

David Hochberg

List of Publications by Year in descending order

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113
papers

2,716
citations

218677

26
h-index

206112

48
g-index

114
all docs

114
docs citations

114
times ranked

1094
citing authors

#	ARTICLE	IF	CITATIONS
1	Geometric structure of the generic static traversable wormhole throat. <i>Physical Review D</i> , 1997, 56, 4745-4755.	4.7	250
2	Dynamic wormholes, antitrapped surfaces, and energy conditions. <i>Physical Review D</i> , 1998, 58, .	4.7	233
3	Null Energy Condition in Dynamic Wormholes. <i>Physical Review Letters</i> , 1998, 81, 746-749.	7.8	202
4	Self-Consistent Wormhole Solutions of Semiclassical Gravity. <i>Physical Review Letters</i> , 1997, 78, 2050-2053.	7.8	115
5	Spontaneous Deracemizations. <i>Chemical Reviews</i> , 2021, 121, 2147-2229.	47.7	111
6	Frank Model and Spontaneous Emergence of Chirality in Closed Systems. <i>ChemPhysChem</i> , 2009, 10, 2123-2131.	2.1	95
7	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
8	Positivity of entropy in the semiclassical theory of black holes and radiation. <i>Physical Review D</i> , 1993, 48, 479-484.	4.7	75
9	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
10	Spontaneous mirror symmetry breaking and origin of biological homochirality. <i>Journal of the Royal Society Interface</i> , 2017, 14, 20170699.	3.4	53
11	Gauge field back reaction on a black hole. <i>Physical Review D</i> , 1993, 47, 1465-1470.	4.7	52
12	Noise-Controlled Self-Replicating Patterns. <i>Physical Review Letters</i> , 2003, 91, 238301.	7.8	51
13	Wormhole cosmology and the horizon problem. <i>Physical Review Letters</i> , 1993, 70, 2665-2668.	7.8	50
14	Effective action for stochastic partial differential equations. <i>Physical Review E</i> , 1999, 60, 6343-6360.	2.1	47
15	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
16	Effects of quarks on SU(N) deconfinement phase transitions. <i>Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics</i> , 1983, 133, 218-220.	4.1	41
17	Spontaneous mirror symmetry breaking in heterocatalytically coupled enantioselective replicators. <i>Chemical Science</i> , 2017, 8, 763-769.	7.4	39
18	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

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19	Tolman wormholes violate the strong energy condition. <i>Physical Review D</i> , 1999, 59, .	4.7	35
20	Classifying science and technology: two problems with the UNESCO system. <i>Interdisciplinary Science Reviews</i> , 2007, 32, 315-319.	1.4	35
21	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
22	Stability of racemic and chiral steady states in open and closed chemical systems. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 2008, 373, 111-122.	2.1	33
23	Chiral polymerization: symmetry breaking and entropy production in closed systems. <i>Physical Chemistry Chemical Physics</i> , 2011, 13, 839-849.	2.8	30
24	Reaction-noise induced homochirality. <i>Chemical Physics Letters</i> , 2006, 431, 185-189.	2.6	29
25	Gauge Symmetry and Slavnov-Taylor Identities for Randomly Stirred Fluids. <i>Physical Review Letters</i> , 2007, 99, 254501.	7.8	29
26	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
27	Stoichiometric network analysis of spontaneous mirror symmetry breaking in chemical reactions. <i>Physical Chemistry Chemical Physics</i> , 2017, 19, 17618-17636.	2.8	27
28	Maximal CP violation in the six-quark model. <i>Physical Review D</i> , 1983, 27, 606-615.	4.7	25
29	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
30	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
31	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
32	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
33	Theory of matter in Weyl spacetime. <i>Physical Review D</i> , 1991, 43, 3358-3367.	4.7	22
34	Reaction-diffusion model for pattern formation in <i>E. coli</i> swarming colonies with slime. <i>Physical Review E</i> , 2005, 71, 031908.	2.1	22
35	Large-scale emergent properties of an autocatalytic reaction-diffusion model subject to noise. <i>Physical Review E</i> , 2003, 68, 066114.	2.1	21
36	Open Prebiotic Environments Drive Emergent Phenomena and Complex Behavior. <i>Life</i> , 2019, 9, 45.	2.4	21

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37	Chemical Basis of Biological Homochirality during the Abiotic Evolution Stages on Earth. <i>Symmetry</i> , 2019, 11, 814.	2.2	20
38	Modeling spontaneous chiral symmetry breaking and deracemization phenomena: Discrete versus continuum approaches. <i>Physical Review E</i> , 2015, 91, 022801.	2.1	19
39	Temporary mirror symmetry breaking and chiral excursions in open and closed systems. <i>Chemical Physics Letters</i> , 2011, 505, 140-147.	2.6	18
40	Entropic Analysis of Mirror Symmetry Breaking in Chiral Hypercycles. <i>Life</i> , 2019, 9, 28.	2.4	18
41	Structural information in the local electric field of dissolved B-DNA. <i>Physical Review E</i> , 1994, 49, 851-867.	2.1	17
42	Chiral and chemical oscillations in a simple dimerization model. <i>Physical Chemistry Chemical Physics</i> , 2013, 15, 255-261.	2.8	17
43	Mechanically Induced Homochirality in Nucleated Enantioselective Polymerization. <i>Journal of Physical Chemistry B</i> , 2017, 121, 942-955.	2.6	17
44	Stoichiometric network analysis of entropy production in chemical reactions. <i>Physical Chemistry Chemical Physics</i> , 2018, 20, 23726-23739.	2.8	17
45	Fine structure of local and axion strings. <i>Physical Review D</i> , 1989, 39, 2308-2316.	4.7	16
46	Gauge fixing, BRS invariance and Ward identities for randomly stirred flows. <i>Nuclear Physics B</i> , 2009, 814, 522-548.	2.5	16
47	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
48	Structure in the electric potential emanating from DNA. <i>Physical Review E</i> , 1994, 50, R698-R701.	2.1	15
49	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
50	Representing structural information of helical charge distributions in cylindrical coordinates. <i>Physical Review E</i> , 1997, 55, 3765-3768.	2.1	15
51	Effective potential of a black hole in thermal equilibrium with quantum fields. <i>Physical Review D</i> , 1994, 49, 5257-5265.	4.7	13
52	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
53	Spatiotemporal patterns driven by autocatalytic internal reaction noise. <i>Journal of Chemical Physics</i> , 2005, 122, 214701.	3.0	13
54	Mirror symmetry breaking as a problem in dynamic critical phenomena. <i>Physical Review E</i> , 2007, 76, 021109.	2.1	13

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55	Effective potential for the massless KPZ equation. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2000, 280, 437-455.	2.6	12
56	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
57	Spacetime dimension from a variational principle. <i>Physical Review D</i> , 1991, 43, 2617-2621.	4.7	10
58	Effective Potential for the Reaction-Diffusion-Decay System. <i>Journal of Statistical Physics</i> , 2000, 99, 903-941.	1.2	10
59	Effective potential and chiral symmetry breaking. <i>Physical Review E</i> , 2010, 81, 016106.	2.1	10
60	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
61	Small-scale properties of a stochastic cubic-autocatalytic reaction-diffusion model. <i>Physical Review E</i> , 2015, 92, 042114.	2.1	10
62	Competitive Exclusion Principle in Ecology and Absolute Asymmetric Synthesis in Chemistry. <i>Chirality</i> , 2015, 27, 722-727.	2.6	10
63	Can semi-classical wormholes solve the cosmological horizon problem?. <i>General Relativity and Gravitation</i> , 1994, 26, 219-223.	2.0	9
64	Dynamic renormalization group and noise induced transitions in a reaction diffusion model. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2004, 334, 67-77.	2.6	9
65	Mirror Symmetry Breaking and Restoration: The Role of Noise and Chiral Bias. <i>Physical Review Letters</i> , 2009, 102, 248101.	7.8	9
66	Ambiguity in Determining the Effective Action for String-Corrected Einstein Gravity. <i>Progress of Theoretical Physics</i> , 1987, 78, 680-689.	2.0	8
67	Diffraction corrections to the cosmological redshift formula. <i>Physical Review Letters</i> , 1991, 66, 2553-2556.	7.8	8
68	Black hole in thermal equilibrium with a spin-2 quantum field. <i>Physical Review D</i> , 1996, 53, 7094-7102.	4.7	8
69	RENORMALIZATION GROUP IMPROVING THE EFFECTIVE ACTION: A REVIEW. <i>International Journal of Modern Physics A</i> , 1999, 14, 1485-1521.	1.5	8
70	Renormalization group analysis of a quivering string model of posture control. <i>Physical Review E</i> , 2000, 62, 7008-7023.	2.1	8
71	Small-scale properties of the KPZ equation and dynamical symmetry breaking. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 2001, 278, 177-183.	2.1	7
72	The renormalization group and fractional Brownian motion. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 2002, 296, 272-279.	2.1	7

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73	Open flow non-enzymatic template catalysis and replication. <i>Physical Chemistry Chemical Physics</i> , 2018, 20, 14864-14875.	2.8	7
74	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
75	Liquid model analogue for black hole thermodynamics. <i>Physical Review D</i> , 1997, 55, 4880-4888.	4.7	6
76	Zeta Functions, Renormalization Group Equations, and the Effective Action. <i>Physical Review Letters</i> , 1998, 81, 4802-4805.	7.8	6
77	Galilean invariance and homogeneous anisotropic randomly stirred flows. <i>Physical Review E</i> , 2005, 72, 057301.	2.1	6
78	Consequences of imperfect mixing the Gray-Scott model. <i>Physical Review E</i> , 2006, 74, 057102.	2.1	6
79	Chiral symmetry breaking: (i) limited enantioselectivity and (ii) mutual inhibition. <i>Physica D: Nonlinear Phenomena</i> , 2008, 237, 2563-2576.	2.8	6
80	Induced mirror symmetry breaking via template-controlled copolymerization: theoretical insights. <i>Chemical Communications</i> , 2012, 48, 3659.	4.1	6
81	Effects of spatial and temporal noise on a cubic-autocatalytic reaction-diffusion model. <i>Physical Review E</i> , 2017, 95, 032106.	2.1	6
82	Energy density of nonminimally coupled scalar field cosmologies. <i>Physical Review D</i> , 1995, 51, 2687-2692.	4.7	5
83	Chiral polymerization and amplification in closed systems. <i>Chemical Physics Letters</i> , 2010, 491, 237-243.	2.6	5
84	Stochastic Mirror Symmetry Breaking: Theoretical Models and Simulation of Experiments. <i>Topics in Current Chemistry</i> , 2012, 333, 157-211.	4.0	5
85	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
86	Finite-volume effects on spectrum calculations: Monte Carlo study of an exactly solvable lattice field theory. <i>Nuclear Physics B</i> , 1985, 257, 729-745.	2.5	4
87	Quantum-mechanical Lorentzian wormholes in cosmological backgrounds. <i>Physical Review D</i> , 1995, 52, 6846-6855.	4.7	4
88	A review of the contributions of Albert Einstein to Earth Sciences in commemoration of the World Year of Physics. <i>Die Naturwissenschaften</i> , 2006, 93, 66-71.	1.6	4
89	Complex noise in diffusion-limited reactions of replicating and competing species. <i>Physical Review E</i> , 2006, 73, 066109.	2.1	4
90	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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91	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
92	Thermodynamic evolution theorem for chemical reactions. <i>Physical Review Research</i> , 2020, 2, .	3.6	4
93	The baryon propagator at strong coupling. <i>Nuclear Physics B</i> , 1986, 270, 603-620.	2.5	3
94	Cosmological dispersion, the corrected redshift formula, and large-scale structure. <i>Physical Review D</i> , 1992, 45, 2706-2718.	4.7	3
95	Large-scale features of rotating forced turbulence. <i>Physical Review E</i> , 2003, 67, 026304.	2.1	3
96	Complex reaction noise in a molecular quasispecies model. <i>Chemical Physics Letters</i> , 2006, 423, 54-58.	2.6	3
97	Chiral symmetry breaking via crystallization of the glycine and $\hat{\pm}$ -amino acid system: a mathematical model. <i>Physical Chemistry Chemical Physics</i> , 2011, 13, 12920.	2.8	3
98	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
99	Constrained path integrals and cosmic string self-intersections. <i>Nuclear Physics B</i> , 1989, 319, 709-721.	2.5	2
100	Diffraction Corrections to the Cosmological Redshift Formula. <i>Physical Review Letters</i> , 1991, 67, 2403-2403.	7.8	2
101	Spontaneous Mirror Symmetry Breaking from Recycling in Enantioselective Polymerization. <i>SEMA SIMAI Springer Series</i> , 2019, , 39-57.	0.7	2
102	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
103	Entropic analysis of bistability and the general evolution criterion. <i>Physical Chemistry Chemical Physics</i> , 2021, 23, 14051-14063.	2.8	2
104	Lepton-quark scattering and nucleon spin structure. <i>Nuclear Physics B</i> , 1985, 256, 1-12.	2.5	1
105	Free energy and entropy for semiclassical black holes in the canonical ensemble. <i>Physical Review D</i> , 1995, 51, 5742-5752.	4.7	1
106	Heat kernel regularization of the effective action for stochastic reaction-diffusion equations. <i>Physical Review E</i> , 2001, 63, 036132.	2.1	1
107	Path integral evaluation of the one-loop effective potential in field theory of diffusion-limited reactions. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2007, 378, 238-254.	2.6	1
108	Does Pressure Break Mirrorâ€Image Symmetry? A Perspective and New Insights. <i>ChemPhysChem</i> , 2020, 21, 633-642.	2.1	1

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109	Stoichiometric Network Analysis in Reaction Networks Yielding Spontaneous Mirror Symmetry Breaking in Prebiotic Atmosphere. <i>Physical Chemistry Chemical Physics</i> , 0, , .	2.8	1
110	Multistate transitions and quantum oscillations of optical activity. <i>Physical Review A</i> , 2012, 85, .	2.5	0
111	Aiming for Transdisciplinary Science: Reflections and Guidelines. <i>Interdisciplinary Science Reviews</i> , 2014, 39, 130-142.	1.4	0
112	Abiotic Emergence of Biological Homochirality. , 2017, , 299-316.		0
113	Renormalization of stochastic differential equations with multiplicative noise using effective potential methods. <i>Physical Review E</i> , 2020, 102, 062142.	2.1	0