# Nadezhda M Bulgakova

List of Publications by Year
in descending order

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| 130 | 4,609 | 109264 | 102432 |
|---|---|---|---|
| papers | citations | 35 h-index | 66 g-index |

| 135 | 135 | 135 | 3085 |
|---|---|---|---|
| all docs | docs citations | times ranked | citing authors |

| # | 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. | 1.1 | 433 |
| 2 | High-speed manufacturing of highly regular femtosecond laser-induced periodic surface structures: physical origin of regularity. Scientific Reports, 2017, 7, 8485. | 1.6 | 251 |
| 3 | Surface Charging and Impulsive Ion Ejection during Ultrashort Pulsed Laser Ablation. Physical Review Letters, 2002, 88, 097603. | 2.9 | 228 |
| 4 | Double layer effects in laser-ablation plasma plumes. Physical Review E, 2000, 62, 5624-5635. | 0.8 | 195 |
| 5 | Fundamentals of ultrafast laserâ€“material interaction. MRS Bulletin, 2016, 41, 960-968. | 1.7 | 185 |
| 6 | Electronic transport and consequences for material removal in ultrafast pulsed laser ablation of materials. Physical Review B, 2004, 69, . | 1.1 | 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. | 1.1 | 149 |
| 8 | Thin film removal mechanisms in ns-laser processing of photovoltaic materials. Thin Solid Films, 2010, 518, 2897-2904. | 0.8 | 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. | 1.3 | 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. | 1.1 | 131 |
| 11 | Ultrashort pulse laser ablation of dielectrics: Thresholds, mechanisms, role of breakdown. Scientific Reports, 2016, 6, 39133. | 1.6 | 110 |
| 12 | Dynamics of laser-induced plume expansion into an ambient gas during film deposition. Journal Physics D: Applied Physics, 1995, 28, 1710-1718. | 1.3 | 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. | 1.1 | 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. | 0.3 | 97 |
| 15 | Energy balance of pulsed laser ablation: thermal model revised. Applied Physics A: Materials Science and Processing, 2004, 79, 1323-1326. | 1.1 | 94 |
| 16 | Extreme electronic bandgap modification in laser-crystallized silicon optical fibres. Nature Materials, 2014, 13, 1122-1127. | 13.3 | 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. | 3.1 | 89 |
| 18 | Fundamentals and advantages of ultrafast micro-structuring of transparent materials. Applied Physics A: Materials Science and Processing, 2003, 77, 223-228. | 1.1 | 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, . | 1.1 | 79 |
| 20 | Role of laser-induced plasma in ultradeep drilling of materials by nanosecond laser pulses. Applied Surface Science, 2011, 257, 10876-10882. | 3.1 | 73 |
| 21 | Relaxation dynamics of femtosecond-laser-induced temperature modulation on the surfaces of metals and semiconductors. Applied Surface Science, 2016, 374, 157-164. | 3.1 | 72 |
| 22 | Mechanism of single-pulse ablative generation of laser-induced periodic surface structures. Physical Review B, 2017, 96, . | 1.1 | 69 |
| 23 | Modification of transparent materials with ultrashort laser pulses: What is energetically and mechanically meaningful?. Journal of Applied Physics, 2015, 118, . | 1.1 | 67 |
| 24 | Transient response of dielectric materials exposed to ultrafast laser radiation. Applied Physics A: Materials Science and Processing, 2006, 84, 413-422. | 1.1 | 65 |
| 25 | Dynamics of femtosecond laser induced voidlike structures in fused silica. Applied Physics Letters, 2009, 94, 041911. | 1.5 | 65 |
| 26 | Laser-induced modification of transparent crystals and glasses. Quantum Electronics, 2010, 40, 966-985. | 0.3 | 62 |
| 27 | Mechanisms of high-regularity periodic structuring of silicon surface by sub-MHz repetition rate ultrashort laser pulses. Applied Physics Letters, 2016, 109, . | 1.5 | 56 |
| 28 | Nonequilibrium Magnetization Dynamics of Gadolinium Studied by Magnetic Linear Dichroism in Time-Resolved<mml:math 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. | 2.9 | 55 |
| 29 | Theoretical treatments of ultrashort pulse laser processing of transparent materials: toward understanding the volume nanograting formation and â€œquillâ€•writing effect. Applied Physics B: Lasers and Optics, 2013, 113, 437-449. | 1.1 | 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. | 3.1 | 50 |
| 31 | Thermodynamic and stress analysis of laser-induced forward transfer of metals. Applied Physics A: Materials Science and Processing, 2010, 101, 103-109. | 1.1 | 49 |
| 32 | Theoretical Models and Qualitative Interpretations of Fs Laser Material Processing. Journal of Laser Micro Nanoengineering, 2007, 2, 76-86. | 0.4 | 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. | 1.1 | 41 |
| 34 | Theoretical investigations of material modification using temporally shaped femtosecond laser pulses. Applied Physics A: Materials Science and Processing, 2005, 81, 1639-1645. | 1.1 | 39 |
| 35 | Role of the temperature dynamics in formation of nanopatterns upon single femtosecond laser pulses on gold. Physical Review B, 2017, 95, . | 1.1 | 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. | 0.9 | 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. | 3.1 | 35 |
| 38 | Insight into electronic mechanisms of nanosecond-laser ablation of silicon. Journal of Applied Physics, 2008, 103, . | 1.1 | 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. | 1.1 | 34 |
| 40 | Pulsed laser ablation of metals in vacuum: DSMC study versus experiment. Applied Physics A: Materials Science and Processing, 2004, 79, 1097-1100. | 1.1 | 29 |
| 41 | Impacts of Ambient and Ablation Plasmas on Short- and Ultrashort-Pulse Laser Processing of Surfaces. Micromachines, 2014, 5, 1344-1372. | 1.4 | 29 |
| 42 | Wavelength dependence of picosecond laser-induced periodic surface structures on copper. Applied Surface Science, 2017, 417, 88-92. | 3.1 | 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. | 1.1 | 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. | 1.3 | 25 |
| 45 | Three-Step Description of Single-Pulse Formation of Laser-Induced Periodic Surface Structures on Metals. Nanomaterials, 2020, 10, 1836. | 1.9 | 24 |
| 46 | Optimization of ultrafast laser generated low-energy ion beams from silicon targets. Applied Physics Letters, 2005, 87, 124105. | 1.5 | 23 |
| 47 | Laser-induced crystallization of anodic TiO<sub>2</sub> nanotube layers. RSC Advances, 2020, 10, 22137-22145. | 1.7 | 23 |
| 48 | Pulsed laser ablation of solids and critical phenomena. Applied Surface Science, 2002, 197-198, 96-99. | 3.1 | 22 |
| 49 | Rarefaction shock wave:â€,â€,Formation under short pulse laser ablation of solids. Physical Review E, 2001, 63, 046311. | 0.8 | 21 |
| 50 | Comment on â€œCoulomb explosion in femtosecond laser ablation of Si(111)â€•[Appl. Phys. Lett. 82, 4190 (2003)]. Applied Physics Letters, 2004, 85, 694-695. | 1.5 | 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. | 1.1 | 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. | 1.3 | 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. | 1.7 | 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. | 1.1 | 14 |
| 56 | Periodic surface functional group density on graphene via laser-induced substrate patterning at Si/SiO2 interface. Nano Research, 2020, 13, 2332-2339. | 5.8 | 14 |
| 57 | Possibility of rarefaction shock wave under short pulse laser ablation of solids. Physical Review E, 1999, 60, R3498-R3500. | 0.8 | 13 |
| 58 | Insights into Laser-Materials Interaction Through Modeling on Atomic and Macroscopic Scales. Springer Series in Materials Science, 2018, , 107-148. | 0.4 | 12 |
| 59 | Interaction of doughnut-shaped laser pulses with glasses. Journal of the Optical Society of America B: Optical Physics, 2017, 34, 463. | 0.9 | 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. | 1.1 | 11 |
| 61 | Temporal pulse manipulation and consequences for ultrafast laser processing of materials. Optical Engineering, 2005, 44, 051106. | 0.5 | 11 |
| 62 | Marangoni effect inSiO2during field-directed chemical vapor deposition growth of carbon nanotubes. Physical Review B, 2006, 73, . | 1.1 | 11 |
| 63 | Formation of microtower structures on nanosecond laser ablation of liquid metals. Applied Physics A: Materials Science and Processing, 2010, 98, 393-400. | 1.1 | 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. | 0.4 | 11 |
| 65 | Formation of tubular structures and microneedles on silicon surface by doughnut-shaped ultrashort laser pulses. Applied Surface Science, 2022, 592, 153228. | 3.1 | 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. | 1.1 | 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. | 1.3 | 9 |
| 72 | Selective Delamination upon Femtosecond Laser Ablation of Ceramic Surfaces. Physical Review Applied, 2019, 11, . | 1.5 | 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 â€œTime-Resolved Shadowgraphs of Material Ejection in Intense Femtosecond Laser Ablation of Aluminumâ€• Physical Review Letters, 2008, 101, 099701; author reply 099702. | 2.9 | 8 |
| 75 | Continuum Models of Ultrashort Pulsed Laser Ablation. Springer Series in Materials Science, 2010, , 81-97. | 0.4 | 8 |
| 76 | Study of a diffusion pump ejector. Vacuum, 1993, 44, 749-752. | 1.6 | 7 |
| 77 | Possible role of charge transport in enhanced carbon nanotube growth. Applied Physics A: Materials Science and Processing, 2006, 85, 109-116. | 1.1 | 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, . | 1.1 | 7 |
| 82 | Laser-induced transfer of nanoparticles for gas-phase analysis. Journal of the Optical Society of America B: Optical Physics, 2014, 31, C15. | 0.9 | 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. | 0.9 | 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, . | 1.1 | 6 |
| 86 | Modeling Steady-State Gas Expansion from a Spherical Surface Into a Vacuum. Fluid Dynamics, 1997, 32, 870-875. | 0.2 | 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. | 0.7 | 5 |
| 89 | Role of ambient gas in heating of metal samples by femtosecond pulses of laser radiation. Thermophysics and Aeromechanics, 2009, 16, 165-176. | 0.1 | 5 |
| 90 | SURFACE STRUCTURING OF KAPTON POLYIMIDE WITH FEMTOSECOND AND PICOSECOND IR LASER PULSES. Interfacial Phenomena and Heat Transfer, 2019, 7, 113-121. | 0.3 | 5 |

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| 91 | Nonlinear Maxwellâ€™s and SchrÃ¶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. | 0.2 | 5 |
| 92 | Numerical modeling of impulsive jets of a viscous heat-conducting gas. Journal of Applied Mechanics and Technical Physics, 1992, 33, 561-566. | 0.1 | 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. | 2.0 | 4 |
| 97 | Nonlinear hydrodynamic waves: Effects of the equation of state. Physical Review E, 2004, 70, 036303. | 0.8 | 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. | 0.2 | 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, , . | 0.3 | 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. | 0.1 | 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. | 0.9 | 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 Metallic Films. , 2019, , . | | 0 |

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| 127 | Two Dimensional Film Printing by Blister-Based Laser-Induced Forward-Transfer. , 2019, , . | | 0 |
| 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. | 0.2 | 0 |
| 129 | EFFECT OF THE DYNAMIC REFLECTIVITY ON LASER ENERGY ABSORPTION BY ZINC: NUMERICAL TWO-TEMPERATURE MODELING. MM Science Journal, 2019, 2019, 3567-3572. | 0.2 | 0 |
| 130 | ANTENNA-LIKE EFFECT INDUCED BY SURFACE DEFECTS UPON ULTRASHORT LASER NANOSTRUCTURING OFSILICON. MM Science Journal, 2019, 2019, 3594-3597. | 0.2 | 0 |