Nadezhda M Bulgakova

List of Publications by Year in descending order

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#	Article	IF	CITATIONS
1	Pulsed laser ablation of solids: transition from normal vaporization to phase explosion. Applied Physics A: Materials Science and Processing, 2001, 73, 199-208.	2.3	433
2	High-speed manufacturing of highly regular femtosecond laser-induced periodic surface structures: physical origin of regularity. Scientific Reports, 2017, 7, 8485.	3.3	251
3	Surface Charging and Impulsive Ion Ejection during Ultrashort Pulsed Laser Ablation. Physical Review Letters, 2002, 88, 097603.	7.8	228
4	Double layer effects in laser-ablation plasma plumes. Physical Review E, 2000, 62, 5624-5635.	2.1	195
5	Fundamentals of ultrafast laser–material interaction. MRS Bulletin, 2016, 41, 960-968.	3.5	185
6	Electronic transport and consequences for material removal in ultrafast pulsed laser ablation of materials. Physical Review B, 2004, 69, .	3.2	179
7	A general continuum approach to describe fast electronic transport in pulsed laser irradiated materials: The problem of Coulomb explosion. Applied Physics A: Materials Science and Processing, 2005, 81, 345-356.	2.3	149
8	Thin film removal mechanisms in ns-laser processing of photovoltaic materials. Thin Solid Films, 2010, 518, 2897-2904.	1.8	133
9	Gas-dynamic effects of the interaction between a pulsed laser-ablation plume and the ambient gas: analogy with an underexpanded jet. Journal Physics D: Applied Physics, 1998, 31, 693-703.	2.8	132
10	Thermoelastic modeling of microbump and nanojet formation on nanosize gold films under femtosecond laser irradiation. Applied Physics A: Materials Science and Processing, 2006, 82, 363-368.	2.3	131
11	Ultrashort pulse laser ablation of dielectrics: Thresholds, mechanisms, role of breakdown. Scientific Reports, 2016, 6, 39133.	3.3	110
12	Dynamics of laser-induced plume expansion into an ambient gas during film deposition. Journal Physics D: Applied Physics, 1995, 28, 1710-1718.	2.8	103
13	Spatial distribution of refractive index variations induced in bulk fused silica by single ultrashort and short laser pulses. Journal of Applied Physics, 2007, 101, 043506.	2.5	102
14	Thermal model of pulsed laser ablation under the conditions of formation and heating of a radiation-absorbing plasma. Quantum Electronics, 1999, 29, 433-437.	1.0	97
15	Energy balance of pulsed laser ablation: thermal model revised. Applied Physics A: Materials Science and Processing, 2004, 79, 1323-1326.	2.3	94
16	Extreme electronic bandgap modification in laser-crystallized silicon optical fibres. Nature Materials, 2014, 13, 1122-1127.	27.5	94
17	Phase explosion under ultrashort pulsed laser ablation: modeling with analysis of metastable state of melt. Applied Surface Science, 2002, 197-198, 41-44.	6.1	89
18	Fundamentals and advantages of ultrafast micro-structuring of transparent materials. Applied Physics A: Materials Science and Processing, 2003, 77, 223-228.	2.3	89

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19	Flipping the sign of refractive index changes in ultrafast and temporally shaped laser-irradiated borosilicate crown optical glass at high repetition rates. Physical Review B, 2008, 77, .	3.2	79
20	Role of laser-induced plasma in ultradeep drilling of materials by nanosecond laser pulses. Applied Surface Science, 2011, 257, 10876-10882.	6.1	73
21	Relaxation dynamics of femtosecond-laser-induced temperature modulation on the surfaces of metals and semiconductors. Applied Surface Science, 2016, 374, 157-164.	6.1	72
22	Mechanism of single-pulse ablative generation of laser-induced periodic surface structures. Physical Review B, 2017, 96, .	3.2	69
23	Modification of transparent materials with ultrashort laser pulses: What is energetically and mechanically meaningful?. Journal of Applied Physics, 2015, 118, .	2.5	67
24	Transient response of dielectric materials exposed to ultrafast laser radiation. Applied Physics A: Materials Science and Processing, 2006, 84, 413-422.	2.3	65
25	Dynamics of femtosecond laser induced voidlike structures in fused silica. Applied Physics Letters, 2009, 94, 041911.	3.3	65
26	Laser-induced modification of transparent crystals and glasses. Quantum Electronics, 2010, 40, 966-985.	1.0	62
27	Mechanisms of high-regularity periodic structuring of silicon surface by sub-MHz repetition rate ultrashort laser pulses. Applied Physics Letters, 2016, 109, .	3.3	56
28	Nonequilibrium Magnetization Dynamics of Gadolinium Studied by Magnetic Linear Dichroism in Time-Resolved <mml:math <br="" xmlns:mml="http://www.w3.org/1998/Math/MathML">display="inline"><mml:mn>4</mml:mn><mml:mi>f</mml:mi></mml:math> Core-Level Photoemission. Physical Review Letters, 2008, 100, 107202	7.8	55
29	Theoretical treatments of ultrashort pulse laser processing of transparent materials: toward understanding the volume nanograting formation and "quill―writing effect. Applied Physics B: Lasers and Optics, 2013, 113, 437-449.	2.2	51
30	LIPSS on thin metallic films: New insights from multiplicity of laser-excited electromagnetic modes and efficiency of metal oxidation. Applied Surface Science, 2019, 491, 650-658.	6.1	50
31	Thermodynamic and stress analysis of laser-induced forward transfer of metals. Applied Physics A: Materials Science and Processing, 2010, 101, 103-109.	2.3	49
32	Theoretical Models and Qualitative Interpretations of Fs Laser Material Processing. Journal of Laser Micro Nanoengineering, 2007, 2, 76-86.	0.1	46
33	Modeling of residual thermal effect in femtosecond laser ablation of metals: role of a gas environment. Applied Physics A: Materials Science and Processing, 2008, 92, 883-889.	2.3	41
34	Theoretical investigations of material modification using temporally shaped femtosecond laser pulses. Applied Physics A: Materials Science and Processing, 2005, 81, 1639-1645.	2.3	39
35	Role of the temperature dynamics in formation of nanopatterns upon single femtosecond laser pulses on gold. Physical Review B, 2017, 95, .	3.2	36
36	Pulsed laser modification of transparent dielectrics: what can be foreseen and predicted by numerical simulations?. Journal of the Optical Society of America B: Optical Physics, 2014, 31, C8.	2.1	35

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37	How to optimize ultrashort pulse laser interaction with glass surfaces in cutting regimes?. Applied Surface Science, 2015, 336, 364-374.	6.1	35
38	Insight into electronic mechanisms of nanosecond-laser ablation of silicon. Journal of Applied Physics, 2008, 103, .	2.5	34
39	Role of thermal stresses on pulsed laser irradiation of thin films under conditions of microbump formation and nonvaporization forward transfer. Applied Physics A: Materials Science and Processing, 2013, 113, 521-529.	2.3	34
40	Pulsed laser ablation of metals in vacuum: DSMC study versus experiment. Applied Physics A: Materials Science and Processing, 2004, 79, 1097-1100.	2.3	29
41	Impacts of Ambient and Ablation Plasmas on Short- and Ultrashort-Pulse Laser Processing of Surfaces. Micromachines, 2014, 5, 1344-1372.	2.9	29
42	Wavelength dependence of picosecond laser-induced periodic surface structures on copper. Applied Surface Science, 2017, 417, 88-92.	6.1	29
43	Electronic mechanism of ion expulsion under UV nanosecond laser excitation of silicon: Experiment and modeling. Applied Physics A: Materials Science and Processing, 2004, 79, 771-774.	2.3	28
44	Pulsed IR laser ablation of organic polymers in air: shielding effects and plasma pipe formation. Journal Physics D: Applied Physics, 2011, 44, 385201.	2.8	25
45	Three-Step Description of Single-Pulse Formation of Laser-Induced Periodic Surface Structures on Metals. Nanomaterials, 2020, 10, 1836.	4.1	24
46	Optimization of ultrafast laser generated low-energy ion beams from silicon targets. Applied Physics Letters, 2005, 87, 124105.	3.3	23
47	Laser-induced crystallization of anodic TiO ₂ nanotube layers. RSC Advances, 2020, 10, 22137-22145.	3.6	23
48	Pulsed laser ablation of solids and critical phenomena. Applied Surface Science, 2002, 197-198, 96-99.	6.1	22
49	Rarefaction shock wave:â€,â€,Formation under short pulse laser ablation of solids. Physical Review E, 2001, 63, 046311.	2.1	21
50	Comment on "Coulomb explosion in femtosecond laser ablation of Si(111)―[Appl. Phys. Lett. 82, 4190 (2003)]. Applied Physics Letters, 2004, 85, 694-695.	3.3	20
51	A model of nanosecond laser ablation of compound semiconductors accounting for non-congruent vaporization. Applied Physics A: Materials Science and Processing, 2010, 101, 53-59.	2.3	20
52	Thermal and gasdynamic analysis of ablation of poly(methyl methacrylate) by pulsed IR laser irradiation under conditions of nanoparticle formation. Journal Physics D: Applied Physics, 2009, 42, 065504.	2.8	16
53	Effects of pulse duration on the ns-laser pulse induced removal of thin film materials used in photovoltaics. Proceedings of SPIE, 2009, , .	0.8	15
54	Twisting light with micro-spheres produced by ultrashort light pulses. Optics Express, 2011, 19, 18989.	3.4	15

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55	Laser pulse duration dependence of blister formation on back-radiated Ti thin films for BB-LIFT. Applied Physics A: Materials Science and Processing, 2016, 122, 1.	2.3	14
56	Periodic surface functional group density on graphene via laser-induced substrate patterning at Si/SiO2 interface. Nano Research, 2020, 13, 2332-2339.	10.4	14
57	Possibility of rarefaction shock wave under short pulse laser ablation of solids. Physical Review E, 1999, 60, R3498-R3500.	2.1	13
58	Insights into Laser-Materials Interaction Through Modeling on Atomic and Macroscopic Scales. Springer Series in Materials Science, 2018, , 107-148.	0.6	12
59	Interaction of doughnut-shaped laser pulses with glasses. Journal of the Optical Society of America B: Optical Physics, 2017, 34, 463.	2.1	12
60	Model description of surface charging during ultra-fast pulsed laser ablation of materials. Applied Physics A: Materials Science and Processing, 2004, 79, 1153-1155.	2.3	11
61	Temporal pulse manipulation and consequences for ultrafast laser processing of materials. Optical Engineering, 2005, 44, 051106.	1.0	11
62	Marangoni effect inSiO2during field-directed chemical vapor deposition growth of carbon nanotubes. Physical Review B, 2006, 73, .	3.2	11
63	Formation of microtower structures on nanosecond laser ablation of liquid metals. Applied Physics A: Materials Science and Processing, 2010, 98, 393-400.	2.3	11
64	Direct Observation of Femtosecond Laser Induced Modifications in the Bulk of Fused Silica by Phase Contrast Microscopy. Journal of Laser Micro Nanoengineering, 2006, 1, 155-160.	0.1	11
65	Formation of tubular structures and microneedles on silicon surface by doughnut-shaped ultrashort laser pulses. Applied Surface Science, 2022, 592, 153228.	6.1	11
66	Modeling of electron dynamics in laser-irradiated solids: progress achieved through a continuum approach and future prospects. Proceedings of SPIE, 2007, , .	0.8	10
67	Charging and plasma effects under ultrashort pulsed laser ablation. Proceedings of SPIE, 2008, , .	0.8	10
68	A dynamic double layer as the origin of the mass-dependent ion acceleration in laser-induced plasmas. Applied Physics A: Materials Science and Processing, 2019, 125, 1.	2.3	10
69	Laser-Induced Thermal Processes: Heat Transfer, Generation of Stresses, Melting and Solidification, Vaporization, and Phase Explosion. , 2021, , 83-163.		10
70	Numerical study of gas-phase cluster synthesis under ns laser ablation. Proceedings of SPIE, 2007, , .	0.8	9
71	Initiation of air ionization by ultrashort laser pulses: evidence for a role of metastable-state air molecules. Journal Physics D: Applied Physics, 2018, 51, 25LT02.	2.8	9
72	Selective Delamination upon Femtosecond Laser Ablation of Ceramic Surfaces. Physical Review Applied, 2019, 11, .	3.8	9

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73	Fast Electronic Transport and Coulomb Explosion in Materials Irradiated with Ultrashort Laser Pulses. , 2007, , 17-36.		8
74	Comment on "Time-Resolved Shadowgraphs of Material Ejection in Intense Femtosecond Laser Ablation of Aluminum― Physical Review Letters, 2008, 101, 099701; author reply 099702.	7.8	8
75	Continuum Models of Ultrashort Pulsed Laser Ablation. Springer Series in Materials Science, 2010, , 81-97.	0.6	8
76	Study of a diffusion pump ejector. Vacuum, 1993, 44, 749-752.	3.5	7
77	Possible role of charge transport in enhanced carbon nanotube growth. Applied Physics A: Materials Science and Processing, 2006, 85, 109-116.	2.3	7
78	Ultrashort-pulse laser processing of transparent materials: insight from numerical and semi-analytical models. Proceedings of SPIE, 2016, , .	0.8	7
79	Laser-induced periodic surface structures formation: investigation of the effect of nonlinear absorption of laser energy in different materials. Proceedings of SPIE, 2017, , .	0.8	7
80	Laser-Induced Thermal Processes: Heat Transfer, Generation of Stresses, Melting and Solidification, Vaporization, and Phase Explosion. , 2020, , 1-81.		7
81	Photoionization and transient Wannier-Stark ladder in silicon: First-principles simulations versus Keldysh theory. Physical Review B, 2021, 104, .	3.2	7
82	Laser-induced transfer of nanoparticles for gas-phase analysis. Journal of the Optical Society of America B: Optical Physics, 2014, 31, C15.	2.1	6
83	Modeling of silicon in femtosecond laser-induced modification regimes: accounting for ambipolar diffusion. , 2017, , .		6
84	Asymmetric interactions induced by spatio-temporal couplings of femtosecond laser pulses in transparent media. Journal of the Optical Society of America B: Optical Physics, 2019, 36, 1556.	2.1	6
85	Melting of gold by ultrashort laser pulses: advanced two-temperature modeling and comparison with surface damage experiments. Applied Physics A: Materials Science and Processing, 2022, 128, .	2.3	6
86	Modeling Steady-State Gas Expansion from a Spherical Surface Into a Vacuum. Fluid Dynamics, 1997, 32, 870-875.	0.9	5
87	<title>Temporal pulse manipulation and adaptive optimization in ultrafast laser processing of materials</title> . , 2004, 5662, 593.		5
88	Field emission induced deformations in SiO2 during CVD growth of carbon nanotubes. Physica Status Solidi (B): Basic Research, 2006, 243, 3524-3527.	1.5	5
89	Role of ambient gas in heating of metal samples by femtosecond pulses of laser radiation. Thermophysics and Aeromechanics, 2009, 16, 165-176.	0.5	5
90	SURFACE STRUCTURING OF KAPTON POLYIMIDE WITH FEMTOSECOND AND PICOSECOND IR LASER PULSES. Interfacial Phenomena and Heat Transfer, 2019, 7, 113-121.	0.8	5

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91	Nonlinear Maxwell's and Schr¶dinger equations for describing the volumetric interaction of femtosecond laser pulses with transparent solid dielectrics: effect of the boundary conditions. Journal of Optical Technology (A Translation of Opticheskii Zhurnal), 2017, 84, 439.	0.4	5
92	Numerical modeling of impulsive jets of a viscous heat-conducting gas. Journal of Applied Mechanics and Technical Physics, 1992, 33, 561-566.	0.5	4
93	Fundamentals and advantages in ultrafast microstructuring of transparent materials. , 2002, , .		4
94	A general continuum approach to describe fast electronic transport in pulsed laser irradiated materials: the problem of Coulomb explosion. , 2004, , .		4
95	Laser interaction with materials: introduction. Applied Optics, 2014, 53, LIM1.	2.1	4
96	Recent advances in nanoparticle generation in liquids by lasers: Revealing formation mechanisms and tailoring properties. Science China: Physics, Mechanics and Astronomy, 2022, 65, 1.	5.1	4
97	Nonlinear hydrodynamic waves: Effects of the equation of state. Physical Review E, 2004, 70, 036303.	2.1	3
98	Temporal Pulse Shaping and Optimization in Ultrafast Laser Ablation of Materials. Materials Research Society Symposia Proceedings, 2003, 780, 511.	0.1	2
99	Adaptive control of ion beams produced by ultrafast laser ablation of silicon (Invited Paper). , 2005, , .		2
100	Surface charging under pulsed laser ablation of solids and its consequences: studies with a continuum approach. , 2005, , .		2
101	Designing laser-induced refractive index changes in "thermal" glasses. , 2008, , .		2
102	MODELING THE MELTING THRESHOLD OF MO FILMS UPON ULTRASHORT LASER IRRADIATION. MM Science Journal, 2019, 2019, 3585-3593.	0.4	2
103	Dual Wavelength Laser Excitation of Bandgap Materials: Challenges for Efficient Energy Coupling. , 2020, , .		2
104	Gas dynamic model of pressure pulsation on solid surface irradiated by laser impulse: experimental and numerical results. , 1994, 2119, 195.		1
105	Modeling of Vapor Expansion under Pulsed Laser Ablation: Time-of-flight Data Analysis. AIP Conference Proceedings, 2005, , .	0.4	1
106	<title>Thermal analysis of polymethyl methacrylate ablation by pulsed IR lasers</title> . , 2006, 6263, 211.		1
107	Highly-regular laser-induced periodic surface structures: Experiment and atomistic modelling. , 2017, , ·		1
108	Effect of external conditions on the formation of pressure pulsations on a target irradiated by a laser. Journal of Applied Mechanics and Technical Physics, 1993, 34, 62-65.	0.5	0

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109	Modeling of laser-induced plume expansion into ambient gas for thin film deposition. , 1995, 2403, 95.		0
110	Dynamics of laser ablation of YBaCuO superconductor: effect of ionization/recombination processes. , 1995, 2403, 87.		0
111	Adaptive optimization in ultrafast laser material processing (Plenary Paper). , 2004, , .		0
112	Tailored excitation sequences for optimized laser-induced modifications in bulk transparent materials exposed to sub-ps irradiation. , 2006, , .		0
113	Adaptive spatio-temporal techniques for smart ultrafast laser processing of optical glasses. , 2009, , .		0
114	<title>Formation of microstructure on liquid metal surface under nanosecond laser ablation</title> ., 2010, , .		0
115	Formation of microtower structures on liquid metal surfaces under nanosecond laser ablation. Proceedings of SPIE, 2010, , .	0.8	0
116	<title>Laser plasma of poly (methyl methacrylate) in air: modeling and experiment</title> . , 2010, , .		0
117	Laser interaction with materials: introduction. Journal of the Optical Society of America B: Optical Physics, 2014, 31, LIM1.	2.1	0
118	Ultrafast micromachining of Cu and Si at ultra-high repetition rates with pulse bursts. , 2015, , .		0
119	Nonlinear effects during interaction of femtosecond doughnut-shaped laser pulses with glasses: overcoming intensity clamping. Proceedings of SPIE, 2017, , .	0.8	0
120	Asymmetry of light absorption upon propagation of focused femtosecond laser pulses with spatiotemporal coupling through glass materials. , 2017, , .		0
121	Impacts of Spatio-Temporal Coupling in Ultrashort Laser Pulses on Laser Energy Absorption by Transparent Dielectrics in Bulk Modification Regimes. , 2018, , .		0
122	Laser Annealing of Anodic TiO2 Nanotubes: Explosive Solid Phase Crystallization into Anatase. , 2021, , .		0
123	Highly Regular Nanostructuring of Si Surface by Ultrashort Laser Pulses. , 2016, , .		0
124	Microstructure formation on liquid metal surface under pulsed action. , 2018, , .		0
125	Selective Delamination of Thin Films from Ceramic Surfaces upon Femtosecond Laser Ablation. , 2019, ,		0
126	Multiplicity of Laser-Excited Electromagnetic Modes and their Roles in LIPSS Formation on Thin		0

Metallic Films. , 2019, , .

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127	Two Dimensional Film Printing by Blister-Based Laser-Induced Forward-Transfer. , 2019, , .		Ο
128	NUMERICAL SIMULATIONS OF TEMPERATURE DYNAMICS DURING CW LASER IRRADIATION OF SILICON MICROSCALE STRIPS ON A DIELECTRIC SUBSTRATE. MM Science Journal, 2019, 2019, 3561-3566.	0.4	0
129	EFFECT OF THE DYNAMIC REFLECTIVITY ON LASER ENERGY ABSORPTION BY ZINC: NUMERICAL TWO-TEMPERATURE MODELING. MM Science Journal, 2019, 2019, 3567-3572.	0.4	0
130	ANTENNA-LIKE EFFECT INDUCED BY SURFACE DEFECTS UPON ULTRASHORT LASER NANOSTRUCTURING OFSILICON. MM Science Journal, 2019, 2019, 3594-3597.	0.4	0