

# Vadim A Markel

## List of Publications by Year in descending order

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146  
papers

4,289  
citations

117571

34  
h-index

114418

63  
g-index

150  
all docs

150  
docs citations

150  
times ranked

2919  
citing authors

#	ARTICLE	IF	CITATIONS
1	Homogenization of periodic structures: One layer is $\epsilon$ -bulk. Europhysics Letters, 2022, 138, 35001.	0.7	3
2	Maxwell Garnett approximation in random media: tutorial. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2022, 39, 535.	0.8	4
3	A fast method to compute dispersion diagrams of three-dimensional photonic crystals with rectangular geometry. Computer Physics Communications, 2022, 279, 108441.	3.0	2
4	Binary Discrete Fourier Transform and Its Inversion. IEEE Transactions on Signal Processing, 2021, 69, 3484-3499.	3.2	8
5	Investigation of the effect of super-resolution in nonlinear inverse scattering. Physical Review E, 2020, 102, 053313.	0.8	4
6	Balazs thought experiment and its implications for the electromagnetic force density in continuous media. Relativistic analysis. Annals of Physics, 2020, 422, 168293.	1.0	2
7	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.	1.1	3
8	Fluorescence Optical Tomography of Mesoscopic Systems. , 2020, , .		0
9	Fast linear inversion for highly overdetermined inverse scattering problems. Inverse Problems, 2019, 35, 124002.	1.0	4
10	Extinction, scattering and absorption of electromagnetic waves in the coupled-dipole approximation. Journal of Quantitative Spectroscopy and Radiative Transfer, 2019, 236, 106611.	1.1	21
11	Trefftz approximations in complex media: Accuracy and applications. Computers and Mathematics With Applications, 2019, 77, 1770-1785.	1.4	1
12	Nonreciprocal Broken-Ray Tomography: Applications to Fluorescence Optical Imaging. , 2019, , .		0
13	Diffuse correlation tomography in the transport regime: a theoretical study of the sensitivity to Brownian motion. , 2019, , .		0
14	Diffuse correlation tomography in the transport regime: a theoretical study of the sensitivity to Brownian motion. , 2019, , .		0
15	Diffuse optical tomography with polarized light: a GPU-accelerated polarization-sensitive Monte Carlo simulations for efficient sensitivity kernel computation. , 2019, , .		2
16	Diffuse correlation tomography in the transport regime: A theoretical study of the sensitivity to Brownian motion. Physical Review E, 2018, 97, 022408.	0.8	4
17	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.	0.8	4
18	Nonreciprocal broken ray transforms with applications to fluorescence imaging. Inverse Problems, 2018, 34, 094002.	1.0	11

#	ARTICLE	IF	CITATIONS
19	Optimized diffusion approximation. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2018, 35, 356.	0.8	6
20	Two-stream theory of light propagation in amplifying media. Journal of the Optical Society of America B: Optical Physics, 2018, 35, 533.	0.9	2
21	Novel Approach to Spatial Frequency Domain Fluorescence Diffuse Optical Tomography for Tumor Imaging. , 2018, , .		1
22	Simulating DCT and SCOT in the transport regime. , 2018, , .		0
23	Nonasymptotic and nonlocal homogenization of electromagnetic metamaterials. , 2017, , .		0
24	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.	0.8	7
25	Reciprocity relation for the vector radiative transport equation and its application to diffuse optical tomography with polarized light. Optics Letters, 2017, 42, 362.	1.7	11
26	Increased resolution using polarization filters in optical tomography. Proceedings of SPIE, 2017, , .	0.8	0
27	Reciprocity relations in 3D vector radiative transport applied to diffuse optical tomography. Proceedings of SPIE, 2017, , .	0.8	0
28	Evaluation of the temporal auto-correlation function sensitivity to Brownian motion in the radiative transport regime. , 2017, , .		0
29	Maxwell Garnett approximation (advanced topics): tutorial. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2016, 33, 2237.	0.8	58
30	Overcoming the adverse effects of substrate on the waveguiding properties of plasmonic nanoparticle chains. Journal of Applied Physics, 2016, 119, .	1.1	12
31	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.	0.8	10
32	Nonasymptotic homogenization of periodic electromagnetic structures: Uncertainty principles. Physical Review B, 2016, 93, .	1.1	4
33	Applicability of effective medium description to photonic crystals in higher bands: Theory and numerical analysis. Physical Review B, 2016, 93, .	1.1	3
34	Solution of the nonlinear inverse scattering problem by $T$ -matrix completion. I. Theory. Physical Review E, 2016, 94, 043317.	0.8	9
35	Solution of the nonlinear inverse scattering problem by $T$ -matrix completion. II. Simulations. Physical Review E, 2016, 94, 043318.	0.8	7
36	Introduction to the Maxwell Garnett approximation: tutorial. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2016, 33, 1244.	0.8	542

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37	Improvements and variants of data compatible T-matrix completion (DCTMC) for solving nonlinear inverse scattering problems. , 2016, , .		0
38	Data-compatible T-matrix completion " A new numerical method for solving nonlinear inverse problems. , 2016, , .		0
39	Perturbative analysis of electromagnetic homogenization near the $\hat{\Gamma}$ -point in higher bands. , 2015, , .		0
40	An uncertainty principle in electromagnetic homogenization. , 2015, , .		0
41	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.	1.0	2
42	A nonasymptotic homogenization theory of electromagnetic metamaterials. , 2014, , .		2
43	A Novel Nonlinear Image Reconstruction Algorithm for Diffuse Optical Tomography. , 2014, , .		0
44	Waveguiding properties of short linear chains of nonspherical metal nanoparticles. Journal of the Optical Society of America B: Optical Physics, 2014, 31, 2981.	0.9	14
45	Radiative transport for two-photon light. Physical Review A, 2014, 90, .	1.0	5
46	Inversion of the star transform. Inverse Problems, 2014, 30, 105001.	1.0	17
47	Surface plasmon polaritons in curved chains of metal nanoparticles. Physical Review B, 2014, 90, .	1.1	20
48	A non-asymptotic homogenization theory for periodic electromagnetic structures. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2014, 470, 20140245.	1.0	14
49	Transmission and spectral properties of short optical plasmon waveguides. Optics and Spectroscopy (English Translation of Optika I Spektroskopiya), 2013, 115, 666-674.	0.2	13
50	Diffuse optical tomography in the presence of a chest wall. Journal of Biomedical Optics, 2013, 18, 026016.	1.4	6
51	Surface waves in three-dimensional electromagnetic composites and their effect on homogenization. Optics Express, 2013, 21, 10412.	1.7	11
52	Nondecaying surface plasmon polaritons in linear chains of silver nanospheroids. Optics Letters, 2013, 38, 4743.	1.7	32
53	Current-driven homogenization and effective medium parameters for finite samples. Physical Review B, 2013, 88, .	1.1	18
54	Comment on "Green's function theory for infinite and semi-infinite particle chains": Physical Review B, 2012, 86, .	1.1	19

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55	Homogenization of Maxwell's equations in periodic composites: Boundary effects and dispersion relations. <i>Physical Review E</i> , 2012, 85, 066603.	0.8	23
56	Effects of size polydispersity on the extinction spectra of colloidal nanoparticle aggregates. <i>Physical Review B</i> , 2012, 85, .	1.1	20
57	Quantum theory of the electromagnetic response of metal nanofilms. <i>Physical Review B</i> , 2011, 84, .	1.1	8
58	Theoretical and numerical investigation of the size-dependent optical effects in metal nanoparticles. <i>Physical Review B</i> , 2011, 84, .	1.1	29
59	Inversion formulas for the broken-ray Radon transform. <i>Inverse Problems</i> , 2011, 27, 025002.	1.0	42
60	The Green's function for the radiative transport equation in the slab geometry. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2010, 43, 065402.	0.7	58
61	Pole expansion of the Lorenz-Mie coefficients. <i>Journal of Nanophotonics</i> , 2010, 4, 041555.	0.4	7
62	Comment on "What is negative refraction?". <i>Journal of Modern Optics</i> , 2010, 57, 2098-2102.	0.6	2
63	On the sign of refraction in anisotropic non-magnetic media. <i>Journal of Optics (United Kingdom)</i> , 2010, 12, 015104.	1.0	14
64	Comment on "What is negative refraction?". <i>Journal of Modern Optics</i> , 2010, 57, 2109-2110.	0.6	0
65	On the current-driven model in the classical electrodynamics of continuous media. <i>Journal of Physics Condensed Matter</i> , 2010, 22, 485401.	0.7	3
66	Single-scattering optical tomography: Simultaneous reconstruction of scattering and absorption. <i>Physical Review E</i> , 2010, 81, 016602.	0.8	34
67	Single-scattering optical tomography. , 2009, , .		2
68	Short-distance expansion for the electromagnetic half-space Green's tensor: general results and an application to radiative lifetime computations. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2009, 42, 275203.	0.7	20
69	Optical tomography with structured illumination. <i>Optics Letters</i> , 2009, 34, 983.	1.7	47
70	Diffusion approximation revisited. <i>Journal of the Optical Society of America A: Optics and Image Science, and Vision</i> , 2009, 26, 1291.	0.8	9
71	Correct definition of the Poynting vector in electrically and magnetically polarizable medium reveals that negative refraction is impossible: reply. <i>Optics Express</i> , 2009, 17, 7325.	1.7	4
72	Correct definition of the Poynting vector in electrically and magnetically polarizable medium reveals that negative refraction is impossible: reply. <i>Optics Express</i> , 2009, 17, 15170.	1.7	5

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73	Single-scattering optical tomography. Physical Review E, 2009, 79, 036607.	0.8	48
74	Fluorescent optical tomography with large data sets. Optics Letters, 2008, 33, 1744.	1.7	29
75	Imaging complex structures with diffuse light. Optics Express, 2008, 16, 5048.	1.7	89
76	Correct definition of the Poynting vector in electrically and magnetically polarizable medium reveals that negative refraction is impossible. Optics Express, 2008, 16, 19152.	1.7	44
77	From slow to superluminal propagation: Dispersive properties of surface plasmon polaritons in linear chains of metallic nanospheroids. Physical Review B, 2008, 78, .	1.1	56
78	Can the imaginary part of permeability be negative?. Physical Review E, 2008, 78, 026608.	0.8	53
79	Classical Theory of Optical Nonlinearity in Conducting Nanoparticles. Physical Review Letters, 2008, 100, 047402.	2.9	30
80	Optical Tomography with Large Data Sets and Analytic Reconstruction Formulas. , 2008, , .		0
81	Heating Rate and Impossibility of Negative Refraction. , 2008, , .		0
82	Surface plasmons in ordered and disordered chains of metal nanospheres. , 2007, , .		0
83	On the convergence of the Born series in optical tomography with diffuse light. Inverse Problems, 2007, 23, 1445-1465.	1.0	13
84	Propagation of surface plasmons in ordered and disordered chains of metal nanospheres. Physical Review B, 2007, 75, .	1.1	136
85	Single-Scattering Optical Tomography. , 2007, , .		0
86	Fourier-Laplace structure of the inverse scattering problem for the radiative transport equation. Inverse Problems and Imaging, 2007, 1, 181-188.	0.6	20
87	New Approach to Solving the Radiative Transport Equation. , 2006, , MH2.		0
88	Spectroscopic studies of fractal aggregates of silver nanospheres undergoing local restructuring. Journal of Chemical Physics, 2006, 125, 111101.	1.2	17
89	Anderson localization of polar eigenmodes in random planar composites. Journal of Physics Condensed Matter, 2006, 18, 11149-11165.	0.7	11
90	Radiative transport equation in rotated reference frames. Journal of Physics A, 2006, 39, 115-137.	1.6	53

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91	Nonlinear inverse scattering and three-dimensional near-field optical imaging. Applied Physics Letters, 2006, 89, 221116.	1.5	16
92	Comment on "Optical response of strongly coupled metal nanoparticles in dimer arrays". Physical Review B, 2006, 74, .	1.1	0
93	Transport-corrected diffusion theory for image reconstruction in optical tomography. , 2005, , .		0
94	Coherently tunable third-order nonlinearity in a nanojunction. Journal of Physics B: Atomic, Molecular and Optical Physics, 2005, 38, L347-L355.	0.6	5
95	Optical diffusion tomography with large data sets. , 2005, 5969, 280.		1
96	Comment on "Silver nanoparticle array structures that produce remarkably narrow plasmon line shapes". [J. Chem. Phys. 120, 10871 (2004)]. Journal of Chemical Physics, 2005, 122, 097101.	1.2	14
97	Multiple projection optical diffusion tomography with plane wave illumination. Physics in Medicine and Biology, 2005, 50, 2351-2364.	1.6	8
98	Superresolution and corrections to the diffusion approximation in optical tomography. Applied Physics Letters, 2005, 87, 101111.	1.5	12
99	Comment on the use of the method of images for calculating electromagnetic responses of interacting spheres. Physical Review E, 2005, 72, 023401; discussion 023402.	0.8	3
100	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.	0.6	159
101	Experimental demonstration of an analytic method for image reconstruction in optical diffusion tomography with large data sets. Optics Letters, 2005, 30, 3338.	1.7	48
102	Local anisotropy and giant enhancement of local electromagnetic fields in fractal aggregates of metal nanoparticles. Physical Review B, 2005, 72, .	1.1	43
103	Symmetries, inversion formulas, and image reconstruction for optical tomography. Physical Review E, 2004, 70, 056616.	0.8	73
104	Electromagnetic density of states and absorption of radiation by aggregates of nanospheres with multipole interactions. Physical Review B, 2004, 70, .	1.1	49
105	Propagation of Diffuse Light in a Turbid Medium with Multiple Spherical Inhomogeneities. Applied Optics, 2004, 43, 104.	2.1	1
106	Dual-projection optical diffusion tomography. Optics Letters, 2004, 29, 2019.	1.7	5
107	Modified spherical harmonics method for solving the radiative transport equation. Waves in Random and Complex Media, 2004, 14, L13-L19.	1.5	73
108	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.	0.8	65

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109	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.	0.8	51
110	Effects of sampling and limited data in optical tomography. Applied Physics Letters, 2002, 81, 1180-1182.	1.5	31
111	Scanning paraxial optical tomography. Optics Letters, 2002, 27, 1123.	1.7	16
112	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.	0.8	62
113	Inverse scattering with diffusing waves:â€ferratum. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2002, 19, 1035.	0.8	1
114	Theory of electronâ€phonon dynamics in insulating nanoparticles. Physica B: Condensed Matter, 2002, 316-317, 430-433.	1.3	13
115	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.	1.1	12
116	Analytical reconstruction methods in optical tomography with sampling and truncation of data. , 2002, , .		0
117	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.	0.8	13
118	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.	0.8	74
119	Inverse scattering with diffusing waves. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2001, 18, 2767.	0.8	55
120	Near-field optical study of selective photomodification of fractal aggregates. Journal of the Optical Society of America B: Optical Physics, 2001, 18, 698.	0.9	18
121	<title>Numerical studies of inversion formulas for diffusion tomography: effects of boundary conditions</title>. , 2001, , .		0
122	Near-Field Tomography without Phase Retrieval. Physical Review Letters, 2001, 86, 5874-5877.	2.9	43
123	Inverse scattering for the diffusion equation with general boundary conditions. Physical Review E, 2001, 64, 035601.	0.8	25
124	One-phonon relaxation of localized electronic states in anharmonic nanoparticles. Journal of Physics Condensed Matter, 2000, 12, 7569-7582.	0.7	2
125	Near-field optical spectroscopy of individual surface-plasmon modes in colloid clusters. Physical Review B, 1999, 59, 10903-10909.	1.1	278
126	Toward a universal extinction spectrum of self-affine silver colloid clusters: Experiment and simulation. Journal of Chemical Physics, 1999, 110, 8080-8083.	1.2	8



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127	Enhancement of nonlinear processes near rough nanometer-structured surfaces obtained by deposition of fractal colloidal silver aggregates on a plain substrate. <i>Physical Review B</i> , 1999, 60, 10739-10742.	1.1	11
128	Absorption of light by soot particles in micro-droplets of water. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 1999, 63, 321-339.	1.1	19
129	COMPUTATIONAL APPROACHES IN OPTICS OF FRACTAL CLUSTERS. , 1999, , 210-243.		1
130	Nonlinear optical phenomena on rough surfaces of metal thin films. <i>Physical Review B</i> , 1998, 57, 14901-14913.	1.1	34
131	Spectral Dependence of Selective Photomodification in Fractal Aggregates of Colloidal Particles. <i>Physical Review Letters</i> , 1998, 80, 1102-1105.	2.9	107
132	Nonlinear Optical Phenomena in Nanostructured Fractal Materials. <i>Journal of Nonlinear Optical Physics and Materials</i> , 1998, 07, 131-152.	1.1	12
133	Direct observation of localized dipolar excitations on rough nanostructured surfaces. <i>Physical Review B</i> , 1998, 58, 11441-11448.	1.1	79
134	Numerical studies of second- and fourth-order correlation functions in cluster-cluster aggregates in application to optical scattering. <i>Physical Review E</i> , 1997, 55, 7313-7333.	0.8	4
135	Surface-Enhanced Optical Nonlinearities of Nanostructured Fractal Materials. <i>Fractals</i> , 1997, 05, 63-82.	1.8	1
136	Radiative relaxation time of quasinormal optical modes in small dielectric particles. <i>The Philosophical Magazine: Physics of Condensed Matter B, Statistical Mechanics, Electronic, Optical and Magnetic Properties</i> , 1997, 76, 895-909.	0.6	6
137	Fluctuations of light scattered by fractal clusters. <i>Journal of the Optical Society of America A: Optics and Image Science, and Vision</i> , 1997, 14, 60.	0.8	8
138	Nonlinear optics of fractal nanomaterials: Small-particle composites and self-affine thin films. <i>Physica A: Statistical Mechanics and Its Applications</i> , 1997, 241, 249-258.	1.2	9
139	Enhanced Raman scattering from self-affine thin films. <i>Optics Letters</i> , 1996, 21, 1628.	1.7	47
140	Small-particle composites. I. Linear optical properties. <i>Physical Review B</i> , 1996, 53, 2425-2436.	1.1	202
141	Small-particle composites. II. Nonlinear optical properties. <i>Physical Review B</i> , 1996, 53, 2437-2449.	1.1	134
142	Antisymmetrical optical states. <i>Journal of the Optical Society of America B: Optical Physics</i> , 1995, 12, 1783.	0.9	62
143	RESONANT OPTICS OF FRACTALS. <i>Fractals</i> , 1994, 02, 201-209.	1.8	6
144	Coupled-dipole Approach to Scattering of Light from a One-dimensional Periodic Dipole Structure. <i>Journal of Modern Optics</i> , 1993, 40, 2281-2291.	0.6	194

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145	Scattering of Light from Two Interacting Spherical Particles. Journal of Modern Optics, 1992, 39, 853-861.	0.6	44
146	Theory and numerical simulation of optical properties of fractal clusters. Physical Review B, 1991, 43, 8183-8195.	1.1	183