

Octavio Castañeros

List of Publications by Year in descending order

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136
papers

2,325
citations

201575

27
h-index

276775

41
g-index

140
all docs

140
docs citations

140
times ranked

775
citing authors

#	ARTICLE	IF	CITATIONS
1	Group theory of the interacting Boson model of the nucleus. Journal of Mathematical Physics, 1979, 20, 35-44.	0.5	90
2	Towards a shell-model description of the low-energy structure of deformed nuclei II. Electromagnetic properties of collective M1 bands. Annals of Physics, 1987, 180, 290-329.	1.0	84
3	Shapes and stability within the interacting boson model: Dynamical symmetries. Physical Review C, 1996, 54, 2374-2384.	1.1	84
4	Classical and quantum phase transitions in the Lipkin-Meshkov-Glick model. Physical Review B, 2006, 74, .	1.1	83
5	Contracted symplectic model with ds-shell applications. Nuclear Physics A, 1989, 491, 349-372.	0.6	69
6	B(E2) \uparrow Measurements for Radioactive Neutron-Rich Ge Isotopes: Reaching theN=50Closed Shell. Physical Review Letters, 2005, 94, 122501.	2.9	67
7	No singularities in observables at the phase transition in the Dicke model. Physical Review A, 2011, 83, .	1.0	61
8	Transformation to pseudo-SU (3) in heavy deformed nuclei. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 1992, 277, 238-242.	1.5	58
9	Pseudo-symplectic model for strongly deformed heavy nuclei. Nuclear Physics A, 1991, 524, 469-478.	0.6	57
10	Boson realization of sp(4). I. The matrix formulation. Journal of Mathematical Physics, 1985, 26, 2107-2123.	0.5	56
11	Neutrinoless double beta decay in heavy deformed nuclei. Nuclear Physics A, 1995, 582, 124-140.	0.6	54
12	Superradiant phase in field-matter interactions. Physical Review A, 2011, 84, .	1.0	53
13	New supersymmetry-generated complex potentials with real spectra. Journal of Physics A: Mathematical and Theoretical, 2015, 48, 445302.	0.7	41
14	Double-beta decay ofMo100: The deformed limit. Physical Review C, 1995, 51, 2252-2255.	1.1	38
15	Soluble extensions of the Dirac oscillator with exact and broken supersymmetry. Physical Review D, 1991, 43, 544-547.	1.6	37
16	Generalized coherent states for time-dependent and nonlinear Hamiltonian operators via complex Riccati equations. Journal of Physics A: Mathematical and Theoretical, 2013, 46, 075304.	0.7	37
17	Study of the effective hamiltonian interacting boson approximation. Nuclear Physics A, 1982, 379, 61-76.	0.6	36
18	Investigations of rotational nuclei via the pseudo-symplectic model. Nuclear Physics A, 1994, 576, 351-386.	0.6	35

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19	Double-beta decay in the pseudo SU(3) scheme. Nuclear Physics A, 1994, 571, 276-300.	0.6	34
20	Coherent state description of the ground state in the Tavis-Cummings model and its quantum phase transitions. Physica Scripta, 2009, 79, 065405.	1.2	34
21	Time-evolution of quantum systems via a complex nonlinear Riccati equation. I. Conservative systems with time-independent Hamiltonian. Annals of Physics, 2015, 360, 44-60.	1.0	34
22	Analytic expressions for the matrix elements of generators of Sp(6) in an Sp(6) \rightarrow U(3) basis. Journal of Mathematical Physics, 1984, 25, 1211-1218.	0.5	32
23	Effective Triaxial Deformations in the Interacting-Boson Model. Physical Review Letters, 1984, 52, 263-266.	2.9	32
24	The shape transition in the Sm isotopes and the structure of the IBA hamiltonian. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 1979, 88, 203-206.	1.5	31
25	Complete set of states for microscopic nuclear collective models. Journal of Mathematical Physics, 1982, 23, 2537-2553.	0.5	31
26	Entanglement and localization of a two-mode Bose-Einstein condensate. Annals of Physics, 2010, 325, 325-344.	1.0	30
27	Mathematical methods in quantum optics: the Dicke model. Physica Scripta, 2013, 87, 038114.	1.2	28
28	Phase space analysis of first-, second- and third-order quantum phase transitions in the Lipkin-Meshkov-Glick model. Physica Scripta, 2014, 89, 095103.	1.2	28
29	Double-beta decay to excited states in ^{150}Nd . Nuclear Physics A, 1995, 589, 445-459.	0.6	26
30	Crystallized schrödinger cat states. Journal of Russian Laser Research, 1995, 16, 477-525.	0.3	26
31	Phase transitions and accidental degeneracy in nonlinear spin systems. Physical Review B, 2005, 72, .	1.1	26
32	Geometry and Entanglement of Two-Qubit States in the Quantum Probabilistic Representation. Entropy, 2018, 20, 630.	1.1	26
33	Boson realization of $sp(4, \mathbb{R})$. II. The generating kernel formulation. Journal of Mathematical Physics, 1986, 27, 924-935.	0.5	24
34	Quantum phase transitions of three-level atoms interacting with a one-mode electromagnetic field. Physical Review A, 2013, 87, .	1.0	24
35	Time-evolution of quantum systems via a complex nonlinear Riccati equation. II. Dissipative systems. Annals of Physics, 2016, 373, 609-630.	1.0	24
36	Analytic approximation of the Tavis-Cummings ground state via projected states. Physica Scripta, 2009, 80, 055401.	1.2	23

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37	A semi-classical versus quantum description of the ground state of three-level atoms interacting with a one-mode electromagnetic field. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2013, 46, 505302.	0.7	23
38	Shell-Model Interpretation of the Collective-Model Potential-Energy Surface. <i>Physical Review Letters</i> , 1989, 62, 20-23.	2.9	22
39	Universal critical behavior in the Dicke model. <i>Physical Review A</i> , 2012, 86, .	1.0	22
40	Polychromatic phase diagram for n-level atoms interacting with n modes of an electromagnetic field. <i>Physical Review A</i> , 2015, 92, .	1.0	21
41	Confrontations between the interacting boson approximation and the Bohr-Mottelson model. <i>Physical Review C</i> , 1981, 24, 1367-1370.	1.1	20
42	Noether's theorem and time-dependent quantum invariants. <i>Journal of Physics A</i> , 1994, 27, 1751-1770.	1.6	20
43	A real-coded niching memetic algorithm for continuous multimodal function optimization. , 2008, , .		19
44	Collectivity and geometry. III. The three-dimensional case in the $Sp(6) \times Sp(2) \times O(3)$ chain for closed shells. <i>Journal of Mathematical Physics</i> , 1984, 25, 2815-2825.	0.5	18
45	Noether's theorem and dynamical groups in quantum mechanics. <i>Journal of Physics A</i> , 1990, 23, 5141-5151.	1.6	18
46	Relations between the nuclear shell model hamiltonian and the orthosymplectic superalgebra $Osp(1 2)$. <i>Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics</i> , 1992, 284, 1-5.	1.5	18
47	Potential energy surfaces in algebraic molecular models using coherent states. <i>Molecular Physics</i> , 2010, 108, 597-610.	0.8	18
48	Virtues and limitations of the truncated Holstein-Primakoff description of quantum rotors. <i>Physica Scripta</i> , 2013, 87, 038106.	1.2	18
49	Entanglement and generation of superpositions of atomic coherent states. <i>Physical Review A</i> , 2000, 61, .	1.0	17
50	A six-dimensional oscillator basis classified by $O(6) \times SO(2) \times SU(3) \times SO(3)$. <i>Journal of Mathematical Physics</i> , 1984, 25, 1442-1448.	0.5	16
51	A sequential niching memetic algorithm for continuous multimodal function optimization. <i>Applied Mathematics and Computation</i> , 2012, 218, 8242-8259.	1.4	16
52	Fidelity, entropy, and Poincaré sections as tools to study the polyad breaking phenomenon. <i>Europhysics Letters</i> , 2016, 116, 13001.	0.7	16
53	Generating kernel for the boson realisation of symplectic algebras. <i>Journal of Physics A</i> , 1985, 18, L493-L498.	1.6	15
54	Matrix representation of the generators of symplectic algebras. I. The case of $sp(4, R)$. <i>Journal of Physics A</i> , 1987, 20, 513-527.	1.6	14

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55	Transformation to pseudo-spin-symmetry of a deformed Nilsson hamiltonian. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 1994, 321, 303-306.	1.5	14
56	Coherent states for anharmonic diatomic molecules. International Journal of Quantum Chemistry, 2002, 89, 494-502.	1.0	14
57	Identifying the order of a quantum phase transition by means of Wehrl entropy in phase space. Physical Review E, 2015, 92, 052106.	0.8	14
58	Squeeze tomography of quantum states. Journal of Physics A, 2004, 37, 8529-8544.	1.6	13
59	Dynamics of Schrödinger cat states. Journal of Physics: Conference Series, 2012, 380, 012017.	0.3	13
60	Polyad breaking phenomenon associated with a local-to-normal mode transition and suitability to estimate force constants. Molecular Physics, 2017, 115, 3076-3103.	0.8	13
61	The $U(6) \supset SU(3)$ hidden symmetry in collective excitations of many-body systems. Journal of Mathematical Physics, 1984, 25, 388-395.	0.5	12
62	Schrödinger-cat states in Paul traps. Physical Review A, 1997, 55, 1208-1216.	1.0	12
63	Symmetry adapted coherent states for three-level atoms interacting with one-mode radiation. Physica Scripta, 2015, 90, 068016.	1.2	12
64	Selection rules in the $\hat{I}^2\hat{I}^2$ decay of deformed nuclei. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 2002, 534, 57-62.	1.5	11
65	Variational study of n atomic configurations interacting with an electromagnetic field of two modes. Physical Review A, 2016, 94, .	1.0	11
66	Collective $1+$ states in rare earth and actinide nuclei. Nuclear Physics A, 1987, 473, 494-508.	0.6	10
67	Schrödinger cat states in a Penning trap. Journal of Physics A, 1998, 31, 1227-1237.	1.6	10
68	Noether's theorem and accidental degeneracy. Journal of Physics A, 1992, 25, 6685-6698.	1.6	9
69	Quantum phase transitions in the LMG model by means of quantum information concepts. Journal of Physics: Conference Series, 2012, 387, 012021.	0.3	9
70	Quantum information approach to the description of quantum phase transitions. Journal of Physics: Conference Series, 2012, 403, 012003.	0.3	9
71	Entropy energy inequalities for qudit states. Journal of Physics A: Mathematical and Theoretical, 2015, 48, 065301.	0.7	9
72	Delocalization properties at isolated avoided crossings in Lipkin-Meshkov-Glick type Hamiltonian models. Journal of Statistical Mechanics: Theory and Experiment, 2017, 2017, 013101.	0.9	9

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73	A New Mechanism of Open System Evolution and Its Entropy Using Unitary Transformations in Noncomposite Qudit Systems. <i>Entropy</i> , 2019, 21, 736.	1.1	9
74	The gradient formula for the $O(5) \hat{=} O(3)$ chain of groups. <i>Journal of Mathematical Physics</i> , 1978, 19, 1781-1789.	0.5	8
75	Microscopic derivation of nuclear collective variables. <i>Physical Review C</i> , 1982, 25, 1611-1615.	1.1	8
76	Photon generation and squeezing in a generalized two-dimensional oscillator. <i>Physical Review A</i> , 1994, 50, 5209-5218.	1.0	8
77	Theoretical description of double β decay of ^{160}Gd . <i>Physical Review C</i> , 2002, 66, .	1.1	8
78	Phase diagrams of systems of two and three levels in the presence of a radiation field. <i>Physica Scripta</i> , 2015, 90, 074026.	1.2	8
79	New entropic inequalities for qubit and unimodal Gaussian states. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2018, 491, 64-70.	1.2	8
80	Supersymmetric embedding of arbitrary n-dimensional scalar hamiltonians. <i>Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics</i> , 1986, 174, 307-308.	1.5	7
81	Microscopic interpretation of potential energy surfaces. <i>Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics</i> , 1992, 277, 27-32.	1.5	7
82	Schrödinger cat states of a non-stationary generalized oscillator*. <i>Journal of Physics A</i> , 1996, 29, 2091-2109.	1.6	7
83	Double-Beta Decay in Deformed Nuclei. <i>European Physical Journal D</i> , 2002, 52, 513-519.	0.4	7
84	Generalized creation and annihilation operators via complex nonlinear Riccati equations. <i>Journal of Physics: Conference Series</i> , 2013, 442, 012058.	0.3	7
85	Searching for pairing energies in phase space. <i>Europhysics Letters</i> , 2014, 108, 47001.	0.7	7
86	Qubit representation of qudit states: correlations and state reconstruction. <i>Quantum Information Processing</i> , 2019, 18, 1.	1.0	7
87	Quantum phase diagrams of matter-field Hamiltonians II: Wigner function analysis. <i>Physica Scripta</i> , 2021, 96, 035103.	1.2	7
88	Quantum rotor and its $SU(3)$ realization. <i>Computer Physics Communications</i> , 1988, 52, 71-84.	3.0	6
89	Description of some chains of isotopes and isotones in the interacting-boson approximation. <i>Nuclear Physics A</i> , 1995, 589, 267-292.	0.6	6
90	A new approach to obtain the non-Condon factors in closed form for two one-dimensional harmonic oscillators. <i>Journal of Molecular Spectroscopy</i> , 2007, 241, 51-60.	0.4	6

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91	Single and collective regimes in three-level systems interacting with a one-mode electromagnetic field. <i>Journal of Physics: Conference Series</i> , 2014, 512, 012006.	0.3	6
92	Evolution and Entanglement of Gaussian States in the Parametric Amplifier. <i>Journal of Russian Laser Research</i> , 2016, 37, 23-44.	0.3	6
93	A general system of n levels interacting with ℓ electromagnetic modes. <i>Physica Scripta</i> , 2017, 92, 044004.	1.2	6
94	Symmetry adapted states and the quantum phase transition in the Dicke model. , 2010, , .		5
95	Fidelity, susceptibility and critical exponents in the Dicke model. <i>Journal of Physics: Conference Series</i> , 2014, 492, 012012.	0.3	5
96	Time scales at quantum phase transitions in the Lipkin-Meshkov-Glick model. <i>Physical Review A</i> , 2015, 91, .	1.0	5
97	Entanglement and quantum phase diagrams of symmetric multi-qubit systems. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2017, 2017, 103103.	0.9	5
98	Phase space properties of light within the generalised Dicke model. <i>Physica Scripta</i> , 2018, 93, 085102.	1.2	5
99	Reduced bases for a three-level atom interacting with a two-mode radiation field. <i>Physical Review A</i> , 2019, 99, .	1.0	5
100	Quantum phase diagrams of matter-field Hamiltonians I: Fidelity, Bures distance, and entanglement. <i>Physica Scripta</i> , 2021, 96, 035104.	1.2	5
101	Mean field description of the Dicke model. , 2012, , .		4
102	A triple point in 3-level systems. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2014, 47, 455301.	0.7	4
103	Information theoretic analysis of Landau levels in monolayer phosphorene under magnetic and electric fields. <i>Materials Research Express</i> , 2019, 6, 106316.	0.8	4
104	Quantum phase crossovers with finite atom number in the Dicke model. <i>Physica Scripta</i> , 2013, T153, 014033.	1.2	3
105	Entropic bounds between two thermal equilibrium states. <i>Physical Review E</i> , 2018, 97, 022128.	0.8	3
106	Dynamic generation of light states with discrete symmetries. <i>Physical Review A</i> , 2018, 97, .	1.0	3
107	Optimal basis for the generalized Dicke model. <i>Physical Review A</i> , 2019, 100, .	1.0	3
108	Analogies between the topological insulator phase of 2D Dirac materials and the superradiant phase of atom-field systems. <i>International Journal of Quantum Chemistry</i> , 2021, 121, e26464.	1.0	3

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109	Variational formulation of linear time-dependent invariants. <i>Europhysics Letters</i> , 1996, 33, 497-502.	0.7	2
110	Shell model calculations for heavy deformed nuclei. <i>European Physical Journal D</i> , 1998, 48, 183-190.	0.4	2
111	Phase transitions in three-level systems in a cavity. <i>Physica Scripta</i> , 2014, T160, 014033.	1.2	2
112	Discretization of the Density Matrix as a Nonlinear Positive Map and Entanglement. <i>Journal of Russian Laser Research</i> , 2016, 37, 313-327.	0.3	2
113	Extremal Density Matrices for the Expectation Value of a Qudit Hamiltonian. <i>Journal of Physics: Conference Series</i> , 2017, 839, 012012.	0.3	2
114	Wave packet dynamics, time scales and phase diagram in the IBM-Lipkin-Meshkov-Glick model. <i>Annals of Physics</i> , 2018, 389, 19-29.	1.0	2
115	Universal critical behaviour of 3-level atoms interacting dipolarly with radiation. <i>Journal of Physics: Conference Series</i> , 2018, 1071, 012006.	0.3	2
116	Pseudo SU(3) approach to the $\hat{I}^2\hat{I}^2$ decay. <i>Progress in Particle and Nuclear Physics</i> , 1994, 32, 333-334.	5.6	1
117	$\hat{I}^2\hat{I}^2$ decay in heavy deformed nuclei. <i>Nuclear Physics, Section B, Proceedings Supplements</i> , 1994, 35, 381-383.	0.5	1
118	Generation and evolution of collective atomic states. <i>International Journal of Quantum Chemistry</i> , 2000, 80, 1129-1135.	1.0	1
119	Linear Time-dependent Invariants of Non-stationary Quantum Systems. <i>AIP Conference Proceedings</i> , 2003, , .	0.3	1
120	Matter-field entanglement within the Dicke model. <i>AIP Conference Proceedings</i> , 2012, , .	0.3	1
121	Coupling n -level Atoms with l -modes of Quantised Light in a Resonator. <i>Journal of Physics: Conference Series</i> , 2016, 698, 012006.	0.3	1
122	A simple model for nuclear molecules. <i>Journal of Physics G: Nuclear Physics</i> , 1981, 7, 1483-1499.	0.8	0
123	IBM: Discrete symmetry viewpoint. <i>Physics of Atomic Nuclei</i> , 2000, 63, 695-699.	0.1	0
124	Symmetries in Physics. , 2010, , .		0
125	Quantum behaviour mirrored by semi-classical states. , 2012, , .		0
126	Analytic description of the super-radiant regime in the Dicke model. , 2012, , .		0

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127	Universal critical behaviour in finite atom-field systems. , 2012, , .		0
128	Supersymmetry in the Jaynes-Cummings model. , 2013, , .		0
129	Cold matter, quantum optics, and quantum information in Mexico. Physica Scripta, 2015, 90, 060302.	1.2	0
130	The variational method for density states a geometrical approach. Journal of Physics A: Mathematical and Theoretical, 2017, 50, 395203.	0.7	0
131	Dynamics of quantum entanglement in matter field models. Journal of Physics: Conference Series, 2020, 1612, 012007.	0.3	0
132	Nonlinear description of quantum dynamics: Generalized coherent states. Journal of Mathematical Physics, 2021, 62, 042105.	0.5	0
133	Phase diagrams of 3-level systems interacting with electromagnetic radiation. , 2014, , .		0
134	Studies of Isotope Series with Effective Boson Hamiltonians. , 1982, , 475-485.		0
135	The Symplectic Model and Potential-Energy-Surfaces. , 1992, , 84-99.		0
136	Effect of the atomic dipole-dipole interaction on the phase diagrams of field-matter interactions: Variational procedure. Physical Review A, 2022, 105, .	1.0	0