

# Nikolay Petrov

## List of Publications by Year in descending order

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137  
papers

1,227  
citations

471509

17  
h-index

454955

30  
g-index

140  
all docs

140  
docs citations

140  
times ranked

660  
citing authors

#	ARTICLE	IF	CITATIONS
1	Open-source 3D-printed terahertz pulse time-domain holographic detection module. Applied Optics, 2022, 61, B307.	1.8	9
2	Analysis of the wavefront aberrations based on neural networks processing of the interferograms with a conical reference beam. Applied Physics B: Lasers and Optics, 2022, 128, 1.	2.2	10
3	Investigation of Nonlinear Optical Properties of Quantum Dots Deposited onto a Sample Glass Using Time-Resolved Inline Digital Holography. Journal of Imaging, 2022, 8, 74.	3.0	1
4	Phase Retardation Analysis in a Rotated Plane-Parallel Plate for Phase-Shifting Digital Holography. Journal of Imaging, 2022, 8, 87.	3.0	3
5	Single-scan multiplane phase retrieval with a radiation of terahertz quantum cascade laser. Applied Physics B: Lasers and Optics, 2022, 128, 1.	2.2	10
6	Optimization of DMD-based independent amplitude and phase modulation by analysis of target complex wavefront. Scientific Reports, 2022, 12, 7754.	3.3	4
7	Design of broadband terahertz vector and vortex beams: I. Review of materials and components. , 2022, 3, 1.		11
8	Optical vortex trajectory of the edge-diffracted single-charged Laguerre-Gaussian beam. Optics and Lasers in Engineering, 2021, 139, 106504.	3.8	6
9	Noncollinear degenerate phase modulation in samples with inhomogeneous optical nonlinear properties [Invited]. Applied Optics, 2021, 60, B14.	1.8	4
10	Investigation of spectral encoding with terahertz broadband uniformly topologically charged beams. , 2021, , .		3
11	Study on object wavefront sensing in parallel phase-shifting camera with geometric phase lens. , 2021, , .		3
12	Optimised quartz half-wave plate for broadband terahertz operation. , 2021, , .		2
13	Speckle patterns formed by broadband terahertz radiation and their applications for ghost imaging. Scientific Reports, 2021, 11, 20071.	3.3	15
14	Interference enabled binary data encoding within broadband uniformly topologically charged terahertz beams. , 2021, , .		3
15	Ptychography with DMD-based complex-valued probe. , 2021, , .		1
16	Experimental evaluation of inhomogeneous nonlinear refractive index distribution using time-resolved inline digital holography. , 2021, , .		0
17	Fundamental specifications of reconstruction in terahertz pulsed time-domain holography. , 2021, , .		0
18	On the Possibility of Studying the Fraction of Inhomogeneities in Optical Nonlinear Media Using Time-Resolved Inline Digital Holography. Technical Physics, 2021, 66, 681-689.	0.7	0

#	ARTICLE	IF	CITATIONS
19	Hyperspectral phase imaging based on denoising in complex-valued eigensubspace. Optics and Lasers in Engineering, 2020, 127, 105973.	3.8	19
20	Fast Terahertz Spectroscopic Holographic Assessment of Optical Properties of Diabetic Blood Plasma. Journal of Infrared, Millimeter, and Terahertz Waves, 2020, 41, 1041-1056.	2.2	10
21	Features of correlation measurements of the parameters of pulsed hyperspectral optical fields using an asymmetric interferometer. Quantum Electronics, 2020, 50, 679-682.	1.0	0
22	Roadmap on holography. Journal of Optics (United Kingdom), 2020, 22, 123002.	2.2	54
23	Time-resolved inline digital holography for measurement of optical nonlinear properties of quantum dots on substrates. , 2020, , .		2
24	Vectorial terahertz pulse time-domain holography for broadband optical wavefront sensing. , 2020, , .		6
25	Terahertz phase retrieval imaging in reflection. Optics Letters, 2020, 45, 4168.	3.3	19
26	Terahertz Multiple-Plane Phase Retrieval. , 2020, , .		0
27	Complex wavefront manipulation and holographic correction based on digital. , 2020, , .		5
28	On the features of the interference of a set of broadband uniformly topologically charged beams. , 2020, , .		4
29	Propagation dynamics of ultrabroadband terahertz beams with orbital angular momentum for wireless data transfer. , 2020, , .		6
30	Analysis of Correlation Hyperspectral Interferometry for Measurements of Broadband Wavefronts. , 2020, , .		0
31	Spectral Fresnel filter for pulsed broadband terahertz radiation. AIP Advances, 2020, 10, .	1.3	6
32	Holographic Assessment of Broadband Vortex Beams for Near and Medium Terahertz Wireless Data Transfer. , 2020, , .		0
33	Complex-domain sparse imaging in terahertz pulse time-domain holography with balance detection. , 2020, , .		0
34	Increasing the Interferogram Sensitivity by Digital Holography. Optoelectronics, Instrumentation and Data Processing, 2020, 56, 190-197.	0.6	1
35	Improvement of rough surfaces height map reconstruction accuracy in tilt angle illumination digital holography. Optical Engineering, 2020, 59, 1.	1.0	5
36	An Open-Source 3D-Printed Terahertz Pulse Time-Domain Holographic Detection Module for Broadband Beam Inspection. , 2020, , .		3

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37	Terahertz Diffractive Reflection Phase Imaging. , 2020, , .		0
38	Reconstructed THz phase image of the two-component numerical model of breast cancer tissue. , 2019, , .		0
39	Multimodal Optical Diagnostics of Glycated Biological Tissues. Biochemistry (Moscow), 2019, 84, 124-143.	1.5	16
40	Spectral Object Recognition in Hyperspectral Holography with Complex-Domain Denoising. Sensors, 2019, 19, 5188.	3.8	17
41	Numerical Analysis Spectral Huygens Filter for pulsed broadband Terahertz Radiation. Journal of Physics: Conference Series, 2019, 1410, 012177.	0.4	0
42	Increasing the resolution of the reconstructed image in terahertz pulse time-domain holography. Scientific Reports, 2019, 9, 180.	3.3	28
43	Terahertz pulse time-domain holography method for phase imaging of breast tissue. , 2019, , .		3
44	Spatio-temporal and spatio-spectral metrology of terahertz broadband uniformly topologically charged vortex beams. Applied Optics, 2019, 58, A90.	1.8	32
45	Terahertz pulse time-domain holography with balance detection: complex-domain sparse imaging. Applied Optics, 2019, 58, G61.	1.8	11
46	The terahertz pulse time-domain holography method for phase imaging of breast tissue sample. , 2019, , .		2
47	Hyperspectral data denoising for terahertz pulse time-domain holography. Optics Express, 2019, 27, 18456.	3.4	18
48	Stepwise Approach to Numerical Simulation of Broadband Femtosecond Pulses Propagation through Amplitude and Phase Objects. , 2019, , .		1
49	Hyperspectral terahertz pulse time-domain holography: noise filtering. , 2019, , .		0
50	Resolution and contrast in terahertz pulse time-domain holographic reconstruction. Applied Optics, 2019, 58, G231.	1.8	5
51	Effect of object thickness on ultrashort pulse diffraction. Applied Optics, 2019, 58, 9434.	1.8	6
52	On terahertz pulsed broadband Gauss-Bessel beam free-space propagation. Scientific Reports, 2018, 8, 1390.	3.3	45
53	Indirect assessment of bulk strain soliton velocity in opaque solids. Applied Physics Letters, 2018, 112, .	3.3	13
54	Method for increasing the view field of THz holograms. Journal of Physics: Conference Series, 2018, 1096, 012128.	0.4	1

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55	Interaction of terahertz radiation with tissue phantoms: numerical and experimental studies. EPJ Web of Conferences, 2018, 195, 10012.	0.3	0
56	Super-resolution microscopy for biological specimens: lensless phase retrieval in noisy conditions. Biomedical Optics Express, 2018, 9, 5511.	2.9	9
57	Time-resolved inline digital holography for the study of noncollinear degenerate phase modulation. Optics Letters, 2018, 43, 3481.	3.3	13
58	Multiwavelength Absolute Phase Retrieval from Noisy Diffractive Patterns: Wavelength Multiplexing Algorithm. Applied Sciences (Switzerland), 2018, 8, 719.	2.5	12
59	Optical wavefront synthesis using digital holography. Journal of Physics: Conference Series, 2018, 1062, 012014.	0.4	0
60	Multiwavelength surface contouring from phase-coded noisy diffraction patterns: wavelength-division optical setup. Optical Engineering, 2018, 57, 1.	1.0	5
61	Terahertz pulse time-domain holography for studying of broadband beams propagation dynamics. , 2018, , .		1
62	Reconstruction enhancement of noisy data in terahertz pulse time-domain holography by iterative procedure. , 2018, , .		2
63	Multiwavelength surface contouring from phase-coded diffraction patterns. , 2018, , .		0
64	Solution for reconstruction enhancement of pulsed broadband THz holograms recorded with small area detectors. , 2018, , .		0
65	Features of surface contouring by digital holographic interferometry with tilt of the object illumination. , 2018, , .		1
66	Wavefront complex modulation of semiconductor light sources via digital micromirror device. , 2018, , .		0
67	Digital holographic interferometer with correction of distortions. , 2018, , .		1
68	Phase-only LCOS modulator as a correcting element in digital holographic interferometers. , 2018, , .		2
69	Application of digital optical phase conjugation in the problem of three-dimensional polygonal hologram formation. Proceedings of SPIE, 2017, , .	0.8	1
70	Computational terahertz imaging with dispersive objects. Journal of Modern Optics, 2017, 64, 1283-1288.	1.3	34
71	Correlation Characterization of Particles in Volume Based on Peak-to-Basement Ratio. Scientific Reports, 2017, 7, 43840.	3.3	6
72	Time-resolved image plane off-axis digital holography. Applied Physics Letters, 2017, 110, .	3.3	14

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73	Application of Photothermal Digital Interferometry for Nonlinear Refractive Index Measurements within a Kerr Approximation. <i>Optical Materials</i> , 2017, 69, 437-443.	3.6	9
74	HeLa cells response to photodynamic treatment with Radachlorin at various irradiation parameters. <i>Proceedings of SPIE</i> , 2017, , .	0.8	2
75	Computational wavelength resolution for in-line lensless holography: phase-coded diffraction patterns and wavefront group-sparsity. <i>Proceedings of SPIE</i> , 2017, , .	0.8	3
76	Influence of the degree of neutralization of acrylic acid and cross-linking agent on optical properties and swelling of sodium polyacrylate. <i>Optics and Spectroscopy (English Translation of Optika i Tj ETQqO 0 0 rgBT / Overlock 10 Tf 50 617</i>		
77	Investigation of the methods for optical wavefront parameter manipulation. <i>Journal of Physics: Conference Series</i> , 2017, 929, 012073.	0.4	0
78	Computational super-resolution phase retrieval from multiple phase-coded diffraction patterns: simulation study and experiments. <i>Optica</i> , 2017, 4, 786.	9.3	69
79	Terahertz pulse time-domain holography in dispersive media. <i>Computer Optics</i> , 2017, 41, 348-355.	2.2	4
80	Time-Resolved Inline Digital Holography for Investigation of Noncollinear Pump Pulse-Induced Phase Variation. , 2017, , .		1
81	Digital holographic amplification of interferograms in the Michelson interferometer using the phase-only LCOS modulator. , 2017, , .		1
82	High-accuracy off-axis wavefront reconstruction from noisy data: local least square with multiple adaptive windows. <i>Optics Express</i> , 2016, 24, 25068.	3.4	14
83	Influence of $\hat{A}$ «defocusing $\hat{A}$ » on the correlation function in the problem of particles suspension accounting. <i>Journal of Physics: Conference Series</i> , 2016, 769, 012052.	0.4	0
84	Amplitude-phase imaging of pulsed broadband terahertz vortex beams generated by spiral phase plate. , 2016, , .		9
85	Research on field of view expansion in off-axis time-resolved femtosecond digital holography. , 2016, , .		0
86	Application of Terahertz Pulse Time-Domain Holography for Phase Imaging. <i>IEEE Transactions on Terahertz Science and Technology</i> , 2016, 6, 464-472.	3.1	99
87	Application of wavefront shaping techniques for diffraction optical elements synthesis. , 2016, , .		0
88	Features of volume with transparent particles correlation analysis. <i>Proceedings of SPIE</i> , 2016, , .	0.8	0
89	Monitoring of laser-induced thermal gradients in plant cells by means of digital micro-interferometry. , 2016, , .		0
90	Singlet oxygen detection in water by means of digital holography and digital holographic tomography. <i>Proceedings of SPIE</i> , 2016, , .	0.8	0

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91	Accuracy of image-plane holographic tomography with filtered backprojection: random and systematic errors. Applied Optics, 2016, 55, 81.	2.1	18
92	Digital holographic microscopy in label-free analysis of cultured cells's response to photodynamic treatment. Optics Letters, 2016, 41, 5035.	3.3	34
93	Detection of photoinduced transformations in live HeLa cells by means of digital holographic micro-interferometry. , 2016, , .		0
94	The Modeling Peculiarities of Diffractive Propagation of the Broadband Terahertz Two-dimensional Field. Physics Procedia, 2015, 73, 49-53.	1.2	66
95	Holographic detection of nonradiative transitions in oxygen molecules: digital and classical approach. Journal of Physics: Conference Series, 2015, 661, 012044.	0.4	0
96	Rapid detection of delamination areas in laminated structural elements by means of optically monitored strain solitons. Proceedings of SPIE, 2015, , .	0.8	3
97	Multiple-wavelength Color Digital Holography for Monochromatic Image Reconstruction. Physics Procedia, 2015, 73, 301-307.	1.2	6
98	Combined phosphorescence-holographic approach for singlet oxygen detection in biological media. , 2015, , .		0
99	Nondestructive monitoring of aircraft composites using terahertz radiation. Proceedings of SPIE, 2015, , .	0.8	24
100	Sparse approximations of phase and amplitude for wave field reconstruction from noisy data. , 2015, , .		7
101	Numerical inversion of wavefront propagation dynamics with spatial nonlinearity. Russian Journal of Physical Chemistry B, 2015, 9, 555-557.	1.3	2
102	Study of transparent particles in the volume of optical medium using digital holography and singular-optics approach. , 2015, , .		1
103	Processing classical holographic interferograms by algorithms of digital hologram reconstruction. Technical Physics Letters, 2015, 41, 713-716.	0.7	5
104	Characterization of particles suspended in a volume of optical medium at high concentrations by coherent image processing. Optical Engineering, 2015, 54, 083101.	1.0	8
105	Wavefront reconstruction in digital off-axis holography via sparse coding of amplitude and absolute phase. Optics Letters, 2015, 40, 2417.	3.3	30
106	Digital holographic micro-interferometry of nonradiative transitions in biological specimens. , 2015, , .		7
107	Simple Criteria to Determine the Set of Key Parameters of the DRPE Method by a Brute-force Attack. Physics Procedia, 2015, 73, 281-286.	1.2	2
108	Holographic monitoring of spatial distributions of singlet oxygen in water. Technical Physics Letters, 2014, 40, 1134-1135.	0.7	7

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109	Statistical study of coherent images of particles in the volume of optical medium. , 2014, , .		2
110	Digital off-axis holographic interferometry with simulated wavefront. Optics Express, 2014, 22, 28363.	3.4	30
111	Use of spectral characteristics of DSLR cameras with Bayer filter sensors. Journal of Physics: Conference Series, 2014, 536, 012021.	0.4	10
112	Comparison of digital holography and iterative phase retrieval methods for wavefront reconstruction. , 2014, , .		7
113	Numerical reconstruction of wave field spatial distributions at the output and input planes of nonlinear medium with use of digital holography. Journal of Physics: Conference Series, 2014, 536, 012025.	0.4	4
114	Investigation of interaction of structured illumination with random scattering media. , 2014, , .		5
115	Computational Simulation of the Light Propagation Process through Nonlinear Media. , 2014, , 321-324.		2
116	Digital phase-shifting holography based on sparse approximation of phase and amplitude. , 2014, , .		3
117	Design and development of underwater laser spectroscopic system for hydrocarbon deposits exploration. , 2014, , .		1
118	Numerical study of density fluctuations of suspended particles in a volume of optical medium. Journal of Physics: Conference Series, 2014, 536, 012026.	0.4	0
119	Investigation of phase objects using off-axis digital holography with a-priori known information on the reference wave. Journal of Physics: Conference Series, 2014, 536, 012003.	0.4	3
120	Experimental comparison of phase retrieval methods which use intensity distribution at different planes. Journal of Physics: Conference Series, 2014, 536, 012028.	0.4	1
121	Influence of raster scan parameters on the image quality for the THz phase imaging in collimated beam with a wide aperture. Journal of Physics: Conference Series, 2014, 536, 012010.	0.4	11
122	Evaluating the effectiveness of correlation digital speckle photography method for non-destructive testing of rough surfaces. Journal of Physics: Conference Series, 2014, 536, 012017.	0.4	1
123	Classical and Digital Holography of Singlet Oxygen in Water. , 2014, , .		1
124	Method for calculating the dynamic phase delay in holographic interferometry without phase unwrapping. Computer Optics, 2014, 38, 710-716.	2.2	2
125	A technique of measuring spectral characteristics of detector arrays in amateur and professional photocaleras and their application for problems of digital holography. Optics and Spectroscopy (English Translation of Optika i Spektroskopiya), 2013, 115, 557-566.	0.6	10
126	Holography and phase retrieval in terahertz imaging. Proceedings of SPIE, 2013, , .	0.8	26



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127	Numerical simulation of optical vortex propagation and reflection by the methods of scalar diffraction theory. Quantum Electronics, 2013, 43, 582-587.	1.0	18
128	Measuring the spatiotemporal parameters of motion of self-luminous particles in high-temperature supersonic flow. Journal of Optical Technology (A Translation of Opticheskii Zhurnal), 2012, 79, 12.	0.4	6
129	Phase retrieval of THz radiation using set of 2D spatial intensity measurements with different wavelengths. , 2012, , .		8
130	The features of optimization of a phase retrieval technique in THz frequency range. , 2012, , .		12
131	Iterative phase retrieval based on the use of additional intensities measurements. , 2011, , .		3
132	Image reconstruction using measurements in volume speckle fields formed by different wavelengths. , 2011, , .		11
133	Phase retrieval method for multiple wavelength speckle patterns. , 2010, , .		8
134	Generation of ultrabroadband terahertz radiation under optical breakdown of air by two femtosecond pulses of different frequencies. Optics and Spectroscopy (English Translation of Optika i Spektroskopiya) Tj ETQq0 0 0.0 BT / Overlock 10 T		0
135	Methods of generating superbroadband terahertz pulses with femtosecond lasers. Journal of Optical Technology (A Translation of Opticheskii Zhurnal), 2008, 75, 636.	0.4	60
136	Determining the velocity of an object in water, using digital speckle-photography. Journal of Optical Technology (A Translation of Opticheskii Zhurnal), 2007, 74, 779.	0.4	8
137	Decreasing the noise sensitivity of off-axis hologram imaging. SPIE Newsroom, 0, , .	0.1	0