

Stepan Bulanov

List of Publications by Year in descending order

Source: <https://exaly.com/author-pdf/7114815/publications.pdf>

Version: 2024-02-01

123
papers

4,545
citations

126907

33
h-index

98798

67
g-index

124
all docs

124
docs citations

124
times ranked

2092
citing authors

#	ARTICLE	IF	CITATIONS
1	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
2	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
3	Dynamics of moving electron vortices and magnetic ring in laser plasma interaction. <i>Physics of Plasmas</i> , 2021, 28, 042303.	1.9	4
4	Creation of an axially uniform plasma channel in a laser-assisted capillary discharge. <i>Physics of Plasmas</i> , 2021, 28, .	1.9	4
5	Reaching high laser intensity by a radiating electron. <i>Physical Review A</i> , 2021, 103, .	2.5	5
6	Cryogenically formed discharge waveguide. <i>Physical Review Accelerators and Beams</i> , 2021, 24, .	1.6	2
7	Laser-heated capillary discharge waveguides as tunable structures for laser-plasma acceleration. <i>Physics of Plasmas</i> , 2020, 27, .	1.9	9
8	Laser-heated capillary discharge plasma waveguides for electron acceleration to 8 GeV. <i>Physics of Plasmas</i> , 2020, 27, 053102.	1.9	21
9	Plasma channel formation in the knife-like focus of laser beam. <i>Journal of Plasma Physics</i> , 2020, 86, .	2.1	3
10	Radiation beaming in the quantum regime. <i>Physical Review A</i> , 2020, 101, .	2.5	17
11	Relativistic plasma physics in supercritical fields. <i>Physics of Plasmas</i> , 2020, 27, .	1.9	81
12	Target normal sheath acceleration with a large laser focal diameter. <i>Physics of Plasmas</i> , 2020, 27, .	1.9	1
13	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
14	Synergic Cherenkov-Compton radiation. <i>Physical Review D</i> , 2019, 100, .	4.7	14
15	Laser-Particle Collider for Multi-GeV Photon Production. <i>Physical Review Letters</i> , 2019, 122, 254801.	7.8	35
16	Laser-driven acceleration of quasi-monoenergetic, near-collimated titanium ions via a transparency-enhanced acceleration scheme. <i>New Journal of Physics</i> , 2019, 21, 103005.	2.9	5
17	Ion acceleration in laser generated megatesla magnetic vortex. <i>Physics of Plasmas</i> , 2019, 26, .	1.9	32
18	Petawatt Laser Guiding and Electron Beam Acceleration to 8 GeV in a Laser-Heated Capillary Discharge Waveguide. <i>Physical Review Letters</i> , 2019, 122, 084801.	7.8	557

#	ARTICLE	IF	CITATIONS
19	Tailored laser pulse chirp to maintain optimum radiation pressure acceleration of ions. Physics of Plasmas, 2019, 26, 023103.	1.9	4
20	Multiple colliding laser pulses as a basis for studying high-field high-energy physics. Physical Review A, 2019, 100, .	2.5	15
21	Relativistically upshifted higher harmonic generation via relativistic flying mirrors. Plasma Physics and Controlled Fusion, 2018, 60, 074007.	2.1	12
22	INF&RNO Modeling of 10 GeV-Class Electron Beams from a Laser-Plasma Accelerator Driven by the BELLA Laser. , 2018, , .		1
23	ELIMAIA: A Laser-Driven Ion Accelerator for Multidisciplinary Applications. Quantum Beam Science, 2018, 2, 8.	1.2	49
24	Benchmarking semiclassical approaches to strong-field QED: Nonlinear Compton scattering in intense laser pulses. Physics of Plasmas, 2018, 25, .	1.9	53
25	High-efficiency $\hat{\Gamma}^3$ -ray flash generation via multiple-laser scattering in ponderomotive potential well. Physical Review E, 2017, 95, 013210.	2.1	32
26	Laser-assisted capillary discharge for enhanced guiding of tightly focused laser pulses at low densities. Proceedings of SPIE, 2017, , .	0.8	0
27	Charged particle dynamics in multiple colliding electromagnetic waves. Survey of random walk, Lévy flights, limit circles, attractors and structurally determinate patterns. Journal of Plasma Physics, 2017, 83, .	2.1	20
28	Summary report of working group 6: Laser-plasma acceleration of ions. AIP Conference Proceedings, 2017, , .	0.4	0
29	Depletion of intense fields. AIP Conference Proceedings, 2017, , .	0.4	0
30	Laser beam coupling with capillary discharge plasma for laser wakefield acceleration applications. Physics of Plasmas, 2017, 24, .	1.9	24
31	Depletion of Intense Fields. Physical Review Letters, 2017, 118, 154803.	7.8	46
32	Strong field electrodynamics of a thin foil. AIP Conference Proceedings, 2017, , .	0.4	0
33	On production and asymmetric focusing of flat electron beams using rectangular capillary discharge plasmas. Physics of Plasmas, 2017, 24, 123120.	1.9	6
34	Plasma equilibrium inside various cross-section capillary discharges. Physics of Plasmas, 2017, 24, .	1.9	14
35	Nonuniform discharge currents in active plasma lenses. Physical Review Accelerators and Beams, 2017, 20, .	1.6	40
36	Laser-driven helium ion acceleration for hadron therapy. AIP Conference Proceedings, 2016, , .	0.4	1

#	ARTICLE	IF	CITATIONS
37	Demonstration of a high repetition rate capillary discharge waveguide. Journal of Applied Physics, 2016, 119, .	2.5	39
38	Radiation pressure acceleration: The factors limiting maximum attainable ion energy. Physics of Plasmas, 2016, 23, .	1.9	48
39	WarpIV: In Situ Visualization and Analysis of Ion Accelerator Simulations. IEEE Computer Graphics and Applications, 2016, 36, 22-35.	1.2	5
40	Electron dynamics and $\hat{\Gamma}^3$ and $\frac{d^2}{dt^2}$ by colliding laser pulses. Physical Review E, 2016, 93, 023207.	2.1	74
41	Increasing the repetition rate of capillary discharge waveguides. AIP Conference Proceedings, 2016, , .	0.4	0
42	Electromagnetic cascade: High-energy electron beam collisions with intense laser pulses. AIP Conference Proceedings, 2016, , .	0.4	1
43	Helium-3 and helium-4 acceleration by high power laser pulses for hadron therapy. Physical Review Special Topics: Accelerators and Beams, 2015, 18, .	1.8	28
44	Active Plasma Lensing for Relativistic Laser-Plasma-Accelerated Electron Beams. Physical Review Letters, 2015, 115, 184802.	7.8	147
45	Stochastic regimes in the driven oscillator with a step-like nonlinearity. Physics of Plasmas, 2015, 22, .	1.9	11
46	Enhancement of Maximum Attainable Ion Energy in the Radiation Pressure Acceleration Regime Using a Guiding Structure. Physical Review Letters, 2015, 114, 105003.	7.8	32
47	Generation and pointing stabilization of multi-GeV electron beams from a laser plasma accelerator	1.9	36
48	Multi-GeV experiments with the Petawatt class BELLA laser. , 2015, , .		0
49	Ultra-low emittance beam generation using two-color ionization injection in laser-plasma accelerators. , 2015, , .		2
50	Maximum attainable ion energy in the radiation pressure acceleration regime. Proceedings of SPIE, 2015, , .	0.8	2
51	On electron betatron motion and electron injection in laser wakefield accelerators. Plasma Physics and Controlled Fusion, 2014, 56, 084009.	2.1	1
52	Thermal emittance from ionization-induced trapping in plasma accelerators. Physical Review Special Topics: Accelerators and Beams, 2014, 17, .	1.8	37
53	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
54	Electron injection and emittance control by transverse colliding pulses in a laser-plasma accelerator. Physical Review Special Topics: Accelerators and Beams, 2014, 17, .	1.8	29

#	ARTICLE	IF	CITATIONS
55	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
56	Laser-driven ion acceleration in the radiation pressure dominated regime. , 2013, , .		0
57	High-intensity laser-driven proton acceleration enhancement from hydrogen containing ultrathin targets. <i>Applied Physics Letters</i> , 2013, 103, 141117.	3.3	8
58	Laser-heater assisted plasma channel formation in capillary discharge waveguides. <i>Physics of Plasmas</i> , 2013, 20, 020703.	1.9	42
59	The applicability range of different forms of the radiation friction force in the ultrarelativistic electron interaction with electromagnetic wave (exact solutions). <i>Journal of Physics: Conference Series</i> , 2013, 414, 012009.	0.4	0
60	High contrast ion acceleration at intensities exceeding $10^{21} \text{ W cm}^{-2}$. <i>Physics of Plasmas</i> , 2013, 20, .	1.9	21
61	Strong field electrodynamics of a thin foil. <i>Physics of Plasmas</i> , 2013, 20, 123114.	1.9	33
62	Advanced geometries and regimes. , 2013, , .		1
63	Modeling classical and quantum radiation from laser-plasma accelerators. <i>Physical Review Special Topics: Accelerators and Beams</i> , 2013, 16, .	1.8	54
64	Electromagnetic cascade in high-energy electron, positron, and photon interactions with intense laser pulses. <i>Physical Review A</i> , 2013, 87, .	2.5	110
65	Using transverse colliding-pulse injection to obtain electron beams with small emittance in a laser-plasma accelerator. , 2013, , .		2
66	On the design of experiments to study extreme field limits. , 2013, , .		5
67	Optimized laser pulse profile for efficient radiation pressure acceleration of ions. , 2013, , .		0
68	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
69	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
70	Relativistic spherical plasma waves. <i>Physics of Plasmas</i> , 2012, 19, 020702.	1.9	23
71	Strong Radiation-Damping Effects in a Gamma-Ray Source Generated by the Interaction of a High-Intensity Laser with a Wakefield-Accelerated Electron Beam. <i>Physical Review X</i> , 2012, 2, .	8.9	88
72	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

#	ARTICLE	IF	CITATIONS
73	Extreme field limits in the interaction of laser light with ultrarelativistic electrons. , 2012, , .		1
74	Optimized laser pulse profile for efficient radiation pressure acceleration of ions. Physics of Plasmas, 2012, 19, 093112.	1.9	29
75	High-power, kilojoule laser interactions with near-critical density plasma. Physics of Plasmas, 2011, 18, .	1.9	57
76	Control of Energy Spread and Dark Current in Proton and Ion Beams Generated in High-Contrast Laser Solid Interactions. Physical Review Letters, 2011, 107, 065003.	7.8	33
77	Extreme field science. Plasma Physics and Controlled Fusion, 2011, 53, 124025.	2.1	5
78	Extreme Field Limits in the Ultra-Relativistic Interaction of Electromagnetic Waves with Plasmas. Springer Proceedings in Physics, 2011, , 151-181.	0.2	0
79	Swarm of ultra-high intensity attosecond pulses from laser-plasma interaction. Journal of Physics: Conference Series, 2010, 244, 022029.	0.4	1
80	Control of proton energy in ultra-high intensity laser-matter interaction. Journal of Physics: Conference Series, 2010, 244, 042025.	0.4	0
81	Formation of Optical Bullets in Laser-Driven Plasma Bubble Accelerators. Physical Review Letters, 2010, 104, 134801.	7.8	42
82	Ensemble of ultra-high intensity attosecond pulses from laser-plasma interaction. Physics Letters, Section A: General, Atomic and Solid State Physics, 2010, 374, 476-480.	2.1	25
83	Visualization of plasma bubble accelerators using Frequency-Domain Shadowgraphy. High Energy Density Physics, 2010, 6, 153-156.	1.5	1
84	Formation of Optical Bullets in Laser-Driven Plasma Bubble Accelerators. , 2010, , .		2
85	Holographic visualization of laser wakefields. New Journal of Physics, 2010, 12, 045016.	2.9	20
86	Schwinger Limit Attainability with Extreme Power Lasers. Physical Review Letters, 2010, 105, 220407.	7.8	154
87	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
88	Stimulated Raman Side Scattering in Laser Wakefield Acceleration. Physical Review Letters, 2010, 105, 034801.	7.8	24
89	Formation of Optical Bullets in Laser-driven Plasma Bubble Accelerators. , 2010, , .		0
90	Observation of Optical Bullets formed in Laser-driven Plasma Bubble Accelerators. , 2010, , .		0

#	ARTICLE	IF	CITATIONS
91	SU-GG-T-462: Observation of Quasi-Monoenergetic Laser Accelerated Proton and Carbon Beams. Medical Physics, 2010, 37, 3293-3293.	3.0	0
92	Laser wakefield acceleration experiments at the University of Michigan. , 2009, , .		2
93	Guiding and Ionization Blueshift in Ablative Capillary Waveguide Accelerators. , 2009, , .		0
94	Self-guided laser wakefield acceleration using ablated plasma targets. Plasma Physics and Controlled Fusion, 2009, 51, 095003.	2.1	4
95	Laser Wakefield Acceleration Experiments Using HERCULES Laser. , 2009, , .		1
96	Vacuum electron acceleration by tightly focused laser pulses with nanoscale targets. Physics of Plasmas, 2009, 16, .	1.9	36
97	Relativistic plasma shutter for ultraintense laser pulses. Applied Physics Letters, 2009, 94, 201117.	3.3	31
98	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
99	Explosive plasma-vortex source of optical emission. Technical Physics Letters, 2008, 34, 34-36.	0.7	5
100	Accelerating protons to therapeutic energies with ultraintense, ultraclean, and ultrashort laser pulses. Medical Physics, 2008, 35, 1770-1776.	3.0	101
101	Studies of laser wakefield structures and electron acceleration in underdense plasmas. Physics of Plasmas, 2008, 15, 056703.	1.9	35
102	Electromagnetic pulse reflection at self-generated plasma mirrors: Laser pulse shaping and high order harmonic generation. Physics of Plasmas, 2007, 14, 093105.	1.9	9
103	Proton acceleration from thin foils using ultraintense, high-contrast pulses. , 2007, , .		1
104	Proton Acceleration from Thin Foils Using Ultraintense, High-Contrast Pulses. , 2007, , .		0
105	Laser Wakefield Acceleration of High-Quality Electron Beams to 300 MeV and Efficient Initiation of Photonuclear Reactions. AIP Conference Proceedings, 2006, , .	0.4	0
106	Proton Acceleration to Therapeutic Energies with Ultra-Intense Ultra-Clean and Ultra-Short Laser Pulses. AIP Conference Proceedings, 2006, , .	0.4	1
107	Snapshots of laser wakefields. Nature Physics, 2006, 2, 749-753.	16.7	196
108	Electron-positron pair production by electromagnetic pulses. Journal of Experimental and Theoretical Physics, 2006, 102, 9-23.	0.9	83

#	ARTICLE	IF	CITATIONS
109	Self-consistent propagation of an ultraintense e.m. wave in an electron-positron plasma. AIP Conference Proceedings, 2006, , .	0.4	0
110	Snapshots of Laser-Generated Wakefields. AIP Conference Proceedings, 2006, , .	0.4	2
111	Single-shot, real-time measurement of laser wakefields using frequency domain holography (FDH). , 2006, , .		0
112	Publisher's Note: Single-cycle high-intensity electromagnetic pulse generation in the interaction of a plasma wakefield with regular nonlinear structures [Phys. Rev. E73, 036408 (2006)]. Physical Review E, 2006, 73, .	2.1	1
113	Single-cycle high-intensity electromagnetic pulse generation in the interaction of a plasma wakefield with regular nonlinear structures. Physical Review E, 2006, 73, 036408.	2.1	36
114	Acceleration of quasi-monochromatic electron beams in laser wakefield to 300 Mev and initiation of photonuclear reactions. , 2006, , .		0
115	Nonlinear generation of ultra-short electromagnetic pulses in plasmas. Physics Letters, Section A: General, Atomic and Solid State Physics, 2005, 337, 107-111.	2.1	6
116	Attosecond electromagnetic pulse generation due to the interaction of a relativistic soliton with a breaking-wake plasma wave. Physical Review E, 2005, 71, 036404.	2.1	10
117	Damping of electromagnetic waves due to electron-positron pair production. Physical Review E, 2005, 71, 016404.	2.1	43
118	CP violation in $K_S, L \hat{\pi}^+ \hat{\pi}^- + \hat{\pi}^0 \hat{\pi}^0$ and $K_S, L \hat{\pi}^+ \hat{\pi}^- + \hat{\pi}^0 e + e \hat{\pi}^0$ decays. Physics of Atomic Nuclei, 2004, 67, 314-327.	1.4	0
119	On $e + e \hat{\pi}^0$ pair production by colliding electromagnetic pulses. JETP Letters, 2004, 80, 382-385.	1.4	57
120	Nonlinear evolution of a relativistically strong electromagnetic wave in self-created electron-positron plasma. JETP Letters, 2004, 80, 734-738.	1.4	11
121	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
122	Pair production by a circularly polarized electromagnetic wave in a plasma. Physical Review E, 2004, 69, 036408.	2.1	53
123	Z lineshape versus fourth-generation masses. Physics of Atomic Nuclei, 2003, 66, 2169-2177.	0.4	13