J Chris Eilbeck

List of Publications by Year
in descending order

94 papers	3,787 citations	126907 33 h-index	128289 60 g-index
94 all docs	94 docs citations	94 times ranked	1071 citing authors

#	Article	IF	Citations
1	The discrete self-trapping equation. Physica D: Nonlinear Phenomena, 1985, 16, 318-338.	2.8	563
2	Soliton structure in crystalline acetanilide. Physical Review B, 1984, 30, 4703-4712.	3.2	224
3	Solitons in nonlinear optics. I. A more accurate description of the 2Ï€ pulse in self-induced transparency. Journal of Physics A: Mathematical Nuclear and General, 1973, 6, 1337-1347.	1.0	157
4	Solitons on lattices. Physica D: Nonlinear Phenomena, 1993, 68, 1-11.	2.8	113
5	Exact Multisoliton Solutions of the Self-Induced Transparency and Sine-Gordon Equations. Physical Review Letters, 1973, 30, 237-238.	7.8	111
6	Quantum lattice solitons. Physica D: Nonlinear Phenomena, 1994, 78, 194-213.	2.8	110
7	Numerical study of the regularized long-wave equation I: Numerical methods. Journal of Computational Physics, 1975, 19, 43-57.	3.8	103
8	Numerical study of the regularized long-wave equation. II: Interaction of solitary waves. Journal of Computational Physics, 1977, 23, 63-73.	3.8	103
9	Between the local-mode and normal-mode limits. Chemical Physics Letters, 1985, 113, 29-36.	2.6	101
10	Calculation of families of solitary waves on discrete lattices. Physics Letters, Section A: General, Atomic and Solid State Physics, 1990, 149, 200-202.	2.1	90
11	The quantum theory of local modes in a coupled system of nonlinear oscillators. Nonlinearity, 1990, 3, 293-323.	1.4	90
12	Evidence for moving breathers in a layered crystal insulator at 300â€‰K. Europhysics Letters, 2007, 78, 10004.	2.0	87
13	The quantized discrete self-trapping equation. Physics Letters, Section A: General, Atomic and Solid State Physics, 1986, 119, 60-64.	2.1	86
14	Localized moving breathers in a 2D hexagonal lattice. Physics Letters, Section A: General, Atomic and Solid State Physics, 1998, 248, 225-229.	2.1	84
15	The quantum discrete self-trapping equation in the Hartree approximation. Physica D: Nonlinear Phenomena, 1993, 69, 18-32.	2.8	76
16	On the CH stretch overtones of benzene. Chemical Physics Letters, 1986, 132, 23-28.	2.6	72
17	Stability of stationary solutions of the discrete self-trapping equation. Physics Letters, Section A: General, Atomic and Solid State Physics, 1985, 109, 201-204.	2.1	67
18	Chaos in the inhomogeneously driven sine-Gordon equation. Physics Letters, Section A: General, Atomic and Solid State Physics, 1981, 87, 1-4.	2.1	62

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19	Exact multisoliton solution of the inhomogeneously broadened self-induced transparency equations. Journal of Physics A: Mathematical Nuclear and General, 1973, 6, L53-L56.	1.0	61
20	Ephaptic coupling of myelinated nerve fibers. Physica D: Nonlinear Phenomena, 2001, 148, 159-174.	2.8	60
21	Moving breathers in a chain of magnetic pendulums. Physical Review B, 1997, 55, 6304-6308.	3.2	59
22	Breathers in cuprate-like lattices. Physics Letters, Section A: General, Atomic and Solid State Physics, 2001, 281, 21-25.	2.1	56
23	Moving kinks and nanopterons in the nonlinear Kleinâ€“Gordon lattice. Physica D: Nonlinear Phenomena, 2000, 138, 267-281.	2.8	52
24	Coexistence in the Competition Model with Diffusion. Journal of Differential Equations, 1994, 107, 96-139.	2.2	46
25	THE DISCRETE NONLINEAR SCHRÃ–DINGER EQUATION â€" 20 YEARS ON. , 2003, , .		45
26	There's more than one way to skin SchrÃ¶dinger's cat. Physica D: Nonlinear Phenomena, 1992, 59, 1-24.	2.8	43
27	Reflection of short pulses in linear optics. Journal of Physics A: General Physics, 1972, 5, 1355-1363.	0.8	41
28	Linear r-matrix algebra for systems separable in parabolic coordinates. Physics Letters, Section A: General, Atomic and Solid State Physics, 1993, 180, 208-214.	2.1	40
29	Nonlinear propagating localized modes in a 2D hexagonal crystal lattice. Physica D: Nonlinear Phenomena, 2015, 301-302, 8-20.	2.8	39
30	Comparison between oneâ€dimensional and twoâ€dimensional models for Josephson junctions of overlap type. Journal of Applied Physics, 1985, 57, 861-866.	2.5	36
31	Influence of moving breathers on vacancies migration. Physics Letters, Section A: General, Atomic and Solid State Physics, 2003, 315, 364-371.	2.1	36
32	A general theory of self-induced transparency. Optical and Quantum Electronics, 1974, 6, 121-140.	3.3	35
33	Collocation with Quadratic and Cubic Splines. IMA Journal of Numerical Analysis, 1982, 2, 111-121.	2.9	35
34	Abelian functions for cyclic trigonal curves of genus 4. Journal of Geometry and Physics, 2008, 58, 450-467.	1.4	35
35	Quasiperiodic and periodic solutions for vector nonlinear SchrÃ¶dinger equations. Journal of Mathematical Physics, 2000, 41, 8236-8248.	1.1	34
36	Internal dynamics of long Josephson junction oscillators. Applied Physics Letters, 1981, 39, 108-110.	3.3	30

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37	Membrane conductances involved in amplification of small signals by sodium channels in photoreceptors of drone honey bee.. Journal of Physiology, 1992, 456, 303-324.	2.9	30
38	Discrete soliton collisions in a waveguide array with saturable nonlinearity. Physics Letters, Section A: General, Atomic and Solid State Physics, 2006, 358, 15-20.	2.1	30
39	Energy levels of the quantized discrete self-trapping equation. Journal of Biological Physics, 1989, 17, 1-17.	1.5	29
40	Structure of solution manifolds in a strongly coupled elliptic system. IMA Journal of Numerical Analysis, 1992, 12, 405-428.	2.9	29
41	Elliptic Bakerâ€“Akhiezer functions and an application to an integrable dynamical system. Journal of Mathematical Physics, 1994, 35, 1192-1201.	1.1	29
42	Bound states of lattice solitons and their bifurcations. Physica D: Nonlinear Phenomena, 1997, 108, 81-91.	2.8	29
43	Solitary waves on a strongly anisotropic KP lattice. Physics Letters, Section A: General, Atomic and Solid State Physics, 1991, 158, 107-111.	2.1	26
44	A possible N soliton solution for a nonlinear optics equation. Journal of Physics A: General Physics, 1972, 5, L122-L124.	0.8	23
45	The method of characteristics in the theory of resonant or nonresonant nonlinear optics. Journal of Physics A: General Physics, 1972, 5, 820-829.	0.8	23
46	Abelian Functions for Trigonal Curves of Genus Three. International Mathematics Research Notices, 2010, , .	1.0	19
47	On a stationary state characterization of transition from spinodal decomposition to nucleation behaviour in the Cahn-Hilliard model of phase separation. Physics Letters, Section A: General, Atomic and Solid State Physics, 1989, 135, 272-275.	2.1	18
48	Binding energies for discrete nonlinear SchrÃ¶dinger equations. Physica Scripta, 1991, 44, 509-516.	2.5	18
49	Soliton bands in anharmonic quantum lattices. Physics Letters, Section A: General, Atomic and Solid State Physics, 1993, 172, 229-235.	2.1	18
50	Multiple soliton and bisoliton bound state solutions of the sine-Gordon equation and related equations in nonlinear optics. Journal of Physics A: Mathematical Nuclear and General, 1973, 6, L112-L115.	1.0	17
51	Trapping in quantum chains. Physics Letters, Section A: General, Atomic and Solid State Physics, 2004, 331, 201-208.	2.1	17
52	Aharonov-Bohm effect for an exciton in a finite-width nanoring. Physical Review B, 2005, 72, .	3.2	17
53	On ultrasonic Davydov solitons and the HÃ©non-Heiles system. Physics Letters, Section A: General, Atomic and Solid State Physics, 1992, 166, 129-134.	2.1	16
54	Stationary states in a doubly nonlinear trimer model of optical couplers. Physica Scripta, 1995, 52, 386-387.	2.5	15

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55	On the Periodic Lotkaâ€“Volterra Competition Model. Journal of Mathematical Analysis and Applications, 1997, 210, 58-87.	1.0	15
56	Interplay between dispersive and non-dispersive modes in the polaron problem. Physics Letters, Section A: General, Atomic and Solid State Physics, 2000, 266, 160-166.	2.1	15
57	Abelian functions associated with a cyclic tetragonal curve of genus six. Journal of Physics A: Mathematical and Theoretical, 2009, 42, 095210.	2.1	14
58	Sigma, tau and Abelian functions of algebraic curves. Journal of Physics A: Mathematical and Theoretical, 2010, 43, 455216.	2.1	14
59	Multiple frequency generation by bunched solitons in Josephson tunnel junctions. Physical Review B, 1981, 24, 7460-7462.	3.2	13
60	Numerical Simulations of Nonlinear Modes in Mica: Past, Present and Future. Springer Series in Materials Science, 2015, , 35-67.	0.6	13
61	Two-dimensional mobile breather scattering in a hexagonal crystal lattice. Physical Review E, 2021, 103, 022212.	2.1	12
62	Numerical evidence for breakdown of soliton behaviour in solutions of the Maxwell-Bloch equations. Physics Letters, Section A: General, Atomic and Solid State Physics, 1977, 62, 65-66.	2.1	11
63	A mathematical model for pattern formation in biological systems. Physica D: Nonlinear Phenomena, 1981, 3, 439-456.	2.8	11
64	Dynamical two electron states in a Hubbard-Davydov model. European Physical Journal B, 2004, 42, 95-102.	1.5	11
65	The asymptotic form of the N soliton solution of the Korteweg-de Vries equation. Journal of Physics A: General Physics, 1972, 5, L132-L135.	0.8	10
66	Analytical approach to the Davydov-Scott theory with on-site potential. Physical Review B, 2001, 63, .	3.2	10
67	Fast energy transfer mediated by multi-quanta bound states in a nonlinear quantum lattice. Physica D: Nonlinear Phenomena, 2006, 221, 58-71.	2.8	10
68	Pattern selection and low-dimensional chaos in the driven damped two-dimensional sine-Gordon equation. Journal of Physics C: Solid State Physics, 1985, 18, L511-L517.	1.5	9
69	Conditions under which Na+channels can Boost conduction of small graded potentials. Journal of Theoretical Biology, 1995, 172, 379-386.	1.7	9
70	Breathers in systems with intrinsic and extrinsic nonlinearities. Physica D: Nonlinear Phenomena, 2000, 142, 101-112.	2.8	9
71	The hyperelliptic Î¶â€“function and the integrable massive Thirring model. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2003, 459, 1581-1610.	2.1	9
72	A monotonicity theorem and its application to stationary solutions of the phase field model. IMA Journal of Applied Mathematics, 1992, 49, 61-72.	1.6	8

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73	Multidimensional SchrÃ¶dinger equations with Abelian potentials. Journal of Mathematical Physics, 2002, 43, 2858-2881.	1.1	8
74	Identities for the classical genus two function. Journal of Geometry and Physics, 2003, 48, 354-368.	1.4	8
75	Abelian functions associated with genus three algebraic curves. LMS Journal of Computation and Mathematics, 2011, 14, 291-326.	0.9	8
76	General method to solve Hamiltonians with infinite-range interactions. Physical Review A, 1994, 50, 553-556.	2.5	7
77	A breather-like localized mode in a Fermi-Pasta-Ulam lattice interacting with an electron. Journal of Physics Condensed Matter, 1998, 10, 4553-4564.	1.8	7
78	Quantization of <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" altimg="si42.gif" display="inline" overflow="scroll"><mml:mi>l²</mml:mi></mml:math>-Fermiâ€“Pastaâ€“Ulam lattice with nearest and next-nearest neighbor interactions. Physica D: Nonlinear Phenomena, 2015, 294, 43-53.	2.8	7
79	A mathematical model for embryonic cell division based on a surface â€œcleavage fieldâ€• Journal of Theoretical Biology, 1978, 75, 123-137.	1.7	5
80	One-dimensional approximations for a quadratic Ikeda map. Physics Letters, Section A: General, Atomic and Solid State Physics, 1984, 104, 59-62.	2.1	5
81	How good are oneâ€dimensional Josephson junction models?. Journal of Applied Physics, 1985, 57, 997-999.	2.5	5
82	A comparison of basis functions for the pseudo-spectral method for a model reaction-diffusion problem. Journal of Computational and Applied Mathematics, 1986, 15, 371-378.	2.0	5
83	Local modes in molecules. Journal of Molecular Liquids, 1989, 41, 105-111.	4.9	5
84	Stationary states associated with phase separation in a pure material. I. The large latent heat case. Physics Letters, Section A: General, Atomic and Solid State Physics, 1989, 139, 42-46.	2.1	5
85	A SL(2) covariant theory of genus 2 hyperelliptic functions. Mathematical Proceedings of the Cambridge Philosophical Society, 2004, 136, 269-286.	0.4	5
86	Addition formulae for Abelian functions associated with specialized curves. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2011, 369, 1245-1263.	3.4	5
87	Spectral Curves of Operators with Elliptic Coefficients. Symmetry, Integrability and Geometry: Methods and Applications (SIGMA), 2007, , .	0.5	4
88	Mathematical modelling of weakly nonlinear pulses in a retinal neuron. Chaos, Solitons and Fractals, 1995, 5, 407-413.	5.1	3
89	Biomolecular dynamics by computer analysis. Journal of Computational and Applied Mathematics, 1988, 22, 297-299.	2.0	2
90	Proof of a conjecture by Scott concerning energy levels in the quantum DST equation. Physics Letters, Section A: General, Atomic and Solid State Physics, 1991, 155, 407-409.	2.1	2

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91	Nonlinear radiation reaction, superradiance, and coherent optical pulse propagation. IEEE Journal of Quantum Electronics, 1972, 8, 568-569.	1.9	1
92	Some applications of computer algebra to problems in theoretical physics. Mathematics and Computers in Simulation, 1996, 40, 443-452.	4.4	1
93	Statistical Evidence for a Helical Nascent Chain. Biomolecules, 2021, 11, 357.	4.0	1
94	Some new addition formulae for Weierstrass elliptic functions. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2014, 470, 20140051.	2.1	0