Stefan Karsch

List of Publications by Year
in descending order

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146	7,576	53794	53230
papers	citations	45 h-index	85 g-index

146	146	146	4249
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Ultralow Emittance, Multi-MeV Proton Beams from a Laser Virtual-Cathode Plasma Accelerator. Physical Review Letters, 2004, 92, 204801.	7.8	494
2	High harmonic generation in the relativistic limit. Nature Physics, 2006, 2, 456-459.	16.7	418
3	MeV Ion Jets from Short-Pulse-Laser Interaction with Thin Foils. Physical Review Letters, 2002, 89, 085002.	7.8	389
4	Laser-driven soft-X-ray undulator source. Nature Physics, 2009, 5, 826-829.	16.7	324
5	Determination of the Al mole fraction and the band gap bowing of epitaxial AlxGa1â^'xN films. Applied Physics Letters, 1997, 71, 1504-1506.	3.3	290
6	Generation of sub-mJ terahertz pulses by optical rectification. Optics Letters, 2012, 37, 557.	3.3	215
7	Shock-Front Injector for High-Quality Laser-Plasma Acceleration. Physical Review Letters, 2013, 110, 185006.	7.8	212
8	Controlled near-field enhanced electron acceleration from dielectric nanospheres with intense few-cycle laser fields. Nature Physics, 2011, 7, 656-662.	16.7	210
9	Efficient generation of THz pulses with 04 mJ energy. Optics Express, 2014, 22, 20155.	3.4	207
10	Energetic ions generated by laser pulses: A detailed study on target properties. Physical Review Special Topics: Accelerators and Beams, 2002, 5, .	1.8	205
11	Generation of Stable, Low-Divergence Electron Beams by Laser-Wakefield Acceleration in a Steady-State-Flow Gas Cell. Physical Review Letters, 2008, 101, 085002.	7.8	192
12	Attosecond phase locking of harmonics emitted from laser-produced plasmas. Nature Physics, 2009, 5, 124-128.	16.7	179
13	Spatial Uniformity of Laser-Accelerated Ultrahigh-Current MeV Electron Propagation in Metals and Insulators. Physical Review Letters, 2003, 91, 255002.	7.8	166
14	Collimated Multi-MeV Ion Beams from High-Intensity Laser Interactions with Underdense Plasma. Physical Review Letters, 2006, 96, 245002.	7.8	155
15	Tunable All-Optical Quasimonochromatic Thomson X-Ray Source in the Nonlinear Regime. Physical Review Letters, 2015, 114, 195003.	7.8	139
16	GeV-scale electron acceleration in a gas-filled capillary discharge waveguide. New Journal of Physics, 2007, 9, 415-415.	2.9	132
17	Terawatt diode-pumped Yb:CaF_2 laser. Optics Letters, 2008, 33, 2770.	3.3	127
18	Comparison of Laser Ion Acceleration from the Front and Rear Surfaces of Thin Foils. Physical Review Letters, 2005, 94, 045004.	7.8	119

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19	Generation of Quasimonoenergetic Electron Bunches with 80-fs Laser Pulses. Physical Review Letters, 2006, 96, 105004.	7.8	118
20	Ultralow emittance electron beams from a laser-wakefield accelerator. Physical Review Special Topics: Accelerators and Beams, 2012, 15, .	1.8	118
21	Quantitative X-ray phase-contrast microtomography from a compact laser-driven betatron source. Nature Communications, 2015, 6, 7568.	12.8	116
22	High-Intensity Laser Induced Ion Acceleration from Heavy-Water Droplets. Physical Review Letters, 2003, 91, 015001.	7.8	112
23	Proton spectra from ultraintense laserâ€“plasma interaction with thin foils: Experiments, theory, and simulation. Physics of Plasmas, 2003, 10, 3283-3289.	1.9	110
24	Characterization of 7Li(p,n)7Be neutron yields from laser produced ion beams for fast neutron radiography. Physics of Plasmas, 2004, 11, 3404-3408.	1.9	97
25	All-Optical Steering of Laser-Wakefield-Accelerated Electron Beams. Physical Review Letters, 2010, 105, 215001.	7.8	94
26	A laser-driven nanosecond proton source for radiobiological studies. Applied Physics Letters, 2012, 101, .	3.3	87
27	Absolute charge calibration of scintillating screens for relativistic electron detection. Review of Scientific Instruments, 2010, 81, 033301.	1.3	78
28	Basic Concepts and Current Status of the Petawatt Field Synthesizerï¼A New Approach to Ultrahigh Field Generation. The Review of Laser Engineering, 2009, 37, 431-436.	0.0	73
29	Spectral properties of laser-accelerated mid-Z MeVâ•u ion beams. Physics of Plasmas, 2005, 12, 056314.	1.9	66
30	Electron Bunch Length Measurements from Laser-Accelerated Electrons Using Single-Shot THz Time-Domain Interferometry. Physical Review Letters, 2010, 104, 084802.	7.8	66
31	Laser accelerated ions and electron transport in ultra-intense laser matter interaction. Laser and Particle Beams, 2005, 23, .	1.0	65
32	Spectral broadening of 112â€‰â€‰mJ, 1.3â€‰â€‰ps pulses at 5â€‰â€‰kHz in a LG₁₀ multipass cell with compressibility to 37â€‰â€‰fs. Optics Letters, 2021, 46, 929.	3.3	64
33	EuPRAXIA Conceptual Design Report. European Physical Journal: Special Topics, 2020, 229, 3675-4284.	2.6	64
34	Study of Electron-Beam Propagation through Preionized Dense Foam Plasmas. Physical Review Letters, 2005, 94, 195001.	7.8	62
35	Comparative spectra and efficiencies of ions laser-accelerated forward from the front and rear surfaces of thin solid foils. Physics of Plasmas, 2007, 14, 053105.	1.9	62
36	Relativistic few-cycle pulses with high contrast from picosecond-pumped OPCPA. Optica, 2018, 5, 434.	9.3	61

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37	Ion acceleration from the shock front induced by hole boring in ultraintense laser-plasma interactions. Physical Review E, 2004, 70, 046414.	2.1	60
38	Horizon 2020 EuPRAXIA design study. Journal of Physics: Conference Series, 2017, 874, 012029.	0.4	60
39	Monoenergetic Energy Doubling in a Hybrid Laser-Plasma Wakefield Accelerator. Physical Review Letters, 2010, 104, 195002.	7.8	58
40	Laser-Driven Shock Acceleration of Ion Beams from Spherical Mass-Limited Targets. Physical Review Letters, 2009, 102, 095002.	7.8	56
41	High energy picosecond Yb:YAG CPA system at 10 Hz repetition rate for pumping optical parametric amplifiers. Optics Express, 2011, 19, 5357.	3.4	54
42	Correction of strong phase and amplitude modulations by two deformable mirrors in a multistaged Ti:sapphire laser. Optics Letters, 2002, 27, 1570.	3.3	50
43	Integrated implosion/heating studies for advanced fast ignition. Physics of Plasmas, 2004, 11, 2746-2753.	1.9	50
44	Novel method for characterizing relativistic electron beams in a harsh laser-plasma environment. Review of Scientific Instruments, 2007, 78, 083301.	1.3	50
45	Frontend light source for short-pulse pumped OPCPA system. Applied Physics B: Lasers and Optics, 2009, 97, 529-536.	2.2	47
46	Quick x-ray microtomography using a laser-driven betatron source. Optica, 2018, 5, 199.	9.3	46
47	The generation of high-quality, intense ion beams by ultra-intense lasers. Plasma Physics and Controlled Fusion, 2002, 44, B99-B108.	2.1	43
48	Broadband amplification by picosecond OPCPA in DKDP pumped at 515 nm. Optics Express, 2012, 20, 4619.	3.4	42
49	Towards intense isolated attosecond pulses from relativistic surface high harmonics. Optica, 2019, 6, 280.	9.3	41
50	Chirped-pulse amplification of laser pulses with dispersive mirrors. Optics Express, 2009, 17, 19204.	3.4	40
51	Extreme light infrastructure: laser architecture and major challenges. Proceedings of SPIE, 2010, , .	0.8	40
52	Operation of a single-photonâ€“counting x-ray charge-coupled device camera spectrometer in a petawatt environment. Review of Scientific Instruments, 2004, 75, 3705-3707.	1.3	38
53	Dual-energy electron beams from a compact laser-driven accelerator. Nature Photonics, 2019, 13, 263-269.	31.4	35
54	Physics of High-Charge Electron Beams in Laser-Plasma Wakefields. Physical Review X, 2020, 10, .	8.9	35

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55	Temporal evolution of longitudinal bunch profile in a laser wakefield accelerator. Physical Review Special Topics: Accelerators and Beams, 2015, 18, .	1.8	35
56	Application of relativistic laser plasmas for the study of nuclear reactions. Plasma Physics and Controlled Fusion, 2003, 45, A83-A91.	2.1	33
57	Short-pulse optical parametric chirped-pulse amplification for the generation of high-power few-cycle pulses. New Journal of Physics, 2007, 9, 438-438.	2.9	33
58	High-energy, diode-pumped, nanosecond Yb:YAG MOPA system. Optics Express, 2008, 16, 3674.	3.4	33
59	Imaging laser-wakefield-accelerated electrons using miniature magnetic quadrupole lenses. Physical Review Special Topics: Accelerators and Beams, 2011, 14, .	1.8	31
60	Demonstration of a compact plasma accelerator powered by laser-accelerated electron beams. Nature Communications, 2021, 12, 2895.	12.8	31
61	Generation of 220 mJ nanosecond pulses at a 10 Hz repetition rate with excellent beam quality in a diode-pumped Yb:YAG MOPA system. Optics Letters, 2008, 33, 1111.	3.3	29
62	Calibration and cross-laboratory implementation of scintillating screens for electron bunch charge determination. Review of Scientific Instruments, 2018, 89, 093303.	1.3	29
63	Experimental and theoretical investigation of timing jitter inside a stretcher-compressor setup. Optics Express, 2012, 20, 3443.	3.4	28
64	A thermoluminescence detector-based few-channel spectrometer for simultaneous detection of electrons and photons from relativistic laser-produced plasmas. Review of Scientific Instruments, 2003, 74, 961-968.	1.3	27
65	Ti KÎ± radiography of Cu-doped plastic microshell implosions via spherically bent crystal imaging. Applied Physics Letters, 2005, 86, 191501.	3.3	27
66	Collective Deceleration of Laser-Driven Electron Bunches. Physical Review Letters, 2016, 117, 144801.	7.8	26
67	Particle physics with petawatt class lasers. Laser and Particle Beams, 1999, 17, 565-570.	1.0	25
68	Temporal characterization of attosecond pulses emitted from solid-density plasmas. New Journal of Physics, 2010, 12, 043020.	2.9	25
69	Longitudinal electron bunch profile reconstruction by performing phase retrieval on coherent transition radiation spectra. Physical Review Special Topics: Accelerators and Beams, 2013, 16, .	1.8	24
70	Demonstration of passive plasma lensing of a laser wakefield accelerated electron bunch. Physical Review Accelerators and Beams, 2016, 19, .	1.6	23
71	Quasimonoenergetic electron acceleration in the self-modulated laser wakefield regime. Physics of Plasmas, 2009, 16, .	1.9	22
72	Development of a Jouleâ€class Yb:YAG amplifier and its implementation in a CPA system generating 1ÂTW pulses. Laser and Photonics Reviews, 2014, 8, 875-881.	8.7	21

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73	Multi-Î¼J harmonic emission energy from laser-driven plasma. Applied Physics B: Lasers and Optics, 2015, 118, 195-201.	2.2	21
74	Investigation of GeV-scale electron acceleration in a gas-filled capillary discharge waveguide. New Journal of Physics, 2013, 15, 045024.	2.9	20
75	WillingaleetÂal.Reply:. Physical Review Letters, 2007, 98, .	7.8	19
76	Generation of Ultrahigh-Velocity Ionizing Shocks with Petawatt-Class Laser Pulses. Physical Review Letters, 2009, 103, 255001.	7.8	19
77	Ultra-broadband near-infrared pulse generation by noncollinear OPA with angular dispersion compensation. Applied Physics B: Lasers and Optics, 2010, 100, 207-214.	2.2	19
78	Using the third state of matter: high harmonic generation from liquid targets. New Journal of Physics, 2014, 16, 113045.	2.9	19
79	Direct Observation of Plasma Waves and Dynamics Induced by Laser-Accelerated Electron Beams. Physical Review X, 2019, 9, .	8.9	19
80	Probing ultrafast magnetic-field generation by current filamentation instability in femtosecond relativistic laser-matter interactions. Physical Review Research, 2020, 2, .	3.6	19
81	Plasma cavitation in ultraintense laser interactions with underdense helium plasmas. New Journal of Physics, 2010, 12, 045014.	2.9	18
82	Observation of ion temperatures exceeding background electron temperatures in petawatt laser-solid experiments. Plasma Physics and Controlled Fusion, 2005, 47, L49-L56.	2.1	17
83	On the small divergence of laser-driven ion beams from nanometer thick foils. Physics of Plasmas, 2013, 20, .	1.9	17
84	I-BEAT: Ultrasonic method for online measurement of the energy distribution of a single ion bunch. Scientific Reports, 2019, 9, 6714.	3.3	17
85	Redshift of few-cycle infrared pulses in the filamentation regime. New Journal of Physics, 2011, 13, 093005.	2.9	16
86	Longitudinal Ion Acceleration From High-Intensity Laser Interactions With Underdense Plasma. IEEE Transactions on Plasma Science, 2008, 36, 1825-1832.	1.3	15
87	Simulations of petawatt-class few-cycle optical-parametric chirped-pulse amplification, including nonlinear refractive index effects. Optics Letters, 2010, 35, 3471.	3.3	15
88	Generation of multi-octave spanning high-energy pulses by cascaded nonlinear processes in BBO. Optics Express, 2016, 24, 5628.	3.4	15
89	Ionization-Induced Subcycle Metallization of Nanoparticles in Few-Cycle Pulses. ACS Photonics, 2020, 7, 3207-3215.	6.6	15
90	Two-photon above-threshold ionization using extreme-ultraviolet harmonic emission from relativistic laserâ€“plasma interaction. New Journal of Physics, 2012, 14, 043025.	2.9	14

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91	Energy straggling of 60 MeV 58Niq+ ions in thin carbon foils and gases. Nuclear Instruments & Methods in Physics Research B, 1998, 145, 261-270.	1.4	12
92	On electron transport in fast ignition research and the use of few-cycle PW-range laser pulses. Plasma Physics and Controlled Fusion, 2005, 47, B807-B813.	2.1	12
93	Status of the Petawatt Field Synthesizerâ€"pump-seed synchronization measurements. AIP Conference Proceedings, 2010, , .	0.4	12
94	Research towards high-repetition rate laser-driven X-ray sources for imaging applications. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2018, 909, 286-289.	1.6	12
95	Fundamentals and Applications of Hybrid LWFA-PWFA. Applied Sciences (Switzerland), 2019, 9, 2626.	2.5	12
96	Water-Window X-Ray Pulses from a Laser-Plasma Driven Undulator. Scientific Reports, 2020, 10, 5634.	3.3	12
97	Hybrid LWFAâ€"PWFA staging as a beam energy and brightness transformer: conceptual design and simulations. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2019, 377, 20180175.	3.4	11
98	On-target temporal characterization of optical pulses at relativistic intensity. Light: Science and Applications, 2019, 8, 96.	16.6	11
99	Status of the Horizon 2020 EuPRAXIA conceptual design study*. Journal of Physics: Conference Series, 2019, 1350, 012059.	0.4	11
100	Gas-dynamic density downramp injection in a beam-driven plasma wakefield accelerator. Physical Review Research, 2021, 3, .	3.6	11
101	Ultra-low emittance, high current proton beams produced with a laser-virtual cathode sheath accelerator. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2005, 544, 277-284.	1.6	10
102	High harmonics from solid surfaces as a source of ultra-bright XUV radiation for experiments. Plasma Physics and Controlled Fusion, 2008, 50, 124002.	2.1	10
103	Laser accelerated heavy particles â€" Tailoring of ion beams on a nano-scale. Optics Communications, 2006, 264, 519-524.	2.1	9
104	Nonlinear plasma wavelength scalings in a laser wakefield accelerator. Physical Review E, 2020, 101, 023209.	2.1	9
105	EuPRAXIA â€" a compact, cost-efficient particle and radiation source. AIP Conference Proceedings, 2019, , .	0.4	7
106	An UHV box coater for VUV reflective coatings on mirror substrates of up to 95 cm in diameter. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 1997, 397, 194-199.	1.6	6
107	Charge dependent energy loss of 60 MeV 58Niq+ ions in argon gas. Nuclear Instruments & Methods in Physics Research B, 1998, 146, 95-100.	1.4	6
108	Dynamics of laser-driven proton acceleration exhibited by measured laser absorptivity and reflectivity. Scientific Reports, 2017, 7, 43548.	3.3	6

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109	Focusing of high order harmonics from solid density plasmas. Plasma Physics and Controlled Fusion, 2011, 53, 124021.	2.1	5
110	Ultrabroadband near-infrared pulse generation by noncollinear OPA with angular dispersion compensation. Applied Physics B: Lasers and Optics, 2015, 121, 229-233.	2.2	5
111	Density measurement in a laser-plasma-accelerator capillary using Raman scattering. Physical Review Special Topics: Accelerators and Beams, 2011, 14, .	1.8	4
112	Radiation protection modelling for 2.5 Petawatt-laser production of ultrashort x-ray, proton and ion bunches: Monte Carlo model of the Munich CALA facility. Journal of Radiological Protection, 2020, 40, 1048-1073.	1.1	4
113	Elemental Analysis On Group-Hi Nitrides Using Heavy Ion Erd. Materials Research Society Symposia Proceedings, 1997, 482, 766.	0.1	3
114	M.I-12: short pulse laser generated ion beams for fast ignition. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2005, 544, 55-60.	1.6	3
115	High-energy diode-pumped Yb:YAG chirped pulse amplifier. , 2008, , .		3
116	Temporal coherence of high-order harmonics generated at solid surfaces. Applied Physics B: Lasers and Optics, 2014, 116, 121-127.	2.2	3
117	Charge calibration of DRZ scintillation phosphor screens. Journal of Instrumentation, 2019, 14, P09025-P09025.	1.2	3
118	Tunable X-ray source by Thomson scattering during laser-wakefield acceleration. , 2019, , .		3
119	Excited state population effect of 60 MeV 58Ni18+ ions penetrating thin carbon foils. Nuclear Instruments & Methods in Physics Research B, 1998, 142, 210-213.	1.4	2
120	<title>Intense ion beams accelerated by relativistic laser plasmas</title>. , 2001, 4510, 52.		2
121	Diode-pumped ytterbium-based chirped-pulse amplifier. Proceedings of SPIE, 2008, , .	0.8	2
122	Efficient Generation of THz Pulses with 0.4 mJ Energy. , 2014, , .		2
123	Counteracting gain narrowing using spectral amplitude shaping in a high-energy diode-pumped CPA system based on Yb-doped materials. , 2009, , .		2
124	Laser Accelerated, High Quality Ion Beams. Hyperfine Interactions, 2006, 162, 45-53.	0.5	1
125	OPA development on the Petawatt Field Synthesizer. , 2009, , .		1
126	Simulation study of an LWFA-based electron injector for AWAKE Run 2. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2018, 909, 126-129.	1.6	1

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127	The All Diode Pumped, Yb3+ Based, 10 J, 10 Hz, Sub-picosecond CPA Laser of the Petawatt-Field-Synthesizer. , 2021, , .		1
128	High brightness laser diode array at 940 nm for Yb:YAG pumping. , 2007, , .		0
129	High-energy, diode-pumped CPA based on Yb-doped materials. , 2009, , .		0
130	Dispersive mirror compressor for chirped pulse amplifiers. , 2010, , .		0
131	First milestone on the path toward a table-top free-electron laser (FEL). , 2010, , .		0
132	3D OPCPA simulations for a Petawatt class system including nonlinear refractive index effects. , 2011, , .		0
133	Controlled electron acceleration from dielectric nanospheres in intense few-cycle laser fields. , 2011, , .		0
134	Effects of nonlinear refractive index on few-cycle PW-class OPCPA. , 2011, , .		0
135	X-ray Generation by Relativistic Laser-Accelerated Electrons. , 2014, , .		0
136	0.4 mJ THz Pulses by Optical Rectification. , 2014, , .		0
137	Generation and optical parametric amplification of near-IR, few-cycle light pulses. , 2014, , .		0
138	Broadband picosecond-pumped OPCPA delivering 5 TW, sub-7 fs pulses with excellent temporal contrast. , 2017, , .		0
139	Development of TOF-spectrometry of laser-accelerated proton pulses using silicon microdosimeters. , 2017, , .		0
140	<title>Adaptive optics in a multistage TiS laser</title>. , 2002, , .		0
141	High-energy, diode-pumped laser amplification in Yb:CaF2 and Yb:SrF2. , 2009, , .		0
142	High-energy, diode-pumped CPA to the Joule-level based on Yb-doped materials. , 2009, , .		0
143	Optically Synchronized Frontend for High-Power Short-Pulse OPCPA System. , 2009, , .		0
144	Pump-seed synchronization measurements for high-power short-pulse pumped few-cycle OPCPA system. , 2010, , .		0

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145	Fundamentals and Applications of Hybrid LWFA-PWFA. Springer Proceedings in Physics, 2019, , 95-120.	0.2	0
146	Laser Accelerated, High Quality Ion Beams. , 2006, , 45-53.		0