Peter Zoller

List of Publications by Citations

591 papers	66,082 citations	128 h-index	244 g-index
636 ext. papers	74,783 ext. citations	6.5 avg, IF	7.94 L-index

#	Paper	IF	Citations
591	Cold Bosonic Atoms in Optical Lattices. *Physical Review Letters*, **1998**, 81, 3108-3111	7.4	2799
590	Quantum Computations with Cold Trapped Ions. *Physical Review Letters*, **1995**, 74, 4091-4094	7.4	2584
589	Long-distance quantum communication with atomic ensembles and linear optics. *Nature*, **2001**, 414, 413-8	50.4	2264
588	Quantum Repeaters: The Role of Imperfect Local Operations in Quantum Communication. *Physical Review Letters*, **1998**, 81, 5932-5935	7.4	1957
587	Quantum State Transfer and Entanglement Distribution among Distant Nodes in a Quantum Network. *Physical Review Letters*, **1997**, 78, 3221-3224	7.4	1479
586	Inseparability criterion for continuous variable systems. *Physical Review Letters*, **2000**, 84, 2722-5	7.4	1439
585	Quantum Noise. *Springer Series in Synergetics*, **2000**,	0.4	1090
584	Dipole blockade and quantum information processing in mesoscopic atomic ensembles. *Physical Review Letters*, **2001**, 87, 037901	7.4	1063
583	Fast quantum gates for neutral atoms. *Physical Review Letters*, **2000**, 85, 2208-11	7.4	968
582	A toolbox for lattice-spin models with polar molecules. *Nature Physics*, **2006**, 2, 341-347	16.2	768
581	The cold atom Hubbard toolbox. *Annals of Physics*, **2005**, 315, 52-79	2.5	738
580	Quantum states and phases in driven open quantum systems with cold atoms. *Nature Physics*, **2008**, 4, 878-883	16.2	715
579	Many-particle entanglement with Bose-Einstein condensates. *Nature*, **2001**, 409, 63-6	50.4	710
578	An open-system quantum simulator with trapped ions. *Nature*, **2011**, 470, 486-91	50.4	645
577	Entanglement of Atoms via Cold Controlled Collisions. *Physical Review Letters*, **1999**, 82, 1975-1978	7.4	627
576	Decoherence, continuous observation, and quantum computing: A cavity QED model. *Physical Review Letters*, **1995**, 75, 3788-3791	7.4	622
575	Creation of effective magnetic fields in optical lattices: the Hofstadter butterfly for cold neutral atoms. *New Journal of Physics*, **2003**, 5, 56-56	2.9	605

574	Chiral quantum optics. *Nature*, **2017**, 541, 473-480	50.4	595
573	Geometric manipulation of trapped ions for quantum computation. *Science*, **2001**, 292, 1695-7	33.3	557
572	Bose-einstein condensation in trapped dipolar gases. *Physical Review Letters*, **2000**, 85, 1791-4	7.4	506
571	A Rydberg quantum simulator. *Nature Physics*, **2010**, 6, 382-388	16.2	503
570	Majorana fermions in equilibrium and in driven cold-atom quantum wires. *Physical Review Letters*, **2011**, 106, 220402	7.4	501
569	Dynamics of a quantum phase transition. *Physical Review Letters*, **2005**, 95, 105701	7.4	500
568	Quantum Reservoir Engineering with Laser Cooled Trapped Ions. *Physical Review Letters*, **1996**, 77, 4728-4731	7.4	495
567	Quasiparticle engineering and entanglement propagation in a quantum many-body system. *Nature*, **2014**, 511, 202-5	50.4	487
566	Two-orbital S U(N) magnetism with ultracold alkaline-earth atoms. *Nature Physics*, **2010**, 6, 289-295	16.2	457
565	Complete Characterization of a Quantum Process: The Two-Bit Quantum Gate. *Physical Review Letters*, **1997**, 78, 390-393	7.4	454
564	Monte Carlo simulation of the atomic master equation for spontaneous emission. *Physical Review A* , **1992**, 45, 4879-4887	2.6	448
563	Condensed matter theory of dipolar quantum gases. *Chemical Reviews*, **2012**, 112, 5012-61	68.1	446
562	Quantum repeaters based on entanglement purification. *Physical Review A*, **1999**, 59, 169-181	2.6	446
561	Sonic analog of gravitational black holes in bose-einstein condensates. *Physical Review Letters*, **2000**, 85, 4643-7	7.4	434
560	Repulsively bound atom pairs in an optical lattice. *Nature*, **2006**, 441, 853-6	50.4	412
559	Preparation of entangled states by quantum Markov processes. *Physical Review A*, **2008**, 78,	2.6	411
558	Observation of chiral edge states with neutral fermions in synthetic Hall ribbons. *Science*, **2015**, 349, 1510-3	33.3	410
557	Creation of entangled states of distant atoms by interference. *Physical Review A*, **1999**, 59, 1025-1033	2.6	405

556	Reduced Quantum Fluctuations in Resonance Fluorescence. *Physical Review Letters*, **1981**, 47, 709-711	7.4	402
555	Strongly correlated 2D quantum phases with cold polar molecules: controlling the shape of the interaction potential. *Physical Review Letters*, **2007**, 98, 060404	7.4	386
554	Cavity opto-mechanics using an optically levitated nanosphere. *Proceedings of the National Academy of Sciences of the United States of America*, **2010**, 107, 1005-10	11.5	381
553	A scalable quantum computer with ions in an array of microtraps. *Nature*, **2000**, 404, 579-81	50.4	378
552	Universal digital quantum simulation with trapped ions. *Science*, **2011**, 334, 57-61	33.3	377
551	Topological quantum matter with ultracold gases in optical lattices. *Nature Physics*, **2016**, 12, 639-645	16.2	364
550	High-temperature superfluidity of fermionic atoms in optical lattices. *Physical Review Letters*, **2002**, 89, 220407	7.4	360
549	A coherent all-electrical interface between polar molecules and mesoscopic superconducting resonators. *Nature Physics*, **2006**, 2, 636-642	16.2	343
548	Cold atoms in non-Abelian gauge potentials: from the Hofstadter "moth" to lattice gauge theory. *Physical Review Letters*, **2005**, 95, 010403	7.4	341
547	Synthesis of arbitrary quantum states via adiabatic transfer of Zeeman coherence. *Physical Review Letters*, **1993**, 71, 3095-3098	7.4	335
546	Quantum superposition states of Bose-Einstein condensates. *Physical Review A*, **1998**, 57, 1208-1218	2.6	331
545	Autoionizing states in strong laser fields. *Physical Review A*, **1981**, 24, 379-397	2.6	326
544	Hybrid quantum processors: molecular ensembles as quantum memory for solid state circuits. *Physical Review Letters*, **2006**, 97, 033003	7.4	320
543	Wave-function quantum stochastic differential equations and quantum-jump simulation methods. *Physical Review A*, **1992**, 46, 4363-4381	2.6	315
542	Real-time dynamics of lattice gauge theories with a few-qubit quantum computer. *Nature*, **2016**, 534, 516-9	50.4	310
541	Fault-tolerant architecture for quantum computation using electrically controlled semiconductor spins. *Nature Physics*, **2005**, 1, 177-183	16.2	310
540	Low Energy Excitations of a Bose-Einstein Condensate: A Time-Dependent Variational Analysis. *Physical Review Letters*, **1996**, 77, 5320-5323	7.4	310
539	Optomechanical transducers for long-distance quantum communication. *Physical Review Letters*, **2010**, 105, 220501	7.4	309

538	Optomechanical quantum information processing with photons and phonons. *Physical Review Letters*, **2012**, 109, 013603	7.4	295
537	Topology by dissipation in atomic quantum wires. *Nature Physics*, **2011**, 7, 971-977	16.2	287
536	A quantum spin transducer based on nanoelectromechanical resonator arrays. *Nature Physics*, **2010**, 6, 602-608	16.2	285
535	Dynamics of Bose-Einstein condensates: Variational solutions of the Gross-Pitaevskii equations. *Physical Review A*, **1997**, 56, 1424-1432	2.6	282
534	Laser cooling of a nanomechanical resonator mode to its quantum ground state. *Physical Review Letters*, **2004**, 92, 075507	7.4	275
533	Atomic Bose and Anderson glasses in optical lattices. *Physical Review Letters*, **2003**, 91, 080403	7.4	254
532	Quantum communication between atomic ensembles using coherent light. *Physical Review Letters*, **2000**, 85, 5643-6	7.4	248
531	"Dark" squeezed states of the motion of a trapped ion. *Physical Review Letters*, **1993**, 70, 556-559	7.4	235
530	Measuring entanglement growth in quench dynamics of bosons in an optical lattice. *Physical Review Letters*, **2012**, 109, 020505	7.4	231
529	Quantum simulation. Spectroscopic observation of SU(N)-symmetric interactions in Sr orbital magnetism. *Science*, **2014**, 345, 1467-73	33.3	229
528	Quantum information processing and communication. *European Physical Journal D*, **2005**, 36, 203-228	1.3	228
527	Laser cooling of trapped ions in a standing wave. *Physical Review A*, **1992**, 46, 2668-2681	2.6	222
526	Strongly correlated gases of Rydberg-dressed atoms: quantum and classical dynamics. *Physical Review Letters*, **2010**, 104, 223002	7.4	221
525	Mesoscopic Rydberg gate based on electromagnetically induced transparency. *Physical Review Letters*, **2009**, 102, 170502	7.4	218
524	Dynamical phase transitions and instabilities in open atomic many-body systems. *Physical Review Letters*, **2010**, 105, 015702	7.4	215
523	Preparation of Fock states by observation of quantum jumps in an ion trap. *Physical Review Letters*, **1993**, 70, 762-765	7.4	213
522	Coherent atomic mirrors and beam splitters by adiabatic passage in multilevel systems. *Physical Review A*, **1991**, 44, 4118-4121	2.6	209
521	Quantum computation using vortices and majorana zero modes of a px + ipy superfluid of fermionic cold atoms. *Physical Review Letters*, **2007**, 98, 010506	7.4	207

520	Laser excitation of electronic wave packets in rydberg atoms. *Physics Reports*, **1991**, 199, 231-280	27.7	207
519	Quantum jumps in atomic systems. *Physical Review A*, **1987**, 35, 198-207	2.6	206
518	Self-verifying variational quantum simulation of lattice models. *Nature*, **2019**, 569, 355-360	50.4	204
517	Three-body interactions with cold polar molecules. *Nature Physics*, **2007**, 3, 726-731	16.2	204
516	Dynamical localization of atomic-beam deflection by a modulated standing light wave. *Physical Review A*, **1992**, 45, R19-R22	2.6	201
515	Quantum phases of cold polar molecules in 2D optical lattices. *Physical Review Letters*, **2010**, 104, 125301	7.4	200
514	Spin-based all-optical quantum computation with quantum dots: Understanding and suppressing decoherence. *Physical Review A*, **2003**, 68,	2.6	200
513	1/2-anyons in small atomic Bose-Einstein condensates. *Physical Review Letters*, **2001**, 87, 010402	7.4	198
512	Generation and detection of Rydberg wave packets by short laser pulses. *Physical Review A*, **1986**, 34, 1058-1064	2.6	197
511	Hybrid quantum devices and quantum engineering. *Physica Scripta*, **2009**, T137, 014001	2.6	194
510	Many-particle entanglement in two-component Bose-Einstein condensates. *Physical Review A*, **2003**, 67,	2.6	194
509	Ideal Quantum Communication over Noisy Channels: A Quantum Optical Implementation. *Physical Review Letters*, **1997**, 78, 4293-4296	7.4	191
508	Monte Carlo simulation of master equations in quantum optics for vacuum, thermal, and squeezed reservoirs. *Physical Review A*, **1992**, 46, 4382-4396	2.6	186
507	Creation of Dark Solitons and Vortices in Bose-Einstein Condensates. *Physical Review Letters*, **1998**, 80, 2972-2975	7.4	183
506	Preparation of macroscopic superpositions in many-atom systems. *Physical Review A*, **1994**, 50, R2799-R2802	2.6	182
505	Atomic quantum simulation of dynamical gauge fields coupled to fermionic matter: from string breaking to evolution after a quench. *Physical Review Letters*, **2012**, 109, 175302	7.4	179
504	Quantum computing with alkaline-Earth-metal atoms. *Physical Review Letters*, **2008**, 101, 170504	7.4	179
503	Squeezing and entanglement of atomic beams. *Physical Review Letters*, **2000**, 85, 3991-4	7.4	177

502	Phonon-induced spin-spin interactions in diamond nanostructures: application to spin squeezing. *Physical Review Letters*, **2013**, 110, 156402	7.4	176
501	Speed optimized two-qubit gates with laser coherent control techniques for ion trap quantum computing. *Physical Review Letters*, **2003**, 91, 157901	7.4	176
500	Quantum nondemolition measurements of photon number by atomic beam deflection. *Physical Review Letters*, **1991**, 67, 1716-1719	7.4	176
499	Probing Rényi entanglement entropy via randomized measurements. *Science*, **2019**, 364, 260-263	33.3	172
498	Quantum-state mapping between multilevel atoms and cavity light fields. *Physical Review A*, **1995**, 51, 1578-1596	2.6	172
497	Extended Bose-Hubbard models with ultracold magnetic atoms. *Science*, **2016**, 352, 201-5	33.3	171
496	Supersolid droplet crystal in a dipole-blockaded gas. *Physical Review Letters*, **2010**, 105, 135301	7.4	169
495	Atomic three-body loss as a dynamical three-body interaction. *Physical Review Letters*, **2009**, 102, 040402	7.4	167
494	Cold polar molecules in two-dimensional traps: Tailoring interactions with external fields for novel quantum phases. *Physical Review A*, **2007**, 76,	2.6	167
493	Quantum gates with neutral atoms: Controlling collisional interactions in time-dependent traps. *Physical Review A*, **2000**, 61,	2.6	167
492	Strong coupling of a mechanical oscillator and a single atom. *Physical Review Letters*, **2009**, 103, 063005	7.4	164
491	Sonic black holes in dilute Bose-Einstein condensates. *Physical Review A*, **2001**, 63,	2.6	164
490	Creation of a molecular condensate by dynamically melting a Mott insulator. *Physical Review Letters* , **2002**, 89, 040402	7.4	163
489	Atomic quantum simulation of U(N) and SU(N) non-Abelian lattice gauge theories. *Physical Review Letters*, **2013**, 110, 125303	7.4	159
488	Photonic channels for quantum communication. *Science*, **1998**, 279, 205-8	33.3	158
487	Entanglement purification of gaussian continuous variable quantum states. *Physical Review Letters*, **2000**, 84, 4002-5	7.4	158
486	Engineered Open Systems and Quantum Simulations with Atoms and Ions. *Advances in Atomic, Molecular and Optical Physics*, **2012**, 1-80	1.7	156
485	Cavity-assisted squeezing of a mechanical oscillator. *Physical Review A*, **2009**, 79,	2.6	154

484	Anomalous diffusion and L□y walks in optical lattices. *Physical Review A*, **1996**, 53, 3409-3430	2.6	151
483	Atomic quantum dots coupled to a reservoir of a superfluid Bose-Einstein condensate. *Physical Review Letters*, **2005**, 94, 040404	7.4	149
482	Quantum Kibble-Zurek mechanism and critical dynamics on a programmable Rydberg simulator. *Nature*, **2019**, 568, 207-211	50.4	144
481	Quantum simulation of dynamical maps with trapped ions. *Nature Physics*, **2013**, 9, 361-367	16.2	144
480	Ground-state cooling of mechanical resonators. *Physical Review B*, **2004**, 69,	3.3	143
479	Topology by dissipation. *New Journal of Physics*, **2013**, 15, 085001	2.9	142
478	Continuous observation of interference fringes from Bose condensates. *Physical Review A*, **1996**, 54, R3714-R3717	2.6	141
477	Momentum transfer in laser-cooled cesium by adiabatic passage in a light field. *Physical Review Letters*, **1994**, 72, 997-1000	7.4	141
476	Apparatus for measuring pressure-volume-temperature relationships of polymers to 350 degrees C and 2200kg/cm2. *Review of Scientific Instruments*, **1976**, 47, 948-52	1.7	141
475	Quantum optics of chiral spin networks. *Physical Review A*, **2015**, 91,	2.6	140
474	Coherent atomic waveguides from hollow optical fibers: Quantized atomic motion. *Physical Review A*, **1994**, 50, 2680-2690	2.6	140
473	Establishing Einstein-Poldosky-Rosen channels between nanomechanics and atomic ensembles. *Physical Review Letters*, **2009**, 102, 020501	7.4	138
472	Coupled ion-nanomechanical systems. *Physical Review Letters*, **2004**, 93, 266403	7.4	137
471	Creation of a dipolar superfluid in optical lattices. *Physical Review Letters*, **2003**, 90, 110401	7.4	136
470	Optical pumping of quantum-dot nuclear spins. *Physical Review Letters*, **2003**, 91, 017402	7.4	136
469	Quantum Chaos in an Ion Trap: The Delta-Kicked Harmonic Oscillator. *Physical Review Letters*, **1997**, 79, 4790-4793	7.4	134
468	Theory of an atom laser. *Physical Review A*, **1996**, 54, R1757-R1760	2.6	132
467	Quantum computations with atoms in optical lattices: Marker qubits and molecular interactions. *Physical Review A*, **2004**, 70,	2.6	131

466	Measuring multipartite entanglement through dynamic susceptibilities. *Nature Physics*, **2016**, 12, 778-782	16.2	129
465	Non-Lorentzian laser line shapes and the reversed peak asymmetry in double optical resonance. *Physical Review A*, **1980**, 21, 1289-1296	2.6	128
464	Feedback cooling of a single trapped ion. *Physical Review Letters*, **2006**, 96, 043003	7.4	127
463	Atomic quantum simulator for lattice gauge theories and ring exchange models. *Physical Review Letters*, **2005**, 95, 040402	7.4	127
462	Spin-charge separation in ultracold quantum gases. *Physical Review Letters*, **2003**, 90, 020401	7.4	126
461	Direct imaging of topological edge states in cold-atom systems. *Proceedings of the National Academy of Sciences of the United States of America*, **2013**, 110, 6736-41	11.5	125
460	Single-photon nonlinearities in two-mode optomechanics. *Physical Review A*, **2013**, 87,	2.6	120
459	Generation of squeezed states of nanomechanical resonators by reservoir engineering. *Physical Review B*, **2004**, 70,	3.3	120
458	Quantum collapse and revival in the motion of a single trapped ion. *Physical Review A*, **1994**, 49, 1202-1207	2.6	120
457	Designing frustrated quantum magnets with laser-dressed Rydberg atoms. *Physical Review Letters*, **2015**, 114, 173002	7.4	118
456	Coherent quantum optical control with subwavelength resolution. *Physical Review Letters*, **2008**, 100, 093005	7.4	118
455	Quantum kinetic theory: A quantum kinetic master equation for condensation of a weakly interacting Bose gas without a trapping potential. *Physical Review A*, **1997**, 55, 2902-2921	2.6	117
454	A coherent nonlinear mechanism for optical bistability from three level atoms. *Optics Communications*, **1980**, 34, 260-264	2	117
453	Alkaline-earth-metal atoms as few-qubit quantum registers. *Physical Review Letters*, **2009**, 102, 110503	7.4	116
452	Continuous mode cooling and phonon routers for phononic quantum networks. *New Journal of Physics*, **2012**, 14, 115004	2.9	115
451	Laser-driven atoms in half-cavities. *Physical Review A*, **2002**, 66,	2.6	114
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449	Nonequilibrium dynamics of bosonic atoms in optical lattices: Decoherence of many-body states due to spontaneous emission. *Physical Review A*, **2010**, 82,	2.6	112

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447	A quantum annealing architecture with all-to-all connectivity from local interactions. *Science Advances*, **2015**, 1, e1500838	14.3	105
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444	Photonic Circuits with Time Delays and Quantum Feedback. *Physical Review Letters*, **2016**, 116, 093601	7.4	104
443	Nonlinear quantum optomechanics via individual intrinsic two-level defects. *Physical Review Letters*, **2013**, 110, 193602	7.4	103
442	Kinetics of Bose-Einstein Condensation in a Trap. *Physical Review Letters*, **1997**, 79, 1793-1796	7.4	103
441	Constrained dynamics via the Zeno effect in quantum simulation: implementing non-Abelian lattice gauge theories with cold atoms. *Physical Review Letters*, **2014**, 112, 120406	7.4	101
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436	Holonomic quantum computation with neutral atoms. *Physical Review A*, **2002**, 66,	2.6	98
435	Three-dimensional theory for interaction between atomic ensembles and free-space light. *Physical Review A*, **2002**, 66,	2.6	98
434	Stability and collective excitations of a two-component Bose-Einstein condensed gas: A moment approach. *Physical Review A*, **1997**, 56, 2978-2983	2.6	97
433	Topological Quantum Optics in Two-Dimensional Atomic Arrays. *Physical Review Letters*, **2017**, 119, 023603	7.4	96
432	Nanoplasmonic lattices for ultracold atoms. *Physical Review Letters*, **2012**, 109, 235309	7.4	96
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429	Motion tomography of a single trapped ion. *Physical Review A*, **1996**, 53, R1966-R1969	2.6	96
428	Defect-suppressed atomic crystals in an optical lattice. *Physical Review Letters*, **2003**, 91, 110403	7.4	95
427	Laser probing of atomic Cooper pairs. *Physical Review Letters*, **2000**, 85, 487-90	7.4	95
426	Rydberg electrons in laser fields: A finite-range-interaction problem. *Physical Review A*, **1987**, 36, 5178-5188	2.8	94
425	Laser cooling of trapped three-level ions: Designing two-level systems for sideband cooling. *Physical Review A*, **1994**, 49, 2771-2779	2.6	93
424	Absorption spectrum of a two-level system in a squeezed vacuum. *Optics Communications*, **1987**, 64, 523-528	2	93
423	Quantum Gates with "Hot" Trapped Ions. *Physical Review Letters*, **1998**, 81, 1322-1325	7.4	91
422	Quantum kinetic theory. III. Quantum kinetic master equation for strongly condensed trapped systems. *Physical Review A*, **1998**, 58, 536-556	2.6	91
421	Quantum communication with dark photons. *Physical Review A*, **1999**, 59, 2659-2664	2.6	91
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415	Single-atom cavity QED and optomicromechanics. *Physical Review A*, **2010**, 81,	2.6	87
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396	Quantum kinetic theory. V. Quantum kinetic master equation for mutual interaction of condensate and noncondensate. *Physical Review A*, **2000**, 61,	2.6	76
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