Jorge Vieira

List of Publications by Year
in descending order

125 papers	4,683 citations	101543 36 h-index	102487 66 g-index
129 all docs	129 docs citations	129 times ranked	2219 citing authors

#	Article	IF	Citations
1	Generating multi-GeV electron bunches using single stage laser wakefield acceleration in a 3D nonlinear regime. Physical Review Special Topics: Accelerators and Beams, 2007, 10, .	1.8	710
2	Generation of neutral and high-density electronâ€“positron pair plasmas in the laboratory. Nature Communications, 2015, 6, 6747.	12.8	252
3	Near-GeV Acceleration of Electrons by a Nonlinear Plasma Wave Driven by a Self-Guided Laser Pulse. Physical Review Letters, 2009, 103, 035002.	7.8	239
4	Beam Loading in the Nonlinear Regime of Plasma-Based Acceleration. Physical Review Letters, 2008, 101, 145002.	7.8	228
5	Nonlinear Laser Driven Donut Wakefields for Positron and Electron Acceleration. Physical Review Letters, 2014, 112, .	7.8	188
6	Acceleration of electrons in the plasma wakefield of a proton bunch. Nature, 2018, 561, 363-367.	27.8	162
7	Amplification and generation of ultra-intense twisted laser pulses via stimulated Raman scattering. Nature Communications, 2016, 7, 10371.	12.8	153
8	Exploiting multi-scale parallelism for large scale numerical modelling of laser wakefield accelerators. Plasma Physics and Controlled Fusion, 2013, 55, 124011.	2.1	98
9	Beam loading by electrons in nonlinear plasma wakes. Physics of Plasmas, 2009, 16, .	1.9	96
10	All-Optical Steering of Laser-Wakefield-Accelerated Electron Beams. Physical Review Letters, 2010, 105, 215001.	7.8	94
11	Evidence of photon acceleration by laser wake fields. Physics of Plasmas, 2006, 13, 033108.	1.9	88
12	Simulation of monoenergetic electron generation via laser wakefield accelerators for 5â€“25TW lasers. Physics of Plasmas, 2006, 13, 056708.	1.9	83
13	AWAKE, The Advanced Proton Driven Plasma Wakefield Acceleration Experiment at CERN. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2016, 829, 76-82.	1.6	77
14	All-Optical Radiation Reaction at<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:mn>1</mml:mn><mml:msup><mml:mrow><mml:mn>0</mml:mn></mml:mrow><mml:mrow><mm mathvariant="normal">W</mml:mi><mml:mo>/</mml:mo><mml:msup><mml:mrow><mml:mi>cm</mml:mi></mml:mrow><mml:mrow Physical Review Letters, 2014, 113, 134801.	7.8	74
15	Magnetic Control of Particle Injection in Plasma Based Accelerators. Physical Review Letters, 2011, 106, 225001.	7.8	71
16	Laser wakefield accelerator based light sources: potential applications and requirements. Plasma Physics and Controlled Fusion, 2014, 56, 084015.	2.1	69
17	Stable multi-GeV electron accelerator driven by waveform-controlled PW laser pulses. Scientific Reports, 2017, 7, 10203.	3.3	69
18	Proton-driven plasma wakefield acceleration: a path to the future of high-energy particle physics. Plasma Physics and Controlled Fusion, 2014, 56, 084013.	2.1	68

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19	Optical Control of the Topology of Laser-Plasma Accelerators. Physical Review Letters, 2018, 121, 054801.	7.8	68
20	High Orbital Angular Momentum Harmonic Generation. Physical Review Letters, 2016, 117, 265001.	7.8	66
21	Effect of the frequency chirp on laser wakefield acceleration. New Journal of Physics, 2012, 14, 023057.	2.9	64
22	Mitigation of the Hose Instability in Plasma-Wakefield Accelerators. Physical Review Letters, 2017, 118, 174801.	7.8	64
23	Characterization of transverse beam emittance of electrons from a laser-plasma wakefield accelerator in the bubble regime using betatron x-ray radiation. Physical Review Special Topics: Accelerators and Beams, 2012, 15, .	1.8	63
24	Magnetic Field Generation in Plasma Waves Driven by Copropagating Intense Twisted Lasers. Physical Review Letters, 2018, 121, 145002.	7.8	63
25	Path to AWAKE: Evolution of the concept. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2016, 829, 3-16.	1.6	55
26	Donut wakefields generated by intense laser pulses with orbital angular momentum. Physics of Plasmas, 2014, 21, .	1.9	54
27	Numerical instability due to relativistic plasma drift in EM-PIC simulations. Computer Physics Communications, 2013, 184, 2503-2514.	7.5	53
28	Implementation of a hybrid particle code with a PIC description in râ€“z and a gridless description in Ï• into OSIRIS. Journal of Computational Physics, 2015, 281, 1063-1077.	3.8	49
29	Experimental Observation of Plasma Wakefield Growth Driven by the Seeded Self-Modulation of a Proton Bunch. Physical Review Letters, 2019, 122, 054801.	7.8	49
30	Experimental Observation of Proton Bunch Modulation in a Plasma at Varying Plasma Densities. Physical Review Letters, 2019, 122, 054802.	7.8	49
31	Ion Motion in Self-Modulated Plasma Wakefield Accelerators. Physical Review Letters, 2012, 109, 145005.	7.8	47
32	Transverse self-modulation of ultra-relativistic lepton beams in the plasma wakefield accelerator. Physics of Plasmas, 2012, 19, 063105.	1.9	44
33	Direct observation of betatron oscillations in a laser-plasma electron accelerator. Europhysics Letters, 2008, 81, 64001.	2.0	43
34	Generation and Applications of Extreme-Ultraviolet Vortices. Photonics, 2017, 4, 28.	2.0	41
35	Attosecond electron bunches from a nanofiber driven by Laguerre-Gaussian laser pulses. Scientific Reports, 2018, 8, 7282.	3.3	39
36	Polarized beam conditioning in plasma based acceleration. Physical Review Special Topics: Accelerators and Beams, 2011, 14, .	1.8	38

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37	Hosing Instability Suppression in Self-Modulated Plasma Wakefields. Physical Review Letters, 2014, 112, .	7.8	37
38	Seeding of Self-Modulation Instability of a Long Electron Bunch in a Plasma. Physical Review Letters, 2014, 112, 045001.	7.8	37
39	AWAKE readiness for the study of the seeded self-modulation of a 400 GeV proton bunch. Plasma Physics and Controlled Fusion, 2018, 60, 014046.	2.1	37
40	Onset of self-steepening of intense laser pulses in plasmas. New Journal of Physics, 2010, 12, 045025.	2.9	36
41	A compact tunable polarized X-ray source based on laser-plasma helical undulators. Scientific Reports, 2016, 6, 29101.	3.3	33
42	Electron trapping and acceleration by the plasma wakefield of a self-modulating proton beam. Physics of Plasmas, 2014, 21, .	1.9	29
43	Persistence of magnetic field driven by relativistic electrons in a plasma. Nature Physics, 2015, 11, 409-413.	16.7	29
44	Elimination of the numerical Cerenkov instability for spectral EM-PIC codes. Computer Physics Communications, 2015, 192, 32-47.	7.5	27
45	Modeling of laser wakefield acceleration in Lorentz boosted frame using EM-PIC code with spectral solver. Journal of Computational Physics, 2014, 266, 124-138.	3.8	23
46	Flying focus: Spatial and temporal control of intensity for laser-based applications. Physics of Plasmas, 2019, 26, .	1.9	23
47	A proposed demonstration of an experiment of proton-driven plasma wakefield acceleration based on CERN SPS. Journal of Plasma Physics, 2012, 78, 347-353.	2.1	21
48	Ion motion in the wake driven by long particle bunches in plasmas. Physics of Plasmas, 2014, 21, 056705.	1.9	21
49	Mitigation of numerical Cerenkov radiation and instability using a hybrid finite difference-FFT Maxwell solver and a local charge conserving current deposit. Computer Physics Communications, 2015, 197, 144-152.	7.5	21
50	New criteria for efficient Raman and Brillouin amplification of laser beams in plasma. Scientific Reports, 2020, 10, 19875.	3.3	21
51	Stable Positron Acceleration in Thin, Warm, Hollow Plasma Channels. Physical Review Letters, 2021, 127, 104801.	7.8	20
52	The effect of plasma radius and profile on the development of self-modulation instability of electron bunches. Physics of Plasmas, 2014, 21, .	1.9	17
53	Conditions for the onset of the current filamentation instability in the laboratory. Journal of Plasma Physics, 2018, 84, .	2.1	17
54	Radiation emission in laser-wakefields driven by structured laser pulses with orbital angular momentum. Scientific Reports, 2019, 9, 9840.	3.3	17

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55	Plasma channels produced by a laser-triggered high-voltage discharge. Physical Review E, 2003, 68, 035402.	2.1	16
56	QuickPIC: a highly efficient fully parallelized PIC code for plasma-based acceleration. Journal of Physics: Conference Series, 2006, 46, 190-199.	0.4	16
57	Magnetically assisted self-injection and radiation generation for plasma-based acceleration. Plasma Physics and Controlled Fusion, 2012, 54, 124044.	2.1	16
58	Interplay between the Weibel instability and the Biermann battery in realistic laser-solid interactions. Physical Review Research, 2020, 2, .	3.6	16
59	Nonlinear Thomson scattering with ponderomotive control. Physical Review E, 2022, 105, .	2.1	16
60	Modeling laser wakefield accelerator experiments with ultrafast particle-in-cell simulations in boosted frames. Physics of Plasmas, 2010, 17, 056705.	1.9	14
61	High harmonic generation in underdense plasmas by intense laser pulses with orbital angular momentum. Physics of Plasmas, 2015, 22, 123106.	1.9	14
62	All optical dual stage laser wakefield acceleration driven by two-color laser pulses. Scientific Reports, 2018, 8, 11772.	3.3	14
63	Dissipation of electron-beam-driven plasma wakes. Nature Communications, 2020, 11, 4753.	12.8	14
64	Computational studies and optimization of wakefield accelerators. Journal of Physics: Conference Series, 2008, 125, 012002.	0.4	13
65	Transition between Instability and Seeded Self-Modulation of a Relativistic Particle Bunch in Plasma. Physical Review Letters, 2021, 126, 164802.	7.8	13
66	Anisotropic heating and magnetic field generation due to Raman scattering in laser-plasma interactions. Physical Review Research, 2020, 2, .	3.6	13
67	All-optical trapping and acceleration of heavy particles. New Journal of Physics, 2008, 10, 033028.	2.9	12
68	Study of near-GeV acceleration of electrons in a non-linear plasma wave driven by a self-guided laser pulse. Plasma Physics and Controlled Fusion, 2011, 53, 014008.	2.1	12
69	Influence of realistic parameters on state-of-the-art laser wakefield accelerator experiments. Plasma Physics and Controlled Fusion, 2012, 54, 055010.	2.1	12
70	Modelling radiation emission in the transition from the classical to the quantum regime. Plasma Physics and Controlled Fusion, 2016, 58, 014035.	2.1	12
71	Self-focusing of multiple interacting Laguerre-Gauss beams in Kerr media. Physical Review A, 2019, 100, .	2.5	12
72	Direct Acceleration of Ions With Variable-Frequency Lasers. IEEE Transactions on Plasma Science, 2008, 36, 1857-1865.	1.3	11

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73	Self-modulation instability of ultra-relativistic particle bunches with finite rise times. Plasma Physics and Controlled Fusion, 2014, 56, 084014.	2.1	10
74	Generalized superradiance for producing broadband coherent radiation with transversely modulated arbitrarily diluted bunches. Nature Physics, 2021, 17, 99-104.	16.7	10
75	Interaction of ultra relativistic e â˜ e + fireball beam with plasma. New Journal of Physics, 2020, 22, 013030.	2.9	9
76	Laser-plasma acceleration beyond wave breaking. Physics of Plasmas, 2021, 28, .	1.9	9
77	Simulations of efficient laser wakefield accelerators from 1 to 100GeV. Journal of Plasma Physics, 2012, 78, 401-412.	2.1	8
78	Enabling Lorentz boosted frame particle-in-cell simulations of laser wakefield acceleration in quasi-3D geometry. Journal of Computational Physics, 2016, 316, 747-759.	3.8	8
79	Proton-driven plasma wakefield acceleration in AWAKE. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2019, 377, 20180418.	3.4	8
80	Experimental study of wakefields driven by a self-modulating proton bunch in plasma. Physical Review Accelerators and Beams, 2020, 23, .	1.6	8
81	Controlled Growth of the Self-Modulation of a Relativistic Proton Bunch in Plasma. Physical Review Letters, 2022, 129, .	7.8	8
82	Magnetic field generation during intense laser channelling in underdense plasma. Physics of Plasmas, 2016, 23, 063121.	1.9	7
83	On the use of the envelope model for down-ramp injection in laser-plasma accelerators. Plasma Physics and Controlled Fusion, 2020, 62, 024001.	2.1	7
84	Recent results and future challenges for large scale particle-in-cell simulations of plasma-based accelerator concepts. Journal of Physics: Conference Series, 2009, 180, 012005.	0.4	6
85	Progress of plasma wakefield self-modulation experiments at FACET. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2016, 829, 334-338.	1.6	6
86	One-to-One Full-Scale Simulations of Laser-Wakefield Acceleration Using QuickPIC. IEEE Transactions on Plasma Science, 2008, 36, 1722-1727.	1.3	5
87	Increasing energy coupling into plasma waves by tailoring the laser radial focal spot distribution in a laser wakefield accelerator. Physics of Plasmas, 2013, 20, 064501.	1.9	5
88	Laser dynamics in transversely inhomogeneous plasma and its relevance to wakefield acceleration. Plasma Physics and Controlled Fusion, 2018, 60, 054001.	2.1	5
89	Plasmon excitations with a semi-integer angular momentum. Scientific Reports, 2018, 8, 7817.	3.3	5
90	Proton Bunch Self-Modulation in Plasma with Density Gradient. Physical Review Letters, 2020, 125, 264801.	7.8	5

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91	Mechanisms for the mitigation of the hose instability in plasma-wakefield accelerators. Physical Review Accelerators and Beams, 2019, 22, .	1.6	5
92	Publisherâ€™s Note: Near-GeV Acceleration of Electrons by a Nonlinear Plasma Wave Driven by a Self-Guided Laser Pulse [Phys. Rev. Lett.103, 035002 (2009)]. Physical Review Letters, 2009, 103, .	7.8	4
93	Prospects for all-optical ultrafast muon acceleration. Plasma Physics and Controlled Fusion, 2009, 51, 024006.	2.1	4
94	AWAKE: A Proton-Driven Plasma Wakefield Acceleration Experiment at CERN. Nuclear and Particle Physics Proceedings, 2016, 273-275, 175-180.	0.5	4
95	Robustness of raman plasma amplifiers and their potential for attosecond pulse generation. High Energy Density Physics, 2017, 23, 212-216.	1.5	4
96	Ponderomotive beatwave ion acceleration using twisted light. Physics of Plasmas, 2017, 24, 103131.	1.9	4
97	Seeding self-modulation of a long proton bunch with a short electron bunch. Journal of Physics: Conference Series, 2020, 1596, 012066.	0.4	4
98	Toward a plasma-based accelerator at high beam energy with high beam charge and high beam quality. Physical Review Accelerators and Beams, 2020, 23, .	1.6	4
99	Three-dimensional particle-in-cell simulations of laser wakefield experiments. Journal of Physics: Conference Series, 2007, 78, 012077.	0.4	3
100	Numerical simulations of LWFA for the next generation of laser systems. , 2009, , .		3
101	Laser electron acceleration with 10 PW lasers. Comptes Rendus Physique, 2009, 10, 167-175.	0.9	3
102	Positron plasma wakefield acceleration in a self-driven hollow channel. AIP Conference Proceedings, 2016, , .	0.4	3
103	Simulation and experimental study of proton bunch self-modulation in plasma with linear density gradients. Physical Review Accelerators and Beams, 2021, 24, .	1.6	3
104	Experimental study of extended timescale dynamics of a plasma wakefield driven by a self-modulated proton bunch. Physical Review Accelerators and Beams, 2021, 24, .	1.6	3
105	The physical picture of beam loading in the blowout regime. , 2007, , .		2
106	Designing LWFA in the blowout regime. , 2007, , .		2
107	Three regimes of relativistic beam - plasma interaction. AIP Conference Proceedings, 2013, , .	0.4	2
108	Positron acceleration in non-linear beam driven plasma wakefields. AIP Conference Proceedings, 2016, , .	0.4	2

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109	Slowdown of interpenetration of two counterpropagating plasma slabs due to collective effects. Physical Review E, 2022, 105, 035204.	2.1	2
110	Towards the petascale in electromagnetic modeling of plasma-based accelerators for high-energy physics. Journal of Physics: Conference Series, 2006, 46, 215-219.	0.4	1
111	Modeling Laser Wake Field Acceleration with the Quasi-Static PIC Code QuickPIC. AIP Conference Proceedings, 2006, , .	0.4	1
112	SHEET CROSSING AND WAVE BREAKING IN THE LASER WAKEFIELD ACCELERATOR. International Journal of Modern Physics B, 2007, 21, 439-446.	2.0	1
113	Three-Dimensional Structure of the Laser Wakefield Accelerator in the Blowout Regime. IEEE Transactions on Plasma Science, 2008, 36, 1124-1125.	1.3	1
114	Modeling of laser wakefield acceleration in the Lorentz boosted frame using OSIRIS and UPIC framework. , 2013, , .		1
115	Influence of proton bunch parameters on a proton-driven plasma wakefield acceleration experiment. Physical Review Accelerators and Beams, 2019, 22, .	1.6	1
116	Generation of topologically complex three-dimensional electron beams in a plasma photocathode. Physical Review Accelerators and Beams, 2022, 25, .	1.6	1
117	Self-modulation of ultra-relativistic SLAC electron and positron bunches. , 2014, , .		0
118	Bunch modulation in LWFA blowout regime. , 2015, , .		0
119	Modeling of laser wakefield acceleration in Lorentz boosted frame using a Quasi-3D OSIRIS algorithm. AIP Conference Proceedings, 2016, , .	0.4	0
120	Signatures of the self-modulation instability of relativistic proton bunches in the AWAKE experiment. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2018, 909, 343-345.	1.6	0
121	Summary of WG6: Theory and simulations. Journal of Physics: Conference Series, 2020, 1596, 012051.	0.4	0
122	Magnetized current filaments as a source of circularly polarized light. Journal of Plasma Physics, 2021, 87, .	2.1	0
123	Raman scattering for intense high orbital angular momentum harmonic generation. , 2016, , .		0
124	Analysis of proton bunch parameters in the AWAKE experiment. Journal of Instrumentation, 2021, 16, P11031.	1.2	0
125	Twisted Waves near a Plasma Cutoff. Symmetry, 2022, 14, 146.	2.2	0