

Stefan Karsch

List of Publications by Year in descending order

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146
papers

7,576
citations

53794

45
h-index

53230

85
g-index

146
all docs

146
docs citations

146
times ranked

4249
citing authors

#	ARTICLE	IF	CITATIONS
1	The All Diode Pumped, Yb ³⁺ Based, 10 J, 10 Hz, Sub-picosecond CPA Laser of the Petawatt-Field-Synthesizer. , 2021, , .		1
2	Spectral broadening of 112â€‰mJ, 1.3â€‰ps pulses at 5â€‰kHz in a LG₁₀ multipass cell with compressibility to 37â€‰fs. Optics Letters, 2021, 46, 929.	3.3	64
3	Demonstration of a compact plasma accelerator powered by laser-accelerated electron beams. Nature Communications, 2021, 12, 2895.	12.8	31
4	Gas-dynamic density downramp injection in a beam-driven plasma wakefield accelerator. Physical Review Research, 2021, 3, .	3.6	11
5	Ionization-Induced Subcycle Metallization of Nanoparticles in Few-Cycle Pulses. ACS Photonics, 2020, 7, 3207-3215.	6.6	15
6	Physics of High-Charge Electron Beams in Laser-Plasma Wakefields. Physical Review X, 2020, 10, .	8.9	35
7	Nonlinear plasma wavelength scalings in a laser wakefield accelerator. Physical Review E, 2020, 101, 023209.	2.1	9
8	Water-Window X-Ray Pulses from a Laser-Plasma Driven Undulator. Scientific Reports, 2020, 10, 5634.	3.3	12
9	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
10	Probing ultrafast magnetic-field generation by current filamentation instability in femtosecond relativistic laser-matter interactions. Physical Review Research, 2020, 2, .	3.6	19
11	EuPRAXIA Conceptual Design Report. European Physical Journal: Special Topics, 2020, 229, 3675-4284.	2.6	64
12	Fundamentals and Applications of Hybrid LWFA-PWFA. Applied Sciences (Switzerland), 2019, 9, 2626.	2.5	12
13	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
14	On-target temporal characterization of optical pulses at relativistic intensity. Light: Science and Applications, 2019, 8, 96.	16.6	11
15	Charge calibration of DRZ scintillation phosphor screens. Journal of Instrumentation, 2019, 14, P09025-P09025.	1.2	3
16	EuPRAXIA â€“ a compact, cost-efficient particle and radiation source. AIP Conference Proceedings, 2019, , .	0.4	7
17	I-BEAT: Ultrasonic method for online measurement of the energy distribution of a single ion bunch. Scientific Reports, 2019, 9, 6714.	3.3	17
18	Direct Observation of Plasma Waves and Dynamics Induced by Laser-Accelerated Electron Beams. Physical Review X, 2019, 9, .	8.9	19

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19	Dual-energy electron beams from a compact laser-driven accelerator. <i>Nature Photonics</i> , 2019, 13, 263-269.	31.4	35
20	Status of the Horizon 2020 EuPRAXIA conceptual design study*. <i>Journal of Physics: Conference Series</i> , 2019, 1350, 012059.	0.4	11
21	Tunable X-ray source by Thomson scattering during laser-wakefield acceleration. , 2019, , .		3
22	Towards intense isolated attosecond pulses from relativistic surface high harmonics. <i>Optica</i> , 2019, 6, 280.	9.3	41
23	Fundamentals and Applications of Hybrid LWFA-PWFA. <i>Springer Proceedings in Physics</i> , 2019, , 95-120.	0.2	0
24	Research towards high-repetition rate laser-driven X-ray sources for imaging applications. <i>Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment</i> , 2018, 909, 286-289.	1.6	12
25	Simulation study of an LWFA-based electron injector for AWAKE Run 2. <i>Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment</i> , 2018, 909, 126-129.	1.6	1
26	Calibration and cross-laboratory implementation of scintillating screens for electron bunch charge determination. <i>Review of Scientific Instruments</i> , 2018, 89, 093303.	1.3	29
27	Quick x-ray microtomography using a laser-driven betatron source. <i>Optica</i> , 2018, 5, 199.	9.3	46
28	Relativistic few-cycle pulses with high contrast from picosecond-pumped OPCPA. <i>Optica</i> , 2018, 5, 434.	9.3	61
29	Horizon 2020 EuPRAXIA design study. <i>Journal of Physics: Conference Series</i> , 2017, 874, 012029.	0.4	60
30	Dynamics of laser-driven proton acceleration exhibited by measured laser absorptivity and reflectivity. <i>Scientific Reports</i> , 2017, 7, 43548.	3.3	6
31	Broadband picosecond-pumped OPCPA delivering 5 TW, sub-7 fs pulses with excellent temporal contrast. , 2017, , .		0
32	Development of TOF-spectrometry of laser-accelerated proton pulses using silicon microdosimeters. , 2017, , .		0
33	Collective Deceleration of Laser-Driven Electron Bunches. <i>Physical Review Letters</i> , 2016, 117, 144801.	7.8	26
34	Generation of multi-octave spanning high-energy pulses by cascaded nonlinear processes in BBO. <i>Optics Express</i> , 2016, 24, 5628.	3.4	15
35	Demonstration of passive plasma lensing of a laser wakefield accelerated electron bunch. <i>Physical Review Accelerators and Beams</i> , 2016, 19, .	1.6	23
36	Tunable All-Optical Quasimonochromatic Thomson X-Ray Source in the Nonlinear Regime. <i>Physical Review Letters</i> , 2015, 114, 195003.	7.8	139

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37	Quantitative X-ray phase-contrast microtomography from a compact laser-driven betatron source. Nature Communications, 2015, 6, 7568.	12.8	116
38	Multi- $\frac{1}{4}$ harmonic emission energy from laser-driven plasma. Applied Physics B: Lasers and Optics, 2015, 118, 195-201.	2.2	21
39	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
40	Temporal evolution of longitudinal bunch profile in a laser wakefield accelerator. Physical Review Special Topics: Accelerators and Beams, 2015, 18, .	1.8	35
41	Using the third state of matter: high harmonic generation from liquid targets. New Journal of Physics, 2014, 16, 113045.	2.9	19
42	X-ray Generation by Relativistic Laser-Accelerated Electrons. , 2014, , .		0
43	0.4 mJ THz Pulses by Optical Rectification. , 2014, , .		0
44	Efficient generation of THz pulses with 04 mJ energy. Optics Express, 2014, 22, 20155.	3.4	207
45	Development of a Joule-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
46	Temporal coherence of high-order harmonics generated at solid surfaces. Applied Physics B: Lasers and Optics, 2014, 116, 121-127.	2.2	3
47	Efficient Generation of THz Pulses with 0.4 mJ Energy. , 2014, , .		2
48	Generation and optical parametric amplification of near-IR, few-cycle light pulses. , 2014, , .		0
49	On the small divergence of laser-driven ion beams from nanometer thick foils. Physics of Plasmas, 2013, 20, .	1.9	17
50	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
51	Shock-Front Injector for High-Quality Laser-Plasma Acceleration. Physical Review Letters, 2013, 110, 185006.	7.8	212
52	Investigation of GeV-scale electron acceleration in a gas-filled capillary discharge waveguide. New Journal of Physics, 2013, 15, 045024.	2.9	20
53	Two-photon above-threshold ionization using extreme-ultraviolet harmonic emission from relativistic laser-plasma interaction. New Journal of Physics, 2012, 14, 043025.	2.9	14
54	Broadband amplification by picosecond OPCPA in DKDP pumped at 515 nm. Optics Express, 2012, 20, 4619.	3.4	42

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55	A laser-driven nanosecond proton source for radiobiological studies. Applied Physics Letters, 2012, 101, .	3.3	87
56	Ultralow emittance electron beams from a laser-wakefield accelerator. Physical Review Special Topics: Accelerators and Beams, 2012, 15, .	1.8	118
57	Experimental and theoretical investigation of timing jitter inside a stretcher-compressor setup. Optics Express, 2012, 20, 3443.	3.4	28
58	Generation of sub-mJ terahertz pulses by optical rectification. Optics Letters, 2012, 37, 557.	3.3	215
59	Focusing of high order harmonics from solid density plasmas. Plasma Physics and Controlled Fusion, 2011, 53, 124021.	2.1	5
60	Redshift of few-cycle infrared pulses in the filamentation regime. New Journal of Physics, 2011, 13, 093005.	2.9	16
61	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
62	Controlled near-field enhanced electron acceleration from dielectric nanospheres with intense few-cycle laser fields. Nature Physics, 2011, 7, 656-662.	16.7	210
63	3D OPCPA simulations for a Petawatt class system including nonlinear refractive index effects. , 2011, , .		0
64	Imaging laser-wakefield-accelerated electrons using miniature magnetic quadrupole lenses. Physical Review Special Topics: Accelerators and Beams, 2011, 14, .	1.8	31
65	Density measurement in a laser-plasma-accelerator capillary using Raman scattering. Physical Review Special Topics: Accelerators and Beams, 2011, 14, .	1.8	4
66	Controlled electron acceleration from dielectric nanospheres in intense few-cycle laser fields. , 2011, , .		0
67	Effects of nonlinear refractive index on few-cycle PW-class OPCPA. , 2011, , .		0
68	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
69	Extreme light infrastructure: laser architecture and major challenges. Proceedings of SPIE, 2010, , .	0.8	40
70	Dispersive mirror compressor for chirped pulse amplifiers. , 2010, , .		0
71	Absolute charge calibration of scintillating screens for relativistic electron detection. Review of Scientific Instruments, 2010, 81, 033301.	1.3	78
72	Monoenergetic Energy Doubling in a Hybrid Laser-Plasma Wakefield Accelerator. Physical Review Letters, 2010, 104, 195002.	7.8	58

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73	All-Optical Steering of Laser-Wakefield-Accelerated Electron Beams. Physical Review Letters, 2010, 105, 215001.	7.8	94
74	Electron Bunch Length Measurements from Laser-Accelerated Electrons Using Single-Shot THz Time-Domain Interferometry. Physical Review Letters, 2010, 104, 084802.	7.8	66
75	First milestone on the path toward a table-top free-electron laser (FEL). , 2010, , .		0
76	Temporal characterization of attosecond pulses emitted from solid-density plasmas. New Journal of Physics, 2010, 12, 043020.	2.9	25
77	Plasma cavitation in ultraintense laser interactions with underdense helium plasmas. New Journal of Physics, 2010, 12, 045014.	2.9	18
78	Simulations of petawatt-class few-cycle optical-parametric chirped-pulse amplification, including nonlinear refractive index effects. Optics Letters, 2010, 35, 3471.	3.3	15
79	Status of the Petawatt Field Synthesizer’s pump-seed synchronization measurements. AIP Conference Proceedings, 2010, , .	0.4	12
80	Pump-seed synchronization measurements for high-power short-pulse pumped few-cycle OPCPA system. , 2010, , .		0
81	OPA development on the Petawatt Field Synthesizer. , 2009, , .		1
82	Quasimonoenergetic electron acceleration in the self-modulated laser wakefield regime. Physics of Plasmas, 2009, 16, .	1.9	22
83	Generation of Ultrahigh-Velocity Ionizing Shocks with Petawatt-Class Laser Pulses. Physical Review Letters, 2009, 103, 255001.	7.8	19
84	Frontend light source for short-pulse pumped OPCPA system. Applied Physics B: Lasers and Optics, 2009, 97, 529-536.	2.2	47
85	Attosecond phase locking of harmonics emitted from laser-produced plasmas. Nature Physics, 2009, 5, 124-128.	16.7	179
86	Laser-driven soft-X-ray undulator source. Nature Physics, 2009, 5, 826-829.	16.7	324
87	Laser-Driven Shock Acceleration of Ion Beams from Spherical Mass-Limited Targets. Physical Review Letters, 2009, 102, 095002.	7.8	56
88	Chirped-pulse amplification of laser pulses with dispersive mirrors. Optics Express, 2009, 17, 19204.	3.4	40
89	High-energy, diode-pumped CPA based on Yb-doped materials. , 2009, , .		0
90	Basic Concepts and Current Status of the Petawatt Field Synthesizer’s A New Approach to Ultrahigh Field Generation. The Review of Laser Engineering, 2009, 37, 431-436.	0.0	73

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91	Counteracting gain narrowing using spectral amplitude shaping in a high-energy diode-pumped CPA system based on Yb-doped materials. , 2009, , .		2
92	High-energy, diode-pumped laser amplification in Yb:CaF ₂ and Yb:SrF ₂ . , 2009, , .		0
93	High-energy, diode-pumped CPA to the Joule-level based on Yb-doped materials. , 2009, , .		0
94	Optically Synchronized Frontend for High-Power Short-Pulse OPCPA System. , 2009, , .		0
95	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
96	Terawatt diode-pumped Yb:CaF ₂ laser. Optics Letters, 2008, 33, 2770.	3.3	127
97	High-energy, diode-pumped, nanosecond Yb:YAG MOPA system. Optics Express, 2008, 16, 3674.	3.4	33
98	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
99	Longitudinal Ion Acceleration From High-Intensity Laser Interactions With Underdense Plasma. IEEE Transactions on Plasma Science, 2008, 36, 1825-1832.	1.3	15
100	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
101	High-energy diode-pumped Yb:YAG chirped pulse amplifier. , 2008, , .		3
102	Diode-pumped ytterbium-based chirped-pulse amplifier. Proceedings of SPIE, 2008, , .	0.8	2
103	High brightness laser diode array at 940 nm for Yb:YAG pumping. , 2007, , .		0
104	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
105	Novel method for characterizing relativistic electron beams in a harsh laser-plasma environment. Review of Scientific Instruments, 2007, 78, 083301.	1.3	50
106	WillingaleetÅal.Reply:. Physical Review Letters, 2007, 98, .	7.8	19
107	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
108	GeV-scale electron acceleration in a gas-filled capillary discharge waveguide. New Journal of Physics, 2007, 9, 415-415.	2.9	132

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109	Generation of Quasimonoeenergetic Electron Bunches with 80-fs Laser Pulses. Physical Review Letters, 2006, 96, 105004.	7.8	118
110	Collimated Multi-MeV Ion Beams from High-Intensity Laser Interactions with Underdense Plasma. Physical Review Letters, 2006, 96, 245002.	7.8	155
111	High harmonic generation in the relativistic limit. Nature Physics, 2006, 2, 456-459.	16.7	418
112	Laser accelerated heavy particles " Tailoring of ion beams on a nano-scale. Optics Communications, 2006, 264, 519-524.	2.1	9
113	Laser Accelerated, High Quality Ion Beams. Hyperfine Interactions, 2006, 162, 45-53.	0.5	1
114	Laser Accelerated, High Quality Ion Beams. , 2006, , 45-53.		0
115	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
116	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
117	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
118	Laser accelerated ions and electron transport in ultra-intense laser matter interaction. Laser and Particle Beams, 2005, 23, .	1.0	65
119	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
120	Ti K α radiography of Cu-doped plastic microshell implosions via spherically bent crystal imaging. Applied Physics Letters, 2005, 86, 191501.	3.3	27
121	Study of Electron-Beam Propagation through Preionized Dense Foam Plasmas. Physical Review Letters, 2005, 94, 195001.	7.8	62
122	Comparison of Laser Ion Acceleration from the Front and Rear Surfaces of Thin Foils. Physical Review Letters, 2005, 94, 045004.	7.8	119
123	Spectral properties of laser-accelerated mid-Z MeV α ion beams. Physics of Plasmas, 2005, 12, 056314.	1.9	66
124	Characterization of ${}^7\text{Li}(p,n){}^7\text{Be}$ neutron yields from laser produced ion beams for fast neutron radiography. Physics of Plasmas, 2004, 11, 3404-3408.	1.9	97
125	Ion acceleration from the shock front induced by hole boring in ultraintense laser-plasma interactions. Physical Review E, 2004, 70, 046414.	2.1	60
126	Integrated implosion/heating studies for advanced fast ignition. Physics of Plasmas, 2004, 11, 2746-2753.	1.9	50

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127	Operation of a single-photon counting x-ray charge-coupled device camera spectrometer in a petawatt environment. Review of Scientific Instruments, 2004, 75, 3705-3707.	1.3	38
128	Ultralow Emittance, Multi-MeV Proton Beams from a Laser Virtual-Cathode Plasma Accelerator. Physical Review Letters, 2004, 92, 204801.	7.8	494
129	Spatial Uniformity of Laser-Accelerated Ultrahigh-Current MeV Electron Propagation in Metals and Insulators. Physical Review Letters, 2003, 91, 255002.	7.8	166
130	Proton spectra from ultraintense laser-plasma interaction with thin foils: Experiments, theory, and simulation. Physics of Plasmas, 2003, 10, 3283-3289.	1.9	110
131	Application of relativistic laser plasmas for the study of nuclear reactions. Plasma Physics and Controlled Fusion, 2003, 45, A83-A91.	2.1	33
132	High-Intensity Laser Induced Ion Acceleration from Heavy-Water Droplets. Physical Review Letters, 2003, 91, 015001.	7.8	112
133	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
134	The generation of high-quality, intense ion beams by ultra-intense lasers. Plasma Physics and Controlled Fusion, 2002, 44, B99-B108.	2.1	43
135	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
136	MeV Ion Jets from Short-Pulse-Laser Interaction with Thin Foils. Physical Review Letters, 2002, 89, 085002.	7.8	389
137	Energetic ions generated by laser pulses: A detailed study on target properties. Physical Review Special Topics: Accelerators and Beams, 2002, 5, .	1.8	205
138	<title>Adaptive optics in a multistage TiS laser</title>. , 2002, , .		0
139	<title>Intense ion beams accelerated by relativistic laser plasmas</title>. , 2001, 4510, 52.		2
140	Particle physics with petawatt class lasers. Laser and Particle Beams, 1999, 17, 565-570.	1.0	25
141	Excited state population effect of 60 MeV $^{58}\text{Ni}^{18+}$ ions penetrating thin carbon foils. Nuclear Instruments & Methods in Physics Research B, 1998, 142, 210-213.	1.4	2
142	Energy straggling of 60 MeV $^{58}\text{Ni}^{q+}$ ions in thin carbon foils and gases. Nuclear Instruments & Methods in Physics Research B, 1998, 145, 261-270.	1.4	12
143	Charge dependent energy loss of 60 MeV $^{58}\text{Ni}^{q+}$ ions in argon gas. Nuclear Instruments & Methods in Physics Research B, 1998, 146, 95-100.	1.4	6
144	Elemental Analysis On Group-III Nitrides Using Heavy Ion Erd. Materials Research Society Symposia Proceedings, 1997, 482, 766.	0.1	3

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145	Determination of the Al mole fraction and the band gap bowing of epitaxial Al _x Ga _{1-x} N films. Applied Physics Letters, 1997, 71, 1504-1506.	3.3	290
146	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