

# Ihar Babushkin

## List of Publications by Year in descending order

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149  
papers

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citations

201674

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254184

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g-index

149  
all docs

149  
docs citations

149  
times ranked

977  
citing authors

#	ARTICLE	IF	CITATIONS
1	Spatial cage solitonsâ€™taming light bullets. Photonics Research, 2022, 10, 148.	7.0	7
2	Single-cycle-pulse generation in a coherently mode-locked laser with an ultrashort cavity. Physical Review A, 2022, 105, .	2.5	10
3	Half-cycle and unipolar pulses (Topical Review). Laser Physics Letters, 2022, 19, 043001.	1.4	27
4	All-optical attoclock for imaging tunnelling wavepackets. Nature Physics, 2022, 18, 417-422.	16.7	12
5	Cage solitons. , 2022, , .		0
6	Wave-Shape-Tolerant Photonic Quantum Gates. Physical Review Letters, 2022, 128, 090502.	7.8	0
7	Self-Stopping of Light. Physical Review Letters, 2022, 128, .	7.8	9
8	A stabilized doubly resonant optical parametric oscillator for strong-field applications. , 2021, , .		0
9	Population difference gratings created on vibrational transitions by nonoverlapping subcycle THz pulses. Scientific Reports, 2021, 11, 1961.	3.3	25
10	Stable coherent mode-locking based on $\pi$ pulse formation in single-section lasers. Scientific Reports, 2021, 11, 1147.	3.3	6
11	Single-cycle pulse compression in dense resonant media. Optics Express, 2021, 29, 10134.	3.4	13
12	Crossover from two-frequency pulse compounds to escaping solitons. Scientific Reports, 2021, 11, 11190.	3.3	8
13	Coherent propagation of a half-cycle unipolar attosecond pulse in a resonant two-level medium. Journal of the Optical Society of America B: Optical Physics, 2021, 38, 2004.	2.1	9
14	A Stabilized Doubly Resonant OPO for THz Applications. , 2021, , .		0
15	Terahertz pulse generation by multi-color laser fields with linear vs. circular polarization. , 2021, , .		0
16	Higher Order Trapped States of a Solitary-Wave Well. , 2021, , .		0
17	Towards efficient broadband difference frequency mixing and terahertz generation in metallic nanostructures. , 2021, , .		0
18	Unidirectional currents in asymmetric nanojunctions and electronic wavepacket interference. , 2021, , .		0



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37	Selective ultrafast control of multi-level quantum systems by subcycle and unipolar pulses. Optics Express, 2020, 28, 17020.	3.4	51
38	Higher-order dispersion and the spectral behavior in a doubly resonant optical parametric oscillator. Optics Letters, 2020, 45, 5644.	3.3	8
39	On the role of higher order dispersion in a doubly resonant optical parametric oscillator. , 2020, , .		0
40	Unipolar half-cycle pulses and their applications for efficient excitation and selective ultrafast control of atomic systems. , 2020, , .		0
41	Stability of quantum linear logic circuits against perturbations. Journal of Physics A: Mathematical and Theoretical, 2020, 53, 445307.	2.1	3
42	Self-induced transparency mode-locking: towards to single-cycle pulses. , 2020, , .		0
43	Generation of unipolar pulses and their interaction with quantum systems. , 2020, , .		0
44	Experimental observation of rogue-waves in a system of dissipative self-induced transparency solitons in a Ti:sapphire laser. , 2020, , .		0
45	Single Color Event Horizon in a Photonic Crystal Fibre. , 2019, , .		0
46	Efficient Excitation and Control of Atomic Systems with Unipolar Half-Cycle XUV Attosecond Pulses. , 2019, , .		0
47	Generation of Single-Cycle Pulses in Mode-Locked Laser with Sub-Terahertz Repetition Rate. , 2019, , .		0
48	The Continuum Mechanics of Soliton Collisions. , 2019, , .		0
49	Field Enhancement in an Doubly Resonant Optical Parametric Oscillator. , 2019, , .		0
50	Mode Locking in a Ti:Sapphire Laser by Means of a Coherent Absorber. JETP Letters, 2019, 109, 634-637.	1.4	19
51	Generating Ultrabroadband Deep-UV Radiation and Sub-10 nm Gap by Hybrid-Morphology Gold Antennas. Nano Letters, 2019, 19, 4779-4786.	9.1	15
52	Unusual terahertz waveforms from a resonant medium controlled by diffractive optical elements. Scientific Reports, 2019, 9, 7444.	3.3	34
53	Terahertz radiation generation by three-color laser pulses in air filament. Journal of Applied Physics, 2019, 125, .	2.5	36
54	Transverse structure and energy deposition by a subTW femtosecond laser in air: from single filament to superfilament. New Journal of Physics, 2019, 21, 033027.	2.9	16

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55	Experimental study of self-induced transparency mode-locking in Ti:sapphire laser. Journal of Physics: Conference Series, 2019, 1410, 012102.	0.4	4
56	Optical Attoclock using Terahertz Radiation. , 2019, , .		0
57	Two-Color Soliton Molecules. , 2019, , .		0
58	Threshold Effects and Metastability in Solitary Refractive Index Wells. , 2019, , .		0
59	Soliton Molecules with Two Frequencies. Physical Review Letters, 2019, 123, 243905.	7.8	70
60	Unipolar subcycle pulse-driven nonresonant excitation of quantum systems. Optics Letters, 2019, 44, 1202.	3.3	68
61	Subcycle dynamics of ionization revealed via polarization of lowest harmonics. , 2019, , .		0
62	Brunel harmonics in nanostructures. , 2019, , .		0
63	Intracavity enhancement in a doubly resonant OPO. , 2019, , .		0
64	Fiber event horizon by single color pump. , 2019, , .		1
65	Field enhancement in a doubly resonant optical parametric oscillator. Optics Letters, 2019, 44, 4909.	3.3	3
66	Resonant-Plasmon-Assisted Subwavelength Ablation by a Femtosecond Oscillator. Physical Review Applied, 2018, 9, .	3.8	7
67	Passive and hybrid mode locking in multi-section terahertz quantum cascade lasers. New Journal of Physics, 2018, 20, 053055.	2.9	30
68	Spectral broadening and conical emission of near-infrared femtosecond laser pulses in air. Journal of Physics B: Atomic, Molecular and Optical Physics, 2018, 51, 045402.	1.5	7
69	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
70	Optimum chirp for efficient terahertz generation from two-color femtosecond pulses in air. Applied Physics Letters, 2018, 113, .	3.3	33
71	Diffraction-enhanced femtosecond white-light filaments in air. Applied Physics B: Lasers and Optics, 2018, 124, 1.	2.2	8
72	Propagation of a light pulse with a duration of less than one period in a resonant amplifying medium. Quantum Electronics, 2018, 48, 532-536.	1.0	6

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73	Influence of laser-preformed plasma on THz wave generation in air by bichromatic laser pulses. Laser Physics, 2018, 28, 095402.	1.2	12
74	Laser beam deflector based generation of few-cycle electromagnetic pulses in a circular nonlinear medium. Optics Communications, 2018, 424, 170-176.	2.1	9
75	Passive mode-locking in lasers with ultrashort cavities. , 2018, , .		0
76	Polarization control of terahertz radiation from two-color femtosecond gas breakdown plasma. Optics Letters, 2018, 43, 90.	3.3	30
77	Mode-locking based on zero-area pulse formation in a laser with a coherent absorber. Laser Physics Letters, 2018, 15, 075003.	1.4	13
78	Generation of Extremely Short Pulses upon Excitation of a Resonant Medium by a Superluminal Light Spot. Optics and Spectroscopy (English Translation of Optika I Spektroskopiya), 2018, 124, 536-540.	0.6	5
79	Accurate propagation of ultrashort pulses in nonlinear waveguides using propagation models for the analytic signal. , 2018, , .		2
80	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
81	Near-infrared conical emission from 800â€”nm filament in air. Laser Physics Letters, 2017, 14, 035401.	1.4	6
82	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
83	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
84	Generation of unipolar pulses in nonlinear media. JETP Letters, 2017, 105, 408-418.	1.4	62
85	Radiation of a resonant medium excited by few-cycle optical pulses at superluminal velocity. Laser Physics, 2017, 27, 053001.	1.2	21
86	Weak stochastic ratchets and dynamic localization in measurement-induced quantum trajectories. Physical Review A, 2017, 95, .	2.5	5
87	Population density gratings induced by few-cycle optical pulses in a resonant medium. Scientific Reports, 2017, 7, 12467.	3.3	39
88	Light-induced spatial gratings created by unipolar attosecond pulses coherently interacting with a resonant medium. Laser Physics Letters, 2017, 14, 095402.	1.4	20
89	Population difference gratings produced by unipolar subcycle pulses in a resonant medium. Quantum Electronics, 2017, 47, 589-592.	1.0	14
90	Symmetry Breaking and Strong Persistent Plasma Currents via Resonant Destabilization of Atoms. Physical Review Letters, 2017, 119, 243202.	7.8	2

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91	Collisions of unipolar subcycle pulses in a nonlinear resonantly absorbing medium. Optics and Spectroscopy (English Translation of Optika I Spektroskopiya), 2017, 123, 610-614.	0.6	13
92	Regularizing Aperiodic Cycles of Resonant Radiation in Filament Light Bullets. Physical Review Letters, 2017, 118, 163901.	7.8	17
93	Nonlinear-photonics devices on the basis of the coherent interaction of optical radiation with resonant media (a review). Optics and Spectroscopy (English Translation of Optika I Spektroskopiya), 2017, 122, 949-954.	0.6	8
94	Subwavelength population density gratings in resonant medium created by few-cycle pulses. Journal of Physics: Conference Series, 2017, 917, 062005.	0.4	0
95	On the Generation of Extremely Short Light Pulses in Effectively One-Dimensional Schemes. Optics and Spectroscopy (English Translation of Optika I Spektroskopiya), 2017, 123, 913-917.	0.6	5
96	Terahertz Brunel harmonics in two-color fields with incommensurate frequencies in the multiphoton ionization regime. , 2017, , .		0
97	Residual electron currents via Floquet resonances in atomic multiphoton ionization. , 2017, , .		0
98	Spectral dynamics of THz pulses generated by two-color laser filaments in air: the role of Kerr nonlinearities and pump wavelength. Optics Express, 2017, 25, 4720.	3.4	46
99	Self-optimization of plasmonic nanoantennas in strong femtosecond fields. Optica, 2017, 4, 1038.	9.3	25
100	On passive mode locking in THz quantum cascade lasers. , 2017, , .		0
101	Impact of the pump wavelength in THz emissions by two-color femtosecond laser filaments in air. , 2017, , .		0
102	Generation of unipolar half-cycle pulses via unusual reflection of a single-cycle pulse from an optically thin metallic or dielectric layer. Optics Letters, 2017, 42, 2189.	3.3	60
103	The Effect of Chirp on Pulse Compression at a Group Velocity Horizon. IEEE Photonics Journal, 2016, 8, 1-13.	2.0	7
104	Self-induced transparency coherent mode-locking in lasers. , 2016, , .		0
105	Generation of unipolar optical pulses in a Raman-active medium. Laser Physics Letters, 2016, 13, 046001.	1.4	40
106	Controlling the Radiation Parameters of a Resonant Medium Excited by a Sequence of Ultrashort Superluminal Pulses. Optics and Spectroscopy (English Translation of Optika I Spektroskopiya), 2016, 120, 423-433.	0.6	5
107	Population inversion gratings: Creation and control with few-cycle non-overlapping optical pulses. , 2016, , .		0
108	Controlling formation and suppression of fiber-optical rogue waves. Optics Letters, 2016, 41, 3515.	3.3	16

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109	Formation and erasure of population difference gratings in the coherent interaction of a resonant medium with extremely short optical pulses. Optics and Spectroscopy (English Translation of Optika i Tj ETQq1 1 @.784314 igBT /Over	7.8	43
110	Few-cycle pulse-driven excitation response of resonant medium with nonlinear field coupling. Laser Physics Letters, 2016, 13, 126001.	1.4	17
111	Self-induced transparency mode locking, and area theorem. Optics Letters, 2016, 41, 737.	3.3	32
112	Self-starting stable coherent mode-locking in a two-section laser. Optics Communications, 2016, 361, 73-78.	2.1	28
113	Ultrafast creation and control of population density gratings via ultraslow polarization waves. Optics Letters, 2016, 41, 4983.	3.3	43
114	Collapse regularization of filaments by resonant radiation. , 2016, , .		0
115	Higher order soliton breakup via implosion. , 2016, , .		0
116	Boosting Terahertz Generation in Laser-Field Ionized Gases Using a Sawtooth Wave Shape. Physical Review Letters, 2015, 114, 183901.	7.8	87
117	Mode-locking in a laser with a coherent absorber. JETP Letters, 2015, 101, 232-235.	1.4	22
118	Spectral self-action of THz emission from ionizing two-color laser pulses in gases. New Journal of Physics, 2015, 17, 023060.	2.9	14
119	On coherent mode-locking in a two-section laser. JETP Letters, 2015, 101, 149-153.	1.4	27
120	Transient radiation from a ring resonant medium excited by an ultrashort superluminal pulse. Quantum Electronics, 2015, 45, 590-596.	1.0	11
121	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
122	Transient Cherenkov radiation from an inhomogeneous string excited by an ultrashort laser pulse at superluminal velocity. Physical Review A, 2014, 89, .	2.5	20
123	Theoretical study of transient Chrenkov radiation from periodic resonance medium excited at the superluminal velocity. , 2014, , .		0
124	The fundamental solution of the unidirectional pulse propagation equation. Journal of Mathematical Physics, 2014, 55, 032903.	1.1	8
125	3D Numerical Simulations of THz Generation by Two-Color Laser Filaments. Physical Review Letters, 2013, 110, 073901.	7.8	125
126	THz generation by filamentation of two-color femtosecond laser pulses. , 2013, , .		0



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127	Quasi-phase-matching for third harmonic generation in noble gases employing ultrasound. Optics Express, 2012, 20, 22753.	3.4	8
128	Accelerated rogue waves generated by soliton fusion at the advanced stage of supercontinuum formation in photonic-crystal fibers. Optics Letters, 2012, 37, 5157.	3.3	43
129	Tailoring terahertz radiation by controlling tunnel photoionization events in gases. New Journal of Physics, 2011, 13, 123029.	2.9	168
130	THz generation by ionizing two-color laser pulses in gases. , 2011, , .		1
131	Directionality of terahertz emission from photoinduced gas plasmas. Optics Letters, 2011, 36, 3166.	3.3	23
132	Rotational symmetry breaking in small-area circular vertical cavity surface emitting lasers. Optics Communications, 2011, 284, 1299-1302.	2.1	5
133	Direction of THz emission by ionizing two-color pulses. , 2011, , .		0
134	The spectrum of THz radiation from plasma produced by strong multicolor optical fields. , 2011, , .		0
135	Ultrafast Spatiotemporal Dynamics of Terahertz Generation by Ionizing Two-Color Femtosecond Pulses in Gases. Physical Review Letters, 2010, 105, 053903.	7.8	168
136	Generation of terahertz radiation from ionizing two-color laser pulses in Ar filled metallic hollow waveguides. Optics Express, 2010, 18, 9658.	3.4	90
137	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
138	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
139	Labyrinthine patterns on an inhomogeneous background in a nonlinear optical system. Physical Review A, 2008, 78, .	2.5	9
140	Generation of Supercontinuum in a Waveguide with Slow Nonlinearity Related to Shock Formation. , 2007, , .		0
141	Polarization selection mechanisms of spatial patterns in broad-area vertical-cavity surface-emitting lasers. , 2007, , .		0
142	High-power fifth-harmonic generation of femtosecond pulses in the vacuum ultraviolet using a Ti:sapphire laser. Optics Express, 2007, 15, 6389.	3.4	41
143	Frequency-selective self-trapping and supercontinuum generation in arrays of coupled nonlinear waveguides. Optics Express, 2007, 15, 11978.	3.4	29
144	Particularities of pattern formation in broad-area lasers with transverse anisotropy: stability properties of transverse standing waves in infinite systems. , 2003, , .		0

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145	Competition of orthogonally polarized transverse Fourier modes in a VCSEL. Journal of Optics B: Quantum and Semiclassical Optics, 2001, 3, S234-S243.	1.4	18
146	Competition between spatial Fourier modes in a wide-aperture vertical-cavity surface-emitting semiconductor laser. Quantum Electronics, 2001, 31, 221-226.	1.0	6
147	Symmetry-breaking transverse solitons in a resonant bilayer. Journal of Optics B: Quantum and Semiclassical Optics, 2000, 2, L15-L17.	1.4	5
148	Symmetry breaking in optical dynamics of two bistable thin films. Quantum Electronics, 1998, 28, 104-107.	1.0	18
149	Length scales and polarization properties of transverse patterns in broad-area vertical-cavity surface-emitting lasers. , 0, , .		0