Peter Hommelhoff

List of Publications by Year
in descending order

171 papers	7,028 citations	66343 42 h-index	60623 81 g-index
183 all docs	183 docs citations	183 times ranked	3843 citing authors

#	Article	IF	Citations
1	Diamond-based dielectric laser acceleration. Optics Express, 2022, 30, 505.	3.4	5
2	Experimental considerations in electron beam transport on a nanophotonic chip using alternating phase focusing. Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics, 2022, 40, .	1.2	4
3	Boosting the Efficiency of Smithâ€“Purcell Radiators Using Nanophotonic Inverse Design. ACS Photonics, 2022, 9, 664-671.	6.6	10
4	Atomic real-space perspective of light-field-driven currents in graphene. New Journal of Physics, 2022, 24, 033051.	2.9	1
5	Inverse-Designed Narrowband THz Radiator for Ultrarelativistic Electrons. ACS Photonics, 2022, 9, 1143-1149.	6.6	5
6	Light-field control of real and virtual charge carriers. Nature, 2022, 605, 251-255.	27.8	57
7	Spatiotemporal sampling of near-petahertz vortex fields. Optica, 2022, 9, 755.	9.3	9
8	Quantum-Coherent Light-Electron Interaction in a Scanning Electron Microscope. Physical Review Letters, 2022, 128, .	7.8	27
9	Novel Materials-based Laser Acceleration. , 2021, , .		0
10	Chip-based electrostatic beam splitting of guided kiloelectron volt electrons. Applied Physics Letters, 2021, 118, 034101.	3.3	1
11	Quantum Interference Visibility Spectroscopy in Two-Color Photoemission from Tungsten Needle Tips. Physical Review Letters, 2021, 126, 137403.	7.8	10
12	Coherent scattering of an optically modulated electron beam by atoms. Physical Review A, 2021, 103, .	2.5	4
13	Particle acceleration using top-illuminated nanophotonic dielectric structures. Optics Express, 2021, 29, 14403.	3.4	14
14	Two-color coherent control in photoemission from gold needle tips. Journal of Physics B: Atomic, Molecular and Optical Physics, 2021, 54, 134002.	1.5	9
15	Light field-driven electron dynamics in 2D-materials. , 2021, , .		0
16	Strong-field spectra and optical near-field enhancement at aluminium needle tips. Journal of Physics B: Atomic, Molecular and Optical Physics, 2021, 54, 144006.	1.5	4
17	Coherent control at gold needle tips approaching the strong-field regime. Nanophotonics, 2021, 10, 3717-3721.	6.0	8
18	Optical current generation in graphene: CEP control vs. <i>Ï‰</i> + <i>2Ï‰</i> control. Nanophotonics, 2021, 10, 3701-3707.	6.0	13

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19	Adiabaticity parameters for the categorization of light-matter interaction: From weak to strong driving. Physical Review A, 2021, 104, .	2.5	12
20	Onset of charge interaction in strong-field photoemission from nanometric needle tips. Nanophotonics, 2021, 10, 3769-3775.	6.0	14
21	Microchip accelerators. Physics Today, 2021, 74, 42-49.	0.3	3
22	Imprinting the quantum statistics of photons on free electrons. Science, 2021, 373, eabj7128.	12.6	75
23	Electron phase-space control in photonic chip-based particle acceleration. Nature, 2021, 597, 498-502.	27.8	45
24	Charged particle guiding and beam splitting with auto-ponderomotive potentials on a chip. Nature Communications, 2021, 12, 390.	12.8	9
25	Electronic Coherence and Coherent Dephasing in the Optical Control of Electrons in Graphene. Nano Letters, 2021, 21, 9403-9409.	9.1	18
26	Photoemission from an ultrabright and ultrafast LaB₆ nanowire electron emitter studied at atomic scale. , 2021, , .		0
27	Length-dependence of light-induced currents in graphene. Journal of Physics B: Atomic, Molecular and Optical Physics, 2020, 53, 154001.	1.5	12
28	Gap-size dependence of optical near fields in a variable nanoscale two-tip junction. Physical Review B, 2020, 101, .	3.2	8
29	Sub-cycle temporal evolution of light-induced electron dynamics in hexagonal 2D materials. JPhys Photonics, 2020, 2, 024004.	4.6	18
30	Attosecond-fast internal photoemission. Nature Photonics, 2020, 14, 219-222.	31.4	23
31	Gallium Oxide for Highâ€Power Optical Applications. Advanced Optical Materials, 2020, 8, 1901522.	7.3	25
32	Quantum path interference of photoemissions from metal nanotips in two-color laser fields. , 2020, , .		0
33	Dielectric laser accelerators: attosecond electron bunch creation and complex phase-space control. , 2020, , .		0
34	Intracycle interference in the interaction of laser and electron beams. Physical Review Research, 2020, 2, .	3.6	5
35	Interaction of carrier envelope phase-stable laser pulses with graphene: the transition from the weak-field to the strong-field regime. New Journal of Physics, 2019, 21, 045003.	2.9	36
36	Generation of 15 cycle pulses at 780 nm at oscillator repetition rates with stable carrier-envelope phase. Optics Express, 2019, 27, 24105.	3.4	4

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37	Three-Dimensional Electrostatic Field at an Electron Nano-Emitter Determined by Differential Phase Contrast in Scanning Transmission Electron Microscopy. Microscopy and Microanalysis, 2019, 25, 74-75.	0.4	0
38	Tracing the Phase of Focused Broadband Laser Pulses. , 2019, , .		0
39	Tracing the phase of focused broadband laser pulses. EPJ Web of Conferences, 2019, 205, 01023.	0.3	0
40	Lightwave-controlled electron dynamics in graphene. EPJ Web of Conferences, 2019, 205, 05002.	0.3	2
41	Two-color phase-controlled photoemission from a zero-dimensional nanostructure. EPJ Web of Conferences, 2019, 205, 05004.	0.3	0
42	From strong-field physics in and at nanoscale matter to photonics-based laser accelerators. EPJ Web of Conferences, 2019, 205, 08009.	0.3	0
43	Femtosecond Laser-Induced Electron Emission from Nanodiamond-Coated Tungsten Needle Tips. Physical Review Letters, 2019, 123, 146802.	7.8	22
44	Fabrication and structural characterization of diamond-coated tungsten tips. Diamond and Related Materials, 2019, 97, 107446.	3.9	7
45	Challenges in simulating beam dynamics of dielectric laser acceleration. International Journal of Modern Physics A, 2019, 34, 1942031.	1.5	7
46	Generation and Characterization of Attosecond Microbunched Electron Pulse Trains via Dielectric Laser Acceleration. Physical Review Letters, 2019, 123, 264803.	7.8	75
47	Beam splitting of low-energy guided electrons with a two-sided microwave chip. Applied Physics Letters, 2019, 115, 104103.	3.3	5
48	Determination of 3D electrostatic field at an electron nano-emitter. Applied Physics Letters, 2019, 114, 013101.	3.3	14
49	Dielectric laser electron acceleration in a dual pillar grating with a distributed Bragg reflector. Optics Letters, 2019, 44, 1520.	3.3	38
50	Carrier-envelope-phase-stable soliton-based pulse compression to 44â€‰â€‰fs and ultraviolet generation at the 800â€‰â€‰kHz repetition rate. Optics Letters, 2019, 44, 5005.	3.3	12
51	Ponderomotive Generation and Detection of Attosecond Free-Electron Pulse Trains. Physical Review Letters, 2018, 120, 103203.	7.8	121
52	Nonadiabatic ponderomotive effects in photoemission from nanotips in intense midinfrared laser fields. Physical Review A, 2018, 97, .	2.5	14
53	Silicon dual pillar structure with a distributed Bragg reflector for dielectric laser accelerators: Design and fabrication. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2018, 909, 221-223.	1.6	8
54	Coherence in Laser-Driven Electrons at the Surface and in the Volume of Solid Matter. , 2018, , 129-139.		1

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55	Inelastic ponderomotive scattering of electrons atÂa high-intensity optical travelling wave inÂvacuum. Nature Physics, 2018, 14, 121-125.	16.7	80
56	Alternating-Phase Focusing for Dielectric-Laser Acceleration. Physical Review Letters, 2018, 121, 214801.	7.8	58
57	Coherent Electron Trajectory Control in Graphene. Physical Review Letters, 2018, 121, 207401.	7.8	79
58	High spatial coherence in multiphoton-photoemitted electron beams. Applied Physics Letters, 2018, 113, .	3.3	17
59	Attosecond physics phenomena at nanometric tips. Journal of Physics B: Atomic, Molecular and Optical Physics, 2018, 51, 172001.	1.5	88
60	High-order above-threshold photoemission from nanotips controlled with two-color laser fields. Journal of Physics B: Atomic, Molecular and Optical Physics, 2018, 51, 134001.	1.5	26
61	The ACHIP experimental chambers at the Paul Scherrer Institut. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2018, 907, 244-247.	1.6	10
62	Elements of a dielectric laser accelerator. Optica, 2018, 5, 687.	9.3	50
63	Ultrafast scanning electron microscope applied for studying the interaction between free electrons and optical near-fields of periodic nanostructures. Journal of Applied Physics, 2018, 124, .	2.5	29
64	Landau-Zener-StÃ¼ckelberg interferometer on attosecond timescales in graphene. , 2018, , .		3
65	Dielectric laser acceleration of sub-relativistic electrons by few-cycle laser pulses. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2017, 865, 84-86.	1.6	18
66	High visibility in two-color above-threshold photoemission from tungsten nanotips in a coherent control scheme. Journal of Modern Optics, 2017, 64, 1054-1060.	1.3	22
67	Optical gating and streaking of free electrons with sub-optical cycle precision. Nature Communications, 2017, 8, 14342.	12.8	62
68	Trapping field assisted backscattering in strong-field photoemission from dielectric nanospheres. Journal of Modern Optics, 2017, 64, 1096-1103.	1.3	17
69	Attosecond physics at the nanoscale. Reports on Progress in Physics, 2017, 80, 054401.	20.1	274
70	Reconstruction of Nanoscale Near Fields by Attosecond Streaking. IEEE Journal of Selected Topics in Quantum Electronics, 2017, 23, 77-87.	2.9	16
71	Outline of a dielectric laser acceleration experiment at SwissFEL. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2017, 865, 87-90.	1.6	16
72	Coherence in laser-driven electrons at the surface and in the volume of solid matter. Applied Physics B: Lasers and Optics, 2017, 123, 1.	2.2	1

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73	Light-field-driven currents in graphene. Nature, 2017, 550, 224-228.	27.8	288
74	Using the focal phase to control attosecond processes. Journal of Optics (United Kingdom), 2017, 19, 124007.	2.2	11
75	Coherent control of two-color above-threshold photoemission from tungsten nanotips. Journal of Physics: Conference Series, 2017, 875, 042006.	0.4	0
76	Tracing the phase of focused broadband laserÂpulses. Nature Physics, 2017, 13, 947-951.	16.7	54
77	Acceleration of sub-relativistic electrons with an evanescent optical wave at a planar interface. Optics Express, 2017, 25, 19195.	3.4	46
78	Sub-optical-cycle control of free electrons by optical near-fields. , 2017, , .		1
79	Electron dynamics in graphene reaching the light-field-driven regime. , 2017, , .		0
80	Photoemission from Nanomaterials in Strong Few-Cycle Laser Fields. NATO Science for Peace and Security Series B: Physics and Biophysics, 2017, , 283-299.	0.3	1
81	Strong-Field-Assisted Measurement of Near-Fields and Coherent Control of Photoemission at Nanometric Metal Tips. Springer Series in Chemical Physics, 2017, , 143-155.	0.2	0
82	Attosecond nanoscale near-field sampling. Nature Communications, 2016, 7, 11717.	12.8	67
83	Laser-driven acceleration of subrelativistic electrons near a nanostructured dielectric grating: From acceleration via higher spatial harmonics to necessary elements of a dielectric accelerator. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2016, 829, 50-51.	1.6	6
84	Summary of the working group 3: Electron beams from electromagnetic structures, including dielectric and laser-driven structures. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2016, 829, 181-182.	1.6	0
85	A miniaturized electron source based on dielectric laser accelerator operation at higher spatial harmonics and a nanotip photoemitter. Journal of Physics B: Atomic, Molecular and Optical Physics, 2016, 49, 034006.	1.5	26
86	Designs for a quantum electron microscope. Ultramicroscopy, 2016, 164, 31-45.	1.9	122
87	Transverse and longitudinal characterization of electron beams using interaction with optical near-fields. Optics Letters, 2016, 41, 3435.	3.3	8
88	Two-Color Coherent Control of Femtosecond Above-Threshold Photoemission from a Tungsten Nanotip. Physical Review Letters, 2016, 117, 217601.	7.8	73
89	Recent experimental results and future directions of the DLA single grating project. AIP Conference Proceedings, 2016, , .	0.4	0
90	Compact Ultrashort Pulsed 2.05 Âµm All-PM Fiber Laser For Dielectric Laser Acceleration of Non-relativistic Electrons. , 2016, , .		2

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91	Can a Quantum Electron Microscope Achieve Low-Damage (Biological) Imaging?. Microscopy and Microanalysis, 2015, 21, 50-53.	0.4	2
92	Highly Coherent Electron Beam from a Laser-Triggered Tungsten Needle Tip. Physical Review Letters, 2015, 114, 227601.	7.8	114
93	Harmonic radiation from crystals. Nature, 2015, 523, 541-542.	27.8	1
94	Microwave Chip-Based Beam Splitter for Low-Energy Guided Electrons. Physical Review Letters, 2015, 114, 254801.	7.8	19
95	A nanoscale vacuum-tube diode triggered by few-cycle laser pulses. Applied Physics Letters, 2015, 106, .	3.3	39
96	Large optical field enhancement for nanotips with large opening angles. New Journal of Physics, 2015, 17, 063010.	2.9	62
97	Laser Acceleration of Non-relativistic Electrons at Dielectric Structures: Status and Outlook. , 2015, , .		0
98	Attosecond Electron Response in Nanoscale Interfaces. , 2015, , .		0
99	Dielectric laser acceleration of electrons in the vicinity of single and double grating structuresâ€"theory and simulations. Journal of Physics B: Atomic, Molecular and Optical Physics, 2014, 47, 234004.	1.5	50
100	Semitransparency in interaction-free measurements. Physical Review A, 2014, 90, .	2.5	57
101	Phase-Resolved Electron Guiding in Optimized Chip-Based Microwave Potentials. Physical Review Applied, 2014, 2, .	3.8	8
102	Self-probing of metal nanotips by rescattered electrons reveals the nano-optical near-field. Journal of Physics B: Atomic, Molecular and Optical Physics, 2014, 47, 124022.	1.5	18
103	High-order-harmonic generation driven by metal nanotip photoemission: Theory and simulations. Physical Review A, 2014, 89, .	2.5	17
104	Dielectric laser accelerators. Reviews of Modern Physics, 2014, 86, 1337-1389.	45.6	286
105	Dielectric laser acceleration of 28keV electrons with the inverse Smithâ€"Purcell effect. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2014, 740, 114-116.	1.6	9
106	Strong-Field Perspective on High-Harmonic Radiation from Bulk Solids. Physical Review Letters, 2014, 113, 213901.	7.8	153
107	Experimental demonstration of high spatial coherence of laser-triggered field emitters. , 2014, , .		0
108	Nanooptics and electrons: From strong-field physics at needle tips to dielectric laser acceleration. , 2014, , .		0

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109	Direct Laser Acceleration of 28 keV Electrons at a Single Dielectric Grating. Physics Procedia, 2014, 52, 14-18.	1.2	1
110	Tip-based source of femtosecond electron pulses at 30â€‰keV. Journal of Applied Physics, 2014, 115, .	2.5	70
111	Dielectric laser acceleration of nonrelativistic electrons at a single fused silica grating structure: Experimental part. Physical Review Special Topics: Accelerators and Beams, 2014, 17, .	1.8	44
112	Carrier-envelope frequency stabilization of a Ti:sapphire oscillator using different pump lasers: part II. Applied Physics B: Lasers and Optics, 2014, 117, 33-39.	2.2	5
113	A nanoscale vacuum-tube diode triggered by few-cycle laser pulses. , 2014, , .		0
114	Probing of Optical Near-Fields by Electron Rescattering on the 1 nm Scale. Nano Letters, 2013, 13, 4790-4794.	9.1	61
115	Laser-Based Acceleration of Nonrelativistic Electrons at a Dielectric Structure. Physical Review Letters, 2013, 111, 134803.	7.8	267
116	Direct laser acceleration of non-relativistic electrons at a photonic structure. , 2013, , .		1
117	Ultrafast phenomena on the nanoscale. Annalen Der Physik, 2013, 525, A13.	2.4	7
118	Strong-field spectral interferometry using the carrierâ€“envelope phase. New Journal of Physics, 2013, 15, 073031.	2.9	10
119	Attosecond physics at a nanoscale metal tip: strong field physics meets near-field optics. , 2013, , .		0
120	Field localization and rescattering in tipâ€enhanced photoemission. Annalen Der Physik, 2013, 525, L12.	2.4	37
121	Acceleration of non-relativistic electrons at a dielectric grating structure: Status report. , 2013, , .		1
122	Ultrashort laser oscillator pulses meet nano-structures: from attosecond physics at metal tips to dielectric laser accelerators. Journal of Physics: Conference Series, 2013, 467, 012004.	0.4	0
123	Generation of sub-two-cycle pulses tunable around 1.8 Î¼m with passively stabilized carrier-envelope phase at 100 kHz repetition rate. EPJ Web of Conferences, 2013, 41, 10012.	0.3	0
124	Attosecond physics at a nanoscale metal tip. EPJ Web of Conferences, 2013, 41, 01005.	0.3	0
125	Interaction-free measurements with electrons. , 2013, , .		0
126	Interaction of ultrashort laser pulses with metal nanotips: a model system for strong-field phenomena. New Journal of Physics, 2012, 14, 085019.	2.9	60

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127	Carrier-envelope phase stable sub-two-cycle pulses tunable around 18ÂÂµm at 100ÂkHz. Optics Letters, 2012, 37, 1673.	3.3	46
128	Generating few-cycle pulses for nanoscale photoemission easily with an erbium-doped fiber laser. Optics Express, 2012, 20, 13663.	3.4	8
129	Carrier-envelope frequency stabilization of a Ti:sapphire oscillator using different pump lasers. Optics Express, 2012, 20, 18387.	3.4	21
130	Electron rescattering at metal nanotips induced by ultrashort laser pulses. Physical Review B, 2012, 86, .	3.2	68
131	Attosecond physics in photoemission from a metal nanotip. Journal of Physics B: Atomic, Molecular and Optical Physics, 2012, 45, 074006.	1.5	125
132	Strong-Field Effects and Attosecond Control of Electrons in Photoemission from a Nanoscale Metal Tip. Springer Proceedings in Physics, 2012, , 401-406.	0.2	0
133	Single-pass high-harmonic generation at 208 MHz repetition rate. Optics Letters, 2011, 36, 3428.	3.3	64
134	Attosecond control of electrons emitted from a nanoscale metal tip. Nature, 2011, 475, 78-81.	27.8	543
135	Attosecond physics with a laser oscillator enabled by field enhancement at a nanoscale metal tip. , 2011, , .		0
136	Note: Production of sharp gold tips with high surface quality. Review of Scientific Instruments, 2011, 82, 026101.	1.3	20
137	Carrier-envelope phase dependent photoemission from a nanometric metal tip. , 2011, , .		3
138	Strong-field above-threshold photoemission from sharp metal tips. , 2011, , .		0
139	Microwave Guiding of Electrons on a Chip. Physical Review Letters, 2011, 106, 193001.	7.8	31
140	Attosecond emission dynamics in nonlinear photoemission from metal tips. , 2011, , .		0
141	Few-cycle laser induced photoemission and electron rescattering at a metal surface. , 2011, , .		0
142	Planar microwave structures for electron guiding. New Journal of Physics, 2011, 13, 095012.	2.9	9
143	XUV frequency combs. , 2010, , .		1
144	A Peltier cooled single pass amplifier for Titanium:Sapphire laser pulses. Laser Physics, 2010, 20, 967-970.	1.2	3

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145	Modeling and optimization of single-pass laser amplifiers for high-repetition-rate laser pulses. Physical Review A, 2010, 82, .	2.5	10
146	Strong-Field Above-Threshold Photoemission from Sharp Metal Tips. Physical Review Letters, 2010, 105, 257601.	7.8	216
147	Photonic Structure Based Acceleration of Non-Relativistic Electrons â€" Simulations and Proof-of-Concept Experiment. , 2010, , .		0
148	Ultrafast coherent electron emission from ultrasharp metal tips. , 2009, , .		0
149	Miniaturized microwave Paul traps for electron guiding. , 2009, , .		1
150	Amplification of ultrashort pulses with a single-pass cryogenic Ti:sapphire amplifier at 80MHz repetition rate. , 2009, , .		0
151	Ultrafast nanometric electron sources: current status, first applications, and suitable laser sources. , 2009, , .		0
152	Phase-stable single-pass cryogenic amplifier for high repetition rate few-cycle laser pulses. New Journal of Physics, 2009, 11, 083029.	2.9	17
153	Extreme localization of electrons in space and time. Ultramicroscopy, 2009, 109, 423-429.	1.9	40
154	Reaching the resolved tunnel regime for a femtosecond oscillator driven field emission electron source. Laser Physics, 2009, 19, 736-738.	1.2	9
155	Photonic-based laser driven electron beam deflection and focusing structures. Physical Review Special Topics: Accelerators and Beams, 2009, 12, .	1.8	36
156	Ultrafast Laser-Induced Electron Emission from Field Emission Tips. Springer Series in Chemical Physics, 2009, , 702-704.	0.2	1
157	A spatially and temporally localized sub-laser cycle electron source. Springer Series in Chemical Physics, 2007, , 746-748.	0.2	1
158	Femtosecond laser meets field emission tip Â¿ a sensor for the carrier envelope phase. , 2006, , .		6
159	Quantum information processing in optical lattices and magnetic microtraps. Fortschritte Der Physik, 2006, 54, 702-718.	4.4	89
160	Field Emission Tip as a Nanometer Source of Free Electron Femtosecond Pulses. Physical Review Letters, 2006, 96, 077401.	7.8	400
161	Ultrafast Electron Pulses from a Tungsten Tip Triggered by Low-Power Femtosecond Laser Pulses. Physical Review Letters, 2006, 97, 247402.	7.8	237
162	Transporting, splitting and merging of atomic ensembles in a chip trap. New Journal of Physics, 2005, 7, 3-3.	2.9	54

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163	Coherence in Microchip Traps. Physical Review Letters, 2004, 92, 203005.	7.8	212
164	COHERENT ATOMIC STATES IN MICROTRAPS. , 2004, , .		0
165	Observation of coherent internal-state superpositions near a chip surface. , 2003, , .		0
166	Magnetic microchip traps and singleâ€"atom detection. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2003, 361, 1375-1389.	3.4	37
167	SPEEDY BEC IN A TINY TRAP: COHERENT MATTER WAVES ON A MICROCHIP. , 2002, , .		0
168	Applications of integrated magnetic microtraps. Applied Physics B: Lasers and Optics, 2001, 72, 81-89.	2.2	85
169	Boseâ€"Einstein condensation on a microelectronic chip. Nature, 2001, 413, 498-501.	27.8	556
170	Trapped-atom interferometer in a magnetic microtrap. Physical Review A, 2001, 64, .	2.5	116
171	Magnetic Conveyor Belt for Transporting and Merging Trapped Atom Clouds. Physical Review Letters, 2001, 86, 608-611.	7.8	169