Review A</i> , 2012, 85, .	2.5	0
35	Homochiral oligopeptides by chiral amplification: interpretation of experimental data with a copolymerization model. <i>Physical Chemistry Chemical Physics</i> , 2012, 14, 2301.	2.8	10
36	Models for Mirror Symmetry Breaking via \hat{I}^2 -Sheet-Controlled Copolymerization: (i) Mass Balance and (ii) Probabilistic Treatment. <i>Journal of Physical Chemistry B</i> , 2012, 116, 13953-13967.	2.6	4

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37	Stochastic Mirror Symmetry Breaking: Theoretical Models and Simulation of Experiments. Topics in Current Chemistry, 2012, 333, 157-211.	4.0	5
38	Induced mirror symmetry breaking via template-controlled copolymerization: theoretical insights. Chemical Communications, 2012, 48, 3659.	4.1	6
39	Chiral polymerization: symmetry breaking and entropy production in closed systems. Physical Chemistry Chemical Physics, 2011, 13, 839-849.	2.8	30
40	Chiral symmetry breaking via crystallization of the glycine and $\hat{\pm}$ -amino acid system: a mathematical model. Physical Chemistry Chemical Physics, 2011, 13, 12920.	2.8	3
41	Temporary mirror symmetry breaking and chiral excursions in open and closed systems. Chemical Physics Letters, 2011, 505, 140-147.	2.6	18
42	Chiral polymerization and amplification in closed systems. Chemical Physics Letters, 2010, 491, 237-243.	2.6	5
43	Effective potential and chiral symmetry breaking. Physical Review E, 2010, 81, 016106.	2.1	10
44	Frank Model and Spontaneous Emergence of Chirality in Closed Systems. ChemPhysChem, 2009, 10, 2123-2131.	2.1	95
45	Mirror Symmetry Breaking and Restoration: The Role of Noise and Chiral Bias. Physical Review Letters, 2009, 102, 248101.	7.8	9
46	Gauge fixing, BRS invariance and Ward identities for randomly stirred flows. Nuclear Physics B, 2009, 814, 522-548.	2.5	16
47	Chiral symmetry breaking: (i) limited enantioselectivity and (ii) mutual inhibition. Physica D: Nonlinear Phenomena, 2008, 237, 2563-2576.	2.8	6
48	Stability of racemic and chiral steady states in open and closed chemical systems. Physics Letters, Section A: General, Atomic and Solid State Physics, 2008, 373, 111-122.	2.1	33
49	Mirror symmetry breaking as a problem in dynamic critical phenomena. Physical Review E, 2007, 76, 021109.	2.1	13
50	Gauge Symmetry and Slavnov-Taylor Identities for Randomly Stirred Fluids. Physical Review Letters, 2007, 99, 254501.	7.8	29
51	Classifying science and technology: two problems with the UNESCO system. Interdisciplinary Science Reviews, 2007, 32, 315-319.	1.4	35
52	Path integral evaluation of the one-loop effective potential in field theory of diffusion-limited reactions. Physica A: Statistical Mechanics and Its Applications, 2007, 378, 238-254.	2.6	1
53	Complex reaction noise in a molecular quasispecies model. Chemical Physics Letters, 2006, 423, 54-58.	2.6	3
54	Reaction-noise induced homochirality. Chemical Physics Letters, 2006, 431, 185-189.	2.6	29

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55	A review of the contributions of Albert Einstein to Earth Sciences in commemoration of the World Year of Physics. Die Naturwissenschaften, 2006, 93, 66-71.	1.6	4
56	Complex noise in diffusion-limited reactions of replicating and competing species. Physical Review E, 2006, 73, 066109.	2.1	4
57	Consequences of imperfect mixing the Gray-Scott model. Physical Review E, 2006, 74, 057102.	2.1	6
58	Spatiotemporal patterns driven by autocatalytic internal reaction noise. Journal of Chemical Physics, 2005, 122, 214701.	3.0	13
59	Reaction-diffusion model for pattern formation in E. coli swarming colonies with slime. Physical Review E, 2005, 71, 031908.	2.1	22
60	Galilean invariance and homogeneous anisotropic randomly stirred flows. Physical Review E, 2005, 72, 057301.	2.1	6
61	Dynamic renormalization group and noise induced transitions in a reaction diffusion model. Physica A: Statistical Mechanics and Its Applications, 2004, 334, 67-77.	2.6	9
62	Noise-Controlled Self-Replicating Patterns. Physical Review Letters, 2003, 91, 238301.	7.8	51
63	Large-scale features of rotating forced turbulence. Physical Review E, 2003, 67, 026304.	2.1	3
64	Large-scale emergent properties of an autocatalytic reaction-diffusion model subject to noise. Physical Review E, 2003, 68, 066114.	2.1	21
65	The renormalization group and fractional Brownian motion. Physics Letters, Section A: General, Atomic and Solid State Physics, 2002, 296, 272-279.	2.1	7
66	Small-scale properties of the KPZ equation and dynamical symmetry breaking. Physics Letters, Section A: General, Atomic and Solid State Physics, 2001, 278, 177-183.	2.1	7
67	Heat kernel regularization of the effective action for stochastic reaction-diffusion equations. Physical Review E, 2001, 63, 036132.	2.1	1
68	Effective potential for the massless KPZ equation. Physica A: Statistical Mechanics and Its Applications, 2000, 280, 437-455.	2.6	12
69	Effective Potential for the Reaction-Diffusion-Decay System. Journal of Statistical Physics, 2000, 99, 903-941.	1.2	10
70	Renormalization group analysis of a quivering string model of posture control. Physical Review E, 2000, 62, 7008-7023.	2.1	8
71	Tolman wormholes violate the strong energy condition. Physical Review D, 1999, 59, .	4.7	35
72	RENORMALIZATION GROUP IMPROVING THE EFFECTIVE ACTION: A REVIEW. International Journal of Modern Physics A, 1999, 14, 1485-1521.	1.5	8

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73	Effective action for stochastic partial differential equations. <i>Physical Review E</i> , 1999, 60, 6343-6360.	2.1	47
74	Null Energy Condition in Dynamic Wormholes. <i>Physical Review Letters</i> , 1998, 81, 746-749.	7.8	202
75	Zeta Functions, Renormalization Group Equations, and the Effective Action. <i>Physical Review Letters</i> , 1998, 81, 4802-4805.	7.8	6
76	Dynamic wormholes, antitrapped surfaces, and energy conditions. <i>Physical Review D</i> , 1998, 58, .	4.7	233
77	Liquid model analogue for black hole thermodynamics. <i>Physical Review D</i> , 1997, 55, 4880-4888.	4.7	6
78	Geometric structure of the generic static traversable wormhole throat. <i>Physical Review D</i> , 1997, 56, 4745-4755.	4.7	250
79	Self-Consistent Wormhole Solutions of Semiclassical Gravity. <i>Physical Review Letters</i> , 1997, 78, 2050-2053.	7.8	115
80	Representing structural information of helical charge distributions in cylindrical coordinates. <i>Physical Review E</i> , 1997, 55, 3765-3768.	2.1	15
81	The galaxy-galaxy correlation function as an indicator of critical phenomena in cosmology. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 1996, 222, 177-181.	2.1	13
82	Gravitational critical phenomena in the realm of the galaxies and Ising magnets. <i>General Relativity and Gravitation</i> , 1996, 28, 1427-1432.	2.0	15
83	Black hole in thermal equilibrium with a spin-2 quantum field. <i>Physical Review D</i> , 1996, 53, 7094-7102.	4.7	8
84	Energy density of nonminimally coupled scalar field cosmologies. <i>Physical Review D</i> , 1995, 51, 2687-2692.	4.7	5
85	Free energy and entropy for semiclassical black holes in the canonical ensemble. <i>Physical Review D</i> , 1995, 51, 5742-5752.	4.7	1
86	Quantum-mechanical Lorentzian wormholes in cosmological backgrounds. <i>Physical Review D</i> , 1995, 52, 6846-6855.	4.7	4
87	Structure in the electric potential emanating from DNA. <i>Physical Review E</i> , 1994, 50, R698-R701.	2.1	15
88	Effective potential of a black hole in thermal equilibrium with quantum fields. <i>Physical Review D</i> , 1994, 49, 5257-5265.	4.7	13
89	Structural information in the local electric field of dissolved B-DNA. <i>Physical Review E</i> , 1994, 49, 851-867.	2.1	17
90	Can semi-classical wormholes solve the cosmological horizon problem?. <i>General Relativity and Gravitation</i> , 1994, 26, 219-223.	2.0	9

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91	Gauge field back reaction on a black hole. <i>Physical Review D</i> , 1993, 47, 1465-1470.	4.7	52
92	Wormhole cosmology and the horizon problem. <i>Physical Review Letters</i> , 1993, 70, 2665-2668.	7.8	50
93	Positivity of entropy in the semiclassical theory of black holes and radiation. <i>Physical Review D</i> , 1993, 48, 479-484.	4.7	75
94	Cosmological dispersion, the corrected redshift formula, and large-scale structure. <i>Physical Review D</i> , 1992, 45, 2706-2718.	4.7	3
95	Lorentzian wormholes from the gravitationally squeezed vacuum. <i>Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics</i> , 1991, 268, 377-383.	4.1	37
96	Spacetime dimension from a variational principle. <i>Physical Review D</i> , 1991, 43, 2617-2621.	4.7	10
97	Theory of matter in Weyl spacetime. <i>Physical Review D</i> , 1991, 43, 3358-3367.	4.7	22
98	Diffractive Corrections to the Cosmological Redshift Formula. <i>Physical Review Letters</i> , 1991, 67, 2403-2403.	7.8	2
99	Diffractive corrections to the cosmological redshift formula. <i>Physical Review Letters</i> , 1991, 66, 2553-2556.	7.8	8
100	Lorentzian wormholes in higher order gravity theories. <i>Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics</i> , 1990, 251, 349-354.	4.1	80
101	Fine structure of local and axion strings. <i>Physical Review D</i> , 1989, 39, 2308-2316.	4.7	16
102	Constrained path integrals and cosmic string self-intersections. <i>Nuclear Physics B</i> , 1989, 319, 709-721.	2.5	2
103	Dynamical adjustment of the cosmological constant. <i>Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics</i> , 1988, 211, 49-54.	4.1	24
104	Ambiguity in Determining the Effective Action for String-Corrected Einstein Gravity. <i>Progress of Theoretical Physics</i> , 1987, 78, 680-689.	2.0	8
105	The dilaton and quartic curvature terms in the heterotic string effective action. <i>Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics</i> , 1987, 187, 79-84.	4.1	6
106	Incompatibility of torsion with the Gauss-Bonnet combination in the bosonic string. <i>Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics</i> , 1987, 191, 267-274.	4.1	10
107	The baryon propagator at strong coupling. <i>Nuclear Physics B</i> , 1986, 270, 603-620.	2.5	3
108	Effective lagrangian analysis of the chiral phase transition at finite density. <i>Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics</i> , 1985, 158, 239-244.	4.1	43

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109	Finite-volume effects on spectrum calculations: Monte Carlo study of an exactly solvable lattice field theory. Nuclear Physics B, 1985, 257, 729-745.	2.5	4
110	Lepton-quark scattering and nucleon spin structure. Nuclear Physics B, 1985, 256, 1-12.	2.5	1
111	Effects of quarks on SU(N) deconfinement phase transitions. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 1983, 133, 218-220.	4.1	41
112	Maximal CP violation in the six-quark model. Physical Review D, 1983, 27, 606-615.	4.7	25
113	Stoichiometric Network Analysis in Reaction Networks Yielding Spontaneous Mirror Symmetry Breaking in Prebiotic Atmosphere. Physical Chemistry Chemical Physics, 0, , .	2.8	1