

# Ihar Babushkin

## List of Publications by Year in descending order

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149  
papers

2,322  
citations

201674

27  
h-index

254184

43  
g-index

149  
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149  
docs citations

149  
times ranked

977  
citing authors

#	ARTICLE	IF	CITATIONS
1	Ultrafast Spatiotemporal Dynamics of Terahertz Generation by Ionizing Two-Color Femtosecond Pulses in Gases. <i>Physical Review Letters</i> , 2010, 105, 053903.	7.8	168
2	Tailoring terahertz radiation by controlling tunnel photoionization events in gases. <i>New Journal of Physics</i> , 2011, 13, 123029.	2.9	168
3	3D Numerical Simulations of THz Generation by Two-Color Laser Filaments. <i>Physical Review Letters</i> , 2013, 110, 073901.	7.8	125
4	Generation of terahertz radiation from ionizing two-color laser pulses in Ar filled metallic hollow waveguides. <i>Optics Express</i> , 2010, 18, 9658.	3.4	90
5	Boosting Terahertz Generation in Laser-Field Ionized Gases Using a Sawtooth Wave Shape. <i>Physical Review Letters</i> , 2015, 114, 183901.	7.8	87
6	Soliton Molecules with Two Frequencies. <i>Physical Review Letters</i> , 2019, 123, 243905.	7.8	70
7	Unipolar subcycle pulse-driven nonresonant excitation of quantum systems. <i>Optics Letters</i> , 2019, 44, 1202.	3.3	68
8	Generation of unipolar pulses in nonlinear media. <i>JETP Letters</i> , 2017, 105, 408-418.	1.4	62
9	Generation of unipolar half-cycle pulses via unusual reflection of a single-cycle pulse from an optically thin metallic or dielectric layer. <i>Optics Letters</i> , 2017, 42, 2189.	3.3	60
10	Selective ultrafast control of multi-level quantum systems by subcycle and unipolar pulses. <i>Optics Express</i> , 2020, 28, 17020.	3.4	51
11	Spectral dynamics of THz pulses generated by two-color laser filaments in air: the role of Kerr nonlinearities and pump wavelength. <i>Optics Express</i> , 2017, 25, 4720.	3.4	46
12	Accelerated rogue waves generated by soliton fusion at the advanced stage of supercontinuum formation in photonic-crystal fibers. <i>Optics Letters</i> , 2012, 37, 5157.	3.3	43
13	Ultrafast creation and control of population density gratings via ultraslow polarization waves. <i>Optics Letters</i> , 2016, 41, 4983.	3.3	43
14	High-power fifth-harmonic generation of femtosecond pulses in the vacuum ultraviolet using a Ti:sapphire laser. <i>Optics Express</i> , 2007, 15, 6389.	3.4	41
15	Generation of unipolar optical pulses in a Raman-active medium. <i>Laser Physics Letters</i> , 2016, 13, 046001.	1.4	40
16	Population density gratings induced by few-cycle optical pulses in a resonant medium. <i>Scientific Reports</i> , 2017, 7, 12467.	3.3	39
17	Terahertz radiation generation by three-color laser pulses in air filament. <i>Journal of Applied Physics</i> , 2019, 125, .	2.5	36
18	Unusual terahertz waveforms from a resonant medium controlled by diffractive optical elements. <i>Scientific Reports</i> , 2019, 9, 7444.	3.3	34

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19	Optimum chirp for efficient terahertz generation from two-color femtosecond pulses in air. Applied Physics Letters, 2018, 113, .	3.3	33
20	Self-induced transparency mode locking, and area theorem. Optics Letters, 2016, 41, 737.	3.3	32
21	Terahertz pulse generation by two-color laser fields with circular polarization. New Journal of Physics, 2020, 22, 103038.	2.9	32
22	Passive and hybrid mode locking in multi-section terahertz quantum cascade lasers. New Journal of Physics, 2018, 20, 053055.	2.9	30
23	Polarization control of terahertz radiation from two-color femtosecond gas breakdown plasma. Optics Letters, 2018, 43, 90.	3.3	30
24	Frequency-selective self-trapping and supercontinuum generation in arrays of coupled nonlinear waveguides. Optics Express, 2007, 15, 11978.	3.4	29
25	Self-starting stable coherent mode-locking in a two-section laser. Optics Communications, 2016, 361, 73-78.	2.1	28
26	Terahertz and higher-order Brunel harmonics: from tunnel to multiphoton ionization regime in tailored fields. Journal of Modern Optics, 2017, 64, 1078-1087.	1.3	28
27	On coherent mode-locking in a two-section laser. JETP Letters, 2015, 101, 149-153.	1.4	27
28	Half-cycle and unipolar pulses (Topical Review). Laser Physics Letters, 2022, 19, 043001.	1.4	27
29	Self-optimization of plasmonic nanoantennas in strong femtosecond fields. Optica, 2017, 4, 1038.	9.3	25
30	Population difference gratings created on vibrational transitions by nonoverlapping subcycle THz pulses. Scientific Reports, 2021, 11, 1961.	3.3	25
31	Directionality of terahertz emission from photoinduced gas plasmas. Optics Letters, 2011, 36, 3166.	3.3	23
32	Mode-locking in a laser with a coherent absorber. JETP Letters, 2015, 101, 232-235.	1.4	22
33	Simple route toward efficient frequency conversion for generation of fully coherent supercontinua in the mid-IR and UV range. Light: Science and Applications, 2017, 6, e16218-e16218.	16.6	21
34	Radiation of a resonant medium excited by few-cycle optical pulses at superluminal velocity. Laser Physics, 2017, 27, 053001.	1.2	21
35	High energy sub-10 fs pulse generation in vacuum ultraviolet using chirped four wave mixing in hollow waveguides. Optics Express, 2008, 16, 17774.	3.4	20
36	Transient Cherenkov radiation from an inhomogeneous string excited by an ultrashort laser pulse at superluminal velocity. Physical Review A, 2014, 89, .	2.5	20

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37	Light-induced spatial gratings created by unipolar attosecond pulses coherently interacting with a resonant medium. <i>Laser Physics Letters</i> , 2017, 14, 095402.	1.4	20
38	Mode Locking in a Ti:Sapphire Laser by Means of a Coherent Absorber. <i>JETP Letters</i> , 2019, 109, 634-637.	1.4	19
39	Symmetry breaking in optical dynamics of two bistable thin films. <i>Quantum Electronics</i> , 1998, 28, 104-107.	1.0	18
40	Competition of orthogonally polarized transverse Fourier modes in a VCSEL. <i>Journal of Optics B: Quantum and Semiclassical Optics</i> , 2001, 3, S234-S243.	1.4	18
41	Few-cycle pulse-driven excitation response of resonant medium with nonlinear field coupling. <i>Laser Physics Letters</i> , 2016, 13, 126001.	1.4	17
42	Regularizing Aperiodic Cycles of Resonant Radiation in Filament Light Bullets. <i>Physical Review Letters</i> , 2017, 118, 163901.	7.8	17
43	Coherently controlled generation of single-cycle terahertz pulses from a thin layer of nonlinear medium with low-frequency resonances. <i>Physical Review A</i> , 2020, 101, .	2.5	17
44	Controlling formation and suppression of fiber-optical rogue waves. <i>Optics Letters</i> , 2016, 41, 3515.	3.3	16
45	Transverse structure and energy deposition by a subTW femtosecond laser in air: from single filament to superfilament. <i>New Journal of Physics</i> , 2019, 21, 033027.	2.9	16
46	Generating Ultrabroadband Deep-UV Radiation and Sub-10 nm Gap by Hybrid-Morphology Gold Antennas. <i>Nano Letters</i> , 2019, 19, 4779-4786.	9.1	15
47	Self-induced-transparency mode locking in a Ti:sapphire laser with an intracavity rubidium cell. <i>Physical Review A</i> , 2020, 101, .	2.5	15
48	Spectral self-action of THz emission from ionizing two-color laser pulses in gases. <i>New Journal of Physics</i> , 2015, 17, 023060.	2.9	14
49	Population difference gratings produced by unipolar subcycle pulses in a resonant medium. <i>Quantum Electronics</i> , 2017, 47, 589-592.	1.0	14
50	Envelope Area and Electric Pulse Area Interference in Excitation of Quantum Systems by Few-Cycle Attosecond Light Pulses. <i>JETP Letters</i> , 2021, 114, 250-255.	1.4	14
51	Formation and erasure of population difference gratings in the coherent interaction of a resonant medium with extremely short optical pulses. <i>Optics and Spectroscopy (English Translation of Optika I) Tj ETQq1 1 @.784314 13BT /Over</i>	1.4	14
52	Collisions of unipolar subcycle pulses in a nonlinear resonantly absorbing medium. <i>Optics and Spectroscopy (English Translation of Optika I Spektroskopiya)</i> , 2017, 123, 610-614.	0.6	13
53	Mode-locking based on zero-area pulse formation in a laser with a coherent absorber. <i>Laser Physics Letters</i> , 2018, 15, 075003.	1.4	13
54	All-optical supercontinuum switching. <i>Communications Physics</i> , 2020, 3, .	5.3	13

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55	Single-cycle pulse compression in dense resonant media. <i>Optics Express</i> , 2021, 29, 10134.	3.4	13
56	Influence of laser-preformed plasma on THz wave generation in air by bichromatic laser pulses. <i>Laser Physics</i> , 2018, 28, 095402.	1.2	12
57	All-optical attoclock for imaging tunnelling wavepackets. <i>Nature Physics</i> , 2022, 18, 417-422.	16.7	12
58	Transient radiation from a ring resonant medium excited by an ultrashort superluminal pulse. <i>Quantum Electronics</i> , 2015, 45, 590-596.	1.0	11
59	Progressive Self-Boosting Anapole-Enhanced Deep-Ultraviolet Third Harmonic During Few-Cycle Laser Radiation. <i>ACS Photonics</i> , 2020, 7, 1655-1661.	6.6	10
60	Femtosecond Field-Driven On-Chip Unidirectional Electronic Currents in Nonadiabatic Tunneling Regime. <i>Laser and Photonics Reviews</i> , 2021, 15, 2000475.	8.7	10
61	Single-cycle-pulse generation in a coherently mode-locked laser with an ultrashort cavity. <i>Physical Review A</i> , 2022, 105, .	2.5	10
62	Labyrinthine patterns on an inhomogeneous background in a nonlinear optical system. <i>Physical Review A</i> , 2008, 78, .	2.5	9
63	Laser beam deflector based generation of few-cycle electromagnetic pulses in a circular nonlinear medium. <i>Optics Communications</i> , 2018, 424, 170-176.	2.1	9
64	Coherent propagation of a half-cycle unipolar attosecond pulse in a resonant two-level medium. <i>Journal of the Optical Society of America B: Optical Physics</i> , 2021, 38, 2004.	2.1	9
65	Dissipative aspects of extreme nonlinear optics. <i>Quantum Electronics</i> , 2021, 51, 959-969.	1.0	9
66	Self-Stopping of Light. <i>Physical Review Letters</i> , 2022, 128, .	7.8	9
67	Quasi-phase-matching for third harmonic generation in noble gases employing ultrasound. <i>Optics Express</i> , 2012, 20, 22753.	3.4	8
68	The fundamental solution of the unidirectional pulse propagation equation. <i>Journal of Mathematical Physics</i> , 2014, 55, 032903.	1.1	8
69	Nonlinear-photonics devices on the basis of the coherent interaction of optical radiation with resonant media (a review). <i>Optics and Spectroscopy (English Translation of Optika I Spektroskopiya)</i> , 2017, 122, 949-954.	0.6	8
70	Diffraction-enhanced femtosecond white-light filaments in air. <i>Applied Physics B: Lasers and Optics</i> , 2018, 124, 1.	2.2	8
71	Crossover from two-frequency pulse compounds to escaping solitons. <i>Scientific Reports</i> , 2021, 11, 11190.	3.3	8
72	Higher-order dispersion and the spectral behavior in a doubly resonant optical parametric oscillator. <i>Optics Letters</i> , 2020, 45, 5644.	3.3	8



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91	Population Difference Gratings Induced in a Resonant Medium by a Pair of Short Terahertz Nonoverlapping Pulses. Optics and Spectroscopy (English Translation of Optika I Spektroskopiya), 2018, 125, 586-589.	0.6	3
92	Field enhancement in a doubly resonant optical parametric oscillator. Optics Letters, 2019, 44, 4909.	3.3	3
93	Stability of quantum linear logic circuits against perturbations. Journal of Physics A: Mathematical and Theoretical, 2020, 53, 445307.	2.1	3
94	Symmetry Breaking and Strong Persistent Plasma Currents via Resonant Destabilization of Atoms. Physical Review Letters, 2017, 119, 243202.	7.8	2
95	Generation of sub cycle terahertz pulses via coherent control of nonlinear medium by femtosecond pulses. Journal of Physics: Conference Series, 2020, 1571, 012009.	0.4	2
96	Accurate propagation of ultrashort pulses in nonlinear waveguides using propagation models for the analytic signal. , 2018, , .		2
97	THz generation by ionizing two-color laser pulses in gases. , 2011, , .		1
98	On the emission of radiation by an isolated vibrating metallic mirror. Optics and Spectroscopy (English Translation of Optika I Spektroskopiya), 2017, 122, 670-674.	0.6	1
99	Mode Locking in Lasers due to Self-Induced Transparency: New Theoretical and Experimental Results. Bulletin of the Russian Academy of Sciences: Physics, 2020, 84, 23-26.	0.6	1
100	Role of frequency dependence of the nonlinearity on a soliton's evolution in photonic crystal fibers. Optics Letters, 2021, 46, 3921.	3.3	1
101	Sub-10 fs Pulse Generation in Vacuum Ultraviolet Using Chirped Four Wave Mixing in Hollow Fibers. Springer Series in Chemical Physics, 2009, , 762-764.	0.2	1
102	Fiber event horizon by single color pump. , 2019, , .		1
103	Particularities of pattern formation in broad-area lasers with transverse anisotropy: stability properties of transverse standing waves in infinite systems. , 2003, , .		0
104	Length scales and polarization properties of transverse patterns in broad-area vertical-cavity surface-emitting lasers. , 0, , .		0
105	Generation of Supercontinuum in a Waveguide with Slow Nonlinearity Related to Shock Formation. , 2007, , .		0
106	Polarization selection mechanisms of spatial patterns in broad-area vertical-cavity surface-emitting lasers. , 2007, , .		0
107	Direction of THz emission by ionizing two-color pulses. , 2011, , .		0
108	The spectrum of THz radiation from plasma produced by strong multicolor optical fields. , 2011, , .		0

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109	THz generation by filamentation of two-color femtosecond laser pulses. , 2013, , .		0
110	Spectral and temporal characteristics of a transient Cherenkov radiation from a periodic resonant medium excited by an ultrashort laser pulse at superluminal velocity. Proceedings of SPIE, 2014, , .	0.8	0
111	Theoretical study of transient Chrenkov radiation from periodic resonance medium excited at the superluminal velocity. , 2014, , .		0
112	Self-induced transparency coherent mode-locking in lasers. , 2016, , .		0
113	Population inversion gratings: Creation and control with few-cycle non-overlapping optical pulses. , 2016, , .		0
114	Subwavelength population density gratings in resonant medium created by few-cycle pulses. Journal of Physics: Conference Series, 2017, 917, 062005.	0.4	0
115	Terahertz Brunel harmonics in two-color fields with incommensurate frequencies in the multiphoton ionization regime. , 2017, , .		0
116	Residual electron currents via Floquet resonances in atomic multiphoton ionization. , 2017, , .		0
117	On passive mode locking in THz quantum cascade lasers. , 2017, , .		0
118	Impact of the pump wavelength in THz emissions by two-color femtosecond laser filaments in air. , 2017, , .		0
119	Passive mode-locking in lasers with ultrashort cavities. , 2018, , .		0
120	Single Color Event Horizon in a Photonic Crystal Fibre. , 2019, , .		0
121	Efficient Excitation and Control of Atomic Systems with Unipolar Half-Cycle XUV Attosecond Pulses. , 2019, , .		0
122	Generation of Single-Cycle Pulses in Mode-Locked Laser with Sub-Terahertz Repetition Rate. , 2019, , .		0
123	The Continuum Mechanics of Soliton Collisions. , 2019, , .		0
124	Field Enhancement in an Doubly Resonant Optical Parametric Oscillator. , 2019, , .		0
125	Optical Attoclock using Terahertz Radiation. , 2019, , .		0
126	Two-Color Soliton Molecules. , 2019, , .		0



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127	Threshold Effects and Metastability in Solitary Refractive Index Wells. , 2019, , .		0
128	A stabilized doubly resonant optical parametric oscillator for strong-field applications. , 2021, , .		0
129	A Stabilized Doubly Resonant OPO for THz Applications. , 2021, , .		0
130	Terahertz pulse generation by multi-color laser fields with linear vs. circular polarization. , 2021, , .		0
131	Higher Order Trapped States of a Solitary-Wave Well. , 2021, , .		0
132	Towards efficient broadband difference frequency mixing and terahertz generation in metallic nanostructures. , 2021, , .		0
133	Unidirectional currents in asymmetric nanojunctions and electronic wavepacket interference. , 2021, , .		0
134	Towards waveshape-insensitive flying qubit gates. , 2021, , .		0
135	All-Optical Switching of Supercontinuum Spectra. , 2021, , .		0
136	Population density gratings creation and control in resonant medium by half-cycle terahertz pulses. Journal of Physics: Conference Series, 2021, 1984, 012011.	0.4	0
137	Unidirectional electronic currents in asymmetric nanojunctions driven by strong optical fields. , 2021, , .		0
138	Collapse regularization of filaments by resonant radiation. , 2016, , .		0
139	Higher order soliton breakup via implosion. , 2016, , .		0
140	Subcycle dynamics of ionization revealed via polarization of lowest harmonics. , 2019, , .		0
141	Brunel harmonics in nanostructures. , 2019, , .		0
142	Intracavity enhancement in a doubly resonant OPO. , 2019, , .		0
143	On the role of higher order dispersion in a doubly resonant optical parametric oscillator. , 2020, , .		0
144	Unipolar half-cycle pulses and their applications for efficient excitation and selective ultrafast control of atomic systems. , 2020, , .		0

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145	Self-induced transparency mode-locking: towards to single-cycle pulses. , 2020, , .		0
146	Generation of unipolar pulses and their interaction with quantum systems. , 2020, , .		0
147	Experimental observation of rogue-waves in a system of dissipative self-induced transparency solitons in a Ti:sapphire laser. , 2020, , .		0
148	Cage solitons. , 2022, , .		0
149	Wave-Shape-Tolerant Photonic Quantum Gates. Physical Review Letters, 2022, 128, 090502.	7.8	0