

Carl M Bender

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149
papers

15,660
citations

45
h-index

125
g-index

157
ext. papers

17,807
ext. citations

3.1
avg, IF

6.98
L-index

#	Paper	IF	Citations
149	Real Spectra in Non-Hermitian Hamiltonians Having PT Symmetry. <i>Physical Review Letters</i> , 1998 , 80, 5243-5246	17.4	3709
148	Making sense of non-Hermitian Hamiltonians. <i>Reports on Progress in Physics</i> , 2007 , 70, 947-1018	14.4	1829
147	Parity-time-symmetric whispering-gallery microcavities. <i>Nature Physics</i> , 2014 , 10, 394-398	16.2	1394
146	Complex extension of quantum mechanics. <i>Physical Review Letters</i> , 2002 , 89, 270401	7.4	1124
145	PT-symmetric quantum mechanics. <i>Journal of Mathematical Physics</i> , 1999 , 40, 2201-2229	1.2	904
144	Anharmonic Oscillator. <i>Physical Review</i> , 1969 , 184, 1231-1260		901
143	Anharmonic Oscillator. II. A Study of Perturbation Theory in Large Order. <i>Physical Review D</i> , 1973 , 7, 1620-1636	4.27	
142	Introduction to \mathcal{PT} -symmetric quantum theory. <i>Contemporary Physics</i> , 2005 , 46, 277-292	3.3	276
141	Must a Hamiltonian be Hermitian?. <i>American Journal of Physics</i> , 2003 , 71, 1095-1102	0.7	266
140	Faster than Hermitian quantum mechanics. <i>Physical Review Letters</i> , 2007 , 98, 040403	7.4	263
139	Large-Order Behavior of Perturbation Theory. <i>Physical Review Letters</i> , 1971 , 27, 461-465	7.4	231
138	No-ghost theorem for the fourth-order derivative Pais-Uhlenbeck oscillator model. <i>Physical Review Letters</i> , 2008 , 100, 110402	7.4	223
137	Observation of PT phase transition in a simple mechanical system. <i>American Journal of Physics</i> , 2013 , 81, 173-179	0.7	179
136	Extension of PT-symmetric quantum mechanics to quantum field theory with cubic interaction. <i>Physical Review D</i> , 2004 , 70,	4.9	172
135	Complex periodic potentials with real band spectra. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 1999 , 252, 272-276	2.3	155
134	Analytic Structure of Energy Levels in a Field-Theory Model. <i>Physical Review Letters</i> , 1968 , 21, 406-409	7.4	136
133	Exactly solvable PT-symmetric Hamiltonian having no Hermitian counterpart. <i>Physical Review D</i> , 2008 , 78,	4.9	119

132	Quasi-exactly solvable systems and orthogonal polynomials. <i>Journal of Mathematical Physics</i> , 1996 , 37, 6-11	1.2	103
131	Large-order perturbation theory for a non-Hermitian PT-symmetric Hamiltonian. <i>Journal of Mathematical Physics</i> , 1999 , 40, 4616-4621	1.2	102
130	Twofold transition in PT-symmetric coupled oscillators. <i>Physical Review A</i> , 2013 , 88,	2.6	100
129	Scalar quantum field theory with a complex cubic interaction. <i>Physical Review Letters</i> , 2004 , 93, 251601	7.4	100
128	Dual PT-symmetric quantum field theories. <i>Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics</i> , 2005 , 625, 333-340	4.2	99
127	Nonperturbative calculation of symmetry breaking in quantum field theory. <i>Physical Review D</i> , 1997 , 55, R3255-R3259	4.9	85
126	Novel perturbative scheme in quantum field theory. <i>Physical Review D</i> , 1988 , 37, 1472-1484	4.9	85
125	Logarithmic approximations to polynomial Lagrangians. <i>Physical Review Letters</i> , 1987 , 58, 2615-2618	7.4	77
124	Multiple-Scale Analysis of the Quantum Anharmonic Oscillator. <i>Physical Review Letters</i> , 1996 , 77, 4114-4117	4.17	72
123	The Script C operator in Script PScript T-symmetric quantum theories. <i>Journal of Physics A</i> , 2004 , 37, 10139-10165	1.65	65
122	symmetry and necessary and sufficient conditions for the reality of energy eigenvalues. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 2010 , 374, 1616-1620	2.3	66
121	Ghost busting: PT-symmetric interpretation of the Lee model. <i>Physical Review D</i> , 2005 , 71,	4.9	66
120	Equivalence of a complex PT-symmetric quartic Hamiltonian and a Hermitian quartic Hamiltonian with an anomaly. <i>Physical Review D</i> , 2006 , 74,	4.9	66
119	Solution of Schwinger-Dyson equations for PT-symmetric quantum field theory. <i>Physical Review D</i> , 2000 , 62,	4.9	65
118	Calculation of the hidden symmetry operator in \mathcal{P} -symmetric quantum mechanics. <i>Journal of Physics A</i> , 2003 , 36, 1973-1983		63
117	Entropy and temperature of a quantum Carnot engine. <i>Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences</i> , 2002 , 458, 1519-1526	2.4	62
116	Conjecture on the interlacing of zeros in complex Sturm-Liouville problems. <i>Journal of Mathematical Physics</i> , 2000 , 41, 6381-6387	1.2	61
115	Variational ansatz for \mathcal{P} -symmetric quantum mechanics. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 1999 , 259, 224-231	2.3	60

114	Reflectionless potentials and symmetry. <i>Journal of Physics A</i> , 2005 , 38, L627-L630		58
113	Complex WKB analysis of energy-level degeneracies of non-Hermitian Hamiltonians. <i>Journal of Physics A</i> , 2001 , 34, L31-L36		57
112	Multiple-scale analysis of quantum systems. <i>Physical Review D</i> , 1996 , 54, 7710-7723	4.9	52
111	γ -symmetric versus Hermitian formulations of quantum mechanics. <i>Journal of Physics A</i> , 2006 , 39, 1657-1668		51
110	Numerical evidence that the perturbation expansion for a non-Hermitian PT-symmetric Hamiltonian is Stieltjes. <i>Journal of Mathematical Physics</i> , 2001 , 42, 2167	1.2	50
109	Hamiltonian for the Zeros of the Riemann Zeta Function. <i>Physical Review Letters</i> , 2017 , 118, 130201	7.4	49
108	Complexified dynamical systems. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2007 , 40, F793-F804		47
107	Complex correspondence principle. <i>Physical Review Letters</i> , 2010 , 104, 061601	7.4	45
106	Classical trajectories for complex Hamiltonians. <i>Journal of Physics A</i> , 2006 , 39, 4219-4238		45
105	Complex trajectories of a simple pendulum. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2007 , 40, F81-F89	2	45
104	Complex square well - a new exactly solvable quantum mechanical model. <i>Journal of Physics A</i> , 1999 , 32, 6771-6781		43
103	γ -symmetric extension of the Korteweg-de Vries equation. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2007 , 40, F153-F160	2	41
102	Quantum effects in classical systems having complex energy. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2008 , 41, 352003	2	40
101	A nonunitary version of massless quantum electrodynamics possessing a critical point. <i>Journal of Physics A</i> , 1999 , 32, L87-L92		38
100	Semiclassical calculation of the C operator in PT-symmetric quantum mechanics. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 2004 , 328, 102-109	2.3	36
99	Calculation of the hidden symmetry operator for a γ -symmetric square well. <i>Journal of Physics A</i> , 2006 , 39, 1945-1953		35
98	Continuous Hahn polynomials and the Heisenberg algebra. <i>Journal of Mathematical Physics</i> , 1987 , 28, 509-513	1.2	34
97	PT-symmetric quantum theory. <i>Journal of Physics: Conference Series</i> , 2015 , 631, 012002	0.3	33

96	Giving up the ghost. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2008 , 41, 304018	2	32
95	Non-Hermitian extension of gauge theories and implications for neutrino physics. <i>Journal of High Energy Physics</i> , 2015 , 2015, 1	5.4	31
94	The C operator in PT-symmetric quantum field theory transforms as a Lorentz scalar. <i>Physical Review D</i> , 2005 , 71,	4.9	31
93	Systems of coupled PT-symmetric oscillators. <i>Physical Review A</i> , 2014 , 90,	2.6	28
92	All Hermitian Hamiltonians have parity. <i>Journal of Physics A</i> , 2003 , 36, 1029-1031		28
91	New nonperturbative calculation: Renormalization and the triviality of $(\lambda\phi^4)_4$ field theory. <i>Physical Review D</i> , 1988 , 38, 2526-2529	4.9	28
90	Chaotic systems in complex phase space 2009 , 73, 453-470		27
89	Interactions of Hermitian and non-Hermitian Hamiltonians. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2008 , 41, 244006	2	27
88	Spontaneous breaking of classical PT symmetry. <i>Journal of Mathematical Physics</i> , 2007 , 48, 042703	1.2	27
87	Determination of $f(0)$ from the asymptotic series for $f(x)$ about $x=0$. <i>Journal of Mathematical Physics</i> , 1994 , 35, 1914-1921	1.2	27
86	Coupled oscillator systems having partial PT symmetry. <i>Physical Review A</i> , 2015 , 91,	2.6	24
85	New quasi-exactly solvable sextic polynomial potentials. <i>Journal of Physics A</i> , 2005 , 38, 2179-2187		23
84	Families of particles with different masses in PT-symmetric quantum field theory. <i>Physical Review Letters</i> , 2010 , 105, 031601	7.4	21
83	Compactons in $(\mathcal{P}\mathcal{T})$ -symmetric generalized Korteweg-de Vries equations 2009 , 73, 375-385		20
82	PT-symmetric representations of fermionic algebras. <i>Physical Review A</i> , 2011 , 84,	2.6	20
81	Maximum entropy summation of divergent perturbation series. <i>Journal of Mathematical Physics</i> , 1987 , 28, 1016-1018	1.2	19
80	Resonances in extreme mass-ratio inspirals: Asymptotic and hyperasymptotic analysis. <i>Journal of Mathematical Physics</i> , 2012 , 53, 032503	1.2	18
79	Ordinary versus PT-symmetric $\mathcal{N}=3$ quantum field theory. <i>Physical Review D</i> , 2012 , 85,	4.9	18

78	Two-point Green's function in PT-symmetric theories. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 2002 , 302, 286-290	2.3	18
77	Relativistic brachistochrone. <i>Journal of Mathematical Physics</i> , 1986 , 27, 507-511	1.2	18
76	PT-symmetric quantum state discrimination. <i>Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences</i> , 2013 , 371, 20120160	3	17
75	Foldy-Wouthuysen transformation for non-Hermitian Hamiltonians. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2015 , 48, 185403	2	16
74	Critical behavior of the PT-symmetric $\mathcal{N}=3$ quantum field theory. <i>Physical Review D</i> , 2013 , 87,	4.9	16
73	Classical particle in a complex elliptic potential. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2010 , 43, 165201	2	16
72	Conduction bands in classical periodic potentials 2009 , 73, 259-267		16
71	Does the complex deformation of the Riemann equation exhibit shocks?. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2008 , 41, 244004	2	16
70	PT-symmetric quantum field theory in D dimensions. <i>Physical Review D</i> , 2018 , 98,	4.9	16
69	PT quantum mechanics. <i>Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences</i> , 2013 , 371, 20120523	3	15
68	Probability density in the complex plane. <i>Annals of Physics</i> , 2010 , 325, 2332-2362	2.5	15
67	Exact isospectral pairs of \mathcal{PT} symmetric Hamiltonians. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2008 , 41, 244005	2	15
66	Quantum tunneling as a classical anomaly. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2011 , 44, 372001	2	14
65	Nonperturbative square-well approximation to a quantum theory. <i>Journal of Mathematical Physics</i> , 1990 , 31, 2579-2585	1.2	14
64	Evaluation of Feynman diagrams in the logarithmic approach to quantum field theory. <i>Journal of Mathematical Physics</i> , 1988 , 29, 2659-2665	1.2	14
63	Perturbation theory in large order for some elementary systems. <i>International Journal of Quantum Chemistry</i> , 1982 , 21, 93-104	2.1	14
62	Rigorous backbone of \mathcal{PT} -symmetric quantum mechanics. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2016 , 49, 401002	2	13
61	Relativistic PT-symmetric fermionic theories in 1+1 and 3+1 dimensions. <i>Physical Review A</i> , 2019 , 99,	2.6	13

60	Painlevé transcendentals and \mathcal{PT} -symmetric Hamiltonians. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2015 , 48, 475202	2	13
59	Periodic orbits for classical particles having complex energy. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 2011 , 375, 3399-3404	2.3	13
58	Nonunique C operator in PT quantum mechanics. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 2009 , 373, 2670-2674	2.3	13
57	Multilegged propagators in strong-coupling expansions. <i>Physical Review D</i> , 1979 , 20, 1374-1385	4.9	12
56	Solitary Waves of a \mathcal{PT} -Symmetric Nonlinear Dirac Equation. <i>IEEE Journal of Selected Topics in Quantum Electronics</i> , 2016 , 22, 67-75	3.8	11
55	Extending $(\mathcal{P}\mathcal{T})$ Symmetry from Heisenberg Algebra to E2 Algebra. <i>International Journal of Theoretical Physics</i> , 2011 , 50, 955-962	1.1	11
54	Optimal Time Evolution for Hermitian and Non-Hermitian Hamiltonians. <i>Lecture Notes in Physics</i> , 2009 , 341-361	0.8	11
53	\mathcal{PT} phase transition in multidimensional quantum systems. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2012 , 45, 425303	2	11
52	\mathcal{PT} -symmetric interpretation of unstable effective potentials. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2016 , 49, 45LT01	2	10
51	Unbounded \mathcal{C} -symmetries and their nonuniqueness. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2012 , 45, 444005	2	10
50	Asymptotic analysis of the Boltzmann equation for dark matter relics. <i>Journal of Mathematical Physics</i> , 2012 , 53, 103509	1.2	10
49	Infinite class of PT-symmetric theories from one timelike Liouville Lagrangian. <i>Physical Review Letters</i> , 2014 , 113, 231605	7.4	9
48	Comment on \mathcal{D} n the Lagrangian and Hamiltonian description of the damped linear harmonic oscillator [J. Math. Phys. 48, 032701 (2007)]. <i>Journal of Mathematical Physics</i> , 2016 , 57, 084101	1.2	9
47	Behavior of eigenvalues in a region of broken PT symmetry. <i>Physical Review A</i> , 2017 , 95,	2.6	7
46	Wentzel-Kramers-Brillouin analysis of PT-symmetric Sturm-Liouville problems. <i>Physical Review A</i> , 2012 , 85,	2.6	7
45	Analytic structure of eigenvalues of coupled quantum systems. <i>Physica Scripta</i> , 2017 , 92, 015201	2.6	6
44	Nonlinear eigenvalue problems. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2014 , 47, 235204	2	6
43	Nonlinear eigenvalue problems and PT-symmetric quantum mechanics. <i>Journal of Physics: Conference Series</i> , 2017 , 873, 012002	0.3	6

42	PT symmetry in relativistic quantum mechanics. <i>Physical Review D</i> , 2011 , 84,	4.9	6
41	Small- ϵ behavior of the non-Hermitian $\{P\}\{T\}$ -symmetric Hamiltonian $H=p^2+x^2(ix)$?. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2009 , 42, 355301	2	6
40	Complex trajectories in a classical periodic potential. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2012 , 45, 455101	2	6
39	WKB analysis of $\{P\}\{T\}$ -symmetric Sturm-Liouville problems. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2012 , 45, 444004	2	6
38	Semiclassical analysis of a complex quartic Hamiltonian. <i>Physical Review D</i> , 2006 , 73,	4.9	6
37	$\{P\}\{T\}$ -symmetric interpretation of the electromagnetic self-force. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2015 , 48, 34FT01	2	5
36	Two- and four-dimensional representations of the PT- and CPT-symmetric fermionic algebras. <i>Physical Review A</i> , 2018 , 97,	2.6	5
35	Nonlinear eigenvalue problems for generalized Painlevé equations. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2019 , 52, 315202	2	4
34	Winding in non-Hermitian systems. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2018 , 51, 055201	2	4
33	Nonuniqueness of the $\{C\}$ operator in $\{P\}\{T\}$ -symmetric quantum mechanics. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2013 , 46, 275306	2	4
32	Two-Dimensional Pulse Propagation without Anomalous Dispersion. <i>Physical Review Letters</i> , 2017 , 119, 114301	7.4	4
31	Matrix representation of the time operator. <i>Journal of Mathematical Physics</i> , 2012 , 53, 062102	1.2	4
30	Double-scaling limit of a broken symmetry quantum field theory in dimensions D . <i>Journal of Mathematical Physics</i> , 2001 , 42, 1960	1.2	4
29	Effective Potential for $\{P\}\{T\}$ -Symmetric Quantum Field Theories. <i>Foundations of Physics</i> , 2000 , 30, 393-411	1.2	4
28	Complex Classical Motion in Potentials with Poles and Turning Points. <i>Studies in Applied Mathematics</i> , 2014 , 133, 318-336	2.1	3
27	Negative-energy $\{P\}\{T\}$ -symmetric Hamiltonians. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2012 , 45, 444003	2	3
26	Asymptotic analysis of the Boltzmann equation for dark matter relics in the presence of a running dilaton and space-time defects. <i>Physical Review D</i> , 2013 , 87,	4.9	3
25	Universal spectral behavior of $x^2(ix)$ -potentials. <i>Physical Review A</i> , 2012 , 86,	2.6	3

24	NON-HERMITIAN QUANTUM FIELD THEORY. <i>International Journal of Modern Physics A</i> , 2005 , 20, 4646-4652	3
23	\mathcal{PT} -symmetric model of immune response. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2017 , 50, 035601	2 2
22	Series solutions of \mathcal{PT} -symmetric Schrödinger equations. <i>Journal of Physics Communications</i> , 2018 , 2, 025012	1.2 2
21	\mathcal{PT} -symmetric interpretation of double-scaling. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2013 , 46, 102002	2 2
20	PT quantum mechanics - Recent results 2012 ,	2
19	Parity anomaly in a \mathcal{PT} -symmetric quartic Hamiltonian. <i>European Physical Journal D</i> , 2006 , 56, 1047-1062	2
18	Wilson polynomials and the Lorentz transformation properties of the parity operator. <i>Journal of Mathematical Physics</i> , 2005 , 46, 052302	1.2 2
17	\mathcal{PT} -symmetric potentials having continuous spectra. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2020 , 53, 375302	2 2
16	Operator-valued zeta functions and Fourier analysis. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2019 , 52, 345201	2 1
15	Asymptotic analysis on a pseudo-Hermitian Riemann-zeta Hamiltonian. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2018 , 51, 135203	2 1
14	Asymptotic analysis of the local potential approximation to the Wetterich equation. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2018 , 51, 225202	2 1
13	Double-scaling limit of the $O(N)$ -symmetric anharmonic oscillator. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2013 , 46, 442001	2 1
12	Ghost busting: Making sense of non-Hermitian Hamiltonians. <i>European Physical Journal D</i> , 2005 , 55, 1067-1074	1
11	Lorentz transformation properties of nonconserved charges. <i>Journal of Mathematical Physics</i> , 1983 , 24, 990-995	1.2 1
10	On higher order computations in strong coupling 1984 , 23, 695-701	1
9	Nonlinear eigenvalue problems 2017 , 67-89	1
8	Scattering off \mathcal{PT} -symmetric upside-down potentials. <i>Physical Review A</i> , 2018 , 98,	2.6 1
7	PT symmetry and renormalisation in quantum field theory. <i>Journal of Physics: Conference Series</i> , 2021 , 2038, 012004	0.3 0

- 6 Two-dimensional, steady-state diffusion of a passive scalar in a flow field. *Journal of Mathematical Physics*, **1983**, 24, 1630-1632 1.2
- 5 PT -symmetric classical mechanics. *Journal of Physics: Conference Series*, **2021**, 2038, 012003 0.3
- 4 Calculation of Green's Functions in \mathcal{PT} -Symmetric Quantum Field Theory **2021**, 121-137
- 3 Complex elliptic pendulum **2011**, 1-18
- 2 Physics in the Complex Domain. *Proceedings (mdpi)*, **2018**, 2, 47 0.3
- 1 Addendum: Painlevé transcendents and \mathcal{PT} -symmetric Hamiltonians (2015 J. Phys. A: Math. Theor. 48 475202). *Journal of Physics A: Mathematical and Theoretical*, **2022**, 55, 109401 2