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	Boseâ€“Einstein condensation on a microelectronic chip. Nature, 2001, 413, 498-501.	27.8	556
2	Attosecond control of electrons emitted from a nanoscale metal tip. Nature, 2011, 475, 78-81.	27.8	543
3	Field Emission Tip as a Nanometer Source of Free Electron Femtosecond Pulses. Physical Review Letters, 2006, 96, 077401.	7.8	400
4	Light-field-driven currents in graphene. Nature, 2017, 550, 224-228.	27.8	288
5	Dielectric laser accelerators. Reviews of Modern Physics, 2014, 86, 1337-1389.	45.6	286
6	Attosecond physics at the nanoscale. Reports on Progress in Physics, 2017, 80, 054401.	20.1	274
7	Laser-Based Acceleration of Nonrelativistic Electrons at a Dielectric Structure. Physical Review Letters, 2013, 111, 134803.	7.8	267
8	Ultrafast Electron Pulses from a Tungsten Tip Triggered by Low-Power Femtosecond Laser Pulses. Physical Review Letters, 2006, 97, 247402.	7.8	237
9	Strong-Field Above-Threshold Photoemission from Sharp Metal Tips. Physical Review Letters, 2010, 105, 257601.	7.8	216
10	Coherence in Microchip Traps. Physical Review Letters, 2004, 92, 203005.	7.8	212
11	Magnetic Conveyor Belt for Transporting and Merging Trapped Atom Clouds. Physical Review Letters, 2001, 86, 608-611.	7.8	169
12	Strong-Field Perspective on High-Harmonic Radiation from Bulk Solids. Physical Review Letters, 2014, 113, 213901.	7.8	153
13	Attosecond physics in photoemission from a metal nanotip. Journal of Physics B: Atomic, Molecular and Optical Physics, 2012, 45, 074006.	1.5	125
14	Designs for a quantum electron microscope. Ultramicroscopy, 2016, 164, 31-45.	1.9	122
15	Ponderomotive Generation and Detection of Attosecond Free-Electron Pulse Trains. Physical Review Letters, 2018, 120, 103203.	7.8	121
16	Trapped-atom interferometer in a magnetic microtrap. Physical Review A, 2001, 64, .	2.5	116
17	Highly Coherent Electron Beam from a Laser-Triggered Tungsten Needle Tip. Physical Review Letters, 2015, 114, 227601.	7.8	114
18	Quantum information processing in optical lattices and magnetic microtraps. Fortschritte Der Physik, 2006, 54, 702-718.	4.4	89

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19	Attosecond physics phenomena at nanometric tips. Journal of Physics B: Atomic, Molecular and Optical Physics, 2018, 51, 172001.	1.5	88
20	Applications of integrated magnetic microtraps. Applied Physics B: Lasers and Optics, 2001, 72, 81-89.	2.2	85
21	Inelastic ponderomotive scattering of electrons atÂa high-intensity optical travelling wave inÂvacuum. Nature Physics, 2018, 14, 121-125.	16.7	80
22	Coherent Electron Trajectory Control in Graphene. Physical Review Letters, 2018, 121, 207401.	7.8	79
23	Generation and Characterization of Attosecond Microbunched Electron Pulse Trains via Dielectric Laser Acceleration. Physical Review Letters, 2019, 123, 264803.	7.8	75
24	Imprinting the quantum statistics of photons on free electrons. Science, 2021, 373, eabj7128.	12.6	75
25	Two-Color Coherent Control of Femtosecond Above-Threshold Photoemission from a Tungsten Nanotip. Physical Review Letters, 2016, 117, 217601.	7.8	73
26	Tip-based source of femtosecond electron pulses at 30â€‰keV. Journal of Applied Physics, 2014, 115, .	2.5	70
27	Electron rescattering at metal nanotips induced by ultrashort laser pulses. Physical Review B, 2012, 86, .	3.2	68
28	Attosecond nanoscale near-field sampling. Nature Communications, 2016, 7, 11717.	12.8	67
29	Single-pass high-harmonic generation at 208 MHz repetition rate. Optics Letters, 2011, 36, 3428.	3.3	64
30	Large optical field enhancement for nanotips with large opening angles. New Journal of Physics, 2015, 17, 063010.	2.9	62
31	Optical gating and streaking of free electrons with sub-optical cycle precision. Nature Communications, 2017, 8, 14342.	12.8	62
32	Probing of Optical Near-Fields by Electron Rescattering on the 1 nm Scale. Nano Letters, 2013, 13, 4790-4794.	9.1	61
33	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
34	Alternating-Phase Focusing for Dielectric-Laser Acceleration. Physical Review Letters, 2018, 121, 214801.	7.8	58
35	Semitransparency in interaction-free measurements. Physical Review A, 2014, 90, .	2.5	57
36	Light-field control of real and virtual charge carriers. Nature, 2022, 605, 251-255.	27.8	57

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37	Transporting, splitting and merging of atomic ensembles in a chip trap. New Journal of Physics, 2005, 7, 3-3.	2.9	54
38	Tracing the phase of focused broadband laserÂpulses. Nature Physics, 2017, 13, 947-951.	16.7	54
39	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
40	Elements of a dielectric laser accelerator. Optica, 2018, 5, 687.	9.3	50
41	Carrier-envelope phase stable sub-two-cycle pulses tunable around 18ÂÂµm at 100ÂkHz. Optics Letters, 2012, 37, 1673.	3.3	46
42	Acceleration of sub-relativistic electrons with an evanescent optical wave at a planar interface. Optics Express, 2017, 25, 19195.	3.4	46
43	Electron phase-space control in photonic chip-based particle acceleration. Nature, 2021, 597, 498-502.	27.8	45
44	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
45	Extreme localization of electrons in space and time. Ultramicroscopy, 2009, 109, 423-429.	1.9	40
46	A nanoscale vacuum-tube diode triggered by few-cycle laser pulses. Applied Physics Letters, 2015, 106, .	3.3	39
47	Dielectric laser electron acceleration in a dual pillar grating with a distributed Bragg reflector. Optics Letters, 2019, 44, 1520.	3.3	38
48	Magnetic microchip traps and singleâ€"atom detection. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2003, 361, 1375-1389.	3.4	37
49	Field localization and rescattering in tipâ€enhanced photoemission. Annalen Der Physik, 2013, 525, L12.	2.4	37
50	Photonic-based laser driven electron beam deflection and focusing structures. Physical Review Special Topics: Accelerators and Beams, 2009, 12, .	1.8	36
51	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
52	Microwave Guiding of Electrons on a Chip. Physical Review Letters, 2011, 106, 193001.	7.8	31
53	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
54	Quantum-Coherent Light-Electron Interaction in a Scanning Electron Microscope. Physical Review Letters, 2022, 128, .	7.8	27

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55	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
56	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
57	Gallium Oxide for Highâ€Power Optical Applications. Advanced Optical Materials, 2020, 8, 1901522.	7.3	25
58	Attosecond-fast internal photoemission. Nature Photonics, 2020, 14, 219-222.	31.4	23
59	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
60	Femtosecond Laser-Induced Electron Emission from Nanodiamond-Coated Tungsten Needle Tips. Physical Review Letters, 2019, 123, 146802.	7.8	22
61	Carrier-envelope frequency stabilization of a Ti:sapphire oscillator using different pump lasers. Optics Express, 2012, 20, 18387.	3.4	21
62	Note: Production of sharp gold tips with high surface quality. Review of Scientific Instruments, 2011, 82, 026101.	1.3	20
63	Microwave Chip-Based Beam Splitter for Low-Energy Guided Electrons. Physical Review Letters, 2015, 114, 254801.	7.8	19
64	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
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	Sub-cycle temporal evolution of light-induced electron dynamics in hexagonal 2D materials. JPhys Photonics, 2020, 2, 024004.	4.6	18
67	Electronic Coherence and Coherent Dephasing in the Optical Control of Electrons in Graphene. Nano Letters, 2021, 21, 9403-9409.	9.1	18
68	Phase-stable single-pass cryogenic amplifier for high repetition rate few-cycle laser pulses. New Journal of Physics, 2009, 11, 083029.	2.9	17
69	High-order-harmonic generation driven by metal nanotip photoemission: Theory and simulations. Physical Review A, 2014, 89, .	2.5	17
70	Trapping field assisted backscattering in strong-field photoemission from dielectric nanospheres. Journal of Modern Optics, 2017, 64, 1096-1103.	1.3	17
71	High spatial coherence in multiphoton-photoemitted electron beams. Applied Physics Letters, 2018, 113, .	3.3	17
72	Reconstruction of Nanoscale Near Fields by Attosecond Streaking. IEEE Journal of Selected Topics in Quantum Electronics, 2017, 23, 77-87.	2.9	16

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73	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
74	Nonadiabatic ponderomotive effects in photoemission from nanotips in intense midinfrared laser fields. Physical Review A, 2018, 97, .	2.5	14
75	Determination of 3D electrostatic field at an electron nano-emitter. Applied Physics Letters, 2019, 114, 013101.	3.3	14
76	Particle acceleration using top-illuminated nanophotonic dielectric structures. Optics Express, 2021, 29, 14403.	3.4	14
77	Onset of charge interaction in strong-field photoemission from nanometric needle tips. Nanophotonics, 2021, 10, 3769-3775.	6.0	14
78	Optical current generation in graphene: CEP control vs. <i>Ï‰</i> + <i>2Ï‰</i> control. Nanophotonics, 2021, 10, 3701-3707.	6.0	13
79	Length-dependence of light-induced currents in graphene. Journal of Physics B: Atomic, Molecular and Optical Physics, 2020, 53, 154001.	1.5	12
80	Adiabaticity parameters for the categorization of light-matter interaction: From weak to strong driving. Physical Review A, 2021, 104, .	2.5	12
81	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
82	Using the focal phase to control attosecond processes. Journal of Optics (United Kingdom), 2017, 19, 124007.	2.2	11
83	Modeling and optimization of single-pass laser amplifiers for high-repetition-rate laser pulses. Physical Review A, 2010, 82, .	2.5	10
84	Strong-field spectral interferometry using the carrierâ€“envelope phase. New Journal of Physics, 2013, 15, 073031.	2.9	10
85	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
86	Quantum Interference Visibility Spectroscopy in Two-Color Photoemission from Tungsten Needle Tips. Physical Review Letters, 2021, 126, 137403.	7.8	10
87	Boosting the Efficiency of Smithâ€“Purcell Radiators Using Nanophotonic Inverse Design. ACS Photonics, 2022, 9, 664-671.	6.6	10
88	Reaching the resolved tunnel regime for a femtosecond oscillator driven field emission electron source. Laser Physics, 2009, 19, 736-738.	1.2	9
89	Planar microwave structures for electron guiding. New Journal of Physics, 2011, 13, 095012.	2.9	9
90	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

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91	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
92	Charged particle guiding and beam splitting with auto-ponderomotive potentials on a chip. Nature Communications, 2021, 12, 390.	12.8	9
93	Spatiotemporal sampling of near-petahertz vortex fields. Optica, 2022, 9, 755.	9.3	9
94	Generating few-cycle pulses for nanoscale photoemission easily with an erbium-doped fiber laser. Optics Express, 2012, 20, 13663.	3.4	8
95	Phase-Resolved Electron Guiding in Optimized Chip-Based Microwave Potentials. Physical Review Applied, 2014, 2, .	3.8	8
96	Transverse and longitudinal characterization of electron beams using interaction with optical near-fields. Optics Letters, 2016, 41, 3435.	3.3	8
97	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
98	Gap-size dependence of optical near fields in a variable nanoscale two-tip junction. Physical Review B, 2020, 101, .	3.2	8
99	Coherent control at gold needle tips approaching the strong-field regime. Nanophotonics, 2021, 10, 3717-3721.	6.0	8
100	Ultrafast phenomena on the nanoscale. Annalen Der Physik, 2013, 525, A13.	2.4	7
101	Fabrication and structural characterization of diamond-coated tungsten tips. Diamond and Related Materials, 2019, 97, 107446.	3.9	7
102	Challenges in simulating beam dynamics of dielectric laser acceleration. International Journal of Modern Physics A, 2019, 34, 1942031.	1.5	7
103	Femtosecond laser meets field emission tip Â¿ a sensor for the carrier envelope phase. , 2006, , .		6
104	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
105	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
106	Beam splitting of low-energy guided electrons with a two-sided microwave chip. Applied Physics Letters, 2019, 115, 104103.	3.3	5
107	Intracycle interference in the interaction of laser and electron beams. Physical Review Research, 2020, 2, .	3.6	5
108	Diamond-based dielectric laser acceleration. Optics Express, 2022, 30, 505.	3.4	5

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109	Inverse-Designed Narrowband THz Radiator for Ultrarelativistic Electrons. ACS Photonics, 2022, 9, 1143-1149.	6.6	5
110	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
111	Coherent scattering of an optically modulated electron beam by atoms. Physical Review A, 2021, 103, .	2.5	4
112	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
113	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
114	A Peltier cooled single pass amplifier for Titanium:Sapphire laser pulses. Laser Physics, 2010, 20, 967-970.	1.2	3
115	Carrier-envelope phase dependent photoemission from a nanometric metal tip. , 2011, , .		3
116	Microchip accelerators. Physics Today, 2021, 74, 42-49.	0.3	3
117	Landau-Zener-StÃ¼ckelberg interferometer on attosecond timescales in graphene. , 2018, , .		3
118	Can a Quantum Electron Microscope Achieve Low-Damage (Biological) Imaging?. Microscopy and Microanalysis, 2015, 21, 50-53.	0.4	2
119	Lightwave-controlled electron dynamics in graphene. EPJ Web of Conferences, 2019, 205, 05002.	0.3	2
120	Compact Ultrashort Pulsed 2.05 Âµm All-PM Fiber Laser For Dielectric Laser Acceleration of Non-relativistic Electrons. , 2016, , .		2
121	Miniaturized microwave Paul traps for electron guiding. , 2009, , .		1
122	Ultrafast Laser-Induced Electron Emission from Field Emission Tips. Springer Series in Chemical Physics, 2009, , 702-704.	0.2	1
123	XUV frequency combs. , 2010, , .		1
124	Direct laser acceleration of non-relativistic electrons at a photonic structure. , 2013, , .		1
125	Acceleration of non-relativistic electrons at a dielectric grating structure: Status report. , 2013, , .		1
126	Direct Laser Acceleration of 28 keV Electrons at a Single Dielectric Grating. Physics Procedia, 2014, 52, 14-18.	1.2	1

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127	Harmonic radiation from crystals. Nature, 2015, 523, 541-542.	27.8	1
128	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
129	Sub-optical-cycle control of free electrons by optical near-fields. , 2017, , .		1
130	Coherence in Laser-Driven Electrons at the Surface and in the Volume of Solid Matter. , 2018, , 129-139.		1
131	Chip-based electrostatic beam splitting of guided kiloelectron volt electrons. Applied Physics Letters, 2021, 118, 034101.	3.3	1
132	A spatially and temporally localized sub-laser cycle electron source. Springer Series in Chemical Physics, 2007, , 746-748.	0.2	1
133	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
134	Atomic real-space perspective of light-field-driven currents in graphene. New Journal of Physics, 2022, 24, 033051.	2.9	1
135	Observation of coherent internal-state superpositions near a chip surface. , 2003, , .		0
136	Ultrafast coherent electron emission from ultrasharp metal tips. , 2009, , .		0
137	Amplification of ultrashort pulses with a single-pass cryogenic Ti:sapphire amplifier at 80MHz repetition rate. , 2009, , .		0
138	Ultrafast nanometric electron sources: current status, first applications, and suitable laser sources. , 2009, , .		0
139	Attosecond physics with a laser oscillator enabled by field enhancement at a nanoscale metal tip. , 2011, , .		0
140	Strong-field above-threshold photoemission from sharp metal tips. , 2011, , .		0
141	Attosecond emission dynamics in nonlinear photoemission from metal tips. , 2011, , .		0
142	Few-cycle laser induced photoemission and electron rescattering at a metal surface. , 2011, , .		0
143	Attosecond physics at a nanoscale metal tip: strong field physics meets near-field optics. , 2013, , .		0
144	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

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145	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
146	Attosecond physics at a nanoscale metal tip. EPJ Web of Conferences, 2013, 41, 01005.	0.3	0
147	Experimental demonstration of high spatial coherence of laser-triggered field emitters. , 2014, , .		0
148	Nanooptics and electrons: From strong-field physics at needle tips to dielectric laser acceleration. , 2014, , .		0
149	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
150	Recent experimental results and future directions of the DLA single grating project. AIP Conference Proceedings, 2016, , .	0.4	0
151	Coherent control of two-color above-threshold photoemission from tungsten nanotips. Journal of Physics: Conference Series, 2017, 875, 042006.	0.4	0
152	Electron dynamics in graphene reaching the light-field-driven regime. , 2017, , .		0
153	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
154	Tracing the Phase of Focused Broadband Laser Pulses. , 2019, , .		0
155	Tracing the phase of focused broadband laser pulses. EPJ Web of Conferences, 2019, 205, 01023.	0.3	0
156	Two-color phase-controlled photoemission from a zero-dimensional nanostructure. EPJ Web of Conferences, 2019, 205, 05004.	0.3	0
157	From strong-field physics in and at nanoscale matter to photonics-based laser accelerators. EPJ Web of Conferences, 2019, 205, 08009.	0.3	0
158	Novel Materials-based Laser Acceleration. , 2021, , .		0
159	Light field-driven electron dynamics in 2D-materials. , 2021, , .		0
160	SPEEDY BEC IN A TINY TRAP: COHERENT MATTER WAVES ON A MICROCHIP. , 2002, , .		0
161	COHERENT ATOMIC STATES IN MICROTRAPS. , 2004, , .		0
162	Photonic Structure Based Acceleration of Non-Relativistic Electrons â€" Simulations and Proof-of-Concept Experiment. , 2010, , .		0

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163	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
164	Interaction-free measurements with electrons. , 2013, , .		0
165	A nanoscale vacuum-tube diode triggered by few-cycle laser pulses. , 2014, , .		0
166	Laser Acceleration of Non-relativistic Electrons at Dielectric Structures: Status and Outlook. , 2015, , .		0
167	Attosecond Electron Response in Nanoscale Interfaces. , 2015, , .		0
168	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
169	Quantum path interference of photoemissions from metal nanotips in two-color laser fields. , 2020, , .		0
170	Dielectric laser accelerators: attosecond electron bunch creation and complex phase-space control. , 2020, , .		0
171	Photoemission from an ultrabright and ultrafast LaB₆ nanowire electron emitter studied at atomic scale. , 2021, , .		0