Ferdinand Schmidt-Kaler

List of Publications by Year
in descending order

130	10,948	41258	30010
papers	citations	49 h-index	103 g-index

132	132	132	5224
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Fault-Tolerant Parity Readout on a Shuttling-Based Trapped-Ion Quantum Computer. Physical Review X, 2022, 12, .	2.8	21
2	Millicharged Dark Matter Detection with Ion Traps. PRX Quantum, 2022, 3, .	3.5	20
3	Robust polarization gradient cooling of trapped ions. New Journal of Physics, 2022, 24, 043028.	1.2	5
4	Detecting Heat Leaks with Trapped Ion Qubits. Physical Review Letters, 2022, 128, 110601.	2.9	1
5	Imaging Trapped Ion Structures via Fluorescence Cross-Correlation Detection. Physical Review Letters, 2021, 126, 173602.	2.9	9
6	Fabrication of ¹⁵NV^{â^'} centers in diamond using a deterministic single ion implanter. New Journal of Physics, 2021, 23, 063067.	1.2	10
7	Optical Superresolution Sensing of a Trapped Ionâ€™s Wave Packet Size. Physical Review Letters, 2021, 127, 143602.	2.9	13
8	Rydberg Series Excitation of a Single Trapped Ca+40 Ion for Precision Measurements and Principal Quantum Number Scalings. Physical Review Letters, 2021, 127, 203001.	2.9	1
9	Trapped Rydberg ions: A new platform for quantum information processing. Advances in Atomic, Molecular and Optical Physics, 2020, 69, 233-306.	2.3	9
10	Light of Two Atoms in Free Space: Bunching or Antibunching?. Physical Review Letters, 2020, 124, 063603.	2.9	26
11	Shuttling-based trapped-ion quantum information processing. AVS Quantum Science, 2020, 2, .	1.8	61
12	Quantum algorithm for simulating an experiment: Light interference from single ions and their mirror images. Physical Review A, 2019, 100, .	1.0	3
13	Determination of quantum defect for the Rydberg P series of Ca II. Journal of Physics B: Atomic, Molecular and Optical Physics, 2019, 52, 214001.	0.6	6
14	Shuttling of Rydberg Ions for Fast Entangling Operations. Physical Review Letters, 2019, 123, 153603.	2.9	12
15	Spin Heat Engine Coupled to a Harmonic-Oscillator Flywheel. Physical Review Letters, 2019, 123, 080602.	2.9	141
16	Trapping and sympathetic cooling of single thorium ions for spectroscopy. Physical Review A, 2019, 99, .	1.0	25
17	Spin and motion dynamics with zigzag ion crystals in transverse magnetic gradients. Journal of Physics B: Atomic, Molecular and Optical Physics, 2019, 52, 025301.	0.6	14
18	Efficient and robust photo-ionization loading of beryllium ions. Applied Physics B: Lasers and Optics, 2018, 124, 1.	1.1	8

#	Article	IF	Citations
19	Scalable Creation of Long-Lived Multipartite Entanglement. Physical Review Letters, 2017, 119, 150503.	2.9	46
20	Assessing the Progress of Trapped-Ion Processors Towards Fault-Tolerant Quantum Computation. Physical Review X, 2017, 7, .	2.8	93
21	Fast ion swapping for quantum-information processing. Physical Review A, 2017, 95, .	1.0	40
22	Entanglement-Based dc Magnetometry with Separated Ions. Physical Review X, 2017, 7, .	2.8	35
23	Nanoscopic single particle microscopy with a deterministic single ion source. , 2017, , .		0
24	Maximizing the information gain of a single ion microscope using bayes experimental design. , 2016, , .		1
25	A single-atom heat engine. Science, 2016, 352, 325-329.	6.0	533
26	A quantum repeater node with trapped ions: a realistic case example. Applied Physics B: Lasers and Optics, 2016, 122, 1.	1.1	14
27	Addressing single trapped ions for Rydberg quantum logic. Journal of Physics B: Atomic, Molecular and Optical Physics, 2016, 49, 154004.	0.6	14
28	Visibility of Youngâ€™s Interference Fringes: Scattered Light from Small Ion Crystals. Physical Review Letters, 2016, 116, 183002.	2.9	11
29	Transmission Microscopy with Nanometer Resolution Using a Deterministic Single Ion Source. Physical Review Letters, 2016, 117, 043001.	2.9	43
30	Phase-Stable Free-Space Optical Lattices for Trapped Ions. Physical Review Letters, 2016, 116, 033002.	2.9	20
31	A long-lived Zeeman trapped-ion qubit. Applied Physics B: Lasers and Optics, 2016, 122, 1.	1.1	76
32	Phonon-to-spin mapping in a system of a trapped ion via optimal control. Physical Review A, 2015, 92, .	1.0	5
33	Measurement of Dipole Matrix Elements with a Single Trapped Ion. Physical Review Letters, 2015, 115, 143003.	2.9	35
34	Rydberg Excitation of a Single Trapped Ion. Physical Review Letters, 2015, 115, 173001.	2.9	33
35	Fast thermometry for trapped ions using dark resonances. New Journal of Physics, 2015, 17, 045004.	1.2	28
36	Controlling the transport of an ion: classical and quantum mechanical solutions. New Journal of Physics, 2014, 16, 075007.	1.2	42

#	Article	IF	Citations
37	Dynamics and control of fast ion crystal splitting in segmented Paul traps. New Journal of Physics, 2014, 16, 073012.	1.2	33
38	Fast shuttling of a trapped ion in the presence of noise. Physical Review A, 2014, 89, .	1.0	33
39	Experimental realization of fast ion separation in segmented Paul traps. Physical Review A, 2014, 90, .	1.0	43
40	Topical issue Frontiers of ion trap and atomic physics: Wolfgang Paul 100. Applied Physics B: Lasers and Optics, 2014, 114, 1-1.	1.1	0
41	Mode shaping in mixed ion crystals of 40Ca2+ and 40Ca+. Applied Physics B: Lasers and Optics, 2014, 114, 11-16.	1.1	9
42	Nanoscale Heat Engine Beyond the Carnot Limit. Physical Review Letters, 2014, 112, 030602.	2.9	481
43	Feel the force. Nature, 2014, 510, 349-349.	13.7	0
44	Observation of the Kibbleâ€“Zurek scaling law for defect formation in ion crystals. Nature Communications, 2013, 4, 2290.	5.8	221
45	Experimental creation and analysis of displaced number states. Journal of Physics B: Atomic, Molecular and Optical Physics, 2013, 46, 104008.	0.6	20
46	Shot-Noise-Limited Monitoring and Phase Locking of the Motion of a Single Trapped Ion. Physical Review Letters, 2013, 110, 133602.	2.9	12
47	Simulation of the Jahnâ€“Tellerâ€“Dicke magnetic structural phase transition with trapped ions. Journal of Physics B: Atomic, Molecular and Optical Physics, 2013, 46, 104003.	0.6	10
48	Quantum magnetism of spin-ladder compounds with trapped-ion crystals. New Journal of Physics, 2012, 14, 093042.	1.2	21
49	Controlling Fast Transport of Cold Trapped Ions. Physical Review Letters, 2012, 109, 080501.	2.9	193
50	Precise Experimental Investigation of Eigenmodes in a Planar Ion Crystal. Physical Review Letters, 2012, 109, 263003.	2.9	49
51	Entangled states of trapped ions allow measuring the magnetic field gradient produced by a single atomic spin. Europhysics Letters, 2012, 99, 53001.	0.7	13
52	Quantum Simulation of the Cooperative Jahn-Teller Transition in 1D Ion Crystals. Physical Review Letters, 2012, 108, 235701.	2.9	31
53	Single-Ion Heat Engine at Maximum Power. Physical Review Letters, 2012, 109, 203006.	2.9	362
54	Light with orbital angular momentum interacting with trapped ions. European Physical Journal D, 2012, 66, 1.	0.6	57

#	Article	IF	Citations
55	Designing spin-spin interactions with one and two dimensional ion crystals in planar micro traps. European Physical Journal D, 2011, 65, 285-297.	0.6	33
56	Fabrication and heating rate study of microscopic surface electrode ion traps. New Journal of Physics, 2011, 13, 013032.	1.2	80
57	Rydberg excitation of trapped cold ions: a detailed case study. New Journal of Physics, 2011, 13, 075014.	1.2	37
58	Single ion as a shot-noise-limited magnetic-field-gradient probe. Physical Review A, 2011, 83, .	1.0	7
59	Simulation of quantum magnetism in mixed-spin systems with impurity-doped ion crystals. New Journal of Physics, 2011, 13, 125008.	1.2	10
60	A trapped-ion local field probe. Applied Physics B: Lasers and Optics, 2010, 100, 725-730.	1.1	14
61	Observing the Phase Space Trajectory of an Entangled Matter Wave Packet. Physical Review Letters, 2010, 105, 263602.	2.9	33
62	Quantum gate in the decoherence-free subspace of trapped-ion qubits. Europhysics Letters, 2010, 92, 30006.	0.7	8
63	Focusing a deterministic single-ion beam. New Journal of Physics, 2010, 12, 065023.	1.2	12
64	Focus on Atom Optics and its Applications. New Journal of Physics, 2010, 12, 065014.	1.2	14
65	Feedback-optimized operations with linear ion crystals. Journal of the Optical Society of America B: Optical Physics, 2010, 27, A99.	0.9	12
66	Colloquium: Trapped ions as quantum bits: Essential numerical tools. Reviews of Modern Physics, 2010, 82, 2609-2632.	16.4	105
67	Deterministic Ultracold Ion Source Targeting the Heisenberg Limit. Physical Review Letters, 2009, 102, 070501.	2.9	60
68	Coherent manipulation of a⁴⁰Ca⁺spin qubit in a micro ion trap. Journal of Physics B: Atomic, Molecular and Optical Physics, 2009, 42, 154013.	0.6	41
69	Experimental and theoretical challenges for the trapped electron quantum computer. Journal of Physics B: Atomic, Molecular and Optical Physics, 2009, 42, 154010.	0.6	20
70	Optimised focusing ion optics for an ultracold deterministic single ion source targeting nm resolution. Journal of Modern Optics, 2009, 56, 2061-2075.	0.6	5
71	Towards the implanting of ions and positioning of nanoparticles with nm spatial resolution. Applied Physics A: Materials Science and Processing, 2008, 91, 567-571.	1.1	64
72	Transport of ions in a segmented linear Paul trap in printed-circuit-board technology. New Journal of Physics, 2008, 10, 013004.	1.2	62

#	Article	IF	Citations
73	Sideband cooling and coherent dynamics in a microchip multi-segmented ion trap. New Journal of Physics, 2008, 10, 045007.	1.2	79
74	Employing Trapped Cold Ions to Verify the Quantum Jarzynski Equality. Physical Review Letters, 2008, 101, 070403.	2.9	128
75	Robust state preparation of a single trapped ion by adiabatic passage. Journal of Modern Optics, 2007, 54, 1541-1549.	0.6	55
76	Total surveillance. Nature, 2007, 446, 275-276.	13.7	1
77	Single Atom - Single Photon Interaction: from Bad-Cavity QED to Remote Entanglement. , 2007, , .		0
78	Optimization of segmented linear Paul traps and transport of stored particles. Fortschritte Der Physik, 2006, 54, 648-665.	1.5	66
79	Concept of deterministic single ion doping with sub-nm spatial resolution. Applied Physics A: Materials Science and Processing, 2006, 83, 321-327.	1.1	59
80	Robust entanglement. Applied Physics B: Lasers and Optics, 2005, 81, 151-153.	1.1	103
81	Ion Trap Quantum Computing with Ca+ Ions. , 2005, , 61-73.		0
82	Experimental and theoretical study of the3dD2â€“level lifetimes ofCa+40. Physical Review A, 2005, 71, .	1.0	81
83	Forces between a Single Atom and Its Distant Mirror Image. Physical Review Letters, 2004, 92, 223602.	2.9	61
84	Bell States of Atoms with Ultralong Lifetimes and Their Tomographic State Analysis. Physical Review Letters, 2004, 92, 220402.	2.9	194
85	Course 5 Quantum information processing in ion traps I. Les Houches Summer School Proceedings, 2004, 79, 223-260.	0.2	3
86	Quantized AC-Stark shifts and their use for multiparticle entanglement and quantum gates. Europhysics Letters, 2004, 65, 587-593.	0.7	18
87	Deterministic quantum teleportation with atoms. Nature, 2004, 429, 734-737.	13.7	853
88	Ion Trap Quantum Computing with Ca+ Ions. Quantum Information Processing, 2004, 3, 61-73.	1.0	18
89	Spontaneous Emission Lifetime of a Single TrappedCa+Ion in a High Finesse Cavity. Physical Review Letters, 2004, 92, 203002.	2.9	64
90	Control and Measurement of Three-Qubit Entangled States. Science, 2004, 304, 1478-1480.	6.0	312

#	Article	IF	Citations
91	A single photon source based on a single Ca+ ion. , 2004, , .		0
92	Spontaneous emission lifetime of a single Ca+ ion in a high finesse optical cavity. , 2004, , .		0
93	Single atom capturing effect by a single distant mirror. , 2004, , .		0
94	Quantum gates and entanglement. , 2004, , .		0
95	ION CRYSTALS FOR QUANTUM INFORMATION PROCESSING. , 2004, , .		0
96	Doppler cooling a single Ca+ ion with a violet extended-cavity diode laser. Applied Physics B: Lasers and Optics, 2003, 76, 805-808.	1.1	12
97	How to realize a universal quantum gate with trapped ions. Applied Physics B: Lasers and Optics, 2003, 77, 789-796.	1.1	131
98	Single trapped ions interacting with low- and high-finesse optical cavities. Fortschritte Der Physik, 2003, 51, 359-368.	1.5	4
99	Implementation of the Deutschâ€“Jozsa algorithm on an ion-trap quantum computer. Nature, 2003, 421, 48-50.	13.7	402
100	Realization of the Ciracâ€“Zoller controlled-NOT quantum gate. Nature, 2003, 422, 408-411.	13.7	769
101	Laser cooling of trapped ions. Journal of the Optical Society of America B: Optical Physics, 2003, 20, 1003.	0.9	161
102	Precision Measurement and Compensation of Optical Stark Shifts for an Ion-Trap Quantum Processor. Physical Review Letters, 2003, 90, 143602.	2.9	117
103	Vacuum-Field Level Shifts in a Single Trapped Ion Mediated by a Single Distant Mirror. Physical Review Letters, 2003, 91, 213602.	2.9	69
104	Quantum information processing with trapped Ca + ions. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2003, 361, 1363-1374.	1.6	12
105	The coherence of qubits based on single CaÂions. Journal of Physics B: Atomic, Molecular and Optical Physics, 2003, 36, 623-636.	0.6	128
106	Optical decay from a Fabryâ€“Perot cavity faster than the decay time. Journal of the Optical Society of America B: Optical Physics, 2002, 19, 1425.	0.9	18
107	Coupling a Single Atomic Quantum Bit to a High Finesse Optical Cavity. Physical Review Letters, 2002, 89, 103001.	2.9	266
108	Laser Cooling of Trapped Ions. , 2002, , 243-260.		0

#	Article	IF	Citations
109	SINGLE IONS INTERFERING WITH THEIR MIRROR IMAGES. , 2002, , .		0
110	Simple and efficient photo-ionization loading of ions for precision ion-trapping experiments. Applied Physics B: Lasers and Optics, 2001, 73, 861-863.	1.1	99
111	Light interference from single atoms and their mirror images. Nature, 2001, 413, 495-498.	13.7	218
112	Sympathetic ground-state cooling and coherent manipulation with two-ion crystals. Journal of Optics B: Quantum and Semiclassical Optics, 2001, 3, S34-S41.	1.4	81
113	Speed of ion-trap quantum-information processors. Physical Review A, 2000, 62, .	1.0	99
114	Experimental Demonstration of Ground State Laser Cooling with Electromagnetically Induced Transparency. Physical Review Letters, 2000, 85, 5547-5550.	2.9	199
115	Motional Sidebands and Direct Measurement of the Cooling Rate in the Resonance Fluorescence of a Single Trapped Ion. Physical Review Letters, 2000, 85, 538-541.	2.9	52
116	Investigating a qubit candidate: Spectroscopy on theS1/2toD5/2transition of a trapped calcium ion in a linear Paul trap. Physical Review A, 2000, 61, .	1.0	75
117	Ground state cooling, quantum state engineering and study of decoherence of ions in Paul traps. Journal of Modern Optics, 2000, 47, 2573-2582.	0.6	23
118	Laser addressing of individual ions in a linear ion trap. Physical Review A, 1999, 60, 145-148.	1.0	150
119	Quantum State Engineering on an Optical Transition and Decoherence in a Paul Trap. Physical Review Letters, 1999, 83, 4713-4716.	2.9	342
120	Laser Spectroscopy. , 1999, , .		2
121	Ion strings for quantum gates. Applied Physics B: Lasers and Optics, 1998, 66, 603-608.	1.1	77
122	Diode laser spectrometer at 493 nm for single trapped Ba + ions. Applied Physics B: Lasers and Optics, 1998, 67, 683-688.	1.1	28
123	Coherent excitation of normal modes in a string of Ca^+ ions. Optics Express, 1998, 3, 89.	1.7	45
124	Quantum Rabi Oscillation: A Direct Test of Field Quantization in a Cavity. Physical Review Letters, 1996, 76, 1800-1803.	2.9	862
125	From Lamb shift to light shifts: Vacuum and subphoton cavity fields measured by atomic phase sensitive detection. Physical Review Letters, 1994, 72, 3339-3342.	2.9	227
126	Observation of sub-Poissonian photon statistics in a micromaser. Physical Review Letters, 1990, 64, 2783-2786.	2.9	521

#	Article	IF	Citations
127	Quantum Computing Experiments with Cold Trapped Ions. , 0, , 423-450.		0
128	Single ion thermal wave packet analyzed via time-of-flight detection. New Journal of Physics, 0, , .	1.2	3
129	Optimization of Segmented Linear Paul Traps and Transport of Stored Particles. , 0, , 45-68.		1
130	A deterministic single ion fountain. Quantum Science and Technology, 0, , .	2.6	1