Mathias Richter

List of Publications by Year
in descending order

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146	5,734	94433	82547
papers	citations	37 h-index	72 g-index

148	148	148	4078
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Operation of a free-electron laser from the extreme ultraviolet to the water window. Nature Photonics, 2007, 1, 336-342.	31.4	1,455
2	Photoelectric Effect at Ultrahigh Intensities. Physical Review Letters, 2007, 99, 213002.	7.8	237
3	X-ray-laser interaction with matter and the role of multiphoton ionization: Free-electron-laser studies on neon and helium. Physical Review A, 2007, 75, .	2.5	151
4	Gas detectors for x-ray lasers. Journal of Applied Physics, 2008, 103, .	2.5	147
5	Spatio-temporal coherence of free electron laser pulses in the soft x-ray regime. Optics Express, 2008, 16, 19909.	3.4	123
6	Extreme Ultraviolet Laser Excites Atomic Giant Resonance. Physical Review Letters, 2009, 102, 163002.	7.8	119
7	A quarterâ€century of metrology using synchrotron radiation by PTB in Berlin. Physica Status Solidi (B): Basic Research, 2009, 246, 1415-1434.	1.5	117
8	Non-linear processes in the interaction of atoms and molecules with intense EUV and X-ray fields from SASE free electron lasers (FELs). Journal of Modern Optics, 2010, 57, 1015-1040.	1.3	110
9	Measurement of gigawatt radiation pulses from a vacuum and extreme ultraviolet free-electron laser. Applied Physics Letters, 2003, 83, 2970-2972.	3.3	107
10	Direct autocorrelation of soft-x-ray free-electron-laser pulses by time-resolved two-photon double ionization of He. Physical Review A, 2009, 80, .	2.5	101
11	Recent developments of wide-bandgap semiconductor based UV sensors. Diamond and Related Materials, 2009, 18, 860-864.	3.9	92
12	Experimental study of atomic 4dgiant resonances by photoabsorption and photoelectron spectroscopy: Ba, La, and Ce. Physical Review A, 1989, 39, 5666-5675.	2.5	89
13	Experiments at FLASH. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2009, 601, 108-122.	1.6	88
14	Experimental study of atomic 4dgiant resonances by photoabsorption and photoelectron spectroscopy: Sm, Eu, and Gd. Physical Review A, 1989, 40, 7007-7019.	2.5	81
15	Determination of the electronâ€“hole pair creation energy for semiconductors from the spectral responsivity of photodiodes. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2000, 439, 208-215.	1.6	81
16	Decay channels of core excitation resonances in 3d and 4f metal atoms. Zeitschrift FÃ¼r Physik D-Atoms Molecules and Clusters, 1986, 2, 347-362.	1.0	80
17	Exploring three-dimensional orbital imaging with energy-dependent photoemission tomography. Nature Communications, 2015, 6, 8287.	12.8	76
18	PtSiâ€“nâ€“Si Schottkyâ€barrier photodetectors with stable spectral responsivity in the 120â€“250 nm spectral range. Applied Physics Letters, 1996, 69, 3662-3664.	3.3	69

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19	Measurements of electron-impact ionization cross sections of argon, krypton, and xenon by comparison with photoionization. Physical Review A, 2000, 61, .	2.5	67
20	Resonant Vacuum-Ultraviolet Photoelectron Spectra of Aligned Li Atoms. Physical Review Letters, 1987, 59, 2963-2966.	7.8	63
21	The PTB high-accuracy spectral responsivity scale in the VUV and x-ray range. Metrologia, 2006, 43, S125-S129.	1.2	63
22	Absolute pulse energy measurements of soft x-rays at the Linac Coherent Light Source. Optics Express, 2014, 22, 21214.	3.4	61
23	Multi-photon ionization of molecular nitrogen by femtosecond soft x-ray FEL pulses. Journal of Physics B: Atomic, Molecular and Optical Physics, 2006, 39, L299-L304.	1.5	56
24	Pulse energy measurement at the hard x-ray laser in Japan. Applied Physics Letters, 2012, 101, .	3.3	56
25	Decay of theAr2sâ^'1and2pâ^'1andKr3pâ^'1and3dâ^'1hole states studied by photoelectron-ion coincidence spectroscopy. Physical Review A, 2002, 65, .	2.5	55
26	Development of experimental techniques for the characterization of ultrashort photon pulses of extreme ultraviolet free-electron lasers. Physical Review Special Topics: Accelerators and Beams, 2014, 17, .	1.8	55
27	Characterization of AlN metal-semiconductor-metal diodes in the spectral range of 44â€“360nm: Photoemission assessments. Applied Physics Letters, 2008, 92, .	3.3	53
28	Multiphoton ionization of atoms with soft x-ray pulses. Journal of Physics B: Atomic, Molecular and Optical Physics, 2010, 43, 194005.	1.5	49
29	Ultraviolet and vacuum-ultraviolet detector-based radiometry at the Metrology Light Source. Measurement Science and Technology, 2010, 21, 125101.	2.6	47
30	First observation of photoelectron spectra emitted in the photoionization of a singly charged-ion beam with synchrotron radiation. Physical Review Letters, 1991, 67, 576-579.	7.8	46
31	Characterization of photodiodes as transfer detector standards in the 120 nm to 600 nm spectral range. Metrologia, 1998, 35, 355-362.	1.2	45
32	Performance of the monochromator beamline at FLASH. Journal of Optics, 2007, 9, 749-756.	1.5	45
33	Pre-flight calibration of LYRA, the solar VUV radiometer on board PROBA2. Astronomy and Astrophysics, 2009, 508, 1085-1094.	5.1	39
34	Metrology of pulsed radiation for 157-nm lithography. Applied Optics, 2002, 41, 7167.	2.1	38
35	Radiometric characteristics of new diamond PIN photodiodes. Measurement Science and Technology, 2006, 17, 913-917.	2.6	38
36	New developments on diamond photodetector for VUV solar observations. Semiconductor Science and Technology, 2008, 23, 035026.	2.0	38

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37	Experimental determination of optical constants of MgF2 and AlF3 thin films in the vacuum ultra-violet wavelength region (60â€“124nm), and its application to optical designs. Optics Communications, 2010, 283, 1351-1358.	2.1	38
38	Source and detector calibration in the UV and VUV at BESSY II. Metrologia, 2003, 40, S107-S110.	1.2	37
39	An X-ray gas monitor for free-electron lasers. Journal of Synchrotron Radiation, 2019, 26, 1092-1100.	2.4	37
40	2 s Photoionization in Ground-State and in Laser-Excited Sodium Atoms. Europhysics Letters, 1990, 12, 35-40.	2.0	36
41	Current capabilities at the Metrology Light Source. Metrologia, 2012, 49, S146-S151.	1.2	36
42	Two-Photon Inner-Shell Ionization in the Extreme Ultraviolet. Physical Review Letters, 2010, 105, 013001.	7.8	35
43	Quantum efficiency of cesium iodide photocathodes in the 120â€“220nm spectral range traceable to a primary detector standard. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 1999, 438, 94-103.	1.6	34
44	Autoionization of the Ca 2p53d core resonances: Breakdown of the spectator model. Physical Review A, 1989, 39, 4319-4322.	2.5	33
45	Autoionization of the Ar, K and Ca 2p54s, 3d-resonances: validity of the spectator model. Journal of Electron Spectroscopy and Related Phenomena, 1990, 51, 407-416.	1.7	32
46	Method based on atomic photoionization for spot-size measurement on focused soft x-ray free-electron laser beams. Applied Physics Letters, 2006, 89, 221114.	3.3	32
47	Performance of diamond detectors for VUV applications. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2006, 568, 398-405.	1.6	31
48	Time-Dependent Multiphoton Ionization of Xenon in the Soft-X-Ray Regime. Physical Review Letters, 2014, 112, .	7.8	31
49	Final ion-charge resolving electron spectroscopy for the investigation of atomic photoionization processes:â€ƒXe in the region of the4dâ†’Îµfresonance. Physical Review A, 1998, 57, 282-291.	2.5	30
50	The two normal-incidence monochromator beam lines of PTB at BESSY II. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2001, 467-468, 605-608.	1.6	30
51	Kekulene: On-Surface Synthesis, Orbital Structure, and Aromatic Stabilization. ACS Nano, 2020, 14, 15766-15775.	14.6	30
52	First Angle-Resolved Photoelectron Measurements following Inner-Shell Resonant Excitation in a Singly Charged Ion. Physical Review Letters, 1996, 76, 4496-4499.	7.8	29
53	Multiplet and lifetime effects in the4dphotoelectron spectrum of Eu. Physical Review A, 2000, 61, .	2.5	26
54	VUV photoelectron spectroscopy of laser-excited atomic Ba. Journal of Physics B: Atomic and Molecular Physics, 1985, 18, L337-L341.	1.6	25

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55	Solid-state binding, recombination, and Auger energy shifts of rare-earth metals. Physical Review B, 1988, 38, 1763-1772.	3.2	25
56	4dPhotoionization of Free Singly Charged Xenon Ions. Physical Review Letters, 1999, 82, 2068-2070.	7.8	25
57	Total electron-impact ionization cross sections of helium. Journal of Physics B: Atomic, Molecular and Optical Physics, 2004, 37, 3215-3226.	1.5	25
58	Diamond detectors for LYRA, the solar VUV radiometer on board PROBA2. Diamond and Related Materials, 2006, 15, 802-806.	3.9	25
59	Direct Double Photoionization Involving Inner and Outer Electrons: First Experimental Determination and Many-Body Calculations of an Absolute Cross Section. Physical Review Letters, 1994, 73, 3074-3077.	7.8	23
60	Calibration of space instrumentation with synchrotron radiation. Advances in Space Research, 2006, 37, 265-272.	2.6	23
61	Decay of the giant 4d photoabsorption resonance in atomic Cs and Sm. Journal of Physics B: Atomic and Molecular Physics, 1986, 19, 1645-1656.	1.6	22
62	Radiometric comparison for measuring the absolute radiant power of a free-electron laser in the extreme ultraviolet. Metrologia, 2010, 47, 21-23.	1.2	22
63	Polarizing and non-polarizing mirrors for the hydrogen Lyman-Î± radiation at 121.6 nm. Applied Physics A: Materials Science and Processing, 2011, 102, 641-649.	2.3	22
64	Resonant Ionization of Atomic Na in the 2 p Subshell: Strong Enhancement of the Conjugate Shake-up Channel in the Vicinity of the 2 s Ionization Threshold. Europhysics Letters, 1991, 14, 747-753.	2.0	21
65	Direct double photoionization of atomic sodium. Physical Review A, 1994, 50, 4868-4876.	2.5	19
66	Photoelectron spectroscopy as a non-invasive method to monitor SASE-FEL spectra. Journal of Instrumentation, 2008, 3, P02003-P02003.	1.2	19
67	Resonant multiphoton processes in the soft-x-ray regime. Physical Review A, 2009, 80, .	2.5	19
68	Atomic plasma excitations in the field of a soft x-ray laser. Journal of Physics B: Atomic, Molecular and Optical Physics, 2011, 44, 075601.	1.5	18
69	Identifying surface reaction intermediates with photoemission tomography. Nature Communications, 2019, 10, 3189.	12.8	18
70	Decay channels of the 4p resonances in atomic Sr. Journal of Physics B: Atomic, Molecular and Optical Physics, 1988, 21, 945-953.	1.5	17
71	The Metrology Light Source â€“ The new dedicated electron storage ring of PTB. Nuclear Instruments & Methods in Physics Research B, 2007, 258, 445-452.	1.4	17
72	Temperature-dependent Urbach tail measurements of lutetium aluminum garnet single crystals. Physical Review B, 2010, 81, .	3.2	17

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73	Chargeâ€Promoted Selfâ€Metalation of Porphyrins on an Oxide Surface. Angewandte Chemie - International Edition, 2021, 60, 5078-5082.	13.8	17
74	The PTB high-accuracy spectral responsivity scale in the ultraviolet. Metrologia, 2000, 37, 515-518.	1.2	16
75	Spatial anisotropy of the exciton level inCaF2at 11.1 eV and its relation to the weak optical anisotropy at 157 nm. Physical Review B, 2003, 67, .	3.2	16
76	Shot-to-shot and average absolute photon flux measurements of a femtosecond laser high-order harmonic photon source. New Journal of Physics, 2011, 13, 093003.	2.9	16
77	Multiple ionization of neon by soft x-rays at ultrahigh intensity. Journal of Physics B: Atomic, Molecular and Optical Physics, 2013, 46, 164025.	1.5	16
78	Radiometry using synchrotron radiation at PTB. Journal of Electron Spectroscopy and Related Phenomena, 1999, 101-103, 1013-1018.	1.7	15
79	A synchrotron-radiation-based variable angle ellipsometer for the visible to vacuum ultraviolet spectral range. Review of Scientific Instruments, 2014, 85, 055117.	1.3	15
80	Electron heated high temperature atomic beam source for VUV photoelectron spectroscopy. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 1987, 254, 627-629.	1.6	14
81	Photoelectron spectroscopy of laser-excited aligned Ca atoms in the region of the 3p excitation. Journal of Physics B: Atomic, Molecular and Optical Physics, 1992, 25, 923-930.	1.5	14
82	The combined use of a singly charged ion beam and undulator radiation for photoelectron spectrometry studies on atomic ions. Review of Scientific Instruments, 1992, 63, 1389-1392.	1.3	14
83	New developments in the radiance calibration of deuterium lamps in the UV and VUV spectral range at the PTB. Metrologia, 2000, 37, 563-566.	1.2	14
84	Resonance Auger spectra of free Rb atoms. Physical Review A, 1988, 38, 3395-3399.	2.5	13
85	Electron-ion coincidence spectroscopy on atomic barium in the excitation range of the 4dgiant resonance. Physical Review Letters, 1994, 72, 2847-2850.	7.8	13
86	Inner-shell resonances in metastableCa+ions. Physical Review A, 1997, 55, 3941-3944.	2.5	13
87	4dâ¶1multiplet structure of rare-earth atoms studied by photoelectron-ion coincidence spectroscopy. Physical Review A, 1998, 57, 3523-3533.	2.5	13
88	Photoelectron Spectroscopy of Laser-Excited Aligned Free Atoms. Physica Scripta, 1990, T31, 28-31.	2.5	12
89	Final Ion-Charge Resolving Electron Spectroscopy: Photoionization Studies on Sm and Eu. Physical Review Letters, 1996, 76, 4320-4323.	7.8	12
90	Temperature-dependent Urbach tail measurements of<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mrow><mml:mtext>CaF</mml:mtext></mml:mrow><mml:mn>2</mml:mn></mml:ms crystals. Physical Review B, 2009, 79, .	3.2	12

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91	Development of imaging arrays for solar UV observations based on wide band gap materials. , 2004, , .		11
92	Polarization-dependent vacuum-ultraviolet reflectometry using elliptically polarized synchrotron radiation. Applied Optics, 2007, 46, 7797.	2.1	11
93	Validation of a new facility at the Metrology Light Source for the calibration of radiation sources in the wavelength range from 116 nm to 400 nm. Metrologia, 2014, 51, 528-538.	1.2	11
94	Uncertainty analysis for the determination of B_4C optical constants by angle-dependent reflectance measurement for 40â€‰â€‰nm to 80â€‰â€‰nm wavelength. Applied Optics, 2017, 56, 5768.	1.8	11
95	Measurement of the single-shot pulse energy of a free electron laser using a cryogenic radiometer. Metrologia, 2010, 47, 518-521.	1.2	10
96	First observation of a Fano profile following one step autoionization into a double photoionization continuum. European Physical Journal Special Topics, 1993, 03, C6-217-C6-226.	0.2	10
97	Solar-Blind Diamond Detectors for Lyra, the Solar VUV Radiometer on Board Proba II. Experimental Astronomy, 2003, 16, 141-148.	3.7	9
98	Photoionization Cross Sections of Kr and Xe from Threshold up to 1000 eV. AIP Conference Proceedings, 2003, , .	0.4	9
99	Gas-Monitor Detector for Intense and Pulsed VUV/EUV Free-Electron Laser Radiation. AIP Conference Proceedings, 2004, , .	0.4	9
100	A new facility for the synchrotron radiation-based calibration of transfer radiation sources in the ultraviolet and vacuum ultraviolet spectral range. Review of Scientific Instruments, 2015, 86, 013106.	1.3	9
101	Can photoemission tomography be useful for small, strongly-interacting adsorbate systems?. New Journal of Physics, 2019, 21, 043003.	2.9	9
102	Validation of thin film TiO₂ optical constants by reflectometry and ellipsometry in the VUV spectral range. Measurement Science and Technology, 2019, 30, 045201.	2.6	9
103	Z-dependent difference between experimental and theoretical 2p-core-hole widths of atomic rare earths. Journal of Physics B: Atomic, Molecular and Optical Physics, 1990, 23, L811-L816.	1.5	8
104	Photon-matter interaction at short wavelengths and ultra-high intensity â€“ Gas-phase experiments at FLASH. Journal of Physics: Conference Series, 2008, 141, 012014.	0.4	8
105	Bilateral NISTâ€“PTB comparison of spectral responsivity in the VUV. Metrologia, 2011, 48, 02001-02001.	1.2	8
106	Irradiation-induced degradation of PTB7 investigated by valence band and S 2pphotoelectron spectroscopy. Nanotechnology, 2016, 27, 324005.	2.6	8
107	PTBâ€™s radiometric scales for UV and VUV source calibration based on synchrotron radiation. Metrologia, 2018, 55, 386-391.	1.2	8
108	Photoionization experiments on atomic Pt in the range 40-90 eV. Journal of Physics B: Atomic, Molecular and Optical Physics, 1994, 27, 4123-4131.	1.5	7

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109	Nonlinear photoionization in the soft X-ray regime. Applied Physics A: Materials Science and Processing, 2008, 92, 473-478.	2.3	7
110	Radiometric comparison of the primary source standard â€˜Metrology Light Sourceâ€™ to a primary detector standard. Metrologia, 2011, 48, 219-225.	1.2	7
111	Synchrotron radiation-based bilateral intercomparison of ultraviolet source calibrations. Metrologia, 2011, 48, 261-267.	1.2	7
112	Going beyond Pentacene: Photoemission Tomography of a Heptacene Monolayer on Ag(110). Journal of Physical Chemistry C, 2021, 125, 2918-2925.	3.1	7
113	Measurement of the absolute number of photons of the hard X-ray beamline at the Linac Coherent Light Source. Journal of Synchrotron Radiation, 2019, 26, 320-327.	2.4	7
114	High-accuracy detector calibration in the 3â€“1500ÂeV spectral range at the PTB radiometry laboratory. Journal of Synchrotron Radiation, 1998, 5, 866-868.	2.4	6
115	Multiple Auger cycle photoionisation of manganese atoms by short soft x-ray pulses. New Journal of Physics, 2017, 19, 043002.	2.9	6
116	Controlling the electronic and physical coupling on dielectric thin films. Beilstein Journal of Nanotechnology, 2020, 11, 1492-1503.	2.8	6
117	Combined electron and ion spectroscopy with synchrotron radiation of free metal atoms and ions. Journal of Electron Spectroscopy and Related Phenomena, 1995, 76, 21-28.	1.7	5
118	High-accuracy VUV reflectometry at selectable sample temperatures. , 2004, , .		5
119	UV and VUV calibration capabilities at the Metrology Light Source for solar and atmospheric research. AIP Conference Proceedings, 2013, , .	0.4	5
120	Traceable measurements of He, Ne, Ar, Kr, and Xe photoionization cross sections in the EUV spectral range. Journal of Physics B: Atomic, Molecular and Optical Physics, 2018, 51, 135004.	1.5	5
121	Calibration of space instruments at the Metrology Light Source. AIP Conference Proceedings, 2016, , .	0.4	4
122	Source-based calibration of space instruments using calculable synchrotron radiation. Journal of Astronomical Telescopes, Instruments, and Systems, 2016, 2, 044002.	1.8	4
123	Photoion spectroscopy of atomic Ho, Er and Tm in the region of the 4d giant resonances. Journal of Physics B: Atomic, Molecular and Optical Physics, 1993, 26, 4091-4097.	1.5	3
124	Pulse energy measurements of extreme ultraviolet undulator radiation. Measurement Science and Technology, 2004, 15, 437-443.	2.6	3
125	Multilayer optics with spectral purity layers for the EUV wavelength range. , 2006, , .		3
126	Al x Ga 1-x N focal plane arrays for imaging applications in the extreme ultraviolet (EUV) wavelength range. , 2007, , .		3

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127	Transverse resonance island buckets for synchrotron-radiation based electron time-of-flight spectroscopy. Review of Scientific Instruments, 2018, 89, 103114.	1.3	3
128	LadungsunterstÃ¼tzte Selbstmetallierung von Porphyrinen auf OxidoberflÃchen. Angewandte Chemie, 2021, 133, 5138-5142.	2.0	3
129	Photoelectron spectroscopy on atomic Pr and Nd in the 4d giant resonance region. Journal of Physics B: Atomic, Molecular and Optical Physics, 1998, 31, 3875-3884.	1.5	2
130	FEL beam metrology with a gas-monitor detector. , 2004, , .		2
131	Stability of vacuum-ultraviolet radiometric transfer standards: Electron cyclotron resonance versus hollow cathode source. Review of Scientific Instruments, 2005, 76, 023101.	1.3	2
132	The impact of pulse duration on multiphoton ionization in the soft X-ray regime. Proceedings of SPIE, 2013, , .	0.8	2
133	PARTIAL AND TOTAL PHOTOIONIZATION CROSS SECTIONS OF ATOMIC Ba, La AND Ce IN THE RANGE OF THE GIANT 4d RESONANCES. Journal De Physique Colloque, 1987, 48, C9-539-C9-542.	0.2	2
134	A photoelectronâ€“photoion coincidence method for the investigation of decay probabilities after innershell photoionization. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2001, 467-468, 1477-1480.	1.6	1
135	Metrology with Synchrotron Radiation. , 2019, , 1-35.		1
136	Metrology with Synchrotron Radiation. , 2020, , 1575-1610.		1
137	PHOTOELECTRON SPECTROSCOPY OF ATOMIC Ca IN THE 2p-EXCITATION RANGE. Journal De Physique Colloque, 1987, 48, C9-543-C9-546.	0.2	1
138	PHOTOELECTRON SPECTROSCOPY OF LASER EXCITED Ca ATOMS. Journal De Physique Colloque, 1987, 48, C9-547-C9-550.	0.2	1
139	On the optical anisotropy in the cubic crystal of CaF 2 : scaling arguments and their relation to dispersing absorption. , 2003, , .		0
140	Absolute Measurement Of EUV Radiation From An Undulator. AIP Conference Proceedings, 2004, , .	0.4	0
141	Saturation behaviour of PtSi-photodiodes under 157-nm laser irradiation. , 0, , .		0
142	Absolute measurement of F_2-laser power at 157 nm. Applied Optics, 2006, 45, 3325.	2.1	0
143	High field physics with XUV pulses from the Free Electron Laser in Hamburg: Atoms and Clusters. , 2007, , .		0
144	A new soft x-ray autocorrelatorâ€”direct evaluation of the temporal properties of FEL pulses at 24 nm. , 2010, , .		0

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145	Pulse power measurements and attenuator characterization of the hard X-ray beamline at the Linac Coherent Light Source. , 2019, , .		0
146	PHOTOELECTRON SPECTROSCOPY OF ORIENTED AND ALIGNED ALKALI ATOMS. Journal De Physique Colloque, 1987, 48, C9-551-C9-554.	0.2	0