

Uwe Sterr

List of Publications by Year in descending order

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168
papers

7,198
citations

47006

47
h-index

58581

82
g-index

170
all docs

170
docs citations

170
times ranked

3008
citing authors

#	ARTICLE	IF	CITATIONS
1	A sub-40-mHz-linewidth laser based on a silicon single-crystal optical cavity. Nature Photonics, 2012, 6, 687-692.	31.4	571
2	1.5×10^{-14} Lasers with Sub-10ÅmHz Linewidth. Physical Review Letters, 2017, 118, 263202.	7.8	359
3	Geodesy and metrology with a transportable optical clock. Nature Physics, 2018, 14, 437-441.	16.7	316
4	A clock network for geodesy and fundamental science. Nature Communications, 2016, 7, 12443.	12.8	297
5	Demonstration of 4.8×10^{-17} stability at 1s for two independent optical clocks. Nature Photonics, 2019, 13, 714-719.	31.4	287
6	8×10^{-17} fractional laser frequency instability with a long room-temperature cavity. Optics Letters, 2015, 40, 2112.	3.3	187
7	Transportable Optical Lattice Clock with 7×10^{-17} fractional frequency instability. Physical Review Letters, 2017, 118, 073601.	7.8	168
8	Test of Special Relativity Using a Fiber Network of Optical Clocks. Physical Review Letters, 2017, 118, 221102.	7.8	155
9	A strontium lattice clock with 3×10^{-17} inaccuracy and its frequency. New Journal of Physics, 2014, 16, 073023.	2.9	153
10	Quantum tests of the Einstein Equivalence Principle with the STE-QUEST space mission. Advances in Space Research, 2015, 55, 501-524.	2.6	151
11	Doppler Cooling and Trapping on Forbidden Transitions. Physical Review Letters, 2001, 87, 123002.	7.8	145
12	Optical frequency transfer via 146 km fiber link with 10^{-19} relative accuracy. Optics Letters, 2009, 34, 2270.	3.3	133
13	Reduction of residual amplitude modulation to 1×10^{-6} for frequency modulation and laser stabilization. Optics Letters, 2014, 39, 1980.	3.3	125
14	Diode laser with 1 Hz linewidth. Optics Letters, 2006, 31, 736.	3.3	124
15	Bose-Einstein Condensation of Alkaline Earth Atoms: 40×10^4 . Physical Review Letters, 2009, 103, 130401.	7.8	123
16	Optical Clock with Ultracold Neutral Atoms. Physical Review Letters, 2002, 89, 230801.	7.8	122
17	Vibration-insensitive reference cavity for an ultra-narrow-linewidth laser. Applied Physics B: Lasers and Optics, 2006, 83, 531-536.	2.2	121
18	Hyper-Ramsey spectroscopy of optical clock transitions. Physical Review A, 2010, 82, .	2.5	111

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19	Crystalline optical cavity at 4â€‰%â€‰K with thermal-noise-limited instability and ultralow drift. <i>Optica</i> , 2019, 6, 240.	9.3	111
20	High Accuracy Correction of Blackbody Radiation Shift in an Optical Lattice Clock. <i>Physical Review Letters</i> , 2012, 109, 263004.	7.8	110
21	Realization of a timescale with an accurate optical lattice clock. <i>Optica</i> , 2016, 3, 563.	9.3	110
22	The ⁸⁷ Sr optical frequency standard at PTB. <i>Metrologia</i> , 2011, 48, 399-407.	1.2	102
23	Tuning the thermal expansion properties of optical reference cavities with fused silica mirrors. <i>Journal of the Optical Society of America B: Optical Physics</i> , 2010, 27, 914.	2.1	100
24	Calcium optical frequency standard with ultracold atoms: Approaching 10 ⁻¹⁵ relative uncertainty. <i>Physical Review A</i> , 2005, 72, .	2.5	98
25	Einstein Gravity Explorerâ€”a medium-class fundamental physics mission. <i>Experimental Astronomy</i> , 2009, 23, 573-610.	3.7	95
26	Thermal noise in optical cavities revisited. <i>Journal of the Optical Society of America B: Optical Physics</i> , 2012, 29, 178.	2.1	83
27	The magnesium ramsey interferometer: Applications and prospects. <i>Applied Physics B, Photophysics and Laser Chemistry</i> , 1992, 54, 341-346.	1.5	81
28	Towards an optical clock for space: Compact, high-performance optical lattice clock based on bosonic atoms. <i>Physical Review A</i> , 2018, 98, .	2.5	81
29	Perspectives for a new realization of the pascal by optical methods. <i>Metrologia</i> , 2017, 54, S146-S161.	1.2	79
30	Optical Control of Ultracold Collisions in Metastable Xenon. <i>Physical Review Letters</i> , 1995, 74, 506-509.	7.8	78
31	Ultrastable Silicon Cavity in a Continuously Operating Closed-Cycle Cryostat at 4â€‰K. <i>Physical Review Letters</i> , 2017, 119, 243601.	7.8	77
32	A transportable strontium optical lattice clock. <i>Applied Physics B: Lasers and Optics</i> , 2014, 117, 1107-1116.	2.2	75
33	SAGE: A proposal for a space atomic gravity explorer. <i>European Physical Journal D</i> , 2019, 73, 1.	1.3	75
34	Development of a strontium optical lattice clock for the SOC mission on the ISS. <i>Comptes Rendus Physique</i> , 2015, 16, .	0.9	74
35	Search for transient variations of the fine structure constant and dark matter using fiber-linked optical atomic clocks. <i>New Journal of Physics</i> , 2020, 22, 093010.	2.9	67
36	The optical calcium frequency standards of PTB and NIST. <i>Comptes Rendus Physique</i> , 2004, 5, 845-855.	0.9	65

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37	Collisional Losses, Decoherence, and Frequency Shifts in Optical Lattice Clocks with Bosons. <i>Physical Review Letters</i> , 2009, 103, 090801.	7.8	65
38	Noise and instability of an optical lattice clock. <i>Physical Review A</i> , 2015, 92, .	2.5	62
39	Optical Ramsey interferences on laser cooled and trapped atoms, detected by electron shelving. <i>Optics Communications</i> , 1993, 103, 73-78.	2.1	59
40	Optical Ramsey spectroscopy on laser-trapped and thermal Mg atoms. <i>Applied Physics B: Lasers and Optics</i> , 1994, 59, 99-115.	2.2	56
41	Ultrastable laser with average fractional frequency drift rate below $5 \text{ \AA}^{-1} \cdot 10^{-19}/\text{s}$. <i>Optics Letters</i> , 2014, 39, 5102.	3.3	56
42	Calibration of a Shack-Hartmann sensor for absolute measurements of wavefronts. <i>Applied Optics</i> , 2005, 44, 6419.	2.1	53
43	Demonstration of a transportable 1 Hz-linewidth laser. <i>Applied Physics B: Lasers and Optics</i> , 2011, 104, 741-745.	2.2	53
44	Tackling the Blackbody Shift in a Strontium Optical Lattice Clock. <i>IEEE Transactions on Instrumentation and Measurement</i> , 2011, 60, 2550-2557.	4.7	52
45	A compact, robust, and transportable ultra-stable laser with a fractional frequency instability of $1 \text{ \AA}^{-1} \cdot 10^{-15}$. <i>Review of Scientific Instruments</i> , 2014, 85, 113107.	1.3	52
46	Phase-coherent comparison of two optical frequency standards over 146 km using a telecommunication fiber link. <i>Applied Physics B: Lasers and Optics</i> , 2009, 97, 541-551.	2.2	50
47	Ultra-stable clock laser system development towards space applications. <i>Scientific Reports</i> , 2016, 6, 33973.	3.3	49
48	Providing 10^{-16} Short-Term Stability of a $1.5\text{-}\mu\text{m}$ Laser to Optical Clocks. <i>IEEE Transactions on Instrumentation and Measurement</i> , 2013, 62, 1556-1562.	4.7	47
49	A transportable optical calcium frequency standard. <i>Applied Physics B: Lasers and Optics</i> , 1999, 68, 27-38.	2.2	46
50	Photoassociation spectroscopy of cold calcium atoms. <i>Physical Review A</i> , 2003, 67, .	2.5	45
51	The Stability of an Optical Clock Laser Transferred to the Interrogation Oscillator for a Cs Fountain. <i>IEEE Transactions on Instrumentation and Measurement</i> , 2009, 58, 1258-1262.	4.7	45
52	On the relation between uncertainties of weighted frequency averages and the various types of Allan deviations. <i>Metrologia</i> , 2015, 52, 565-574.	1.2	44
53	Wavelength-dependent ac Stark shift of the $S_0 \rightarrow P_1$ transition at 657 nm in Ca. <i>Physical Review A</i> , 2004, 70, .	2.5	43
54	Delivering pulsed and phase stable light to atoms of an optical clock. <i>Applied Physics B: Lasers and Optics</i> , 2012, 107, 301-311.	2.2	43

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55	A compact and efficient strontium oven for laser-cooling experiments. Review of Scientific Instruments, 2012, 83, 103101.	1.3	40
56	Atom interferometers and optical atomic clocks: New quantum sensors for fundamental physics experiments in space. Nuclear Physics, Section B, Proceedings Supplements, 2007, 166, 159-165.	0.4	38
57	Long term measurement of the ^{87}Sr clock frequency at the limit of primary Cs clocks. Physical Review Research, 2020, 2, .	3.6	38
58	Spin polarization and quantum-statistical effects in ultracold ionizing collisions. Physical Review A, 1999, 59, 1926-1935.	2.5	36
59	Demonstration of a Timescale Based on a Stable Optical Carrier. Physical Review Letters, 2019, 123, 173201.	7.8	34
60	Optical Clocks in Space. Nuclear Physics, Section B, Proceedings Supplements, 2007, 166, 300-302.	0.4	30
61	Prospects and challenges for squeezing-enhanced optical atomic clocks. Nature Communications, 2020, 11, 5955.	12.8	30
62	Ultracold collisions and optical shielding in metastable xenon. Physical Review A, 1996, 53, 1678-1689.	2.5	29
63	Lattice-induced photon scattering in an optical lattice clock. Physical Review A, 2018, 97, .	2.5	29
64	Reducing the effect of thermal noise in optical cavities. Applied Physics B: Lasers and Optics, 2013, 113, 233-242.	2.2	27
65	Optical frequency ratio of a $^{171}\text{Yb}^{+}$ single-ion clock and a ^{87}Sr lattice clock. Metrologia, 2021, 58, 015005.	1.2	27
66	Comparing ultrastable lasers at 7×10^{-17} fractional frequency instability through a 2220 km optical fibre network. Nature Communications, 2022, 13, 212.	12.8	27
67	Remote frequency measurement of the $^{31}\text{S}^{+}$ $^{31}\text{P}^{+}$ transition in laser-cooled ^{24}Mg . New Journal of Physics, 2011, 13, 125010.	2.9	26
68	A second generation of low thermal noise cryogenic silicon resonators. Journal of Physics: Conference Series, 2016, 723, 012031.	0.4	24
69	Optical frequency standard based on cold ca atoms. IEEE Transactions on Instrumentation and Measurement, 2003, 52, 250-254.	4.7	23
70	Influence of Chirped Excitation Pulses in an Optical Clock With Ultracold Calcium Atoms. IEEE Transactions on Instrumentation and Measurement, 2005, 54, 771-775.	4.7	23
71	Low-frequency-noise diode laser for atom interferometry. Journal of the Optical Society of America B: Optical Physics, 2008, 25, 1632.	2.1	23
72	End-to-end topology for fiber comb based optical frequency transfer at the 10^{-21} level. Optics Express, 2019, 27, 36886.	3.4	23

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73	Lifetime of the metastable $6s^2 [1/2]_0$ clock state in xenon. Optics Letters, 1995, 20, 1192.	3.3	21
74	Compensation of field-induced frequency shifts in Ramsey spectroscopy of optical clock transitions. JETP Letters, 2010, 90, 713-717.	1.4	21
75	Atom-interferometric determination of the dc-Stark shift of the Mg-intercombination line. Optics Communications, 1993, 99, 172-176.	2.1	20
76	Magnetic inhibition of polarization-gradient laser cooling in λ - λ optical molasses. Physical Review A, 1996, 54, 2275-2279.	2.5	20
77	Improvement of the fractional uncertainty of a neutral-atom calcium optical frequency standard to 2.1×10^{-14} . Applied Physics B: Lasers and Optics, 2003, 76, 149-156.	2.2	20
78	Determination of the calcium ground state scattering length by photoassociation spectroscopy at large detunings. European Physical Journal D, 2007, 44, 73-79.	1.3	20
79	The space optical clocks project: Development of high-performance transportable and breadboard optical clocks and advanced subsystems. , 2012, , .		20
80	Vibration Influence on Hit Probability During Beaconless Spatial Acquisition. Journal of Lightwave Technology, 2016, 34, 2500-2509.	4.6	19
81	Long-range transport of ultracold atoms in a far-detuned one-dimensional optical lattice. New Journal of Physics, 2012, 14, 073020.	2.9	18
82	Short-pulse properties of optical frequency comb generators. Applied Optics, 2000, 39, 4372.	2.1	17
83	Ultrastable lasers: new developments and applications. Proceedings of SPIE, 2009, , .	0.8	17
84	Phase-coherent frequency comparison of optical clocks using a telecommunication fiber link. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2010, 57, 175-181.	3.0	17
85	Transportable interrogation laser system with an instability of 1.6×10^{-16} . Optics Express, 2020, 28, 16407.	3.4	17
86	Topological phase shift in a cold-atom interferometer. Applied Physics B: Lasers and Optics, 1995, 60, 199-204.	2.2	16
87	Interrogation Laser for a Strontium Lattice Clock. IEEE Transactions on Instrumentation and Measurement, 2009, 58, 1252-1257.	4.7	16
88	Beaconless acquisition for ISL and SGL, summary of 3 years operation in space and on ground. , 2011, , .		16
89	Optical Frequency Measurements Using fs- Comb Generators. IEEE Transactions on Instrumentation and Measurement, 2005, 54, 750-753.	4.7	15
90	Alphasat and sentinel 1A, the first 100 links. , 2015, , .		13

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91	Atom Interferometry Based on Separated Light Fields. , 1997, , 293-362.		13
92	High-resolution isotope shift measurement of the Mg I 1 S 0 - 3 P 1 intercombination transition. Applied Physics B, Photophysics and Laser Chemistry, 1993, 56, 62-64.	1.5	12
93	Scheme for measuring a Berry phase in an atom interferometer. Physical Review A, 1993, 47, 2518-2522.	2.5	11
94	Ground-state properties of $^{40}\text{Ca}^{2+}$ from narrow-line two-color photoassociation. Physical Review A, 2017, 95, .	4.7	11
95	Dynamical decoupling of laser phase noise in compound atomic clocks. Communications Physics, 2020, 3, .	5.3	11
96	Feasibility of narrow-line cooling in optical dipole traps. European Physical Journal D, 2007, 42, 317-324.	1.3	10
97	International timescales with optical clocks (ITOC). , 2013, , .		10
98	Development of a strontium optical lattice clock for the SOC mission on the ISS. Proceedings of SPIE, 2016, , .	0.8	10
99	Cooling by Maxwell's demon: Preparation of single-velocity atoms for matter-wave interferometry. Physical Review A, 2000, 62, .	2.5	9
100	A sharper laser. Nature Physics, 2009, 5, 382-383.	16.7	9
101	Thermal noise and mechanical loss of $\text{SiO}_2/\text{Ta}_2\text{O}_5$ optical coatings at cryogenic temperatures. Optics Letters, 2021, 46, 592.	3.3	9
102	A novel stabilization method for an optical frequency comb generator. IEEE Transactions on Instrumentation and Measurement, 1999, 48, 574-577.	4.7	8
103	Photoassociation spectroscopy of ^{40}Ca measured with kilohertz accuracy near the 40S^+ ionization limit.	2.5	8
104	A transportable optical lattice clock. Journal of Physics: Conference Series, 2016, 723, 012020.	0.4	8
105	Phase-coherent frequency comparison of optical clocks using a telecommunication fiber link. , 2009, , .		7
106	Hyperfine structure investigation on the $(3d^4)3G_{4,5}$ levels of ^{47}Ti . Zeitschrift für Physik D-Atoms Molecules and Clusters, 1993, 27, 303-306.	1.0	6
107	Blackbody radiation shift in strontium lattice clocks revisited. Physical Review Research, 2021, 3, .	3.6	6
108	Determination of the xenon $6s[3/2]_2 \leftarrow 6s[1/2]_0$ clock frequency by interferometric wavelength measurements. Optics Letters, 1995, 20, 1421.	3.3	5

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109	An Optical Frequency Standard with Cold and Ultra-cold Calcium Atoms. Lecture Notes in Physics, 2004, , 229-244.	0.7	5
110	1.5 μ m Lasers with sub 10 mHz Linewidth. , 2017, , .		5
111	Excitation of only a single recoil component in optical Ramsey interferometry using cross-over resonances. Optics Communications, 1994, 110, 99-104.	2.1	4
112	Frequency stabilization of a 1.54- μ m DFB laser diode to Doppler-free absorption lines of acetylene. , 2001, , .		4
113	Telecommunication fiber link for the remote characterization of a magnesium optical frequency standard. Proceedings of SPIE, 2009, , .	0.8	4
114	Subhertz-linewidth infrared frequency source with a long-term instability below 5×10^{-15} . Applied Physics B: Lasers and Optics, 2013, 110, 465-470.	2.2	4
115	An optical lattice clock breadboard demonstrator for the I-SOC mission on the ISS. , 2017, , .		4
116	Simple and compact diode laser system stabilized to Doppler-broadened iodine lines at 633 μ m. Applied Optics, 2020, 59, 10808.	1.8	4
117	Prospects of Doppler cooling on forbidden lines. Journal of the Optical Society of America B: Optical Physics, 2003, 20, 985.	2.1	3
118	MEASUREMENT NOISE FLOOR FOR A LONG-DISTANCE OPTICAL CARRIER TRANSMISSION VIA FIBER. , 2009, , .		3
119	Ultracold 88Sr atoms for an optical lattice clock. Frequency Control Symposium and Exhibition, Proceedings of the IEEE International, 2007, , .	0.0	2
120	Tackling the black body shift in a strontium optical lattice clock. , 2010, , .		2
121	Development of a transportable laser cooled strontium source for future applications in space. , 2010, , .		2
122	Nonlinear Zeeman effect in photoassociation spectra of Ca near 40 μ m	2.5	2
123	End-to-end topology for fiber comb based optical frequency transfer at the 10^{21} level: erratum. Optics Express, 2020, 28, 15023.	3.4	2
124	Optical Frequency Measurements using Fs- Comb Generators. , 2004, , .		1
125	An improved optical clock with ultracold calcium atoms. , 2005, , .		1
126	Influence of high-frequency laser frequency noise on the stability of an optical clock. Frequency Control Symposium and Exhibition, Proceedings of the IEEE International, 2007, , .	0.0	1

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127	Measuring the Thermal Expansion Coefficient of Ultrastable Materials with 10^{-9} K $^{-1}$ Uncertainty. , 2019, , .		1
128	ULTRACOLD CALCIUM ATOMS FOR OPTICAL CLOCKS AND COLLISIONAL STUDIES. , 2004, , .		1
129	Optical ramsey interferometry with magnesium atoms. , 1993, , 36-50.		0
130	Atom Optics and Interferometry with Laser Cooled Atoms. , 1994, , .		0
131	Comparison between laser cooled and thermal Mg atoms for a future optical frequency standard. , 0, , .		0
132	Development and investigation of frequency references for the 1.55- μ m optical communication band. , 1999, 3571, 209.		0
133	Frequency stabilization of a 1.54 μ m DFB-laser diode to Doppler-free lines of acetylene. , 0, , .		0
134	Sub-Doppler atomic velocities for an optical frequency standard by Maxwell's demon cooling. , 0, , .		0
135	Preparation of single velocity atoms for matter wave interferometry. , 0, , .		0
136	Calcium optical frequency standard. , 2001, 4269, 112.		0
137	Phase-coherent frequency measurements of the calcium- and ytterbium-optical frequency standards with a Kerr-lens modelocked femtosecond laser. , 2001, , .		0
138	A Ca optical frequency standard based on ultra-cold atoms. , 0, , .		0
139	Ultracold calcium atoms for an optical frequency standard and cold collision studies. , 2003, , .		0
140	Spectroscopy with cold and ultracold strontium atoms. , 2003, , .		0
141	Diode laser frequency stabilization for a Ca optical clock. , 2003, , .		0
142	Improved Optical Frequency Standard with Ultracold Calcium Atoms. , 2004, , .		0
143	An optical frequency standard with ultracold calcium atoms. , 2005, , .		0
144	Optical Frequency Standard Based on Ballistic Ca Atoms. , 2006, , .		0

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145	Frequency comparisons of optical frequency standards and new results on a long-distance carrier-phase optical fiber link. , 2007, , .		0
146	Atomic Frequency Standards and their Impact on the Past, Present and Future of the Second. LEOS Summer Topical Meeting, 2007, , .	0.0	0
147	Clock laser system for strontium lattice clock. , 2008, , .		0
148	Determining the clock frequency shift due to collisions in a 1-D optical lattice clock with ^{88}Sr . , 2009, , .		0
149	Development of a cryogenic Sub-Hz laser system for optical clocks. , 2011, , .		0
150	Measurement of the differential polarizability of the 698 nm clock transition of strontium for evaluation of optical lattice clocks. , 2012, , .		0
151	A sub-40 mHz laser based on a silicon single-crystal optical cavity. , 2012, , .		0
152	Frequency dissemination at the 19th decimal place. , 2012, , .		0
153	A small-linewidth absolute optical frequency source. , 2012, , .		0
154	Comparing PTB's optical $^{171}\text{Yb}^{+}$ ion and ^{87}Sr lattice clock. , 2013, , .		0
155	Development of compact lattice optical clocks towards future space clocks. , 2013, , .		0
156	Thermal noise in optical reference resonators. , 2014, , .		0
157	Optical cryogenic silicon resonators. , 2016, , .		0
158	Planning constraints of low grazing altitude GEO-LEO laser links based on in-orbit data. Optical Engineering, 2016, 55, 111608.	1.0	0
159	Ultrastable lasers based on low thermal noise optical resonators. , 2017, , .		0
160	Thermal Noise in Ultrastable Cavity-Referenced Lasers. , 2017, , .		0
161	Silicon Cavity at 4 Kelvin with Thermal Noise Limited Performance. , 2018, , .		0
162	Spectral Purity Transfer for High Performance Strontium Lattice Clocks. , 2018, , .		0

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163	An optical frequency standard with ultracold calcium atoms. , 2004, , .		0
164	Cold Sr atoms for an optical frequency standard. , 2004, , .		0
165	CLOCK LASER SYSTEM FOR A STRONTIUM LATTICE CLOCK. , 2009, , .		0
166	Optical Atomic Clocks: From International Timekeeping to Gravity Potential Measurement. , 2019, , .		0
167	Optical frequency stability transfer using a single-branch Er:fiber frequency comb. , 2019, , .		0
168	Micro-Integrated Laser Modules for Optical Clocks. , 2020, , .		0