Luis Vazquez

List of Publications by Year
in descending order

126	3,477	186265	155660
papers	citations	28 h-index	55 g-index

134	134	134	2140
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Numerical solution of a nonlinear Klein-Gordon equation. Journal of Computational Physics, 1978, 28, 271-278.	3.8	256
2	REMS: The Environmental Sensor Suite for the Mars Science Laboratory Rover. Space Science Reviews, 2012, 170, 583-640.	8.1	247
3	Numerical simulation of nonlinear SchrÃ¶dinger systems: A new conservative scheme. Applied Mathematics and Computation, 1995, 71, 165-177.	2.2	166
4	Numerical solution of the sine-Gordon equation. Applied Mathematics and Computation, 1986, 18, 1-14.	2.2	156
5	Resonant soliton-impurity interactions. Physical Review Letters, 1991, 67, 1177-1180.	7.8	148
6	Resonant kink-impurity interactions in the sine-Gordon model. Physical Review A, 1992, 45, 6019-6030.	2.5	128
7	THE MARTIAN ATMOSPHERIC BOUNDARY LAYER. Reviews of Geophysics, 2011, 49, .	23.0	119
8	Two finite difference schemes for time fractional diffusion-wave equation. Numerical Algorithms, 2013, 64, 707-720.	1.9	119
9	Analysis of Four Numerical Schemes for a Nonlinear Klein-Gordon Equation. Applied Mathematics and Computation, 1990, 35, 61-94.	2.2	115
10	Two energy conserving numerical schemes for the Sine-Gordon equation. Applied Mathematics and Computation, 1991, 45, 17-30.	2.2	111
11	Resonant kink-impurity interactions in theÏ†4model. Physical Review A, 1992, 46, 5214-5220.	2.5	106
12	Existence of localized solutions for a classical nonlinear Dirac field. Communications in Mathematical Physics, 1986, 105, 35-47.	2.2	93
13	Dissipative optical solitons. Physical Review A, 1994, 49, 2806-2811.	2.5	89
14	Fractional dynamics of populations. Applied Mathematics and Computation, 2011, 218, 1089-1095.	2.2	88
15	Pressure observations by the Curiosity rover: Initial results. Journal of Geophysical Research E: Planets, 2014, 119, 82-92.	3.6	84
16	Mars Science Laboratory relative humidity observations: Initial results. Journal of Geophysical Research E: Planets, 2014, 119, 2132-2147.	3.6	75
17	Existence of standing waves for dirac fields with singular nonlinearities. Communications in Mathematical Physics, 1990, 133, 53-74.	2.2	55
18	Sine-Gordon solitons under weak stochastic perturbations. Physical Review B, 1985, 32, 8305-8311.	3.2	45

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19	Numerical solution of two dimensional Fokkerâ€”Planck equations. Applied Mathematics and Computation, 1999, 98, 109-117.	2.2	44
20	Comparison between Staggered and Unstaggered Finite-Difference Time-Domain Grids for Few-Cycle Temporal Optical Soliton Propagation. Journal of Computational Physics, 2000, 161, 379-400.	3.8	39
21	Fractional heat equation and the second law of thermodynamics. Fractional Calculus and Applied Analysis, 2011, 14, 334-342.	2.2	39
22	Stability under dilations of nonlinear spinor fields. Physical Review D, 1986, 34, 641-643.	4.7	35
23	Convergence Analysis of a Block-by-Block Method for Fractional Differential Equations. Numerical Mathematics, 2012, 5, 229-241.	1.3	35
24	NONLINEAR WAVE PROPAGATION IN DISORDERED MEDIA. International Journal of Modern Physics B, 1991, 05, 2825-2882.	2.0	34
25	On the solution of fractional evolution equations. Journal of Physics A, 2004, 37, 3271-3283.	1.6	34
26	A model to calculate solar radiation fluxes on the Martian surface. Journal of Space Weather and Space Climate, 2015, 5, A33.	3.3	34
27	Astrobiological significance of minerals on Mars surface environment. Reviews in Environmental Science and Biotechnology, 2006, 5, 219-231.	8.1	31
28	Kink dynamics in the periodically modulatedÏ†4model. Physical Review E, 1993, 48, 548-554.	2.1	29
29	Symplectic methods for the Ablowitz-Ladik model. Applied Mathematics and Computation, 1997, 82, 17-38.	2.2	28
30	Numerical investigation of a non-local sine-Gordon model. Physics Letters, Section A: General, Atomic and Solid State Physics, 1994, 189, 454-459.	2.1	27
31	From Newton's Equation to Fractional Diffusion and Wave Equations. Advances in Difference Equations, 2011, 2011, 1-13.	3.5	27
32	Kinks in the Klein-Gordon model with anharmonic interactions: a variational approach. Physics Letters, Section A: General, Atomic and Solid State Physics, 1991, 157, 241-245.	2.1	26
33	Localised solutions of a non-linear spinor field. Journal of Physics A, 1977, 10, 1361-1368.	1.6	25
34	Sine-Gordon breathers on spatially periodic potentials. Physical Review A, 1992, 45, 6031-6037.	2.5	25
35	Fractional Diffusion Models for the Atmosphere of Mars. Fractal and Fractional, 2018, 2, 1.	3.3	23
36	Classical electrodynamics of a nonlinear Dirac field with anomalous magnetic moment. Physical Review D, 1974, 10, 517-525.	4.7	22

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37	Kink capture by a local impurity in the sine-Gordon model. Physics Letters, Section A: General, Atomic and Solid State Physics, 1991, 159, 318-322.	2.1	22
38	Frenkel-Kontorova model with a transversal degree of freedom: Static properties of kinks. Physical Review B, 1993, 48, 3734-3743.	3.2	22
39	Fractionally coupled solutions of the diffusion equation. Applied Mathematics and Computation, 2003, 141, 125-130.	2.2	21
40	Emergence of synchronous oscillations in neural networks excited by noise. Physica D: Nonlinear Phenomena, 2003, 179, 105-114.	2.8	20
41	Characterization of the Martian Convective Boundary Layer. Journals of the Atmospheric Sciences, 2009, 66, 2044-2058.	1.7	20
42	Kink decay in a parametrically drivenÏ†4chain. Physical Review A, 1992, 45, 1207-1212.	2.5	19
43	The nonlinear SchrÃ¶dinger equation with dissipation and the moment method. Physics Letters, Section A: General, Atomic and Solid State Physics, 1995, 202, 176-182.	2.1	18
44	Characterization of the Martian Surface Layer. Journals of the Atmospheric Sciences, 2009, 66, 187-198.	1.7	18
45	Numerical solution of a nonlinear wave equation in polar coordinates. Applied Mathematics and Computation, 1984, 14, 313-329.	2.2	17
46	Stability of nonlinear spinor fields with application to the Gross-Neveu model. Physical Review D, 1987, 36, 2422-2428.	4.7	16
47	Kink propagation through disordered media. Physical Review A, 1992, 45, 8867-8873.	2.5	16
48	FRACTIONAL DUFFING'S EQUATION AND GEOMETRICAL RESONANCE. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 2013, 23, 1350089.	1.7	15
49	Dynamics of aÏ†4kink in the presence of strong potential fluctuations, dissipation, and boundaries. Physical Review A, 1991, 44, 1086-1103.	2.5	14
50	The Martian Planetary Boundary Layer. , 2017, , 172-202.		14
51	Creation of sine-Gordon solitons by a pulse force. Physical Review B, 1991, 43, 1098-1109.	3.2	13
52	Wave interaction with a random fat fractal: dimension of the reflection coefficient. Waves in Random and Complex Media, 1995, 5, 9-18.	1.5	13
53	On radial sine-Gordon breathers. Nonlinearity, 2000, 13, 1657-1680.	1.4	13
54	Creation of Localized Optical Waves that Do Not Obey the Radiation Condition at Infinity. Physical Review Letters, 2000, 85, 2104-2107.	7.8	13

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55	Spectral information retrieval from integrated broadband photodiode Martian ultraviolet measurements. Optics Letters, 2007, 32, 2596.	3.3	13
56	Retrieval of ultraviolet spectral irradiance from filtered photodiode measurements. Inverse Problems, 2009, 25, 115023.	2.0	13
57	About Some Possible Implementations of the Fractional Calculus. Mathematics, 2020, 8, 893.	2.2	13
58	Existence of localized solutions for certain model field theories. Journal of Mathematical Physics, 1981, 22, 1005-1009.	1.1	12
59	On the Discretization of Certain Operator Field Equations. Zeitschrift Fur Naturforschung - Section A Journal of Physical Sciences, 1986, 41, 788-790.	1.5	12
60	Kink dynamics in the weakly stochasticÏ†4model. Physical Review B, 1991, 44, 2554-2566.	3.2	12
61	Wave interaction with a fractal layer. Physical Review E, 1993, 48, 4044-4048.	2.1	12
62	Some aspects about the scalability of scientific applications on parallel architectures. Parallel Computing, 1996, 22, 1169-1195.	2.1	12
63	Small-amplitude solitons in a nonlocal sine-Gordon model. Physics Letters, Section A: General, Atomic and Solid State Physics, 1996, 221, 317-322.	2.1	11
64	A numerical scheme for the simulation of blow-up in the nonlinear SchrÃ¶dinger equation. Applied Mathematics and Computation, 2003, 134, 271-291.	2.2	11
65	The dynamical nature of a backlash system with and without fluid friction. Nonlinear Dynamics, 2007, 47, 363-366.	5.2	11
66	The effect of the induced magnetic field on the electron density vertical profile of the Mars×3 ionosphere: A Mars Express MARSIS radar data analysis and interpretation, a case study. Planetary and Space Science, 2016, 126, 49-62.	1.7	11
67	Focusing properties of shocking optical pulses. Optics Letters, 2001, 26, 376.	3.3	10
68	Localized solutions of a nonlinear scalar field with a scalar potential. Journal of Mathematical Physics, 1977, 18, 1341-1342.	1.1	9
69	On complex singularities of solutions of the equation â„‹ux-u+up= 0. Journal of Physics A, 2000, 33, 6707-6720.	1.6	9
70	Stationary localized solutions in nonlinear classical fields. Journal of Mathematical Physics, 1977, 18, 1343-1347.	1.1	8
71	Numerical Solutions of the Maxwellâ€“Bloch Laser Equations. Journal of Computational Physics, 1996, 129, 181-189.	3.8	8
72	The wave equation: From eikonal to anti-eikonal approximation. Modern Electronic Materials, 2016, 2, 51-53.	0.6	8

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73	Signal-adapted tomography as a tool for dust devil detection. Aeolian Research, 2017, 29, 12-22.	2.7	8
74	Dirac field on a Minkowski lattice. Physical Review D, 1985, 32, 2066-2069.	4.7	7
75	Two-dimensional quantum field theory â–¡Ï†+ÏƒÏ†+Î»Ï†3=0 on a Minkowski lattice. Physical Review D, 1987, 35, 1409-1411.	4.7	7
76	Remote temperature retrieval from heating or cooling targets. Optics Letters, 2006, 31, 1420.	3.3	7
77	The TKE budget in the convective Martian planetary boundary layer. Quarterly Journal of the Royal Meteorological Society, 2011, 137, 2194-2208.	2.7	7
78	On the radius of certain classical localized solutions. Lettere Al Nuovo Cimento Rivista Internazionale Della SocietÃ Italiana Di Fisica, 1977, 19, 561-564.	0.4	6
79	Interaction and stability of localized solutions in a classical nonlinear scalar field theory. Journal of Mathematical Physics, 1978, 19, 387-389.	1.1	6
80	Kinks and the Heisenberg uncertainty principle. Physical Review D, 1979, 19, 493-495.	4.7	6
81	Sine-Gordon solitons in the presence of a noisy potential. Physica D: Nonlinear Phenomena, 1985, 14, 273-276.	2.8	6
82	Topological soliton dynamics in a stochasticÃ¸4 model. Physics Letters, Section A: General, Atomic and Solid State Physics, 1991, 152, 184-190.	2.1	6
83	SOLVING TWO-POINT BOUNDARY VALUE PROBLEMS OF FRACTIONAL DIFFERENTIAL EQUATIONS VIA SPLINE COLLOCATION METHODS. International Journal of Modeling, Simulation, and Scientific Computing, 2010, 01, 117-132.	1.4	6
84	The MetNet vehicle: a lander to deploy environmental stations for local and global investigations of Mars. Geoscientific Instrumentation, Methods and Data Systems, 2017, 6, 103-124.	1.6	6
85	Nonlinear effects in the wave equation with a cubic restoring force. Computational Mechanics, 1989, 5, 49-72.	4.0	5
86	Construction of exact invariants of time-dependent linear nonholonomic dynamical systems. Physics Letters, Section A: General, Atomic and Solid State Physics, 2008, 372, 1555-1561.	2.1	5
87	On the fractional Newton and wave equation in one space dimension. Applied Mathematical Modelling, 2014, 38, 3314-3324.	4.2	5
88	Mathematics and Mars Exploration. Pure and Applied Geophysics, 2015, 172, 33-47.	1.9	5
89	Variabilidad estacional e interanual de la radiaciÃ³n solar en las coordenadas de aterrizaje de Spirit, Opportunity y Curiosity. FÃsica De La Tierra, 2016, 28, .	0.1	5
90	Localized solutions of a nonlinear electromagnetic field. Journal of Mathematical Physics, 1977, 18, 1259-1263.	1.1	4

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91	Born-Infeld effects in the electromagnetic mass of an extended Dirac particle. Physical Review D, 1980, 22, 2422-2424.	4.7	4
92	Motion of a charge in a magnetic dipole field. I. PainlevÃ© analysis and a conservative numerical scheme. Applied Mathematics and Computation, 1988, 25, 207-217.	2.2	4
93	Internal-Mode-Induced Resonances in Soliton-Impurity Interactions. Journal of the Physical Society of Japan, 1994, 63, 466-471.	1.6	4
94	Dimerized ground states of the Frenkel-Kontorova model with a transversal degree of freedom. Physics Letters, Section A: General, Atomic and Solid State Physics, 1994, 191, 257-260.	2.1	4
95	Fractional calculus: theory and numerical methods. Open Physics, 2013, 11, .	1.7	4
96	Stability of certain scalar localized solutions in a ball. Societa Italiana Di Fisica Nuovo Cimento B-General Physics, Relativity Astronomy and Mathematical Physics and Methods, 1982, 69, 63-70.	0.2	3
97	On the self-torque on an extended classical charged particle. Journal of Physics A, 1984, 17, 2011-2016.	1.6	3
98	Particle-spectrum estimates for the quantum field theoryÏ†tt-Ï†xx+(m3/ â^šÎ»)sin[(â^šÎ» /m)Ï†]=0 on a Minkowski lattice. Physical Review D, 1987, 35, 3274-3276.	4.7	3
99	Relation between two variational methods to calculate the energy levels. Physics Letters, Section A: General, Atomic and Solid State Physics, 1990, 144, 15-16.	2.1	3
100	The Martian Planetary Boundary Layer: Turbulent kinetic energy and fundamental similarity scales. Solar System Research, 2013, 47, 446-453.	0.7	3
101	Overview of the main radiation transport codes. Geoscientific Instrumentation, Methods and Data Systems, 2020, 9, 407-415.	1.6	3
102	Explicit schemes to solve the SchrÃ¶dinger field on a Galileo lattice. Physical Review D, 1986, 34, 3253-3254.	4.7	2
103	Geometrical distortion caused by substituents. 5. Method of evaluating explicative hypotheses for constrained systems. The Journal of Physical Chemistry, 1992, 96, 6624-6629.	2.9	2
104	Efficient shooting algorithms for solving the nonlinear one-dimensional scalar Helmholtz equation. Applied Mathematics and Computation, 1998, 95, 101-114.	2.2	2
105	Internal degrees of freedom, long-range interactions and nonlocal effects in perturbed Kleinâ€“Gordon equations. Physica A: Statistical Mechanics and Its Applications, 2012, 391, 515-527.	2.6	2
106	Scattering properties of envelope solitons in disordered systems: decay of localization effects by strong nonlinearity. Waves in Random and Complex Media, 1992, 2, 125-140.	1.5	2
107	Charges in a classical nonlinear scalar field. Lettere Al Nuovo Cimento Rivista Internazionale Della SocietÃ Italiana Di Fisica, 1978, 21, 614-616.	0.4	1
108	Conservative numerical schemes for Euler-Lagrange equations. Il Nuovo Cimento A, 1999, 112, 455-459.	0.2	1

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109	Diffusion of intrinsic localized modes by attractor hopping. Journal of Physics A, 2003, 36, 11779-11790.	1.6	1
110	<title>Characterization of atmospheric aerosols by an in-situ photometric technique in planetary environments</title>. , 2003, , .		1
111	Opportunities to observe solar eclipses by Phobos with the Mars Science Laboratory. Monthly Notices of the Royal Astronomical Society, 2012, 426, 3195-3200.	4.4	1
112	Numerical studies of charged particles in a magnetic field: Mars application. Open Physics, 2014, 12, .	1.7	1
113	Notizen: A More Accurate Explicit Scheme to Solve Certain Quantum Operator Equations of Motion. Zeitschrift Fur Naturforschung - Section A Journal of Physical Sciences, 1987, 42, 905-906.	1.5	1
114	Time-dependent solutions of a classical nonlinear scalar field. Lettere Al Nuovo Cimento Rivista Internazionale Della SocietÃ Italiana Di Fisica, 1978, 23, 23-26.	0.4	0
115	The gyromagnetic ratio of the electron in a Coulomb field. International Journal of Theoretical Physics, 1979, 18, 689-693.	1.2	0
116	The stochastic Î³ 4 model. , 1990, , 251-259.		0
117	NONLINEAR PLANE WAVES IN A LONG-WAVELENGTH CONVECTION MODEL. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 2001, 11, 2867-2874.	1.7	0
118	Finite difference method to solve Maxwell's equations for soliton propagation. Applied Mathematics and Computation, 2002, 126, 213-229.	2.2	0
119	Solution of Systems of Linear Equations: Numerical Simulations. , 2013, , 29-41.		0
120	Solution of Systems of Linear Equations. , 2013, , 15-28.		0
121	Elements of Newtonian Mechanics. , 2013, , 1-13.		0
122	Eigenvalue Problems: Numerical Simulations. , 2013, , 67-98.		0
123	Remarks About the Dynamics of the Solitary Waves. , 1989, , 489-492.		0
124	Resonance Phenomena in Soliton-Impurity Interactions. NATO ASI Series Series B: Physics, 1993, , 113-116.	0.2	0
125	NUMERICAL STUDY OF A CHARGED PARTICLE IN A GENERAL MAGNETIC FIELD. International Journal of Pure and Applied Mathematics, 2016, 106, .	0.2	0
126	From Eikonal to Antieikonal Approximations: Competition of Scales in the Framework of SchrÃ¶dinger and Classical Wave Equation. Journal of Computational and Nonlinear Dynamics, 2022, 17, .	1.2	0