Achim Peters

List of Publications by Year
in descending order

112 papers	4,095 citations	126907 33 h-index	118850 62 g-index
113 all docs	113 docs citations	113 times ranked	2590 citing authors

#	Article	IF	Citations
1	Measurement of gravitational acceleration by dropping atoms. Nature, 1999, 400, 849-852.	27.8	725
2	A precision measurement of the gravitational redshift by the interference of matter waves. Nature, 2010, 463, 926-929.	27.8	257
3	Modern Michelson-Morley Experiment using Cryogenic Optical Resonators. Physical Review Letters, 2003, 91, 020401.	7.8	237
4	Space-borne Boseâ€“Einstein condensation for precision interferometry. Nature, 2018, 562, 391-395.	27.8	224
5	AEDGE: Atomic Experiment for Dark Matter and Gravity Exploration in Space. EPJ Quantum Technology, 2020, 7, .	6.3	190
6	Space-borne frequency comb metrology. Optica, 2016, 3, 1381.	9.3	180
7	Tests of Relativity by Complementary Rotating Michelson-Morley Experiments. Physical Review Letters, 2007, 99, 050401.	7.8	119
8	Equivalence Principle and Gravitational Redshift. Physical Review Letters, 2011, 106, 151102.	7.8	108
9	Test of the Isotropy of the Speed of Light Using a Continuously Rotating Optical Resonator. Physical Review Letters, 2005, 95, 150401.	7.8	96
10	Active low frequency vertical vibration isolation. Review of Scientific Instruments, 1999, 70, 2735-2741.	1.3	95
11	Optical cavity tests of Lorentz invariance for the electron. Physical Review D, 2003, 68, .	4.7	89
12	The Bose-Einstein Condensate and Cold Atom Laboratory. EPJ Quantum Technology, 2021, 8, .	6.3	85
13	Macroscopic Quantum Resonators (MAQRO): 2015 update. EPJ Quantum Technology, 2016, 3, .	6.3	77
14	SAGE: A proposal for a space atomic gravity explorer. European Physical Journal D, 2019, 73, 1.	1.3	75
15	Single-frequency continuous-wave optical parametric oscillator system with an ultrawide tuning range of 550 to 2830 nm. Journal of the Optical Society of America B: Optical Physics, 2002, 19, 1419.	2.1	69
16	Direct terrestrial test of Lorentz symmetry in electrodynamics to 10â˜'18. Nature Communications, 2015, 6, 8174.	12.8	67
17	A high-flux BEC source for mobile atom interferometers. New Journal of Physics, 2015, 17, 065001.	2.9	65
18	Picometer and nanoradian optical heterodyne interferometry for translation and tilt metrology of the LISA gravitational reference sensor. Classical and Quantum Gravity, 2009, 26, 085008.	4.0	59

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19	OPTIS: a satellite-based test of special and general relativity. Classical and Quantum Gravity, 2001, 18, 2499-2508.	4.0	58
20	Micro-integrated extended cavity diode lasers for precision potassium spectroscopy in space. Optics Express, 2014, 22, 7790.	3.4	54
21	Collective-Mode Enhanced Matter-Wave Optics. Physical Review Letters, 2021, 127, 100401.	7.8	52
22	Development of a compact optical absolute frequency reference for space with 10^â^'15 instability. Applied Optics, 2017, 56, 1101.	2.1	51
23	Ultra-narrow linewidth DFB-laser with optical feedback from a monolithic confocal Fabry-Perot cavity. Optics Express, 2015, 23, 9705.	3.4	49
24	Design of a dual species atom interferometer for space. Experimental Astronomy, 2015, 39, 167-206.	3.7	48
25	Accurate frequency noise measurement of free-running lasers. Applied Optics, 2014, 53, 7138.	1.8	47
26	Ultracold atom interferometry in space. Nature Communications, 2021, 12, 1317.	12.8	47
27	Autonomous frequency stabilization of two extended-cavity diode lasers at the potassium wavelength on a sounding rocket. Applied Optics, 2017, 56, 1388.	2.1	42
28	Iodine Frequency Reference on a Sounding Rocket. Physical Review Applied, 2019, 11, .	3.8	42
29	JOKARUS - design of a compact optical iodine frequency reference for a sounding rocket mission. EPJ Quantum Technology, 2017, 4, .	6.3	40
30	MÃ¼ller, Peters & Chu reply. Nature, 2010, 467, E2-E2.	27.8	38
31	Tests of Lorentz invariance using hydrogen molecules. Physical Review D, 2004, 70, .	4.7	37
32	Astrodynamical Space Test of Relativity using Optical Devices I (ASTROD I)â€”a class-M fundamental physics mission proposal for cosmic vision 2015â€“2025: 2010 Update. Experimental Astronomy, 2012, 34, 181-201.	3.7	37
33	An alignment-free fiber-coupled microsphere resonator for gas sensing applications. Applied Physics Letters, 2010, 96, .	3.3	34
34	Cryogenic buffer-gas loading and magnetic trapping of CrH and MnH molecules. Physical Review A, 2008, 78, .	2.5	33
35	Offset compensation by use of amplitude-modulated sidebands in optical frequency standards. Optics Letters, 2003, 28, 2186.	3.3	31
36	High-power, micro-integrated diode laser modules at 767 and 780â€‰â€‰nm for portable quantum gas experiments. Applied Optics, 2015, 54, 5332.	2.1	31

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37	Optical clock technologies for global navigation satellite systems. GPS Solutions, 2021, 25, 1.	4.3	31
38	Astrodynamical Space Test of Relativity Using Optical Devices I (ASTROD I)â€”A class-M fundamental physics mission proposal for Cosmic Vision 2015â€“2025. Experimental Astronomy, 2009, 23, 491-527.	3.7	30
39	Miniaturized Lab System for Future Cold Atom Experiments in Microgravity. Microgravity Science and Technology, 2017, 29, 37-48.	1.4	27
40	All-solid-state tunable continuous-wave ultraviolet source with high spectral purity and frequency stability. Applied Optics, 2002, 41, 7000.	2.1	24
41	Mapping the absolute magnetic field and evaluating the quadratic Zeeman-effect-induced systematic error in an atom interferometer gravimeter. Physical Review A, 2017, 96, .	2.5	24
42	â€œGalileo Galileiâ€•(GG) a small satellite to test the equivalence principle of Galileo, Newton and Einstein. Experimental Astronomy, 2009, 23, 689-710.	3.7	22
43	Degenerate Quantum Gases in Microgravity. Microgravity Science and Technology, 2011, 23, 287-292.	1.4	22
44	ASTROD I: Mission concept and Venus flybys. Acta Astronautica, 2006, 59, 598-607.	3.2	21
45	KINEMATICAL TEST THEORIES FOR SPECIAL RELATIVITY: A COMPARISON. International Journal of Modern Physics D, 2002, 11, 1109-1136.	2.1	19
46	Micro-integrated 1 Watt semiconductor laser system with a linewidth of 36 kHz. Optics Express, 2011, 19, 7077.	3.4	18
47	BOOST: A satellite mission to test Lorentz invariance using high-performance optical frequency references. Physical Review D, 2018, 97, .	4.7	17
48	Mini-ASTROD: Mission Concept. International Journal of Modern Physics D, 2002, 11, 1035-1048.	2.1	16
49	Magnetic trapping of buffer-gas-cooled chromium atoms and prospects for the extension to paramagnetic molecules. Journal of Physics B: Atomic, Molecular and Optical Physics, 2006, 39, S1111-S1123.	1.5	16
50	Compact Laser Interferometer for Translation and Tilt Metrology. International Journal of Optomechatronics, 2007, 1, 168-179.	6.6	14
51	Observation of vector and tensor light shifts in <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:mmultiscripts><mml:mi>Rb</mml:mi><mml:mprescripts /><mml:none /><mml:mrow><mml:mn>87</mml:mn></mml:mrow></mml:mmultiscripts></mml:mrow></mml:math> using near-resonant, stimulated Raman spectroscopy. Physical Review A, 2018, 97, .	2.5	13
52	ASTROD and ASTROD I: Progress Report. Journal of Physics: Conference Series, 2006, 32, 154-160.	0.4	9
53	Megahertz monocrystalline optomechanical resonators with minimal dissipation. , 2010, , .		9
54	Highly stable piezoelectrically tunable optical cavities. Applied Physics B: Lasers and Optics, 2013, 111, 223-231.	2.2	9

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55	AEDGE: Atomic experiment for dark matter and gravity exploration in space. Experimental Astronomy, 0, , 1.	3.7	9
56	Picometer resolution interferometric characterization of the dimensional stability of zero CTE CFRP. Proceedings of SPIE, 2008, , .	0.8	8
57	High-Performance Optical Frequency References for Space. Journal of Physics: Conference Series, 2016, 723, 012047.	0.4	8
58	The Zeeman tuning of the Aâ€‰6Î£+â€“Xâ€‰6Î£+transition of chromium monohydride. Physical Chemistry Chemical Physics, 2007, 9, 949-957.	2.8	7
59	High performance iodine frequency reference for tests of the LISA laser system. , 2010, , .		7
60	Method for in-depth characterization of electro-optic phase modulators. Applied Optics, 2017, 56, 1246.	2.1	7
61	ZERODURÂ® based optical systems for quantum gas experiments in space. Acta Astronautica, 2019, 159, 166-169.	3.2	6
62	A new laser technology for LISA. , 2019, , .		6
63	Compact and robust diode laser system technology for dual-species ultracold atom experiments with rubidium and potassium in microgravity. Applied Optics, 2019, 58, 5456.	1.8	6
64	Compact laser interferometer for translation and tilt measurement as optical readout for the LISA inertial sensor. Proceedings of SPIE, 2007, , .	0.8	5
65	A high sensitivity heterodyne interferometer as a possible optical readout for the LISA gravitational reference sensor and its application to technology verification. Journal of Physics: Conference Series, 2009, 154, 012030.	0.4	5
66	High-Resolution Dimensional Metrology for Industrial Applications. Key Engineering Materials, 2010, 437, 113-117.	0.4	5
67	Iodine based optical frequency reference with 10^{−15} stability. , 2012, , .		5
68	An ultra-stable optical frequency reference for space applications. , 2012, , .		5
69	Adhesive Bonding for Optical Metrology Systems in Space Applications. Journal of Physics: Conference Series, 2015, 610, 012039.	0.4	5
70	Absolute laser frequency stabilization for LISA. International Journal of Modern Physics D, 2019, 28, 1845002.	2.1	5
71	The OPTIS satellite â€“ improved tests of Special and General Relativity. Aerospace Science and Technology, 2005, 9, 357-365.	4.8	4
72	A high sensitivity heterodyne interferometer as optical readout for the LISA inertial sensor. , 2006, , .		4

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73	Compact narrow linewidth diode laser modules for precision quantum optics experiments on board of sounding rockets. Proceedings of SPIE, 2016, , .	0.8	4
74	Comparison of symmetric and asymmetric double quantum well extended-cavity diode lasers for broadband passive mode-locking at 780â€‰â€‰nm. Applied Optics, 2017, 56, 5566.	1.8	4
75	Narrow linewidth micro-integrated high power diode laser module for deployment in space. , 2017, , .		4
76	Improving the spectral performance of extended cavity diode lasers using angled-facet laser diode chips. Applied Physics B: Lasers and Optics, 2019, 125, 1.	2.2	4
77	A High Sensitivity Heterodyne Interferometer as Optical Readout for the LISA Inertial Sensor. AIP Conference Proceedings, 2006, , .	0.4	3
78	Thermoacoustic optical path length stabilization in a single-mode optical fiber. Applied Optics, 2009, 48, 704.	2.1	3
79	A high precision heterodyne interferometer for relative and absolute displacement measurement. , 2009, , .		3
80	A space-based optical Kennedy-Thorndike experiment testing special relativity. , 2013, , .		3
81	Realization of a magneto-optical trap in microgravity. Journal of Modern Optics, 2007, 54, 2513-2522.	1.3	2
82	A compact high-sensitivity heterodyne interferometer for industrial metrology. , 2008, , .		2
83	The Space-Time Asymmetry Research (STAR) program. , 2010, , .		2
84	mSTAR: Testing special relativity in space using high performance optical frequency references. , 2015, , .		2
85	Design of a compact diode laser system for dual-species atom interferometry with rubidium and potassium in space. , 2017, , .		2
86	Integrated atomic quantum technologies in demanding environments: development and qualification of miniaturized optical setups and integration technologies for UHV and space operation. CEAS Space Journal, 2019, 11, 561-566.	2.3	2
87	A high sensitivity heterodyne interferometer as a possible optical readout for the LISA gravitational reference sensor and its application to technology verification. , 2017, , .		2
88	Highly stable fiber lasers for satellite-based gravitational measurement. , 2019, , .		2
89	Adopting our heterodyne interferometer with sub-nm sensitivity for industrial position metrology. , 2007, , .		1
90	A heterodyne interferometer for high-performance industrial metrology. Proceedings of SPIE, 2008, , .	0.8	1

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91	Referencing femtosecond laser frequency combs to a He-Ne/CH<inf>4</inf> optical frequency standard. , 2009, , .		1
92	Frequency characteristics of an inherently stable Nd:YAG laser operated at liquid helium temperature. Applied Optics, 2009, 48, 3938.	2.1	1
93	An iodine-based ultra-stable optical frequency reference and its application in fundamental physics space missions. , 2014, , .		1
94	Ultra-Narrow Linewidth, Micro-Integrated Semiconductor External Cavity Diode Laser Module for Quantum Optical Sensors in Space. , 2015, , .		1
95	Micro-integrated extended cavity diode laser with integrated optical amplifier for precision spectroscopy in space. , 2017, , .		1
96	Towards a Strontium Beam Optical Reference Based on the ¹S₀ to ³P₁ Intercombination Line on a Sounding Rocket. , 2019, , .		1
97	KALEXUS - a Potassium Laser System with Autonomous Frequency Stabilization on a Sounding Rocket. , 2016, , .		1
98	A high-performance iodine-based frequency reference for space applications. , 2017, , .		1
99	A heterodyne interferometer for high resolution translation and tilt measurement as optical readout for the LISA inertial sensor. , 2017, , .		1
100	An absolute optical frequency reference for space. , 2019, , .		1
101	Development of an ultrasensitive interferometry system as a key to precision metrology applications. Proceedings of SPIE, 2009, , .	0.8	0
102	PrÃzisionsmessung der Gravitations-Rotverschiebung. Physik in Unserer Zeit, 2010, 41, 164-165.	0.0	0
103	Rotating dual cryogenic sapphire oscillators with 10^{â^'16} fractional frequency stability for tests of Lorentz invariance. , 2011, , .		0
104	Rotating microwave cryogenic sapphire oscillators for tests of Lorentz Invariance. , 2011, , .		0
105	Testing speed of light isotropy using rotating cryogenic sapphire microwave oscillators. , 2014, , .		0
106	Optical Frequency References for Space. , 2017, , .		0
107	Micro-integrated extended cavity diode laser with integrated optical amplifier for applications in space. , 2017, , .		0
108	Iodine frequency references for space. Journal of Physics: Conference Series, 2017, 840, 012050.	0.4	0

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109	A Micro-Integrated Mode-Locked Extended-Cavity Diode Laser Emitting in the Wavelength Range Around 780 nm. , 2019, , .		0
110	Compact mode-locked diode laser system for precision frequency comparisons in microgravity experiments. , 2016, , .		0
111	Development and Qualification of UHV-Compatible, Micro-Integrated Optical Setups for Cold Atom Applications. , 2018, , .		0
112	Frequency stabilized ND:YAG laser for space applications. , 2019, , .		0