

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	Effect of the atomic dipole-dipole interaction on the phase diagrams of field-matter interactions: Variational procedure. <i>Physical Review A</i> , 2022, 105, .	1.0	0
2	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
3	Quantum phase diagrams of matter-field Hamiltonians I: Fidelity, Bures distance, and entanglement. <i>Physica Scripta</i> , 2021, 96, 035104.	1.2	5
4	Quantum phase diagrams of matter-field Hamiltonians II: Wigner function analysis. <i>Physica Scripta</i> , 2021, 96, 035103.	1.2	7
5	Nonlinear description of quantum dynamics: Generalized coherent states. <i>Journal of Mathematical Physics</i> , 2021, 62, 042105.	0.5	0
6	Dynamics of quantum entanglement in matter field models. <i>Journal of Physics: Conference Series</i> , 2020, 1612, 012007.	0.3	0
7	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
8	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
9	Optimal basis for the generalized Dicke model. <i>Physical Review A</i> , 2019, 100, .	1.0	3
10	Qubit representation of qudit states: correlations and state reconstruction. <i>Quantum Information Processing</i> , 2019, 18, 1.	1.0	7
11	Reduced bases for a three-level atom interacting with a two-mode radiation field. <i>Physical Review A</i> , 2019, 99, .	1.0	5
12	Entropic bounds between two thermal equilibrium states. <i>Physical Review E</i> , 2018, 97, 022128.	0.8	3
13	Dynamic generation of light states with discrete symmetries. <i>Physical Review A</i> , 2018, 97, .	1.0	3
14	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
15	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
16	Universal critical behaviour of 3-level atoms interacting dipolarly with radiation. <i>Journal of Physics: Conference Series</i> , 2018, 1071, 012006.	0.3	2
17	Geometry and Entanglement of Two-Qubit States in the Quantum Probabilistic Representation. <i>Entropy</i> , 2018, 20, 630.	1.1	26
18	Phase space properties of light within the generalised Dicke model. <i>Physica Scripta</i> , 2018, 93, 085102.	1.2	5

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19	Delocalization properties at isolated avoided crossings in Lipkin-Meshkov-Glick type Hamiltonian models. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2017, 2017, 013101.	0.9	9
20	A general system of n levels interacting with ℓ electromagnetic modes. <i>Physica Scripta</i> , 2017, 92, 044004.	1.2	6
21	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
22	The variational method for density states: a geometrical approach. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2017, 50, 395203.	0.7	0
23	Polyad breaking phenomenon associated with a local-to-normal mode transition and suitability to estimate force constants. <i>Molecular Physics</i> , 2017, 115, 3076-3103.	0.8	13
24	Extremal Density Matrices for the Expectation Value of a Qudit Hamiltonian. <i>Journal of Physics: Conference Series</i> , 2017, 839, 012012.	0.3	2
25	Coupling n -level Atoms with m -modes of Quantized Light in a Resonator. <i>Journal of Physics: Conference Series</i> , 2016, 698, 012006.	0.3	1
26	Evolution and Entanglement of Gaussian States in the Parametric Amplifier. <i>Journal of Russian Laser Research</i> , 2016, 37, 23-44.	0.3	6
27	Time-evolution of quantum systems via a complex nonlinear Riccati equation. II. Dissipative systems. <i>Annals of Physics</i> , 2016, 373, 609-630.	1.0	24
28	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
29	Variational study of atomic configurations interacting with an electromagnetic field of two modes. <i>Physical Review A</i> , 2016, 94, .	1.0	11
30	Fidelity, entropy, and Poincaré sections as tools to study the polyad breaking phenomenon. <i>Europhysics Letters</i> , 2016, 116, 13001.	0.7	16
31	Polychromatic phase diagram for n -level atoms interacting with m modes of an electromagnetic field. <i>Physical Review A</i> , 2015, 92, .	1.0	21
32	Identifying the order of a quantum phase transition by means of Wehrl entropy in phase space. <i>Physical Review E</i> , 2015, 92, 052106.	0.8	14
33	Cold matter, quantum optics, and quantum information in Mexico. <i>Physica Scripta</i> , 2015, 90, 060302.	1.2	0
34	Symmetry adapted coherent states for three-level atoms interacting with one-mode radiation. <i>Physica Scripta</i> , 2015, 90, 068016.	1.2	12
35	Entropy-energy inequalities for qudit states. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2015, 48, 065301.	0.7	9
36	Time scales at quantum phase transitions in the Lipkin-Meshkov-Glick model. <i>Physical Review A</i> , 2015, 91, .	1.0	5

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37	Time-evolution of quantum systems via a complex nonlinear Riccati equation. I. Conservative systems with time-independent Hamiltonian. <i>Annals of Physics</i> , 2015, 360, 44-60.	1.0	34
38	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
39	New supersymmetry-generated complex potentials with real spectra. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2015, 48, 445302.	0.7	41
40	Searching for pairing energies in phase space. <i>Europhysics Letters</i> , 2014, 108, 47001.	0.7	7
41	Phase transitions in three-level systems in a cavity. <i>Physica Scripta</i> , 2014, T160, 014033.	1.2	2
42	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
43	A triple point in 3-level systems. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2014, 47, 455301.	0.7	4
44	Phase space analysis of first-, second- and third-order quantum phase transitions in the Lipkin-Meshkov-Glick model. <i>Physica Scripta</i> , 2014, 89, 095103.	1.2	28
45	Fidelity, susceptibility and critical exponents in the Dicke model. <i>Journal of Physics: Conference Series</i> , 2014, 492, 012012.	0.3	5
46	Phase diagrams of 3-level systems interacting with electromagnetic radiation. , 2014, , .		0
47	Generalized creation and annihilation operators via complex nonlinear Riccati equations. <i>Journal of Physics: Conference Series</i> , 2013, 442, 012058.	0.3	7
48	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
49	Quantum phase transitions of three-level atoms interacting with a one-mode electromagnetic field. <i>Physical Review A</i> , 2013, 87, .	1.0	24
50	Generalized coherent states for time-dependent and nonlinear Hamiltonian operators via complex Riccati equations. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2013, 46, 075304.	0.7	37
51	Quantum phase crossovers with finite atom number in the Dicke model. <i>Physica Scripta</i> , 2013, T153, 014033.	1.2	3
52	Virtues and limitations of the truncated Holstein-Primakoff description of quantum rotors. <i>Physica Scripta</i> , 2013, 87, 038106.	1.2	18
53	Mathematical methods in quantum optics: the Dicke model. <i>Physica Scripta</i> , 2013, 87, 038114.	1.2	28
54	Supersymmetry in the Jaynes-Cummings model. , 2013, , .		0

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55	Quantum behaviour mirrored by semi-classical states. , 2012, , .		0
56	Analytic description of the super-radiant regime in the Dicke model. , 2012, , .		0
57	Mean field description of the Dicke model. , 2012, , .		4
58	Matter-field entanglement within the Dicke model. AIP Conference Proceedings, 2012, , .	0.3	1
59	Universal critical behavior in the Dicke model. Physical Review A, 2012, 86, .	1.0	22
60	Quantum phase transitions in the LMG model by means of quantum information concepts. Journal of Physics: Conference Series, 2012, 387, 012021.	0.3	9
61	Quantum information approach to the description of quantum phase transitions. Journal of Physics: Conference Series, 2012, 403, 012003.	0.3	9
62	Dynamics of Schrödinger cat states. Journal of Physics: Conference Series, 2012, 380, 012017.	0.3	13
63	Universal critical behaviour in finite atom-field systems. , 2012, , .		0
64	A sequential niching memetic algorithm for continuous multimodal function optimization. Applied Mathematics and Computation, 2012, 218, 8242-8259.	1.4	16
65	Superradiant phase in field-matter interactions. Physical Review A, 2011, 84, .	1.0	53
66	No singularities in observables at the phase transition in the Dicke model. Physical Review A, 2011, 83, .	1.0	61
67	Entanglement and localization of a two-mode Bose-Einstein condensate. Annals of Physics, 2010, 325, 325-344.	1.0	30
68	Symmetries in Physics. , 2010, , .		0
69	Symmetry adapted states and the quantum phase transition in the Dicke model. , 2010, , .		5
70	Potential energy surfaces in algebraic molecular models using coherent states. Molecular Physics, 2010, 108, 597-610.	0.8	18
71	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
72	Analytic approximation of the Tavis-Cummings ground state via projected states. Physica Scripta, 2009, 80, 055401.	1.2	23

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73	A real-coded niching memetic algorithm for continuous multimodal function optimization. , 2008, , .		19
74	A new approach to obtain the non-Condon factors in closed form for two one-dimensional harmonic oscillators. Journal of Molecular Spectroscopy, 2007, 241, 51-60.	0.4	6
75	Classical and quantum phase transitions in the Lipkin-Meshkov-Glick model. Physical Review B, 2006, 74, .	1.1	83
76	B(E2) β^2 Measurements for Radioactive Neutron-Rich Ge Isotopes: Reaching the N=50 Closed Shell. Physical Review Letters, 2005, 94, 122501.	2.9	67
77	Phase transitions and accidental degeneracy in nonlinear spin systems. Physical Review B, 2005, 72, .	1.1	26
78	Squeeze tomography of quantum states. Journal of Physics A, 2004, 37, 8529-8544.	1.6	13
79	Linear Time-dependent Invariants of Non-stationary Quantum Systems. AIP Conference Proceedings, 2003, , .	0.3	1
80	Theoretical description of double β^2 decay of ^{160}Gd . Physical Review C, 2002, 66, .	1.1	8
81	Double-Beta Decay in Deformed Nuclei. European Physical Journal D, 2002, 52, 513-519.	0.4	7
82	Selection rules in the β^2 decay of deformed nuclei. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 2002, 534, 57-62.	1.5	11
83	Coherent states for anharmonic diatomic molecules. International Journal of Quantum Chemistry, 2002, 89, 494-502.	1.0	14
84	Generation and evolution of collective atomic states. International Journal of Quantum Chemistry, 2000, 80, 1129-1135.	1.0	1
85	IBM: Discrete symmetry viewpoint. Physics of Atomic Nuclei, 2000, 63, 695-699.	0.1	0
86	Entanglement and generation of superpositions of atomic coherent states. Physical Review A, 2000, 61, .	1.0	17
87	Shell model calculations for heavy deformed nuclei. European Physical Journal D, 1998, 48, 183-190.	0.4	2
88	Schrödinger cat states in a Penning trap. Journal of Physics A, 1998, 31, 1227-1237.	1.6	10
89	Schrödinger-cat states in Paul traps. Physical Review A, 1997, 55, 1208-1216.	1.0	12
90	Shapes and stability within the interacting boson model: Dynamical symmetries. Physical Review C, 1996, 54, 2374-2384.	1.1	84

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91	Variational formulation of linear time-dependent invariants. Europhysics Letters, 1996, 33, 497-502.	0.7	2
92	Schrödinger cat states of a non-stationary generalized oscillator*. Journal of Physics A, 1996, 29, 2091-2109.	1.6	7
93	Double-beta decay to excited states in ^{150}Nd . Nuclear Physics A, 1995, 589, 445-459.	0.6	26
94	Crystallized schrödinger cat states. Journal of Russian Laser Research, 1995, 16, 477-525.	0.3	26
95	Neutrinoless double beta decay in heavy deformed nuclei. Nuclear Physics A, 1995, 582, 124-140.	0.6	54
96	Description of some chains of isotopes and isotones in the interacting-boson approximation. Nuclear Physics A, 1995, 589, 267-292.	0.6	6
97	Double-beta decay of $\text{Mo}100$: The deformed limit. Physical Review C, 1995, 51, 2252-2255.	1.1	38
98	Noether's theorem and time-dependent quantum invariants. Journal of Physics A, 1994, 27, 1751-1770.	1.6	20
99	Photon generation and squeezing in a generalized two-dimensional oscillator. Physical Review A, 1994, 50, 5209-5218.	1.0	8
100	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
101	Double-beta decay in the pseudo $\text{SU}(3)$ scheme. Nuclear Physics A, 1994, 571, 276-300.	0.6	34
102	Investigations of rotational nuclei via the pseudo-symplectic model. Nuclear Physics A, 1994, 576, 351-386.	0.6	35
103	Pseudo $\text{SU}(3)$ approach to the $\hat{\pi}^2\hat{\pi}^2$ decay. Progress in Particle and Nuclear Physics, 1994, 32, 333-334.	5.6	1
104	$\hat{\pi}^2\hat{\pi}^2$ decay in heavy deformed nuclei. Nuclear Physics, Section B, Proceedings Supplements, 1994, 35, 381-383.	0.5	1
105	Noether's theorem and accidental degeneracy. Journal of Physics A, 1992, 25, 6685-6698.	1.6	9
106	Transformation to pseudo- $\text{SU}(3)$ in heavy deformed nuclei. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 1992, 277, 238-242.	1.5	58
107	Microscopic interpretation of potential energy surfaces. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 1992, 277, 27-32.	1.5	7
108	Relations between the nuclear shell model hamiltonian and the orthosymplectic superalgebra $\text{Osp}(1 2)$. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 1992, 284, 1-5.	1.5	18

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109	The Symplectic Model and Potential-Energy-Surfaces. , 1992, , 84-99.		0
110	Soluble extensions of the Dirac oscillator with exact and broken supersymmetry. Physical Review D, 1991, 43, 544-547.	1.6	37
111	Pseudo-symplectic model for strongly deformed heavy nuclei. Nuclear Physics A, 1991, 524, 469-478.	0.6	57
112	Noether's theorem and dynamical groups in quantum mechanics. Journal of Physics A, 1990, 23, 5141-5151.	1.6	18
113	Shell-Model Interpretation of the Collective-Model Potential-Energy Surface. Physical Review Letters, 1989, 62, 20-23.	2.9	22
114	Contracted symplectic model with ds-shell applications. Nuclear Physics A, 1989, 491, 349-372.	0.6	69
115	Quantum rotor and its SU(3) realization. Computer Physics Communications, 1988, 52, 71-84.	3.0	6
116	Matrix representation of the generators of symplectic algebras. I. The case of $sp(4, \mathbb{R})$. Journal of Physics A, 1987, 20, 513-527.	1.6	14
117	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
118	Collective $1+$ states in rare earth and actinide nuclei. Nuclear Physics A, 1987, 473, 494-508.	0.6	10
119	Supersymmetric embedding of arbitrary n-dimensional scalar hamiltonians. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 1986, 174, 307-308.	1.5	7
120	Boson realization of $sp(4, \mathbb{R})$. II. The generating kernel formulation. Journal of Mathematical Physics, 1986, 27, 924-935.	0.5	24
121	Generating kernel for the boson realisation of symplectic algebras. Journal of Physics A, 1985, 18, L493-L498.	1.6	15
122	Boson realization of $sp(4)$. I. The matrix formulation. Journal of Mathematical Physics, 1985, 26, 2107-2123.	0.5	56
123	Analytic expressions for the matrix elements of generators of $Sp(6)$ in an $Sp(6) \supset U(3)$ basis. Journal of Mathematical Physics, 1984, 25, 1211-1218.	0.5	32
124	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
125	A six-dimensional oscillator basis classified by $O(6) \supset SO(2) \times SU(3) \supset SO(3)$. Journal of Mathematical Physics, 1984, 25, 1442-1448.	0.5	16
126	Collectivity and geometry. III. The three-dimensional case in the $Sp(6) \supset Sp(2) \times O(3)$ chain for closed shells. Journal of Mathematical Physics, 1984, 25, 2815-2825.	0.5	18

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127	Effective Triaxial Deformations in the Interacting-Boson Model. Physical Review Letters, 1984, 52, 263-266.	2.9	32
128	Complete set of states for microscopic nuclear collective models. Journal of Mathematical Physics, 1982, 23, 2537-2553.	0.5	31
129	Microscopic derivation of nuclear collective variables. Physical Review C, 1982, 25, 1611-1615.	1.1	8
130	Study of the effective hamiltonian interacting boson approximation. Nuclear Physics A, 1982, 379, 61-76.	0.6	36
131	Studies of Isotope Series with Effective Boson Hamiltonians. , 1982, , 475-485.		0
132	Confrontations between the interacting boson approximation and the Bohr-Mottelson model. Physical Review C, 1981, 24, 1367-1370.	1.1	20
133	A simple model for nuclear molecules. Journal of Physics G: Nuclear Physics, 1981, 7, 1483-1499.	0.8	0
134	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
135	Group theory of the interacting Boson model of the nucleus. Journal of Mathematical Physics, 1979, 20, 35-44.	0.5	90
136	The gradient formula for the $O(5) \supset O(3)$ chain of groups. Journal of Mathematical Physics, 1978, 19, 1781-1789.	0.5	8