Vadim A Markel

List of Publications by Year
in descending order

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146 papers	4,289 citations	117619 34 h-index	114455 63 g-index
150 all docs	150 docs citations	150 times ranked	2919 citing authors

#	Article	IF	Citations
1	Introduction to the Maxwell Garnett approximation: tutorial. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2016, 33, 1244.	1.5	542
2	Near-field optical spectroscopy of individual surface-plasmon modes in colloid clusters. Physical Review B, 1999, 59, 10903-10909.	3.2	278
3	Small-particle composites. I. Linear optical properties. Physical Review B, 1996, 53, 2425-2436.	3.2	202
4	Coupled-dipole Approach to Scattering of Light from a One-dimensional Periodic Dipole Structure. Journal of Modern Optics, 1993, 40, 2281-2291.	1.3	194
5	Theory and numerical simulation of optical properties of fractal clusters. Physical Review B, 1991, 43, 8183-8195.	3.2	183
6	Divergence of dipole sums and the nature of non-Lorentzian exponentially narrow resonances in one-dimensional periodic arrays of nanospheres. Journal of Physics B: Atomic, Molecular and Optical Physics, 2005, 38, L115-L121.	1.5	159
7	Propagation of surface plasmons in ordered and disordered chains of metal nanospheres. Physical Review B, 2007, 75, .	3.2	136
8	Small-particle composites. II. Nonlinear optical properties. Physical Review B, 1996, 53, 2437-2449.	3.2	134
9	Spectral Dependence of Selective Photomodification in Fractal Aggregates of Colloidal Particles. Physical Review Letters, 1998, 80, 1102-1105.	7.8	107
10	Imaging complex structures with diffuse light. Optics Express, 2008, 16, 5048.	3.4	89
11	Direct observation of localized dipolar excitations on rough nanostructured surfaces. Physical Review B, 1998, 58, 11441-11448.	3.2	79
12	Inverse problem in optical diffusion tomography I Fourierâ€“Laplace inversion formulas. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2001, 18, 1336.	1.5	74
13	Symmetries, inversion formulas, and image reconstruction for optical tomography. Physical Review E, 2004, 70, 056616.	2.1	73
14	Modified spherical harmonics method for solving the radiative transport equation. Waves in Random and Complex Media, 2004, 14, L13-L19.	1.5	73
15	Inverse problem in optical diffusion tomography III Inversion formulas and singular-value decomposition. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2003, 20, 890.	1.5	65
16	Antisymmetrical optical states. Journal of the Optical Society of America B: Optical Physics, 1995, 12, 1783.	2.1	62
17	Inverse problem in optical diffusion tomography II Role of boundary conditions. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2002, 19, 558.	1.5	62
18	The Green's function for the radiative transport equation in the slab geometry. Journal of Physics A: Mathematical and Theoretical, 2010, 43, 065402.	2.1	58

#	ARTICLE	IF	CITATIONS
19	Maxwell Garnett approximation (advanced topics): tutorial. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2016, 33, 2237.	1.5	58
20	From slow to superluminal propagation: Dispersive properties of surface plasmon polaritons in linear chains of metallic nanospheroids. Physical Review B, 2008, 78, .	3.2	56
21	Inverse scattering with diffusing waves. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2001, 18, 2767.	1.5	55
22	Radiative transport equation in rotated reference frames. Journal of Physics A, 2006, 39, 115-137.	1.6	53
23	Can the imaginary part of permeability be negative?. Physical Review E, 2008, 78, 026608.	2.1	53
24	Inverse problem in optical diffusion tomography IV Nonlinear inversion formulas. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2003, 20, 903.	1.5	51
25	Electromagnetic density of states and absorption of radiation by aggregates of nanospheres with multipole interactions. Physical Review B, 2004, 70, .	3.2	49
26	Experimental demonstration of an analytic method for image reconstruction in optical diffusion tomography with large data sets. Optics Letters, 2005, 30, 3338.	3.3	48
27	Single-scattering optical tomography. Physical Review E, 2009, 79, 036607.	2.1	48
28	Enhanced Raman scattering from self-affine thin films. Optics Letters, 1996, 21, 1628.	3.3	47
29	Optical tomography with structured illumination. Optics Letters, 2009, 34, 983.	3.3	47
30	Scattering of Light from Two Interacting Spherical Particles. Journal of Modern Optics, 1992, 39, 853-861.	1.3	44
31	Correct definition of the Poynting vector in electrically and magnetically polarizable medium reveals that negative refraction is impossible. Optics Express, 2008, 16, 19152.	3.4	44
32	Near-Field Tomography without Phase Retrieval. Physical Review Letters, 2001, 86, 5874-5877.	7.8	43
33	Local anisotropy and giant enhancement of local electromagnetic fields in fractal aggregates of metal nanoparticles. Physical Review B, 2005, 72, .	3.2	43
34	Inversion formulas for the broken-ray Radon transform. Inverse Problems, 2011, 27, 025002.	2.0	42
35	Nonlinear optical phenomena on rough surfaces of metal thin films. Physical Review B, 1998, 57, 14901-14913.	3.2	34
36	Single-scattering optical tomography: Simultaneous reconstruction of scattering and absorption. Physical Review E, 2010, 81, 016602.	2.1	34

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37	Nondecaying surface plasmon polaritons in linear chains of silver nanospheroids. Optics Letters, 2013, 38, 4743.	3.3	32
38	Effects of sampling and limited data in optical tomography. Applied Physics Letters, 2002, 81, 1180-1182.	3.3	31
39	Classical Theory of Optical Nonlinearity in Conducting Nanoparticles. Physical Review Letters, 2008, 100, 047402.	7.8	30
40	Fluorescent optical tomography with large data sets. Optics Letters, 2008, 33, 1744.	3.3	29
41	Theoretical and numerical investigation of the size-dependent optical effects in metal nanoparticles. Physical Review B, 2011, 84, .	3.2	29
42	Inverse scattering for the diffusion equation with general boundary conditions. Physical Review E, 2001, 64, 035601.	2.1	25
43	Homogenization of Maxwell's equations in periodic composites: Boundary effects and dispersion relations. Physical Review E, 2012, 85, 066603.	2.1	23
44	Extinction, scattering and absorption of electromagnetic waves in the coupled-dipole approximation. Journal of Quantitative Spectroscopy and Radiative Transfer, 2019, 236, 106611.	2.3	21
45	Short-distance expansion for the electromagnetic half-space Green's tensor: general results and an application to radiative lifetime computations. Journal of Physics A: Mathematical and Theoretical, 2009, 42, 275203.	2.1	20
46	Effects of size polydispersity on the extinction spectra of colloidal nanoparticle aggregates. Physical Review B, 2012, 85, .	3.2	20
47	Surface plasmon polaritons in curved chains of metal nanoparticles. Physical Review B, 2014, 90, .	3.2	20
48	Fourier-Laplace structure of the inverse scattering problem for the radiative transport equation. Inverse Problems and Imaging, 2007, 1, 181-188.	1.1	20
49	Absorption of light by soot particles in micro-droplets of water. Journal of Quantitative Spectroscopy and Radiative Transfer, 1999, 63, 321-339.	2.3	19
50	Comment on â€œGreen's function theory for infinite and semi-infinite particle chainsâ€• Physical Review B, 2012, 86, .	3.2	19
51	Near-field optical study of selective photomodification of fractal aggregates. Journal of the Optical Society of America B: Optical Physics, 2001, 18, 698.	2.1	18
52	Current-driven homogenization and effective medium parameters for finite samples. Physical Review B, 2013, 88, .	3.2	18
53	Spectroscopic studies of fractal aggregates of silver nanospheres undergoing local restructuring. Journal of Chemical Physics, 2006, 125, 111101.	3.0	17
54	Inversion of the star transform. Inverse Problems, 2014, 30, 105001.	2.0	17

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55	Scanning paraxial optical tomography. Optics Letters, 2002, 27, 1123.	3.3	16
56	Nonlinear inverse scattering and three-dimensional near-field optical imaging. Applied Physics Letters, 2006, 89, 221116.	3.3	16
57	Comment on â€œSilver nanoparticle array structures that produce remarkably narrow plasmon line shapesâ€•[J. Chem. Phys. 120, 10871 (2004)]. Journal of Chemical Physics, 2005, 122, 097101.	3.0	14
58	On the sign of refraction in anisotropic non-magnetic media. Journal of Optics (United Kingdom), 2010, 12, 015104.	2.2	14
59	Waveguiding properties of short linear chains of nonspherical metal nanoparticles. Journal of the Optical Society of America B: Optical Physics, 2014, 31, 2981.	2.1	14
60	A non-asymptotic homogenization theory for periodic electromagnetic structures. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2014, 470, 20140245.	2.1	14
61	Geometrical renormalization approach to calculating optical properties of fractal carbonaceous soot. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2001, 18, 1112.	1.5	13
62	Theory of electronâ€“phonon dynamics in insulating nanoparticles. Physica B: Condensed Matter, 2002, 316-317, 430-433.	2.7	13
63	On the convergence of the Born series in optical tomography with diffuse light. Inverse Problems, 2007, 23, 1445-1465.	2.0	13
64	Transmission and spectral properties of short optical plasmon waveguides. Optics and Spectroscopy (English Translation of Optika I Spektroskopiya), 2013, 115, 666-674.	0.6	13
65	Nonlinear Optical Phenomena in Nanostructured Fractal Materials. Journal of Nonlinear Optical Physics and Materials, 1998, 07, 131-152.	1.8	12
66	The effects of averaging on the enhancement factor for absorption of light by carbon particles in microdroplets of water. Journal of Quantitative Spectroscopy and Radiative Transfer, 2002, 72, 765-774.	2.3	12
67	Superresolution and corrections to the diffusion approximation in optical tomography. Applied Physics Letters, 2005, 87, 101111.	3.3	12
68	Overcoming the adverse effects of substrate on the waveguiding properties of plasmonic nanoparticle chains. Journal of Applied Physics, 2016, 119, .	2.5	12
69	Enhancement of nonlinear processes near rough nanometer-structured surfaces obtained by deposition of fractal colloidal silver aggregates on a plain substrate. Physical Review B, 1999, 60, 10739-10742.	3.2	11
70	Anderson localization of polar eigenmodes in random planar composites. Journal of Physics Condensed Matter, 2006, 18, 11149-11165.	1.8	11
71	Surface waves in three-dimensional electromagnetic composites and their effect on homogenization. Optics Express, 2013, 21, 10412.	3.4	11
72	Nonreciprocal broken ray transforms with applications to fluorescence imaging. Inverse Problems, 2018, 34, 094002.	2.0	11

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73	Reciprocity relation for the vector radiative transport equation and its application to diffuse optical tomography with polarized light. Optics Letters, 2017, 42, 362.	3.3	11
74	Radiative transport and optical tomography with large datasets. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2016, 33, 551.	1.5	10
75	Nonlinear optics of fractal nanomaterials: Small-particle composites and self-affine thin films. Physica A: Statistical Mechanics and Its Applications, 1997, 241, 249-258.	2.6	9
76	Diffusion approximation revisited. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2009, 26, 1291.	1.5	9
77	Solution of the nonlinear inverse scattering problem by<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mi>T</mml:mi></mml:math>-matrix completion. I. Theory. Physical Review E, 2016, 94, 043317.	2.1	9
78	Fluctuations of light scattered by fractal clusters. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 1997, 14, 60.	1.5	8
79	Toward a universal extinction spectrum of self-affine silver colloid clusters: Experiment and simulation. Journal of Chemical Physics, 1999, 110, 8080-8083.	3.0	8
80	Multiple projection optical diffusion tomography with plane wave illumination. Physics in Medicine and Biology, 2005, 50, 2351-2364.	3.0	8
81	Quantum theory of the electromagnetic response of metal nanofilms. Physical Review B, 2011, 84, .	3.2	8
82	Binary Discrete Fourier Transform and Its Inversion. IEEE Transactions on Signal Processing, 2021, 69, 3484-3499.	5.3	8
83	Pole expansion of the Lorenz-Mie coefficients. Journal of Nanophotonics, 2010, 4, 041555.	1.0	7
84	Solution of the nonlinear inverse scattering problem by<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mi>T</mml:mi></mml:math>-matrix completion. II. Simulations. Physical Review E, 2016, 94, 043318.	2.1	7
85	Numerical investigation of polarization filtering for direct optical imaging within scattering media. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2017, 34, 1330.	1.5	7
86	RESONANT OPTICS OF FRACTALS. Fractals, 1994, 02, 201-209.	3.7	6
87	Radiative relaxation time of quasinormal optical modes in small dielectric particles. The Philosophical Magazine: Physics of Condensed Matter B, Statistical Mechanics, Electronic, Optical and Magnetic Properties, 1997, 76, 895-909.	0.6	6
88	Diffuse optical tomography in the presence of a chest wall. Journal of Biomedical Optics, 2013, 18, 026016.	2.6	6
89	Optimized diffusion approximation. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2018, 35, 356.	1.5	6
90	Dual-projection optical diffusion tomography. Optics Letters, 2004, 29, 2019.	3.3	5

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91	Coherently tunable third-order nonlinearity in a nanojunction. Journal of Physics B: Atomic, Molecular and Optical Physics, 2005, 38, L347-L355.	1.5	5
92	Correct definition of the Poynting vector in electrically and magnetically polarizable medium reveals that negative refraction is impossible: reply. Optics Express, 2009, 17, 15170.	3.4	5
93	Radiative transport for two-photon light. Physical Review A, 2014, 90, .	2.5	5
94	Numerical studies of second- and fourth-order correlation functions in cluster-cluster aggregates in application to optical scattering. Physical Review E, 1997, 55, 7313-7333.	2.1	4
95	Correct definition of the Poynting vector in electrically and magnetically polarizable medium reveals that negative refraction is impossible: reply. Optics Express, 2009, 17, 7325.	3.4	4
96	Nonasymptotic homogenization of periodic electromagnetic structures: Uncertainty principles. Physical Review B, 2016, 93, .	3.2	4
97	Diffuse correlation tomography in the transport regime: A theoretical study of the sensitivity to Brownian motion. Physical Review E, 2018, 97, 022408.	2.1	4
98	External versus induced and free versus bound electric currents and related fundamental questions of the classical electrodynamics of continuous media: discussion. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2018, 35, 1663.	1.5	4
99	Fast linear inversion for highly overdetermined inverse scattering problems. Inverse Problems, 2019, 35, 124002.	2.0	4
100	Investigation of the effect of super-resolution in nonlinear inverse scattering. Physical Review E, 2020, 102, 053313.	2.1	4
101	Maxwell Garnett approximation in random media: tutorial. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2022, 39, 535.	1.5	4
102	Comment on the use of the method of images for calculating electromagnetic responses of interacting spheres. Physical Review E, 2005, 72, 023401; discussion 023402.	2.1	3
103	On the current-driven model in the classical electrodynamics of continuous media. Journal of Physics Condensed Matter, 2010, 22, 485401.	1.8	3
104	Applicability of effective medium description to photonic crystals in higher bands: Theory and numerical analysis. Physical Review B, 2016, 93, .	3.2	3
105	What is extinction? Operational definition of the extinguished power for plane waves and collimated beams. Journal of Quantitative Spectroscopy and Radiative Transfer, 2020, 246, 106933.	2.3	3
106	Homogenization of periodic structures: One layer is â€œbulkâ€• Europhysics Letters, 2022, 138, 35001.	2.0	3
107	One-phonon relaxation of localized electronic states in anharmonic nanoparticles. Journal of Physics Condensed Matter, 2000, 12, 7569-7582.	1.8	2
108	Single-scattering optical tomography. , 2009, , .		2

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109	Comment on â€˜What is negative refraction?â€™. Journal of Modern Optics, 2010, 57, 2098-2102.	1.3	2
110	A nonasymptotic homogenization theory of electromagnetic metamaterials. , 2014, , .		2
111	Two-stream theory of light propagation in amplifying media. Journal of the Optical Society of America B: Optical Physics, 2018, 35, 533.	2.1	2
112	Balazs thought experiment and its implications for the electromagnetic force density in continuous media. Relativistic analysis. Annals of Physics, 2020, 422, 168293.	2.8	2
113	The Power of Trefftz Approximations: Finite Difference, Boundary Difference and Discontinuous Galerkin Methods; Nonreflecting Conditions and Non-Asymptotic Homogenization. Lecture Notes in Computer Science, 2015, , 50-61.	1.3	2
114	Diffuse optical tomography with polarized light: a GPU-accelerated polarization-sensitive Monte Carlo simulations for efficient sensitivity kernel computation. , 2019, , .		2
115	A fast method to compute dispersion diagrams of three-dimensional photonic crystals with rectangular geometry. Computer Physics Communications, 2022, 279, 108441.	7.5	2
116	Surface-Enhanced Optical Nonlinearities of Nanostructured Fractal Materials. Fractals, 1997, 05, 63-82.	3.7	1
117	Inverse scattering with diffusing waves:â€ƒerratum. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2002, 19, 1035.	1.5	1
118	Propagation of Diffuse Light in a Turbid Medium with Multiple Spherical Inhomogeneities. Applied Optics, 2004, 43, 104.	2.1	1
119	Optical diffusion tomography with large data sets. , 2005, 5969, 280.		1
120	Trefftz approximations in complex media: Accuracy and applications. Computers and Mathematics With Applications, 2019, 77, 1770-1785.	2.7	1
121	COMPUTATIONAL APPROACHES IN OPTICS OF FRACTAL CLUSTERS. , 1999, , 210-243.		1
122	Novel Approach to Spatial Frequency Domain Fluorescence Diffuse Optical Tomography for Tumor Imaging. , 2018, , .		1
123	<title>Numerical studies of inversion formulas for diffusion tomography: effects of boundary conditions</title>. , 2001, , .		0
124	Transport-corrected diffusion theory for image reconstruction in optical tomography. , 2005, , .		0
125	New Approach to Solving the Radiative Transport Equation. , 2006, , MH2.		0
126	Comment on â€œOptical response of strongly coupled metal nanoparticles in dimer arraysâ€• Physical Review B, 2006, 74, .	3.2	0

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127	Surface plasmons in ordered and disordered chains of metal nanospheres. , 2007, , .		0
128	Single-Scattering Optical Tomography. , 2007, , .		0
129	Comment on â€˜What is negative refraction?â€™. Journal of Modern Optics, 2010, 57, 2109-2110.	1.3	0
130	A Novel Nonlinear Image Reconstruction Algorithm for Diffuse Optical Tomography. , 2014, , .		0
131	Perturbative analysis of electromagnetic homogenization near the Î“-point in higher bands. , 2015, , .		0
132	An uncertainty principle in electromagnetic homogenization. , 2015, , .		0
133	Nonasymptotic and nonlocal homogenization of electromagnetic metamaterials. , 2017, , .		0
134	Analytical reconstruction methods in optical tomography with sampling and truncation of data. , 2002, , .		0
135	Optical Tomography with Large Data Sets and Analytic Reconstruction Formulas. , 2008, , .		0
136	Heating Rate and Impossibility of Negative Refraction. , 2008, , .		0
137	Improvements and variants of data compatible T-matrix completion (DCTMC) for solving nonlinear inverse scattering problems. , 2016, , .		0
138	Data-compatible T-matrix completion â€“ A new numerical method for solving nonlinear inverse problems. , 2016, , .		0
139	Increased resolution using polarization filters in optical tomography. Proceedings of SPIE, 2017, , .	0.8	0
140	Reciprocity relations in 3D vector radiative transport applied to diffuse optical tomography. Proceedings of SPIE, 2017, , .	0.8	0
141	Evaluation of the temporal auto-correlation function sensitivity to Brownian motion in the radiative transport regime. , 2017, , .		0
142	Simulating DCT and SCOT in the transport regime. , 2018, , .		0
143	Nonreciprocal Broken-Ray Tomography: Applications to Fluorescence Optical Imaging. , 2019, , .		0
144	Diffuse correlation tomography in the transport regime: a theoretical study of the sensitivity to Brownian motion. , 2019, , .		0

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145	Diffuse correlation tomography in the transport regime: a theoretical study of the sensitivity to Brownian motion. , 2019, , .		0
146	Fluorescence Optical Tomography of Mesocopic Systems. , 2020, , .		0