

Klaus Moelmer

List of Publications by Year in descending order

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132
papers

5,330
citations

126708

33
h-index

88477

70
g-index

133
all docs

133
docs citations

133
times ranked

3693
citing authors

#	ARTICLE	IF	CITATIONS
1	Wave-function approach to dissipative processes in quantum optics. <i>Physical Review Letters</i> , 1992, 68, 580-583.	2.9	1,508
2	Blueprint for a microwave trapped ion quantum computer. <i>Science Advances</i> , 2017, 3, e1601540.	4.7	189
3	Bose-Einstein condensates in spatially periodic potentials. <i>Physical Review A</i> , 1998, 58, 1480-1484.	1.0	133
4	Past Quantum States of a Monitored System. <i>Physical Review Letters</i> , 2013, 111, 160401.	2.9	118
5	Adiabatic tracking of quantum many-body dynamics. <i>Physical Review A</i> , 2014, 90, .	1.0	114
6	Theory of Subradiant States of a One-Dimensional Two-Level Atom Chain. <i>Physical Review Letters</i> , 2019, 122, 203605.	2.9	112
7	Correlations in local measurements on a quantum state, and complementarity as an explanation of nonclassicality. <i>Physical Review A</i> , 2009, 80, .	1.0	111
8	Atom-atom interaction in strongly modified reservoirs. <i>Physical Review A</i> , 1997, 55, 1485-1496.	1.0	107
9	Multibit Gates for Quantum Computing. <i>Physical Review Letters</i> , 2001, 86, 3907-3910.	2.9	104
10	Dark Entangled Steady States of Interacting Rydberg Atoms. <i>Physical Review Letters</i> , 2013, 111, 033606.	2.9	103
11	Stringent and Efficient Assessment of Boson-Sampling Devices. <i>Physical Review Letters</i> , 2014, 113, 020502.	2.9	100
12	Entropic uncertainty relation for mutually unbiased bases. <i>Physical Review A</i> , 2009, 79, .	1.0	93
13	Fluorescence into Flat and Structured Radiation Continua: An Atomic Density Matrix without a Master Equation. <i>Physical Review Letters</i> , 1997, 79, 2654-2657.	2.9	92
14	Spin squeezing and precision probing with light and samples of atoms in the Gaussian description. <i>Physical Review A</i> , 2004, 70, .	1.0	92
15	Fisher Information and the Quantum Cram�r-Rao Sensitivity Limit of Continuous Measurements. <i>Physical Review Letters</i> , 2014, 112, 170401.	2.9	91
16	Exploring the quantum speed limit with computer games. <i>Nature</i> , 2016, 532, 210-213.	18.7	91
17	Quantum computing with an inhomogeneously broadened ensemble of ions: Suppression of errors from detuning variations by specially adapted pulses and coherent population trapping. <i>Physical Review A</i> , 2004, 69, .	1.0	86
18	High-fidelity Rydberg quantum gate via a two-atom dark state. <i>Physical Review A</i> , 2017, 96, .	1.0	84

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19	Spin squeezing of 1011 atoms by prediction and retrodiction measurements. <i>Nature</i> , 2020, 581, 159-163.	13.7	83
20	Monte Carlo Wave-Function Analysis of 3D Optical Molasses. <i>Physical Review Letters</i> , 1995, 74, 3772-3775.	2.9	82
21	Holographic Quantum Computing. <i>Physical Review Letters</i> , 2008, 101, 040501.	2.9	81
22	Bayesian parameter inference from continuously monitored quantum systems. <i>Physical Review A</i> , 2013, 87, .	1.0	73
23	Cavity quantum electrodynamics with a Rydberg-blocked atomic ensemble. <i>Physical Review A</i> , 2010, 82, .	1.0	68
24	Input-Output Theory with Quantum Pulses. <i>Physical Review Letters</i> , 2019, 123, 123604.	2.9	62
25	Aging of a quantum battery. <i>Physical Review A</i> , 2019, 100, .	1.0	55
26	Quantum computation architecture using optical tweezers. <i>Physical Review A</i> , 2011, 84, .	1.0	51
27	Binding Potentials and Interaction Gates between Microwave-Dressed Rydberg Atoms. <i>Physical Review Letters</i> , 2014, 113, 123003.	2.9	48
28	Fast Multiqubit Gates by Adiabatic Evolution in Interacting Excited-State Manifolds of Rydberg Atoms and Superconducting Circuits. <i>Physical Review X</i> , 2020, 10, .	2.8	47
29	Subradiant bound dimer excited states of emitter chains coupled to a one dimensional waveguide. <i>Physical Review Research</i> , 2020, 2, .	1.3	46
30	Proposal for detecting a single electron spin in a microwave resonator. <i>Physical Review A</i> , 2017, 95, .	1.0	44
31	Estimation of a classical parameter with Gaussian probes: Magnetometry with collective atomic spins. <i>Physical Review A</i> , 2004, 70, .	1.0	40
32	Squeezing and Entanglement of Density Oscillations in a Bose-Einstein Condensate. <i>Physical Review Letters</i> , 2015, 115, 060401.	2.9	39
33	Squeezed Light from Spin-Squeezed Atoms. <i>Physical Review Letters</i> , 2001, 87, 123601.	2.9	36
34	Lasing in the superradiant crossover regime. <i>Physical Review A</i> , 2018, 98, .	1.0	36
35	Estimation of atomic interaction parameters by photon counting. <i>Physical Review A</i> , 2014, 89, .	1.0	33
36	Diffuse atomic reflection at a rough mirror. <i>Physical Review A</i> , 1997, 55, 1160-1178.	1.0	32

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37	Spin squeezing in the Ising model. <i>Physical Review A</i> , 2001, 64, .	1.0	32
38	Error-free quantum communication through noisy channels. <i>Physical Review A</i> , 1998, 58, 2745-2749.	1.0	31
39	Hong-Ou-Mandel Interference between Two Deterministic Collective Excitations in an Atomic Ensemble. <i>Physical Review Letters</i> , 2016, 117, 180501.	2.9	31
40	Spin squeezing and Schrödinger-cat-state generation in atomic samples with Rydberg blockade. <i>Physical Review A</i> , 2012, 86, .	1.0	30
41	Directional emission of single photons from small atomic samples. <i>Physical Review A</i> , 2013, 87, .	1.0	30
42	Polarization Squeezing by Optical Faraday Rotation. <i>Physical Review Letters</i> , 2006, 97, 143602.	2.9	27
43	Preparation of spin-squeezed atomic states by optical-phase-shift measurement. <i>Physical Review A</i> , 2002, 66, .	1.0	26
44	Single-atom single-photon coupling facilitated by atomic-ensemble dark-state mechanisms. <i>Physical Review A</i> , 2016, 94, .	1.0	26
45	Monte-Carlo simulations of superradiant lasing. <i>New Journal of Physics</i> , 2018, 20, 112001.	1.2	26
46	Quantum interactions with pulses of radiation. <i>Physical Review A</i> , 2020, 102, .	1.0	25
47	Subradiant Emission from Regular Atomic Arrays: Universal Scaling of Decay Rates from the Generalized Bloch Theorem. <i>Physical Review Letters</i> , 2020, 125, 253601.	2.9	25
48	Bosonic behavior of entangled fermions. <i>Physical Review A</i> , 2012, 86, .	1.0	24
49	Correlation functions and conditioned quantum dynamics in photodetection theory. <i>Physica Scripta</i> , 2015, 90, 128004.	1.2	24
50	Superradiance in a structured radiation reservoir. <i>Physical Review A</i> , 1998, 57, 3065-3073.	1.0	23
51	Deterministic Free-Space Source of Single Photons Using Rydberg Atoms. <i>Physical Review Letters</i> , 2018, 121, 123605.	2.9	23
52	Jaynes-Cummings Dynamics with a Matter Wave Oscillator. <i>Physical Review Letters</i> , 2003, 90, 110403.	2.9	22
53	Photon-photon interactions in Rydberg-atom arrays. <i>Quantum - the Open Journal for Quantum Science</i> , 0, 6, 674.	0.0	21
54	Reply to "Comment on "Optical coherence: A convenient fiction" ". <i>Physical Review A</i> , 1998, 58, 4247-4247.	1.0	20

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55	Entanglement of two atomic samples by quantum-nondemolition measurements. Physical Review A, 2002, 66, .	1.0	19
56	Estimation of fluctuating magnetic fields by an atomic magnetometer. Physical Review A, 2006, 74, .	1.0	19
57	Quantum fluctuations in the image of a Bose gas. Physical Review A, 2008, 78, .	1.0	19
58	Dispersive coupling between light and a rare-earth-ion-doped mechanical resonator. Physical Review A, 2016, 94, .	1.0	19
59	Dynamical programming of continuously observed quantum systems. Physical Review A, 2009, 79, .	1.0	18
60	Surface Plasmon Launching by Polariton Superradiance. ACS Photonics, 2019, 6, 871-877.	3.2	18
61	Retrodiction beyond the Heisenberg uncertainty relation. Nature Communications, 2020, 11, 5658.	5.8	16
62	Quantum beam splitter for atoms. Physical Review A, 2002, 65, .	1.0	15
63	Collective dynamics of inhomogeneously broadened emitters coupled to an optical cavity with narrow linewidth. Physical Review A, 2019, 100, .	1.0	15
64	Association of heteronuclear molecules in a harmonic oscillator well. Physical Review A, 2007, 76, .	1.0	14
65	How bosonic is a pair of fermions?. Applied Physics B: Lasers and Optics, 2014, 117, 785-796.	1.1	14
66	Hypothesis Testing with Open Quantum Systems. Physical Review Letters, 2015, 114, 040401.	2.9	14
67	Ultrarrow Superradiant Lasing by Dark Atom-Photon Dressed States. Physical Review Letters, 2021, 126, 123602.	2.9	14
68	Estimating a fluctuating magnetic field with a continuously monitored atomic ensemble. Physical Review A, 2020, 102, .	1.0	14
69	Deterministic Photon Sorting in Waveguide QED Systems. Physical Review Letters, 2022, 128, .	2.9	14
70	Macroscopic quantum-state reduction: Uniting Bose-Einstein condensates by interference measurements. Physical Review A, 2002, 65, .	1.0	12
71	Intensity and amplitude correlations in the fluorescence from atoms with interacting Rydberg states. Physical Review A, 2015, 92, .	1.0	12
72	Entangled Quantum Dynamics of Many-Body Systems using Bohmian Trajectories. Scientific Reports, 2018, 8, 12704.	1.6	12

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73	Self-Stimulated Pulse Echo Trains from Inhomogeneously Broadened Spin Ensembles. <i>Physical Review Letters</i> , 2020, 125, 137702.	2.9	12
74	Dynamics of the collective modes of an inhomogeneous spin ensemble in a cavity. <i>Physical Review A</i> , 2011, 83, .	1.0	11
75	Macroscopic entanglement in many-particle quantum states. <i>Physical Review A</i> , 2016, 93, .	1.0	11
76	Closing a quantum feedback loop inside a cryostat: Autonomous state preparation and long-time memory of a superconducting qubit. <i>Physical Review A</i> , 2016, 93, .	1.0	11
77	Counterdiabatic driving in spin squeezing and Dicke-state preparation. <i>Physical Review A</i> , 2016, 93, .	1.0	11
78	Correlated Electrons in Lithiumlike Hollow Atoms. <i>Physical Review Letters</i> , 2001, 87, 133002.	2.9	10
79	Quantum-limited position measurements of a dark matter-wave soliton. <i>Physical Review A</i> , 2008, 77, .	1.0	10
80	Two-boson composites. <i>Physical Review A</i> , 2013, 88, .	1.0	10
81	Quantized resonator field coupled to a current-biased Josephson junction in circuit QED. <i>Physical Review A</i> , 2014, 89, .	1.0	10
82	Spin memories in for the long haul. <i>Nature</i> , 2015, 517, 153-154.	13.7	10
83	Quantum teleportation with continuous measurements. <i>Physical Review A</i> , 2016, 94, .	1.0	10
84	Time-dependent atomic magnetometry with a recurrent neural network. <i>Physical Review A</i> , 2021, 103, .	1.0	10
85	Symmetric rotor of lithiumlike hollow atoms. <i>Physical Review A</i> , 2002, 65, .	1.0	9
86	Statistical signatures of states orthogonal to the Fock-state ladder of composite bosons. <i>Physical Review A</i> , 2016, 94, .	1.0	9
87	Revealing the strokes of autonomous quantum heat engines with work and heat fluctuations. <i>Physical Review A</i> , 2020, 101, .	1.0	8
88	A superradiant maser with nitrogen-vacancy center spins. <i>Science China: Physics, Mechanics and Astronomy</i> , 2022, 65, 1.	2.0	8
89	Cavity Quantum Electrodynamics Effects with Nitrogen Vacancy Center Spins Coupled to Room Temperature Microwave Resonators. <i>Physical Review Letters</i> , 2022, 128, .	2.9	8
90	Measurement of the topological Chern number by continuous probing of a qubit subject to a slowly varying Hamiltonian. <i>Physical Review A</i> , 2017, 96, .	1.0	7

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91	Multistate and multihypothesis discrimination with open quantum systems. Physical Review A, 2018, 97, .	1.0	7
92	Atomic diffraction assisted by a stimulated Raman transition. Physical Review A, 1997, 56, R9-R12.	1.0	6
93	Squeezing of collective excitations in spin ensembles. Physical Review A, 2012, 86, .	1.0	6
94	Hypothesis testing with a continuously monitored quantum system. Physical Review A, 2018, 98, .	1.0	6
95	Ion Trap Quantum Computer with Bichromatic Light. Fortschritte Der Physik, 2000, 48, 811-821.	1.5	5
96	Rotational structure in multiply excited atoms. Physical Review A, 2001, 64, .	1.0	5
97	Fidelities for transformations of unknown quantum states. Physical Review A, 2006, 73, .	1.0	5
98	Phase-matched matter wave collisions in periodic potentials. New Journal of Physics, 2006, 8, 170-170.	1.2	5
99	Cooling a micromechanical resonator to its ground state by measurement and feedback. Physical Review A, 2009, 80, .	1.0	5
100	Dicke phase transition in a disordered emitterâ€“graphene-plasmon system. Physical Review A, 2018, 98, .	1.0	5
101	Adiabatic preparation of squeezed states of oscillators and large spin systems coupled to a two-level system. Physical Review A, 2019, 99, .	1.0	5
102	Collective emission of photons from dense, dipole-dipole interacting atomic ensembles. Physical Review A, 2021, 103, .	1.0	5
103	Quantum estimation of a time-dependent perturbation. Physical Review A, 2021, 104, .	1.0	5
104	Atomic diffraction in counterpropagating Gaussian pulses of laser light. Physical Review A, 2007, 76, .	1.0	4
105	Complementarity of information sent via different bases. Physical Review A, 2009, 79, .	1.0	4
106	Theoretical study of plasmonic lasing in junctions with many molecules. Physical Review B, 2016, 94, .	1.1	4
107	Guessing the outcome of separate and joint quantum measurements of noncommuting observables. Physical Review A, 2021, 104, .	1.0	4
108	Interaction-induced phase fluctuations in a guided atom laser. Physical Review A, 2003, 67, .	1.0	3

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109	Random search for a dark resonance. <i>Physical Review A</i> , 2017, 95, .	1.0	3
110	Reversed interplay of quantum interference and which-way information in multiphoton entangled states. <i>Physical Review A</i> , 2017, 96, .	1.0	3
111	Sequentially generated entanglement, macroscopicity, and squeezing in a spin chain. <i>Physical Review A</i> , 2017, 96, .	1.0	3
112	Conditioned spin and charge dynamics of a single-electron quantum dot. <i>Physical Review A</i> , 2017, 96, .	1.0	3
113	Amplified emission and lasing in a plasmonic nanolaser with many three-level molecules. <i>Physical Review A</i> , 2018, 97, .	1.0	3
114	Critical slowing down of multiatom entanglement by Rydberg blockade. <i>Physical Review A</i> , 2018, 98, .	1.0	3
115	Active Frequency Measurement on Superradiant Strontium Clock Transitions. <i>Physical Review Letters</i> , 2022, 128, 013604.	2.9	3
116	Free-Fermion Multiply Excited Eigenstates and Their Experimental Signatures in 1D Arrays of Two-Level Atoms. <i>Physical Review Letters</i> , 2022, 128, 093602.	2.9	3
117	Approximate quantum data storage and teleportation. <i>Physical Review A</i> , 2002, 65, .	1.0	2
118	Analysis of a Multimode Plasmonic Nanolaser with an Inhomogeneous Distribution of Molecular Emitters. <i>Journal of Physical Chemistry C</i> , 2017, 121, 15339-15347.	1.5	2
119	Relaxation of an ensemble of two-level emitters in a squeezed bath. <i>Physical Review A</i> , 2017, 96, .	1.0	2
120	Position- and momentum-squeezed quantum states in micro-scale mechanical resonators. <i>Modern Physics Letters B</i> , 2020, 34, 2050193.	1.0	2
121	Ancilla-mediated qubit readout and heralded entanglement between rare-earth dopant ions in crystals. <i>Physical Review A</i> , 2021, 103, .	1.0	2
122	Manipulation of qubits in nonorthogonal collective storage modes. <i>Physical Review A</i> , 2012, 86, .	1.0	1
123	Integration of the Berry curvature on a qubit state manifold by coupling to a quantum meter system. <i>Physical Review A</i> , 2020, 102, .	1.0	1
124	Optical control of the complex phase of a quantum ground-state amplitude. <i>Physical Review A</i> , 2022, 105, .	1.0	1
125	Ion Trap Quantum Computer with Bichromatic Light. , 2005, , 41-51.		0
126	Entanglement between remote continuous-variable quantum systems: Effects of transmission loss. <i>Physical Review A</i> , 2006, 74, .	1.0	0

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127	Needle in a haystack. Nature Physics, 2014, 10, 707-708.	6.5	0
128	Editorial Expression of Concern: Exploring the quantum speed limit with computer games. Nature, 2020, 581, E7-E7.	13.7	0
129	More speed out of the quantum gate. Nature Physics, 2021, 17, 876-877.	6.5	0
130	GEOMETRIC CONSTRUCTION OF MULTI-BIT QUANTUM GATES. , 2003, , .		0
131	Monte Carlo Wavefunctions. , 1996, , 193-202.		0
132	The quantum vibes of atoms and ichthyosaurs. Musicology, 2018, , 51-59.	0.1	0