

Stepan Bulanov

List of Publications by Year in descending order

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123
papers

4,545
citations

126907

33
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98798

67
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124
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124
docs citations

124
times ranked

2092
citing authors

#	ARTICLE	IF	CITATIONS
1	Multi-GeV Electron Beams from Capillary-Discharge-Guided Subpetawatt Laser Pulses in the Self-Trapping Regime. Physical Review Letters, 2014, 113, 245002.	7.8	767
2	Petawatt Laser Guiding and Electron Beam Acceleration to 8 ÅGeV in a Laser-Heated Capillary Discharge Waveguide. Physical Review Letters, 2019, 122, 084801.	7.8	557
3	Multiple Colliding Electromagnetic Pulses: A Way to Lower the Threshold of e^+e^- Production from Vacuum. Physical Review Letters, 2010, 104, 220404.	7.8	219
4	Snapshots of laser wakefields. Nature Physics, 2006, 2, 749-753.	16.7	196
5	Accelerating monoenergetic protons from ultrathin foils by flat-top laser pulses in the directed-Coulomb-explosion regime. Physical Review E, 2008, 78, 026412.	2.1	160
6	Schwinger Limit Attainability with Extreme Power Lasers. Physical Review Letters, 2010, 105, 220407.	7.8	154
7	Active Plasma Lensing for Relativistic Laser-Plasma-Accelerated Electron Beams. Physical Review Letters, 2015, 115, 184802.	7.8	147
8	e^+e^- pair production by a focused laser pulse in vacuum. Physics Letters, Section A: General, Atomic and Solid State Physics, 2004, 330, 1-6.	2.1	146
9	Electromagnetic cascade in high-energy electron, positron, and photon interactions with intense laser pulses. Physical Review A, 2013, 87, .	2.5	110
10	Accelerating protons to therapeutic energies with ultraintense, ultraclean, and ultrashort laser pulses. Medical Physics, 2008, 35, 1770-1776.	3.0	101
11	Strong Radiation-Damping Effects in a Gamma-Ray Source Generated by the Interaction of a High-Intensity Laser with a Wakefield-Accelerated Electron Beam. Physical Review X, 2012, 2, .	8.9	88
12	Electron-positron pair production by electromagnetic pulses. Journal of Experimental and Theoretical Physics, 2006, 102, 9-23.	0.9	83
13	Relativistic plasma physics in supercritical fields. Physics of Plasmas, 2020, 27, .	1.9	81
14	Electron dynamics and $\hat{\mathbf{v}}^3$ and $\hat{\mathbf{a}}^2$ by colliding laser pulses. Physical Review E, 2016, 93, 023207.	2.1	74
15	On e^+e^- pair production by colliding electromagnetic pulses. JETP Letters, 2004, 80, 382-385.	1.4	57
16	High-power, kilojoule laser interactions with near-critical density plasma. Physics of Plasmas, 2011, 18, .	1.9	57
17	Modeling classical and quantum radiation from laser-plasma accelerators. Physical Review Special Topics: Accelerators and Beams, 2013, 16, .	1.8	54
18	Pair production by a circularly polarized electromagnetic wave in a plasma. Physical Review E, 2004, 69, 036408.	2.1	53

#	ARTICLE	IF	CITATIONS
19	Benchmarking semiclassical approaches to strong-field QED: Nonlinear Compton scattering in intense laser pulses. <i>Physics of Plasmas</i> , 2018, 25, .	1.9	53
20	ELIMAIA: A Laser-Driven Ion Accelerator for Multidisciplinary Applications. <i>Quantum Beam Science</i> , 2018, 2, 8.	1.2	49
21	Radiation pressure acceleration: The factors limiting maximum attainable ion energy. <i>Physics of Plasmas</i> , 2016, 23, .	1.9	48
22	Depletion of Intense Fields. <i>Physical Review Letters</i> , 2017, 118, 154803.	7.8	46
23	Damping of electromagnetic waves due to electron-positron pair production. <i>Physical Review E</i> , 2005, 71, 016404.	2.1	43
24	Formation of Optical Bullets in Laser-Driven Plasma Bubble Accelerators. <i>Physical Review Letters</i> , 2010, 104, 134801.	7.8	42
25	Laser-heater assisted plasma channel formation in capillary discharge waveguides. <i>Physics of Plasmas</i> , 2013, 20, 020703.	1.9	42
26	Nonuniform discharge currents in active plasma lenses. <i>Physical Review Accelerators and Beams</i> , 2017, 20, .	1.6	40
27	Demonstration of a high repetition rate capillary discharge waveguide. <i>Journal of Applied Physics</i> , 2016, 119, .	2.5	39
28	Thermal emittance from ionization-induced trapping in plasma accelerators. <i>Physical Review Special Topics: Accelerators and Beams</i> , 2014, 17, .	1.8	37
29	Single-cycle high-intensity electromagnetic pulse generation in the interaction of a plasma wakefield with regular nonlinear structures. <i>Physical Review E</i> , 2006, 73, 036408.	2.1	36
30	Vacuum electron acceleration by tightly focused laser pulses with nanoscale targets. <i>Physics of Plasmas</i> , 2009, 16, .	1.9	36
31	Generation and pointing stabilization of multi-GeV electron beams from a laser plasma accelerator	1.9	36
32	Studies of laser wakefield structures and electron acceleration in underdense plasmas. <i>Physics of Plasmas</i> , 2008, 15, 056703.	1.9	35
33	Laser-Particle Collider for Multi-GeV Photon Production. <i>Physical Review Letters</i> , 2019, 122, 254801.	7.8	35
34	Control of Energy Spread and Dark Current in Proton and Ion Beams Generated in High-Contrast Laser Solid Interactions. <i>Physical Review Letters</i> , 2011, 107, 065003.	7.8	33
35	Strong field electrodynamics of a thin foil. <i>Physics of Plasmas</i> , 2013, 20, 123114.	1.9	33
36	Ion acceleration from thin foil and extended plasma targets by slow electromagnetic wave and related ion-ion beam instability. <i>Physics of Plasmas</i> , 2012, 19, .	1.9	32

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37	Enhancement of Maximum Attainable Ion Energy in the Radiation Pressure Acceleration Regime Using a Guiding Structure. <i>Physical Review Letters</i> , 2015, 114, 105003.	7.8	32
38	High-efficiency γ -ray flash generation via multiple-laser scattering in ponderomotive potential well. <i>Physical Review E</i> , 2017, 95, 013210.	2.1	32
39	Ion acceleration in laser generated megatesla magnetic vortex. <i>Physics of Plasmas</i> , 2019, 26, .	1.9	32
40	Relativistic plasma shutter for ultraintense laser pulses. <i>Applied Physics Letters</i> , 2009, 94, 201117.	3.3	31
41	Optimized laser pulse profile for efficient radiation pressure acceleration of ions. <i>Physics of Plasmas</i> , 2012, 19, 093112.	1.9	29
42	Electron injection and emittance control by transverse colliding pulses in a laser-plasma accelerator. <i>Physical Review Special Topics: Accelerators and Beams</i> , 2014, 17, .	1.8	29
43	Helium-3 and helium-4 acceleration by high power laser pulses for hadron therapy. <i>Physical Review Special Topics: Accelerators and Beams</i> , 2015, 18, .	1.8	28
44	Ensemble of ultra-high intensity attosecond pulses from laser-plasma interaction. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 2010, 374, 476-480.	2.1	25
45	Stimulated Raman Side Scattering in Laser Wakefield Acceleration. <i>Physical Review Letters</i> , 2010, 105, 034801.	7.8	24
46	Laser beam coupling with capillary discharge plasma for laser wakefield acceleration applications. <i>Physics of Plasmas</i> , 2017, 24, .	1.9	24
47	Relativistic spherical plasma waves. <i>Physics of Plasmas</i> , 2012, 19, 020702.	1.9	23
48	A new platform for ultra-high dose rate radiobiological research using the BELLA PW laser proton beamline. <i>Scientific Reports</i> , 2022, 12, 1484.	3.3	23
49	On the breaking of a plasma wave in a thermal plasma. I. The structure of the density singularity. <i>Physics of Plasmas</i> , 2012, 19, .	1.9	22
50	High contrast ion acceleration at intensities exceeding $10^{21} \text{ W cm}^{-2}$. <i>Physics of Plasmas</i> , 2013, 20, .	1.9	21
51	Laser-heated capillary discharge plasma waveguides for electron acceleration to 8 GeV. <i>Physics of Plasmas</i> , 2020, 27, 053102.	1.9	21
52	Acceleration of high charge ion beams with achromatic divergence by petawatt laser pulses. <i>Physical Review Accelerators and Beams</i> , 2020, 23, .	1.6	21
53	Holographic visualization of laser wakefields. <i>New Journal of Physics</i> , 2010, 12, 045016.	2.9	20
54	Charged particle dynamics in multiple colliding electromagnetic waves. Survey of random walk, Lévy flights, limit circles, attractors and structurally determinate patterns. <i>Journal of Plasma Physics</i> , 2017, 83, .	2.1	20

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55	On the breaking of a plasma wave in a thermal plasma. II. Electromagnetic wave interaction with the breaking plasma wave. <i>Physics of Plasmas</i> , 2012, 19, 113103.	1.9	17
56	Radiation beaming in the quantum regime. <i>Physical Review A</i> , 2020, 101, .	2.5	17
57	Multiple colliding laser pulses as a basis for studying high-field high-energy physics. <i>Physical Review A</i> , 2019, 100, .	2.5	15
58	Synergic Cherenkov-Compton radiation. <i>Physical Review D</i> , 2019, 100, .	4.7	14
59	Plasma equilibrium inside various cross-section capillary discharges. <i>Physics of Plasmas</i> , 2017, 24, .	1.9	14
60	Z lineshape versus fourth-generation masses. <i>Physics of Atomic Nuclei</i> , 2003, 66, 2169-2177.	0.4	13
61	Relativistically upshifted higher harmonic generation via relativistic flying mirrors. <i>Plasma Physics and Controlled Fusion</i> , 2018, 60, 074007.	2.1	12
62	Nonlinear evolution of a relativistically strong electromagnetic wave in self-created electron-positron plasma. <i>JETP Letters</i> , 2004, 80, 734-738.	1.4	11
63	Radiation reaction effects in cascade scattering of intense, tightly focused laser pulses by relativistic electrons: Classical approach. <i>Physical Review Special Topics: Accelerators and Beams</i> , 2014, 17, .	1.8	11
64	Stochastic regimes in the driven oscillator with a step-like nonlinearity. <i>Physics of Plasmas</i> , 2015, 22, .	1.9	11
65	Attosecond electromagnetic pulse generation due to the interaction of a relativistic soliton with a breaking-wake plasma wave. <i>Physical Review E</i> , 2005, 71, 036404.	2.1	10
66	Electromagnetic pulse reflection at self-generated plasma mirrors: Laser pulse shaping and high order harmonic generation. <i>Physics of Plasmas</i> , 2007, 14, 093105.	1.9	9
67	Laser-heated capillary discharge waveguides as tunable structures for laser-plasma acceleration. <i>Physics of Plasmas</i> , 2020, 27, .	1.9	9
68	High-intensity laser-driven proton acceleration enhancement from hydrogen containing ultrathin targets. <i>Applied Physics Letters</i> , 2013, 103, 141117.	3.3	8
69	Radial density profile and stability of capillary discharge plasma waveguides of lengths up to 40 cm. <i>High Power Laser Science and Engineering</i> , 2021, 9, .	4.6	8
70	Nonlinear generation of ultra-short electromagnetic pulses in plasmas. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 2005, 337, 107-111.	2.1	6
71	On production and asymmetric focusing of flat electron beams using rectangular capillary discharge plasmas. <i>Physics of Plasmas</i> , 2017, 24, 123120.	1.9	6
72	Explosive plasma-vortex source of optical emission. <i>Technical Physics Letters</i> , 2008, 34, 34-36.	0.7	5

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73	Extreme field science. Plasma Physics and Controlled Fusion, 2011, 53, 124025.	2.1	5
74	On the design of experiments to study extreme field limits. , 2013, , .		5
75	WarpIV: In Situ Visualization and Analysis of Ion Accelerator Simulations. IEEE Computer Graphics and Applications, 2016, 36, 22-35.	1.2	5
76	Laser-driven acceleration of quasi-monoenergetic, near-collimated titanium ions via a transparency-enhanced acceleration scheme. New Journal of Physics, 2019, 21, 103005.	2.9	5
77	Reaching high laser intensity by a radiating electron. Physical Review A, 2021, 103, .	2.5	5
78	Self-guided laser wakefield acceleration using ablated plasma targets. Plasma Physics and Controlled Fusion, 2009, 51, 095003.	2.1	4
79	Tailored laser pulse chirp to maintain optimum radiation pressure acceleration of ions. Physics of Plasmas, 2019, 26, 023103.	1.9	4
80	Dynamics of moving electron vortices and magnetic ring in laser plasma interaction. Physics of Plasmas, 2021, 28, 042303.	1.9	4
81	Creation of an axially uniform plasma channel in a laser-assisted capillary discharge. Physics of Plasmas, 2021, 28, .	1.9	4
82	Plasma channel formation in the knife-like focus of laser beam. Journal of Plasma Physics, 2020, 86, .	2.1	3
83	Snapshots of Laser-Generated Wakefields. AIP Conference Proceedings, 2006, , .	0.4	2
84	Laser wakefield acceleration experiments at the University of Michigan. , 2009, , .		2
85	Formation of Optical Bullets in Laser-Driven Plasma Bubble Accelerators. , 2010, , .		2
86	Using transverse colliding-pulse injection to obtain electron beams with small emittance in a laser-plasma accelerator. , 2013, , .		2
87	Ultra-low emittance beam generation using two-color ionization injection in laser-plasma accelerators. , 2015, , .		2
88	Maximum attainable ion energy in the radiation pressure acceleration regime. Proceedings of SPIE, 2015, , .	0.8	2
89	Cryogenically formed discharge waveguide. Physical Review Accelerators and Beams, 2021, 24, .	1.6	2
90	Proton Acceleration to Therapeutic Energies with Ultra-Intense Ultra-Clean and Ultra-Short Laser Pulses. AIP Conference Proceedings, 2006, , .	0.4	1

#	ARTICLE	IF	CITATIONS
109	Guiding and Ionization Blueshift in Ablative Capillary Waveguide Accelerators. , 2009, , .		0
110	Control of proton energy in ultra-high intensity laser-matter interaction. Journal of Physics: Conference Series, 2010, 244, 042025.	0.4	0
111	Laser-driven ion acceleration in the radiation pressure dominated regime. , 2013, , .		0
112	The applicability range of different forms of the radiation friction force in the ultrarelativistic electron interaction with electromagnetic wave (exact solutions). Journal of Physics: Conference Series, 2013, 414, 012009.	0.4	0
113	Optimized laser pulse profile for efficient radiation pressure acceleration of ions. , 2013, , .		0
114	Multi-GeV experiments with the Petawatt class BELLA laser. , 2015, , .		0
115	Increasing the repetition rate of capillary discharge waveguides. AIP Conference Proceedings, 2016, , .	0.4	0
116	Laser-assisted capillary discharge for enhanced guiding of tightly focused laser pulses at low densities. Proceedings of SPIE, 2017, , .	0.8	0
117	Summary report of working group 6: Laser-plasma acceleration of ions. AIP Conference Proceedings, 2017, , .	0.4	0
118	Depletion of intense fields. AIP Conference Proceedings, 2017, , .	0.4	0
119	Strong field electrodynamics of a thin foil. AIP Conference Proceedings, 2017, , .	0.4	0
120	Formation of Optical Bullets in Laser-driven Plasma Bubble Accelerators. , 2010, , .		0
121	Observation of Optical Bullets formed in Laser-driven Plasma Bubble Accelerators. , 2010, , .		0
122	SU-GG-T-462: Observation of Quasi-Monoenergetic Laser Accelerated Proton and Carbon Beams. Medical Physics, 2010, 37, 3293-3293.	3.0	0
123	Extreme Field Limits in the Ultra-Relativistic Interaction of Electromagnetic Waves with Plasmas. Springer Proceedings in Physics, 2011, , 151-181.	0.2	0