Anatoly V Zayats

List of Publications by Citations

158 papers	12,187 citations	46 h-index	109 g-index
184 ext. papers	14,657 ext. citations	9.3 avg, IF	6.81 L-index

#	Paper	IF	Citations
158	Nonlinear plasmonics. *Nature Photonics*, **2012**, 6, 737-748	33.9	1751
157	Nano-optics of surface plasmon polaritons. *Physics Reports*, **2005**, 408, 131-314	27.7	1666
156	Plasmonic nanorod metamaterials for biosensing. *Nature Materials*, **2009**, 8, 867-71	27	1272
155	Spin-orbit interactions of light. *Nature Photonics*, **2015**, 9, 796-808	33.9	1011
154	Near-field interference for the unidirectional excitation of electromagnetic guided modes. *Science*, **2013**, 340, 328-30	33.3	428
153	Near-field photonics: surface plasmon polaritons and localized surface plasmons. *Journal of Optics*, **2003**, 5, S16-S50		406
152	Designed ultrafast optical nonlinearity in a plasmonic nanorod metamaterial enhanced by nonlocality. *Nature Nanotechnology*, **2011**, 6, 107-11	28.7	357
151	Optical nonlocalities and additional waves in epsilon-near-zero metamaterials. *Physical Review Letters*, **2009**, 102, 127405	7.4	201
150	Spin-orbit coupling in surface plasmon scattering by nanostructures. *Nature Communications*, **2014**, 5, 5327	17.4	192
149	Photonic spin Hall effect in hyperbolic metamaterials for polarization-controlled routing of subwavelength modes. *Nature Communications*, **2014**, 5, 3226	17.4	180
148	Ultrafast synthesis and switching of light polarization in nonlinear anisotropic metamaterials. *Nature Photonics*, **2017**, 11, 628-633	33.9	153
147	Low-loss multilayered metamaterial exhibiting a negative index of refraction at visible wavelengths. *Physical Review Letters*, **2011**, 106, 067402	7.4	136
146	Single-nanowire spectrometers. *Science*, **2019**, 365, 1017-1020	33.3	130
145	High-performance biosensing using arrays of plasmonic nanotubes. *ACS Nano*, **2010**, 4, 2210-6	16.7	126
144	Anisotropic optical properties of arrays of gold nanorods embedded in alumina. *Physical Review B*, **2006**, 73,	3.3	123
143	Growth and properties of gold and nickel nanorods in thin film alumina. *Nanotechnology*, **2006**, 17, 5746-5753	3.4	119
142	Lateral forces on circularly polarizable particles near a surface. *Nature Communications*, **2015**, 6, 8799	17.4	114

141	Guided plasmonic modes in nanorod assemblies: strong electromagnetic coupling regime. *Optics Express*, **2008**, 16, 7460-70	3.3	100
140	Three-dimensional numerical modeling of photonic integration with dielectric-loaded SPP waveguides. *Physical Review B*, **2008**, 78,	3.3	98
139	Near-field second harmonic generation from a rough metal surface. *Physical Review B*, **1997**, 56, 9290-9293	3.3	95
138	Eliminating material constraints for nonlinearity with plasmonic metamaterials. *Nature Communications*, **2015**, 6, 7757	17.4	94
137	Near-field microscopy of surface-plasmon polaritons: Localization and internal interface imaging. *Physical Review B*, **1995**, 51, 17916-17924	3.3	90
136	Manipulating polarization of light with ultrathin epsilon-near-zero metamaterials. *Optics Express*, **2013**, 21, 14907-17	3.3	87
135	Bulk plasmon-polaritons in hyperbolic nanorod metamaterial waveguides. *Laser and Photonics Reviews*, **2015**, 9, 345-353	8.3	86
134	Low-temperature plasmonics of metallic nanostructures. *Nano Letters*, **2012**, 12, 1561-5	11.5	85
133	Deep-subwavelength features of photonic skyrmions in a confined electromagnetic field with orbital angular momentum. *Nature Physics*, **2019**, 15, 650-654	16.2	84
132	Hydrogen detected by the naked eye: optical hydrogen gas sensors based on core/shell plasmonic nanorod metamaterials. *Advanced Materials*, **2014**, 26, 3532-7	24	81
131	Microscopic model of Purcell enhancement in hyperbolic metamaterials. *Physical Review B*, **2012**, 86,	3.3	78
130	Janus and Huygens Dipoles: Near-Field Directionality Beyond Spin-Momentum Locking. *Physical Review Letters*, **2018**, 120, 117402	7.4	73
129	Surface plasmon polariton amplification upon electrical injection in highly integrated plasmonic circuits. *Nano Letters*, **2012**, 12, 2459-63	11.5	72
128	All-plasmonic modulation via stimulated emission of copropagating surface plasmon polaritons on a substrate with gain. *Nano Letters*, **2011**, 11, 2231-5	11.5	69
127	Reactive tunnel junctions in electrically driven plasmonic nanorod metamaterials. *Nature Nanotechnology*, **2018**, 13, 159-164	28.7	69
126	Titanium Oxynitride Thin Films with Tunable Double Epsilon-Near-Zero Behavior for Nanophotonic Applications. *ACS Applied Materials & Interfaces*, **2017**, 9, 29857-29862	9.5	65
125	Nonperturbative Hydrodynamic Model for Multiple Harmonics Generation in Metallic Nanostructures. *ACS Photonics*, **2015**, 2, 8-13	6.3	62
124	Spontaneous emission in non-local materials. *Light: Science and Applications*, **2017**, 6, e16273	16.7	61

123	Nonlinearly coupled localized plasmon resonances: Resonant second-harmonic generation. *Physical Review B*, **2012**, 86,	3.3	61
122	Refractive index sensing with hyperbolic metamaterials: strategies for biosensing and nonlinearity enhancement. *Optics Express*, **2015**, 23, 14329-43	3.3	60
121	Nonlocal optics of plasmonic nanowire metamaterials. *Physical Review B*, **2014**, 89,	3.3	56
120	Nonlocality-driven supercontinuum white light generation in plasmonic nanostructures. *Nature Communications*, **2016**, 7, 11497	17.4	56
119	Purcell effect in hyperbolic metamaterial resonators. *Physical Review B*, **2015**, 92,	3.3	54
118	Nonlinearity-Induced Multiplexed Optical Trapping and Manipulation with Femtosecond Vector Beams. *Nano Letters*, **2018**, 18, 5538-5543	11.5	50
117	Ultrafast all-optical modulation with hyperbolic metamaterial integrated in Si photonic circuitry. *Optics Express*, **2014**, 22, 10987-94	3.3	49
116	Plasmonic Core/Shell Nanorod Arrays: Subattoliter Controlled Geometry and Tunable Optical Properties. *Journal of Physical Chemistry C*, **2007**, 111, 12522-12527	3.8	49
115	Free-electron Optical Nonlinearities in Plasmonic Nanostructures: A Review of the Hydrodynamic Description. *Laser and Photonics Reviews*, **2018**, 12, 1700082	8.3	48
114	Plasmonic Metamaterials for Nanochemistry and Sensing. *Accounts of Chemical Research*, **2019**, 52, 3018-3028	24.3	47
113	DNA-Assembled Plasmonic Waveguides for Nanoscale Light Propagation to a Fluorescent Nanodiamond. *Nano Letters*, **2018**, 18, 7323-7329	11.5	46
112	Ultrafast Optical Modulation of Second- and Third-Harmonic Generation from Cut-Disk-Based Metasurfaces. *ACS Photonics*, **2016**, 3, 1517-1522	6.3	45
111	Lateral Casimir Force on a Rotating Particle near a Planar Surface. *Physical Review Letters*, **2017**, 118, 133605	7.4	44
110	Looking into meta-atoms of plasmonic nanowire metamaterial. *Nano Letters*, **2014**, 14, 4971-6	11.5	44
109	Broadband and broadangle SPP antennas based on plasmonic crystals with linear chirp. *Scientific Reports*, **2012**, 2, 829	4.9	44
108	Spontaneous photon-pair generation from a dielectric nanoantenna. *Optica*, **2019**, 6, 1416	8.6	44
107	Plasmonic enhancement of nonlinear magneto-optical response in nickel nanorod metamaterials. *Physical Review B*, **2013**, 87,	3.3	41
106	Hyperspectral imaging with scanning near-field optical microscopy: applications in plasmonics. *Optics Express*, **2010**, 18, 16513-9	3.3	41

105	Ultrasensitive non-resonant detection of ultrasound with plasmonic metamaterials. *Advanced Materials*, **2013**, 25, 2351-6	24	39
104	Hyperbolic metamaterial antenna for second-harmonic generation tomography. *Optics Express*, **2015**, 23, 30730-8	3.3	39
103	Fabrication and optical properties of gold nanotube arrays. *Journal of Physics Condensed Matter*, **2008**, 20, 362203	1.8	38
102	Unidirectional evanescent-wave coupling from circularly polarized electric and magnetic dipoles: An angular spectrum approach. *Physical Review B*, **2017**, 95,	3.3	37
101	Active Nanophotonic Circuitry Based on Dielectric-loaded Plasmonic Waveguides. *Advanced Optical Materials*, **2015**, 3, 1662-1690	8.1	37
100	Scattering suppression from arbitrary objects in spatially dispersive layered metamaterials. *Physical Review B*, **2015**, 91,	3.3	35
99	Amplification of surface-enhanced Raman scattering due to substrate-mediated localized surface plasmons in gold nanodimers. *Journal of Materials Chemistry C*, **2017**, 5, 4075-4084	7.1	34
98	Nano-opto-mechanical effects in plasmonic waveguides. *Laser and Photonics Reviews*, **2014**, 8, 131-136	8.3	34
97	Spontaneous Emission inside a Hyperbolic Metamaterial Waveguide. *ACS Photonics*, **2017**, 4, 2513-2521	6.3	33
96	Second-Harmonic Generation from Hyperbolic Plasmonic Nanorod Metamaterial Slab. *Laser and Photonics Reviews*, **2018**, 12, 1700189	8.3	32
95	Spectral variation of fluorescence lifetime near single metal nanoparticles. *Scientific Reports*, **2016**, 6, 21349	4.9	30
94	Tuning the effective plasma frequency of nanorod metamaterials from visible to telecom wavelengths. *Applied Physics Letters*, **2015**, 107, 121110	3.4	29
93	Nonlinear Goniometry by Second-Harmonic Generation in AlGaAs Nanoantennas. *ACS Photonics*, **2018**, 5, 4386-4392	6.3	28
92	Tailoring and enhancing spontaneous two-photon emission using resonant plasmonic nanostructures. *Physical Review A*, **2012**, 86,	2.6	27
91	Experimental demonstration of dielectric-loaded plasmonic waveguide disk resonators at telecom wavelengths. *Applied Physics Letters*, **2011**, 98, 161102	3.4	27
90	The controlled fabrication and geometry tunable optics of gold nanotube arrays. *Nanotechnology*, **2011**, 22, 045705	3.4	26
89	Experimental demonstration of linear and spinning Janus dipoles for polarisation- and wavelength-selective near-field coupling. *Light: Science and Applications*, **2019**, 8, 52	16.7	24
88	Spin and Geometric Phase Control Four-Wave Mixing from Metasurfaces. *Laser and Photonics Reviews*, **2018**, 12, 1800034	8.3	24

87	Fabrication and optical properties of large-scale arrays of gold nanocavities based on rod-in-a-tube coaxials. *Applied Physics Letters*, **2013**, 102, 103103	3.4	24
86	Plasmonic waveguide as an efficient transducer for high-density data storage. *Applied Physics Letters*, **2009**, 95, 171112	3.4	24
85	Transverse spinning of unpolarized light. *Nature Photonics*, **2021**, 15, 156-161	33.9	24
84	Interferometric Evanescent Wave Excitation of a Nanoantenna for Ultrasensitive Displacement and Phase Metrology. *Physical Review Letters*, **2018**, 121, 193901	7.4	23
83	Geometry Defines Ultrafast Hot-Carrier Dynamics and Kerr Nonlinearity in Plasmonic Metamaterial Waveguides and Cavities. *Advanced Optical Materials*, **2017**, 5, 1700299	8.1	22
82	Transverse spin dynamics in structured electromagnetic guided waves. *Proceedings of the National Academy of Sciences of the United States of America*, **2021**, 118,	11.5	22
81	Light emission in nonlocal plasmonic metamaterials. *Faraday Discussions*, **2015**, 178, 61-70	3.6	21
80	Giant Enhancement of Second-Order Nonlinearity of Epsilon-near- Zero Medium by a Plasmonic Metasurface. *Nano Letters*, **2020**, 20, 5421-5427	11.5	21
79	Designer photonic dynamics by using non-uniform electron temperature distribution for on-demand all-optical switching times. *Nature Communications*, **2019**, 10, 2967	17.4	21
78	Compact Optical Antenna Coupler for Silicon Photonics Characterized by Third-Harmonic Generation. *ACS Photonics*, **2014**, 1, 912-916	6.3	21
77	Metaparticles: Dressing Nano-Objects with a Hyperbolic Coating. *Laser and Photonics Reviews*, **2018** , 12, 1800179	8.3	21
76	Superluminal and stopped light due to mode coupling in confined hyperbolic metamaterial waveguides. *Scientific Reports*, **2015**, 5, 17678	4.9	20
75	Integrated plasmonic circuitry on a vertical-cavity surface-emitting semiconductor laser platform. *Nature Communications*, **2016**, 7, 12409	17.4	20
74	Circular dichroism enhancement in plasmonic nanorod metamaterials. *Optics Express*, **2018**, 26, 17841-17848	3.8	20
73	Hyperbolic polaritonic crystals based on nanostructured nanorod metamaterials. *Advanced Materials*, **2015**, 27, 5974-80	24	20
72	Nonlinear Dynamics of Ultrashort Long-Range Surface Plasmon Polariton Pulses in Gold Strip Waveguides. *ACS Photonics*, **2016**, 3, 2324-2329	6.3	19
71	Repulsion of polarised particles from anisotropic materials with a near-zero permittivity component. *Light: Science and Applications*, **2016**, 5, e16022	16.7	19
70	Magneto-Optical Metamaterials: Nonreciprocal Transmission and Faraday Effect Enhancement. *Advanced Optical Materials*, **2019**, 7, 1801420	8.1	17

69	Optimizing strontium ruthenate thin films for near-infrared plasmonic applications. *Scientific Reports*, **2015**, 5, 9118	4.9	16
68	Four-level polarization discriminator based on a surface plasmon polaritonic crystal. *Applied Physics Letters*, **2011**, 98, 111109	3.4	16
67	Light-induced symmetry breaking for enhancing second-harmonic generation from an ultrathin plasmonic nanocavity. *Nature Communications*, **2021**, 12, 4326	17.4	16
66	Förster Resonance Energy Transfer inside Hyperbolic Metamaterials. *ACS Photonics*, **2018**, 5, 4594-4603	6.3	16
65	Universal switching of plasmonic signals using optical resonator modes. *Light: Science and Applications*, **2017**, 6, e16237	16.7	15
64	Theory of hot electrons: general discussion. *Faraday Discussions*, **2019**, 214, 245-281	3.6	15
63	Generalization of the optical theorem: experimental proof for radially polarized beams. *Light: Science and Applications*, **2018**, 7, 36	16.7	15
62	Self-Assembled Silver–Germanium Nanolayer Metamaterial with the Enhanced Nonlinear Response. *Advanced Optical Materials*, **2017**, 5, 1700753	8.1	15
61	Geometric-Phase Metasurfaces Based on Anisotropic Reflection: Generalized Design Rules. *ACS Photonics*, **2018**, 5, 1755-1761	6.3	14
60	Repulsion of polarized particles from two-dimensional materials. *Physical Review B*, **2018**, 97,	3.3	14
59	All-optical switching in silicon photonic waveguides with an epsilon-near-zero resonant cavity [Invited]. *Photonics Research*, **2018**, 6, B1	6	14
58	Anisotropic Plasmonic CuS Nanocrystals as a Natural Electronic Material with Hyperbolic Optical Dispersion. *ACS Nano*, **2019**, 13, 6550-6560	16.7	13
57	Dynamics of hot electron generation in metallic nanostructures: general discussion. *Faraday Discussions*, **2019**, 214, 123-146	3.6	13
56	Evidence of High-Order Nonlinearities in Supercontinuum White-Light Generation from a Gold Nanofilm. *ACS Photonics*, **2018**, 5, 1927-1932	6.3	13
55	Tunable Ultra-high Aspect Ratio Nanorod Architectures grown on Porous Substrate via Electromigration. *Scientific Reports*, **2016**, 6, 22272	4.9	13
54	Benchmarking System-Level Performance of Passive and Active Plasmonic Components: Integrated Circuit Approach. *Proceedings of the IEEE*, **2016**, 104, 2338-2348	14.3	13
53	Optimizing hot carrier effects in Pt-decorated plasmonic heterostructures. *Faraday Discussions*, **2019**, 214, 387-397	3.6	12
52	The room temperature phosphine-free synthesis of near-infrared emitting HgSe quantum dots. *Journal of Materials Chemistry C*, **2014**, 2, 2107-2111	7.1	12

51	Applications of plasmonics: general discussion. *Faraday Discussions*, **2015**, 178, 435-66	3.6	11
50	Directional scattering from particles under evanescent wave illumination: the role of reactive power. *Optics Letters*, **2018**, 43, 3393-3396	3	11
49	Optoelectronic Synapses Based on Hot-Electron-Induced Chemical Processes. *Nano Letters*, **2020**, 20, 1536-1541	11.5	11
48	Structural second-order nonlinearity in plasmonic metamaterials. *Optica*, **2018**, 5, 1502	8.6	10
47	3D Full-Color Image Projection Based on Reflective Metasurfaces under Incoherent Illumination. *Nano Letters*, **2020**, 20, 4481-4486	11.5	9
46	Amplitude and Phase Control of Guided Modes Excitation from a Single Dipole Source: Engineering Far- and Near-Field Directionality. *Laser and Photonics Reviews*, **2019**, 13, 1900250	8.3	9
45	Optical forces from near-field directionalities in planar structures. *Physical Review B*, **2019**, 99,	3.3	8
44	Singlet□riplet Transition Rate Enhancement inside Hyperbolic Metamaterials. *Laser and Photonics Reviews*, **2019**, 13, 1900101	8.3	8
43	Near-field hyperspectral optical imaging. *ChemPhysChem*, **2014**, 15, 619-29	3.2	8
42	Shaping plasmon beams via the controlled illumination of finite-size plasmonic crystals. *Scientific Reports*, **2014**, 4, 7234	4.9	8
41	Photonic Spin Lattices: Symmetry Constraints for Skyrmion and Meron Topologies.. *Physical Review Letters*, **2021**, 127, 237403	7.4	8
40	Reflective Metasurfaces for Incoherent Light To Bring Computer Graphics Tricks to Optical Systems. *Nano Letters*, **2017**, 17, 4189-4193	11.5	7
39	Interscale mixing microscopy: far-field imaging beyond the diffraction limit. *Optica*, **2016**, 3, 803	8.6	7
38	Stereoscopic Nanoscale-Precision Growth of Free-Standing Silver Nanorods by Electron Beam Irradiation. *Journal of Physical Chemistry C*, **2016**, 120, 20310-20314	3.8	7
37	Imaging Electric and Magnetic Modes and Their Hybridization in Single and Dimer AlGaAs Nanoantennas. *Advanced Optical Materials*, **2018**, 6, 1800664	8.1	7
36	Polarization dependence of second harmonic generation from plasmonic nanoprism arrays. *Scientific Reports*, **2019**, 9, 11514	4.9	7
35	Impact of nonradiative line broadening on emission in photonic and plasmonic cavities. *Physical Review A*, **2014**, 90,	2.6	7
34	Light extraction beyond total internal reflection using one-dimensional plasmonic crystals. *Applied Physics Letters*, **2011**, 99, 081106	3.4	7

33	Nanocone-based plasmonic metamaterials. *Nanotechnology*, **2019**, 30, 055301	3.4	7
32	Lasing at the nanoscale: coherent emission of surface plasmons by an electrically driven nanolaser. *Nanophotonics*, **2020**, 9, 3965-3975	6.3	6
31	Directional imbalance of Bloch surface waves for ultrasensitive displacement metrology. *Nanoscale*, **2021**, 13, 11041-11050	7.7	6
30	Tunneling-induced broadband and tunable optical emission from plasmonic nanorod metamaterials. *Nanophotonics*, **2020**, 9, 427-434	6.3	5
29	Rapid detection of SARS-CoV-2 viral nucleic acids based on surface enhanced infrared absorption spectroscopy. *Nanoscale*, **2021**, 13, 10133-10142	7.7	5
28	New materials for hot electron generation: general discussion. *Faraday Discussions*, **2019**, 214, 365-386	3.6	4
27	Two-Dimensional Pulse Propagation without Anomalous Dispersion. *Physical Review Letters*, **2017**, 119, 114301	7.4	4
26	Not every dipole is the same: the hidden patterns of dipolar near fields. *Europhysics News*, **2018**, 49, 14-18	0.2	4
25	Optical spin–orbit coupling in the presence of magnetization: photonic skyrmion interaction with magnetic domains. *Nanophotonics*, **2021**,	6.3	4
24	Machine Learning-Based Diffractive Image Analysis with Subwavelength Resolution. *ACS Photonics*, **2021**, 8, 1448-1456	6.3	3
23	Nanoparticle-based metasurfaces for angular independent spectral filtering applications. *Journal of Applied Physics*, **2019**, 126, 213101	2.5	3
22	Rational design of bimetallic photocatalysts based on plasmonically-derived hot carriers. *Nanoscale Advances*, **2021**, 3, 767-780	5.1	3
21	Ultrafast Carrier and Lattice Dynamics in Plasmonic Nanocrystalline Copper Sulfide Films. *Laser and Photonics Reviews*, **2021**, 15, 2000346	8.3	3
20	Special Issue on Recent Developments and Applications of Plasmonics. *ACS Photonics*, **2018**, 5, 2538-2540	6.3	2
19	Nonlocality-enabled pulse management in epsilon-near-zero metamaterials.. *Advanced Materials*, **2022**, e2107023	24	2
18	Dynamics of hot carriers in plasmonic heterostructures. *Nanophotonics*, **2021**, 10, 2929-2938	6.3	2
17	Nonlinear Nanoplasmonics. *Springer Series in Optical Sciences*, **2019**, 267-316	0.5	1
16	Sum-frequency generation and photon-pair creation in AlGaAs nano-disks **2017**,		1

15	Cathodoluminescence imaging spectroscopy of single and dimer AlGaAs nano-disks **2017**,		1
14	Plasmonic Nanorod Metamaterials as a Platform for Active Nanophotonics **2013**, 69-104		1
13	Optical hydrogen sensors based on Au/Pd core shell nanorod arrays **2013**,		1
12	Reconfigurable cavity-based plasmonic platform for resonantly enhanced sub-bandgap photodetection. *Journal of Applied Physics*, **2020**, 128, 203101	2.5	1
11	Self-Assembled Plasmonic Coaxial Nanocavities for High-Definition Broad-Angle Coloring in Reflection and Transmission. *Advanced Optical Materials*, **2021**, 9, 2001923	8.1	1
10	Mode Engineering in Large Arrays of Coupled Plasmonic Dielectric Nanoantennas. *Advanced Optical Materials*, **2021**, 9, 2001467	8.1	1
9	Ultrafast Polarisation Control with Metamaterials **2018**,		1
8	Integrated Janus dipole source for selective coupling to silicon waveguide networks. *Applied Physics Reviews*, **2022**, 9, 021410	17.3	1
7	Plasmonic Crystals: Controlling Light With Periodically Structured Metal Films **2015**, 107-167		0
6	Electric Control of Spin-Orbit Coupling in Graphene-Based Nanostructures with Broken Rotational Symmetry. *Laser and Photonics Reviews*, **2020**, 14, 2000214	8.3	0
5	Angle-insensitive plasmonic nanorod metamaterial-based band-pass optical filters. *Optics Express*, **2021**, 29, 11562-11569	3.3	0
4	Hydrodynamic Model for Coherent Nonlinear Plasmonics. *Springer Series in Optical Sciences*, **2017**, 235-259	0.5	
3	Refractive Index Sensing with Anisotropic Hyperbolic Metamaterials **2020**, 81-107		
2	Electromigration Phenomena in Sintered Nanoparticle Ag Systems Under High Current Density. *Additional Conferences (Device Packaging HiTEC HiTEN & CICMT)*, **2015**, 2015, 000059-000063	0.1	
1	Internal Structure Refinement of Porous Sintered Silver via Electromigration. *Additional Conferences (Device Packaging HiTEC HiTEN & CICMT)*, **2016**, 2016, 000190-000195	0.1	