

Matthew J Davis

List of Publications by Year in descending order

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100
papers

4,793
citations

94381

37
h-index

95218

68
g-index

100
all docs

100
docs citations

100
times ranked

2373
citing authors

#	ARTICLE	IF	CITATIONS
1	Turbulent Relaxation to Equilibrium in a Two-Dimensional Quantum Vortex Gas. <i>Physical Review X</i> , 2022, 12, .	2.8	9
2	Thermalization of a quantum Newton's cradle in a one-dimensional quasicondensate. <i>Physical Review A</i> , 2021, 103, .	1.0	12
3	Dynamical Mechanisms of Vortex Pinning in Superfluid Thin Films. <i>Physical Review Letters</i> , 2021, 127, 255302.	2.9	4
4	Influence of quantum fluctuations on the superfluid critical velocity of a one-dimensional Bose gas. <i>European Physical Journal D</i> , 2020, 74, 1.	0.6	1
5	Floquet analysis of time-averaged trapping potentials. <i>Physical Review A</i> , 2020, 101, .	1.0	0
6	Universal dynamics in the expansion of vortex clusters in a dissipative two-dimensional superfluid. <i>Physical Review Research</i> , 2020, 2, .	1.3	14
7	Finite-energy accelerating beam dynamics in wavelet-based representations. <i>Physical Review Research</i> , 2020, 2, .	1.3	1
8	Superfluid Acoustics in a Dumbbell Helmholtz Oscillator. , 2020, , .		0
9	Giant vortex clusters in a two-dimensional quantum fluid. <i>Science</i> , 2019, 364, 1264-1267.	6.0	133
10	Formation of nonlinear X -waves in condensed matter systems. <i>Physical Review B</i> , 2019, 99, .	1.1	5
11	Coherent vortex dynamics in a strongly interacting superfluid on a silicon chip. <i>Science</i> , 2019, 366, 1480-1485.	6.0	33
12	Quantitative Acoustic Models for Superfluid Circuits. <i>Physical Review Letters</i> , 2019, 123, 260402.	2.9	20
13	Vortex Thermometry for Turbulent Two-Dimensional Fluids. <i>Physical Review Letters</i> , 2018, 120, 034504.	2.9	18
14	Negative-Mass Effects in Spin-Orbit Coupled Bose-Einstein Condensates. <i>Physical Review Letters</i> , 2018, 121, 055302.	2.9	16
15	Phase and micromotion of Bose-Einstein condensates in a time-averaged ring trap. <i>Physical Review A</i> , 2018, 98, .	1.0	9
16	Quantum quench dynamics of the attractive one-dimensional Bose gas via the coordinate Bethe ansatz. <i>SciPost Physics</i> , 2018, 4, .	1.5	13
17	Direct imaging of a digital-micromirror device for configurable microscopic optical potentials. <i>Optica</i> , 2016, 3, 1136.	4.8	136
18	Bose-Einstein condensation in large time-averaged optical ring potentials. <i>New Journal of Physics</i> , 2016, 18, 035003.	1.2	67

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19	Quantum enhanced measurement of rotations with a spin-1 Bose-Einstein condensate in a ring trap. Physical Review A, 2016, 93, .	1.0	28
20	Finite-temperature hydrodynamics for one-dimensional Bose gases: Breathing-mode oscillations as a case study. Physical Review A, 2016, 94, .	1.0	28
21	Collapse and revival of the monopole mode of a degenerate Bose gas in an isotropic harmonic trap. Physical Review A, 2016, 94, .	1.0	10
22	A coordinate Bethe ansatz approach to the calculation of equilibrium and nonequilibrium correlations of the one-dimensional Bose gas. New Journal of Physics, 2016, 18, 045010.	1.2	21
23	Spin-Orbit-Coupled Bose-Einstein Condensates in a One-Dimensional Optical Lattice. Physical Review Letters, 2015, 114, 070401.	2.9	126
24	Coherence and linewidth of a continuously pumped atom laser at finite temperature. Physical Review A, 2015, 92, .	1.0	4
25	Relaxation dynamics of the Lieb-Liniger gas following an interaction quench: A coordinate Bethe-ansatz analysis. Physical Review A, 2015, 91, .	1.0	30
26	Miscible-immiscible quantum phase transition in coupled two-component Bose-Einstein condensates in one-dimensional optical lattices. Physical Review A, 2014, 90, .	1.0	15
27	Nonequilibrium Dynamics of One-Dimensional Hard-Core Anyons Following a Quench: Complete Relaxation of One-Body Observables. Physical Review Letters, 2014, 113, 050601.	2.9	64
28	History matters for a stirred superfluid. Nature, 2014, 506, 166-167.	13.7	3
29	Emergence of Order from Turbulence in an Isolated Planar Superfluid. Physical Review Letters, 2014, 113, 165302.	2.9	105
30	Dynamical tunneling with ultracold atoms in magnetic microtraps. Physical Review A, 2013, 88, .	1.0	13
31	Characteristics of Two-Dimensional Quantum Turbulence in a Compressible Superfluid. Physical Review Letters, 2013, 111, 235301.	2.9	141
32	Selected Theoretical Comparisons for Bosons. Cold Atoms, 2013, , 261-286.	0.3	2
33	Introduction to Theoretical Modelling. Cold Atoms, 2013, , 63-83.	0.3	0
34	C-Field Methods for Non-Equilibrium Bose Gases. Cold Atoms, 2013, , 163-175.	0.3	1
35	Reconciling the Classical-Field Method with the Beliaev Broken-Symmetry Approach. Cold Atoms, 2013, , 299-312.	0.3	0
36	Condensation and quasicondensation in an elongated three-dimensional Bose gas. Physical Review A, 2013, 87, .	1.0	9

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37	Causality and defect formation in the dynamics of an engineered quantum phase transition in a coupled binary Bose-Einstein condensate. <i>New Journal of Physics</i> , 2012, 14, 095030.	1.2	27
38	Publisher's Note: Macroscopic Quantum Self-Trapping in Dynamical Tunneling [<i>Phys. Rev. Lett.</i> 109, 080401 (2012)]. <i>Physical Review Letters</i> , 2012, 109, .	2.9	1
39	Macroscopic Quantum Self-Trapping in Dynamical Tunneling. <i>Physical Review Letters</i> , 2012, 109, 080401.	2.9	12
40	Quantum kinetic theory model of a continuous atom laser. <i>Physical Review A</i> , 2012, 86, .	1.0	4
41	Yang-Yang thermometry and momentum distribution of a trapped one-dimensional Bose gas. <i>Physical Review A</i> , 2012, 85, .	1.0	44
42	Phase Separation and Pattern Formation in a Binary Bose-Einstein Condensate. <i>Physical Review Letters</i> , 2011, 107, 230402.	2.9	91
43	Many-body physics in the classical-field description of a degenerate Bose gas. <i>Physical Review A</i> , 2011, 84, .	1.0	27
44	Growth dynamics of a Bose-Einstein condensate in a dimple trap without cooling. <i>Physical Review A</i> , 2011, 83, .	1.0	27
45	Non-equilibrium flows and superfluid turbulence in finite temperature dilute gas Bose-Einstein condensates. , 2011, , .		0
46	Superfluidity and anomalous correlations in a two-dimensional Bose gas. , 2011, , .		0
47	Vortex pairing in two-dimensional Bose gases. <i>Physical Review A</i> , 2010, 81, .	1.0	49
48	Multimode analysis of non-classical correlations in double-well Bose-Einstein condensates. <i>New Journal of Physics</i> , 2010, 12, 055024.	1.2	5
49	Observation of Vortex Dipoles in an Oblate Bose-Einstein Condensate. <i>Physical Review Letters</i> , 2010, 104, 160401.	2.9	326
50	Numerical method for evolving the dipolar projected Gross-Pitaevskii equation. <i>Physical Review E</i> , 2009, 80, 016703.	0.8	18
51	Atomic entanglement generation and detection via degenerate four-wave mixing of a Bose-Einstein condensate in an optical lattice. <i>Physical Review A</i> , 2009, 79, .	1.0	24
52	Comparative study of dynamical simulation methods for the dissociation of molecular Bose-Einstein condensates. <i>Physical Review A</i> , 2009, 79, .	1.0	13
53	Quantum-limited metrology and Bose-Einstein condensates. <i>Physical Review A</i> , 2009, 80, .	1.0	53
54	Drag Force on an Impurity below the Superfluid Critical Velocity in a Quasi-One-Dimensional Bose-Einstein Condensate. <i>Physical Review Letters</i> , 2009, 103, 085302.	2.9	41

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55	Quasicondensation and coherence in the quasi-two-dimensional trapped Bose gas. <i>Physical Review A</i> , 2009, 79, .	1.0	56
56	Observation of shock waves in a large Bose-Einstein condensate. <i>Physical Review A</i> , 2009, 80, .	1.0	48
57	Dynamical formation and interaction of bright solitary waves and solitons in the collapse of Bose-Einstein condensates with attractive interactions. <i>New Journal of Physics</i> , 2009, 11, 053017.	1.2	25
58	Quantum metrology from an information theory perspective. , 2009, , .		2
59	Quantum metrology with Bose-Einstein condensates. , 2009, , .		2
60	Nonlocal pair correlations in the one-dimensional Bose gas at finite temperature. <i>Physical Review A</i> , 2009, 79, .	1.0	58
61	Spontaneous vortices in the formation of Bose-Einstein condensates. <i>Nature</i> , 2008, 455, 948-951.	13.7	440
62	Bose-Einstein condensation from a rotating thermal cloud: Vortex nucleation and lattice formation. <i>Physical Review A</i> , 2008, 77, .	1.0	79
63	Dynamics and statistical mechanics of ultra-cold Bose gases using c-field techniques. <i>Advances in Physics</i> , 2008, 57, 363-455.	35.9	457
64	Versatile two-dimensional potentials for ultra-cold atoms. <i>Optics Express</i> , 2008, 16, 1405.	1.7	55
65	Superfluidity of an interacting trapped quasi-two-dimensional Bose gas. <i>Physical Review A</i> , 2008, 77, .	1.0	37
66	Dynamical instabilities of Bose-Einstein condensates at the band edge in one-dimensional optical lattices. <i>Physical Review A</i> , 2008, 77, .	1.0	28
67	Pairing mean-field theory for the dynamics of dissociation of molecular Bose-Einstein condensates. <i>Physical Review A</i> , 2008, 77, .	1.0	18
68	Detection of continuous variable entanglement without coherent local oscillators. <i>Physical Review A</i> , 2008, 78, .	1.0	43
69	Spatial Nonlocal Pair Correlations in a Repulsive 1D Bose Gas. <i>Physical Review Letters</i> , 2008, 100, 160406.	2.9	49
70	Quantum Metrology: Dynamics versus Entanglement. <i>Physical Review Letters</i> , 2008, 101, 040403.	2.9	176
71	Classical region of a trapped Bose gas. <i>Journal of Physics B: Atomic, Molecular and Optical Physics</i> , 2007, 40, 2043-2053.	0.6	24
72	Calorimetry of Bose-Einstein condensates. <i>Journal of Physics B: Atomic, Molecular and Optical Physics</i> , 2007, 40, 3273-3282.	0.6	6

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73	Quantum depletion of collapsing Bose-Einstein condensates. <i>Physical Review A</i> , 2007, 75, .	1.0	41
74	Population and phase coherence during the growth of an elongated Bose-Einstein condensate. <i>Physical Review A</i> , 2007, 75, .	1.0	23
75	Excitation spectrum of bosons in a finite one-dimensional circular waveguide via the Bethe ansatz. <i>Physical Review A</i> , 2007, 76, .	1.0	30
76	Monte Carlo techniques for real-time quantum dynamics. <i>Journal of Computational Physics</i> , 2007, 220, 549-567.	1.9	11
77	Dynamical formation of bright solitons in the collapse of Bose-Einstein condensates. , 2007, , .		0
78	Fringe spacing and phase of interfering matter waves. <i>Physical Review A</i> , 2006, 73, .	1.0	5
79	Critical Temperature of a Trapped Bose Gas: Comparison of Theory and Experiment. <i>Physical Review Letters</i> , 2006, 96, 060404.	2.9	71
80	Atom counting in ultracold gases using photoionization and ion detection. <i>Physical Review A</i> , 2006, 74, .	1.0	12
81	Entanglement properties of degenerate four-wave mixing of matter waves in a periodic potential. <i>Physical Review A</i> , 2006, 73, .	1.0	13
82	Experiments with Bose-Einstein condensates on an atom chip. , 2005, , .		0
83	Calculation of the microcanonical temperature for the classical Bose field. <i>Journal of Physics A</i> , 2005, 38, 10259-10271.	1.6	24
84	Time-Reversal Test for Stochastic Quantum Dynamics. <i>Physical Review Letters</i> , 2005, 94, 130401.	2.9	18
85	Projected Gross-Pitaevskii equation for harmonically confined Bose gases at finite temperature. <i>Physical Review A</i> , 2005, 72, .	1.0	87
86	Foil-based atom chip for Bose-Einstein condensates. <i>Journal of Physics B: Atomic, Molecular and Optical Physics</i> , 2004, 37, 2959-2967.	0.6	17
87	Microcanonical temperature for a classical field: Application to Bose-Einstein condensation. <i>Physical Review A</i> , 2003, 68, .	1.0	59
88	The stochastic Gross-Pitaevskii equation: II. <i>Journal of Physics B: Atomic, Molecular and Optical Physics</i> , 2003, 36, 4731-4753.	0.6	130
89	Energy-dependent scattering and the Gross-Pitaevskii equation in two-dimensional Bose-Einstein condensates. <i>Physical Review A</i> , 2002, 65, .	1.0	68
90	Growth of Bose-Einstein Condensates from Thermal Vapor. <i>Physical Review Letters</i> , 2002, 88, 080402.	2.9	78

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91	Growth of a Bose-Einstein condensate: a detailed comparison of theory and experiment. Journal of Physics B: Atomic, Molecular and Optical Physics, 2002, 35, 733-742.	0.6	24
92	Simulations of thermal Bose fields in the classical limit. Physical Review A, 2002, 66, .	1.0	92
93	Simulations of Bose Fields at Finite Temperature. Physical Review Letters, 2001, 87, 160402.	2.9	200
94	Interactions and entanglements in BECs. Comptes Rendus Physique, 2001, 2, 399-406.	0.1	2
95	Dynamics of thermal Bose fields in the classical limit. Journal of Physics B: Atomic, Molecular and Optical Physics, 2001, 34, 4487-4512.	0.6	64
96	Quantum kinetic theory. VII. The influence of vapor dynamics on condensate growth. Physical Review A, 2000, 62, .	1.0	40
97	Effects of temperature upon the collapse of a Bose-Einstein condensate in a gas with attractive interactions. Journal of Physics B: Atomic, Molecular and Optical Physics, 1999, 32, 3993-3999.	0.6	8
98	Quantum Kinetic Theory of Condensate Growth: Comparison of Experiment and Theory. Physical Review Letters, 1998, 81, 5266-5269.	2.9	101
99	Kinetics of Bose-Einstein Condensation in a Trap. Physical Review Letters, 1997, 79, 1793-1796.	2.9	119
100	Temporal characteristics and dynamics of gain-switched Cr:YAG lasers. Journal of Optics, 1997, 6, 759-772.	0.5	0