

Iwo Bialynicki-Birula

List of Publications by Year in descending order

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127
papers

5,631
citations

126907

33
h-index

79698

73
g-index

129
all docs

129
docs citations

129
times ranked

2691
citing authors

#	ARTICLE	IF	CITATIONS
1	Uncertainty relations for information entropy in wave mechanics. Communications in Mathematical Physics, 1975, 44, 129-132.	2.2	890
2	Nonlinear wave mechanics. Annals of Physics, 1976, 100, 62-93.	2.8	559
3	Nonlinear Effects in Quantum Electrodynamics. Photon Propagation and Photon Splitting in an External Field. Physical Review D, 1970, 2, 2341-2345.	4.7	336
4	Formulation of the uncertainty relations in terms of the Rényi entropies. Physical Review A, 2006, 74, .	2.5	218
5	V Photon Wave Function. Progress in Optics, 1996, , 245-294.	0.6	179
6	Phase-space structure of the Dirac vacuum. Physical Review D, 1991, 44, 1825-1835.	4.7	167
7	Lagrange Equilibrium Points in Celestial Mechanics and Nonspreading Wave Packets for Strongly Driven Rydberg Electrons. Physical Review Letters, 1994, 73, 1777-1780.	7.8	162
8	Weyl, Dirac, and Maxwell equations on a lattice as unitary cellular automata. Physical Review D, 1994, 49, 6920-6927.	4.7	152
9	Rotational Frequency Shift. Physical Review Letters, 1997, 78, 2539-2542.	7.8	145
10	Gaussons: Solitons of the Logarithmic Schrödinger Equation. Physica Scripta, 1979, 20, 539-544.	2.5	144
11	Tying Knots in Light Fields. Physical Review Letters, 2013, 111, 150404.	7.8	139
12	Explicit solution of the continuous Baker-Campbell-Hausdorff problem and a new expression for the phase operator. Annals of Physics, 1969, 51, 187-200.	2.8	111
13	Entropic uncertainty relations. Physics Letters, Section A: General, Atomic and Solid State Physics, 1984, 103, 253-254.	2.1	110
14	Motion of vortex lines in quantum mechanics. Physical Review A, 2000, 61, .	2.5	109
15	No-go theorem concerning the superradiant phase transition in atomic systems. Physical Review A, 1979, 19, 301-303.	2.5	108
16	The role of the Riemann–Silberstein vector in classical and quantum theories of electromagnetism. Journal of Physics A: Mathematical and Theoretical, 2013, 46, 053001.	2.1	98
17	Exponential Localization of Photons. Physical Review Letters, 1998, 80, 5247-5250.	7.8	87
18	Canonical separation of angular momentum of light into its orbital and spin parts. Journal of Optics (United Kingdom), 2011, 13, 064014.	2.2	84

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19	Quantum electrodynamics of intense photon beams. New approximation method. Physical Review A, 1976, 14, 1101-1108.	2.5	78
20	Fermi accelerator in atom optics. Physical Review A, 1998, 58, 4779-4783.	2.5	72
21	Quantum Electrodynamics without Electromagnetic Field. Physical Review, 1963, 130, 465-468.	2.7	70
22	Relativistic Electron Wave Packets Carrying Angular Momentum. Physical Review Letters, 2017, 118, 114801.	7.8	61
23	Various measures of quantum phase uncertainty: a comparative study. Physica Scripta, 1993, T48, 113-118.	2.5	59
24	Vortex lines of the electromagnetic field. Physical Review A, 2003, 67, .	2.5	55
25	Beams of electromagnetic radiation carrying angular momentum: The Riemannâ€“Silberstein vector and the classicalâ€“quantum correspondence. Optics Communications, 2006, 264, 342-351.	2.1	55
26	Gauge-independent canonical formulation of relativistic plasma theory. Physica A: Statistical Mechanics and Its Applications, 1984, 128, 509-519.	2.6	54
27	Entropic Uncertainty Relations in Quantum Physics. , 2011, , 1-34.		54
28	Berryâ€™s phase in the relativistic theory of spinning particles. Physical Review D, 1987, 35, 2383-2387.	4.7	52
29	Time Evolution of Quantum Fractals. Physical Review Letters, 2000, 85, 5022-5025.	7.8	52
30	Dynamical Localization: Classical vs Quantum Oscillations in Momentum Spread of Cold Atoms. Physical Review Letters, 1995, 74, 3959-3962.	7.8	49
31	Magnetic Monopoles in the Hydrodynamic Formulation of Quantum Mechanics. Physical Review D, 1971, 3, 2410-2412.	4.7	42
32	Particle Beams Guided by Electromagnetic Vortices: New Solutions of the Lorentz, SchrÃ¶dinger, Klein-Gordon, and Dirac Equations. Physical Review Letters, 2004, 93, 020402.	7.8	41
33	Spaceâ€“time description of squeezing. Journal of the Optical Society of America B: Optical Physics, 1987, 4, 1621.	2.1	40
34	Quantum mechanics as a generalization of Nambu dynamics to the Weyl-Wigner formalism. Physics Letters, Section A: General, Atomic and Solid State Physics, 1991, 158, 453-457.	2.1	39
35	The Photon Wave Function. , 1996, , 313-322.		36
36	Entropic uncertainty relations in quantum mechanics. Lecture Notes in Mathematics, 1985, , 90-103.	0.2	35

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37	Why photons cannot be sharply localized. <i>Physical Review A</i> , 2009, 79, .	2.5	34
38	Uncertainty Relation for Photons. <i>Physical Review Letters</i> , 2012, 108, 140401.	7.8	32
39	Electromagnetic vortex lines riding atop null solutions of the Maxwell equations. <i>Journal of Optics</i> , 2004, 6, S181-S183.	1.5	30
40	Entropic uncertainty relations for angular distributions. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 1985, 108, 384-386.	2.1	29
41	Quantum Electrodynamics of Intense Photon Beams. <i>Physical Review A</i> , 1973, 8, 3146-3153.	2.5	28
42	Center-of-mass motion in the many-body theory of Bose-Einstein condensates. <i>Physical Review A</i> , 2002, 65, .	2.5	28
43	Nonspreading Wave Packets for Rydberg Electrons in Rotating Molecules with Electric Dipole Moments. <i>Physical Review Letters</i> , 1996, 77, 4298-4301.	7.8	27
44	Solutions of the equations of motion in classical and quantum theories. <i>Annals of Physics</i> , 1971, 67, 252-273.	2.8	26
45	Gravitational waves carrying orbital angular momentum. <i>New Journal of Physics</i> , 2016, 18, 023022.	2.9	24
46	On the Gauge Covariance of Quantum Electrodynamics. <i>Journal of Mathematical Physics</i> , 1962, 3, 1094-1098.	1.1	23
47	Triple optical resonance. <i>Physical Review A</i> , 1977, 16, 1318-1321.	2.5	23
48	Heisenberg uncertainty relations for photons. <i>Physical Review A</i> , 2012, 86, .	2.5	23
49	Numerical observation of stable field-supported Rydberg wave packets. <i>Physical Review A</i> , 1995, 52, 2460-2463.	2.5	22
50	Quantum-mechanical description of optical beams. <i>Journal of Optics (United Kingdom)</i> , 2017, 19, 125201.	2.2	22
51	Reconstruction of the Wavefunction from the Photon Number and Quantum Phase Distributions. <i>Journal of Modern Optics</i> , 1994, 41, 2203-2208.	1.3	21
52	Theorem Concerning Gauge Invariance in Quantum Electrodynamics. <i>Physical Review</i> , 1967, 155, 1414-1414.	2.7	20
53	Radiative decay of Trojan wave packets. <i>Physical Review A</i> , 1997, 56, 3623-3625.	2.5	19
54	Quantum electrodynamics of qubits. <i>Physical Review A</i> , 2007, 76, .	2.5	18

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55	Trapping and Guiding Bodies by Gravitational Waves Endowed with Angular Momentum. Physical Review Letters, 2018, 121, 171101.	7.8	18
56	A note on helicity. Journal of Mathematical Physics, 1981, 22, 2530-2532.	1.1	16
57	Wigner function of relativistic spin-1/2 particles. Physical Review A, 1992, 46, 645-647.	2.5	16
58	Comment on "Quantum electrodynamics based on self-energy: Lamb shift and spontaneous emission without field quantization". Physical Review A, 1986, 34, 3500-3501.	2.5	15
59	Model studies of collective atomic excitations by intense laser fields. Physical Review A, 1986, 33, 1671-1676.	2.5	15
60	Bialynicki-Birula, Kalinski, and Eberly Reply:. Physical Review Letters, 1995, 75, 973-973.	7.8	15
61	Relativistic Quantum Mechanics of Dyons. Exact Solution. Physical Review D, 1971, 3, 2413-2415.	4.7	14
62	Simple relativistic model of a finite-size particle. Physics Letters, Section A: General, Atomic and Solid State Physics, 1993, 182, 346-352.	2.1	14
63	The Wigner functional of the electromagnetic field. Optics Communications, 2000, 179, 237-246.	2.1	14
64	Local and nonlocal observables in quantum optics. New Journal of Physics, 2014, 16, 113056.	2.9	14
65	Classical model of the electron. Exactly soluble example. Physical Review D, 1983, 28, 2114-2117.	4.7	13
66	Exact solutions of nonrelativistic classical and quantum field theory with harmonic forces. Letters in Mathematical Physics, 1985, 10, 189-194.	1.1	12
67	Relativistic Wigner functions. EPJ Web of Conferences, 2014, 78, 01001.	0.3	11
68	Gravity-induced resonances in a rotating trap. Physical Review A, 2005, 71, .	2.5	10
69	Pinning and transport of cyclotron (Landau) orbits by electromagnetic vortices. Physical Review A, 2006, 73, .	2.5	10
70	Comment on "Uncertainty relations in terms of the Tsallis entropy". Physical Review A, 2010, 81, .	2.5	10
71	Time evolution of the QED vacuum in a uniform electric field: Complete analytic solution by spinorial decomposition. Physical Review D, 2011, 83, .	4.7	10
72	Twisted localized solutions of the Dirac equation: Hopfionlike states of relativistic electrons. Physical Review A, 2019, 100, .	2.5	10

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73	Evolution modes of the vacuum Wigner function in strong-field QED. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 1993, 311, 329-338.	4.1	9
74	Motion of vortex lines in nonlinear wave mechanics. Physical Review A, 2001, 65, .	2.5	9
75	Quantum Fictitious Forces. Fortschritte Der Physik, 2002, 50, 599-607.	4.4	9
76	Exponential beams of electromagnetic radiation. Journal of Physics B: Atomic, Molecular and Optical Physics, 2006, 39, S545-S553.	1.5	9
77	Dynamical Casimir effect in oscillating media. Physical Review A, 2008, 78, .	2.5	8
78	Quantum numbers and spectra of structured light. Physica Scripta, 2018, 93, 104005.	2.5	8
79	Comment on "Relativistic Quantum Dynamics of Twisted Electron Beams in Arbitrary Electric and Magnetic Fields", Physical Review Letters, 2019, 122, 159301.	7.8	8
80	Classical Electrodynamics in Two Dimensions: Exact Solution. Physical Review D, 1971, 3, 864-866.	4.7	7
81	Nonlinear Structure of the Electromagnetic Vacuum. Physica Scripta, 1988, T21, 22-26.	2.5	7
82	Angular correlations of photons. Physical Review A, 1990, 42, 2829-2838.	2.5	7
83	On the linearity of the Schrödinger equation. Brazilian Journal of Physics, 2005, 35, 211.	1.4	7
84	Quantum fluctuations of geometry in a hot Universe. Classical and Quantum Gravity, 2015, 32, 215015.	4.0	7
85	Comment on "Relativistic Electron Vortices", Physical Review Letters, 2017, 119, 029501.	7.8	7
86	Backflow in relativistic wave equations. Journal of Physics A: Mathematical and Theoretical, 2022, 55, 255702.	2.1	7
87	Gauge Transformations in the S-Matrix Theory. Physical Review, 1968, 166, 1505-1506.	2.7	6
88	Comment on "Quantization in the temporal gauge". Physical Review D, 1984, 29, 3000-3001.	4.7	6
89	On the measurability of the quantum phase distribution. Applied Physics B: Lasers and Optics, 1995, 60, 275-277.	2.2	6
90	Nonperturbative calculation of the Bloch-Siegert shift. Lettere Al Nuovo Cimento Rivista Internazionale Della Società Italiana Di Fisica, 1976, 15, 627-630.	0.4	5

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91	Heisenberg uncertainty relations for relativistic bosons. <i>Physical Review A</i> , 2021, 103, .	2.5	5
92	Electromagnetic radiation by gravitating bodies. <i>Physical Review A</i> , 2008, 77, .	2.5	4
93	Solutions of the d'Alembert and Klein-Gordon equations confined to a region with one fixed and one moving wall. <i>Europhysics Letters</i> , 2013, 101, 60003.	2.0	4
94	Trapping neutral particles endowed with a magnetic moment by an electromagnetic wave carrying orbital angular momentum: Semiclassical theory. <i>Physical Review A</i> , 2016, 93, .	2.5	4
95	New solutions of the Dirac, Maxwell, and Weyl equations from the fractional Fourier transform. <i>Physical Review D</i> , 2021, 103, .	4.7	4
96	Time crystals made of electron-positron pairs. <i>Physical Review A</i> , 2021, 104, .	2.5	4
97	Exactly Soluble Model of Relativistic Field Theory. <i>Physical Review D</i> , 1970, 1, 2347-2349.	4.7	3
98	Spatial antibunching of photons. <i>Physical Review A</i> , 1991, 43, 3696-3703.	2.5	3
99	Dynamical Casimir effect in uniformly accelerated media. <i>Optics Communications</i> , 2010, 283, 644-649.	2.1	3
100	Helicity amplitudes, polarization of EM waves and Stokes parameters: classical versus quantum theory. <i>Journal of Optics (United Kingdom)</i> , 2019, 21, 094002.	2.2	3
101	Heisenberg uncertainty relation for relativistic electrons. <i>New Journal of Physics</i> , 2019, 21, 073036.	2.9	3
102	Three measures of fidelity for photon states. <i>Physical Review A</i> , 2020, 102, .	2.5	3
103	Green's Functions for the Ising Chain. <i>Journal of Mathematical Physics</i> , 1968, 9, 1602-1605.	1.1	2
104	Canonical quantization, twistors and relativistic wave equations. <i>Journal of Modern Optics</i> , 2002, 49, 1957-1970.	1.3	2
105	Simple model of self-supported deformed states of isolated atoms. <i>Physical Review A</i> , 2010, 81, .	2.5	2
106	Uncertainty relation for focal spots in light beams. <i>Physical Review A</i> , 2013, 88, .	2.5	2
107	Polarization-dependent heating of the cosmic microwave background radiation by a magnetic field. <i>Physical Review D</i> , 2014, 90, .	4.7	2
108	Solutions of the Logarithmic Schrödinger Equation in a Rotating Harmonic Trap. , 2004, , 99-106.		2

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109	Phase Representation of Intense Photon Beams and Its Applications. , 1980, , 119-125.		2
110	Comment on "Electronic Maxwell's equations". New Journal of Physics, 2021, 23, 118001.	2.9	2
111	Comment on "Possibility of small electron states". Physical Review A, 2022, 105, .	2.5	2
112	Ehrenfest theorem in relativistic quantum theory*. Journal of Physics B: Atomic, Molecular and Optical Physics, 2022, 55, 114001.	1.5	2
113	Solutions of Vlasov-Maxwell equations for a magnetically confined relativistic cold plasma. Physica A: Statistical Mechanics and Its Applications, 1985, 133, 228-246.	2.6	1
114	Does measurement reverse the direction of intrinsic time?. Physica B: Physics of Condensed Matter & C: Atomic, Molecular and Plasma Physics, Optics, 1988, 151, 302-305.	0.9	1
115	The Structure of the Vacuum and the Photon Number. Lecture Notes in Physics, 2004, , 287-295.	0.7	1
116	Comment on "Quantum reciprocity relations for fluctuations of position and momentum". Physical Review A, 2019, 100, .	2.5	1
117	Comment on "Role of Radial Charges on the Angular Momentum of Electromagnetic Fields: Spin- 3/2 Light". Physical Review Letters, 2019, 122, 089301.	7.8	1
118	Comment on "Nondispersive analytical solutions to the Dirac equation". Physical Review Research, 2020, 2, .	3.6	1
119	Collective excitations of electrons by an intense wave in a magnetic field. Journal of the Optical Society of America B: Optical Physics, 1986, 3, 1311.	2.1	0
120	Squeezed states of light and sound. , 1987, , 226-233.		0
121	Geometric Phase's First Formulators. Physics Today, 1991, 44, 83-84.	0.3	0
122	Finite nonperturbative solutions of Dyson-Schwinger equations in QED in the infrared domain. Physical Review D, 1995, 52, 2439-2445.	4.7	0
123	Quantum Mechanics as a Generalization of Nambu Dynamics to the Weyl-Wigner Formalism. Zeitschrift Fur Naturforschung - Section A Journal of Physical Sciences, 1997, 52, 9-12.	1.5	0
124	Squeezing of electromagnetic field in a cavity by electrons in Trojan states. Physical Review A, 2000, 63, .	2.5	0
125	Canonical Quantization, Twistors and Relativistic Wave Equations. , 0, , 257-257.		0
126	Canonical Quantization, Twistors and Relativistic Wave Equations. Fortschritte Der Physik, 2002, 50, 686-686.	4.4	0

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127	Introduction to "Quantum Zeno Effect": The fifth quest. Journal of Physics: Conference Series, 2009, 196, 011010.	0.4	0