Frank Tsung

List of Publications by Year
in descending order

79 papers	6,453 citations	172457 29 h-index	88630 70 g-index
79 all docs	79 docs citations	79 times ranked	2538 citing authors

#	Article	IF	Citations
1	Monoenergetic beams of relativistic electrons from intense laserâ€“plasma interactions. Nature, 2004, 431, 535-538.	27.8	1,731
2	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
3	Proton Shock Acceleration in Laser-Plasma Interactions. Physical Review Letters, 2004, 92, 015002.	7.8	431
4	OSIRIS: A Three-Dimensional, Fully Relativistic Particle in Cell Code for Modeling Plasma Based Accelerators. Lecture Notes in Computer Science, 2002, , 342-351.	1.3	413
5	Self-Guided Laser Wakefield Acceleration beyond 1ÂGeV Using Ionization-Induced Injection. Physical Review Letters, 2010, 105, 105003.	7.8	338
6	Beam Loading in the Nonlinear Regime of Plasma-Based Acceleration. Physical Review Letters, 2008, 101, 145002.	7.8	228
7	A nonlinear theory for multidimensional relativistic plasma wave wakefields. Physics of Plasmas, 2006, 13, 056709.	1.9	225
8	One-to-one direct modeling of experiments and astrophysical scenarios: pushing the envelope on kinetic plasma simulations. Plasma Physics and Controlled Fusion, 2008, 50, 124034.	2.1	180
9	Observation of Synchrotron Radiation from Electrons Accelerated in a Petawatt-Laser-Generated Plasma Cavity. Physical Review Letters, 2008, 100, 105006.	7.8	179
10	Near-GeV-Energy Laser-Wakefield Acceleration of Self-Injected Electrons in a Centimeter-Scale Plasma Channel. Physical Review Letters, 2004, 93, 185002.	7.8	168
11	Laser-Wakefield Acceleration of Monoenergetic Electron Beams in the First Plasma-Wave Period. Physical Review Letters, 2006, 96, 215001.	7.8	148
12	Electron Acceleration in Cavitated Channels Formed by a Petawatt Laser in Low-Density Plasma. Physical Review Letters, 2005, 94, .	7.8	147
13	Exploiting multi-scale parallelism for large scale numerical modelling of laser wakefield accelerators. Plasma Physics and Controlled Fusion, 2013, 55, 124011.	2.1	98
14	Beam loading by electrons in nonlinear plasma wakes. Physics of Plasmas, 2009, 16, .	1.9	96
15	Transverse emittance growth in staged laser-wakefield acceleration. Physical Review Special Topics: Accelerators and Beams, 2012, 15, .	1.8	93
16	Space-Charge Effects in the Current-Filamentation or Weibel Instability. Physical Review Letters, 2006, 96, 105002.	7.8	91
17	Simulation of monoenergetic electron generation via laser wakefield accelerators for 5â€“25TW lasers. Physics of Plasmas, 2006, 13, 056708.	1.9	83
18	Global Simulation for Laser-Driven MeV Electrons in Fast Ignition. Physical Review Letters, 2004, 93, 185004.	7.8	79

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19	Generating energetic electrons through staged acceleration in the two-plasmon-decay instability in inertial confinement fusion. Physical Review Letters, 2012, 108, 175002.	7.8	71
20	Generation of ultra-intense single-cycle laser pulses by using photon deceleration. Proceedings of the National Academy of Sciences of the United States of America, 2002, 99, 29-32.	7.1	67
21	Role of Direct Laser Acceleration of Electrons in a Laser Wakefield Accelerator with Ionization Injection. Physical Review Letters, 2017, 118, 064801.	7.8	57
22	Numerical instability due to relativistic plasma drift in EM-PIC simulations. Computer Physics Communications, 2013, 184, 2503-2514.	7.5	53
23	Growth and Saturation of Convective Modes of the Two-Plasmon Decay Instability in Inertial Confinement Fusion. Physical Review Letters, 2009, 103, 175002.	7.8	52
24	Self-modulated wakefield and forced laser wakefield acceleration of electrons. Physics of Plasmas, 2003, 10, 2071-2077.	1.9	46
25	Role of direct laser acceleration in energy gained by electrons in a laser wakefield accelerator with ionization injection. Plasma Physics and Controlled Fusion, 2014, 56, 084006.	2.1	42
26	Anomalously Hot Electrons due to Rescatter of Stimulated Raman Scattering in the Kinetic Regime. Physical Review Letters, 2013, 110, 165001.	7.8	39
27	Self-modulated laser wakefield accelerators as x-ray sources. Plasma Physics and Controlled Fusion, 2016, 58, 034018.	2.1	37
28	Controlling the numerical Cerenkov instability in PIC simulations using a customized finite difference Maxwell solver and a local FFT based current correction. Computer Physics Communications, 2017, 214, 6-17.	7.5	35
29	A global simulation for laser-driven MeV electrons in 50-Î¼m-diameter fast ignition targets. Physics of Plasmas, 2006, 13, 056308.	1.9	30
30	<i>InÂSitu</i> Generation of High-Energy Spin-Polarized Electrons in a Beam-Driven Plasma Wakefield Accelerator. Physical Review Letters, 2021, 126, 054801.	7.8	28
31	Relativistically induced transparency acceleration of light ions by an ultrashort laser pulse interacting with a heavy-ion-plasma density gradient. Physical Review E, 2013, 88, 043105.	2.1	27
32	Elimination of the numerical Cerenkov instability for spectral EM-PIC codes. Computer Physics Communications, 2015, 192, 32-47.	7.5	27
33	Ultra-high (>30%) coupling efficiency designs for demonstrating central hot-spot ignition on the National Ignition Facility using a Frustraum. Physics of Plasmas, 2019, 26, .	1.9	25
34	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
35	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
36	Estimation of direct laser acceleration in laser wakefield accelerators using particle-in-cell simulations. Plasma Physics and Controlled Fusion, 2016, 58, 034008.	2.1	20

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37	Mitigation of stimulated Raman scattering in the kinetic regime by external magnetic fields. Physical Review E, 2018, 98, .	2.1	20
38	Effects of plasma wave packets and local pump depletion in stimulated Raman scattering. Physical Review E, 2010, 81, 045401.	2.1	18
39	Convective Raman amplification of light pulses causing kinetic inflation in inertial fusion plasmas. Physics of Plasmas, 2012, 19, .	1.9	18
40	A multi-dimensional Vlasov-Fokker-Planck code for arbitrarily anisotropic high-energy-density plasmas. Physics of Plasmas, 2013, 20, 056303.	1.9	17
41	Formation of Ultrarelativistic Electron Rings from a Laser-Wakefield Accelerator. Physical Review Letters, 2015, 115, 055004.	7.8	17
42	Three-dimensional particle-in-cell modeling of parametric instabilities near the quarter-critical density in plasmas. Physical Review E, 2019, 100, 041201.	2.1	14
43	On numerical errors to the fields surrounding a relativistically moving particle in PIC codes. Journal of Computational Physics, 2020, 413, 109451.	3.8	14
44	A new field solver for modeling of relativistic particle-laser interactions using the particle-in-cell algorithm. Computer Physics Communications, 2021, 258, 107580.	7.5	14
45	Suppressing the enhancement of stimulated Raman scattering in inhomogeneous plasmas by tuning the modulation frequency of a broadband laser. Physics of Plasmas, 2021, 28, .	1.9	14
46	Dynamics of a Supersonic Plume Moving along a Magnetized Plasma. Physical Review Letters, 2003, 90, 055004.	7.8	13
47	Computational studies and optimization of wakefield accelerators. Journal of Physics: Conference Series, 2008, 125, 012002.	0.4	13
48	Accurately simulating nine-dimensional phase space of relativistic particles in strong fields. Journal of Computational Physics, 2021, 438, 110367.	3.8	13
49	A multi-sheath model for highly nonlinear plasma wakefields. Physics of Plasmas, 2021, 28, .	1.9	12
50	Stability of arbitrary electron velocity distribution functions to electromagnetic modes. Physics of Plasmas, 2007, 14, 062108.	1.9	11
51	Generation of ultrahigh-brightness pre-bunched beams from a plasma cathode for X-ray free-electron lasers. Nature Communications, 2022, 13, .	12.8	11
52	Interactions of laser speckles due to kinetic stimulated Raman scattering. Physics of Plasmas, 2019, 26, .	1.9	9
53	AlfvÃ©nic phenomena triggered by resonant absorption of an O-mode pulse. Physics of Plasmas, 2007, 14, 042101.	1.9	8
54	Simulations of efficient laser wakefield accelerators from 1 to 100GeV. Journal of Plasma Physics, 2012, 78, 401-412.	2.1	8

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55	Improving the Self-Guiding of an Ultraintense Laser by Tailoring Its Longitudinal Profile. Physical Review Letters, 2014, 113, 245001.	7.8	8
56	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
57	Ultrabright Electron Bunch Injection in a Plasma Wakefield Driven by a Superluminal Flying Focus Electron Beam. Physical Review Letters, 2022, 128, 174803.	7.8	8
58	Particle simulation of AlfvÃ©n waves excited at a boundary. Physics of Plasmas, 2005, 12, 012508.	1.9	6
59	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
60	One-to-One Full-Scale Simulations of Laser-Wakefield Acceleration Using QuickPIC. IEEE Transactions on Plasma Science, 2008, 36, 1722-1727.	1.3	5
61	Satisfying the direct laser acceleration resonance condition in a laser wakefield accelerator. AIP Conference Proceedings, 2016, , .	0.4	4
62	Petascale particle-in-cell simulations of kinetic effects in inertial fusion energy plasmas. Plasma Physics and Controlled Fusion, 2019, 61, 044007.	2.1	4
63	LEARNING IN RECURRENT FINITE DIFFERENCE NETWORKS. International Journal of Neural Systems, 1995, 06, 249-256.	5.2	3
64	Three-dimensional particle-in-cell simulations of laser wakefield experiments. Journal of Physics: Conference Series, 2007, 78, 012077.	0.4	3
65	Benchmarking the codes VORPAL, OSIRIS, and QuickPIC with Laser Wakefield Acceleration Simulations. , 2009, , .		3
66	Advanced accelerator simulation research: miniaturizing accelerators from kilometers to meters. Journal of Physics: Conference Series, 2005, 16, 184-194.	0.4	2
67	The physical picture of beam loading in the blowout regime. , 2007, , .		2
68	Designing LWFA in the blowout regime. , 2007, , .		2
69	Electron acceleration at oblique angles via stimulated Raman scattering at laser irradiance <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:mo>></mml:mo><mml:msup><mml:mn>10</mml:mn> width="0.16em" /><mml:mi mathvariant="normal">W</mml:mi><mml:mspace width="0.16em" /><mml:msup><mml:mrow><mml:mi>cm</mml:mi></mml:mrow><mml:mrow><mml:mo>â^’</mml:mo><mml:mn>2</mml:mn> mathvariant. Physical Review E, 2021, 103, 033203.	2.1	2
70	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
71	SHEET CROSSING AND WAVE BREAKING IN THE LASER WAKEFIELD ACCELERATOR. International Journal of Modern Physics B, 2007, 21, 439-446.	2.0	1
72	Modeling of laser wakefield acceleration in the Lorentz boosted frame using OSIRIS and UPIC framework. , 2013, , .		1

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73	An examination of the scaling laws for LWFA in the self-guided nonlinear blowout regime. AIP Conference Proceedings, 2017, , .	0.4	1
74	Highly spin-polarized multi-GeV electron beams generated by single-species plasma photocathodes. Physical Review Research, 2022, 4, .	3.6	1
75	Dynamics of a Supersonic Plume Moving Along a Magnetized Plasma. AIP Conference Proceedings, 2003, , .	0.4	0
76	Quasi-Static Particle-In-Cell Simulation of the Plasma Wakefield Afterburner Concept. IEEE Transactions on Plasma Science, 2008, 36, 1294-1295.	1.3	0
77	Self-Guiding of Ultrashort Relativistically Intense Laser Pulses to the Limit of Nonlinear Pump Depletion. , 2009, , .		0
78	Simulations of laser-wakefield acceleration with external electron-bunch injection for REGAE experiments at DESY. , 2013, , .		0
79	Modeling of laser wakefield acceleration in Lorentz boosted frame using a Quasi-3D OSIRIS algorithm. AIP Conference Proceedings, 2016, , .	0.4	0