

Zhaowei Liu

List of Publications by Year in descending order

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152
papers

12,310
citations

44069

48
h-index

24258

110
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154
all docs

154
docs citations

154
times ranked

9472
citing authors

#	ARTICLE	IF	CITATIONS
1	Far-Field Optical Hyperlens Magnifying Sub-Diffraction-Limited Objects. <i>Science</i> , 2007, 315, 1686-1686.	12.6	1,895
2	Superlenses to overcome the diffraction limit. <i>Nature Materials</i> , 2008, 7, 435-441.	27.5	1,133
3	Optical Negative Refraction in Bulk Metamaterials of Nanowires. <i>Science</i> , 2008, 321, 930-930.	12.6	798
4	Focusing Surface Plasmons with a Plasmonic Lens. <i>Nano Letters</i> , 2005, 5, 1726-1729.	9.1	539
5	Hyperbolic metamaterials and their applications. <i>Progress in Quantum Electronics</i> , 2015, 40, 1-40.	7.0	535
6	Hyperlenses and metalenses for far-field super-resolution imaging. <i>Nature Communications</i> , 2012, 3, 1205.	12.8	468
7	Enhancing spontaneous emission rates of molecules using nanopatterned multilayer hyperbolic metamaterials. <i>Nature Nanotechnology</i> , 2014, 9, 48-53.	31.5	428
8	Far-Field Optical Superlens. <i>Nano Letters</i> , 2007, 7, 403-408.	9.1	372
9	Spherical hyperlens for two-dimensional sub-diffractive imaging at visible frequencies. <i>Nature Communications</i> , 2010, 1, 143.	12.8	366
10	Optical edge detection based on high-efficiency dielectric metasurface. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2019, 116, 11137-11140.	7.1	251
11	Large positive and negative lateral optical beam displacements due to surface plasmon resonance. <i>Applied Physics Letters</i> , 2004, 85, 372-374.	3.3	230
12	Development of optical hyperlens for imaging below the diffraction limit. <i>Optics Express</i> , 2007, 15, 15886.	3.4	192
13	3D branched nanowire heterojunction photoelectrodes for high-efficiency solar water splitting and H ₂ generation. <i>Nanoscale</i> , 2012, 4, 1515.	5.6	167
14	Rapid growth of evanescent wave by a silver superlens. <i>Applied Physics Letters</i> , 2003, 83, 5184-5186.	3.3	162
15	Two-Dimensional Imaging by Far-Field Superlens at Visible Wavelengths. <i>Nano Letters</i> , 2007, 7, 3360-3365.	9.1	148
16	Plasmonic Structured Illumination Microscopy. <i>Nano Letters</i> , 2010, 10, 2531-2536.	9.1	146
17	Theory of the transmission properties of an optical far-field superlens for imaging beyond the diffraction limit. <i>Journal of the Optical Society of America B: Optical Physics</i> , 2006, 23, 2383.	2.1	138
18	Resonant and non-resonant generation and focusing of surface plasmons with circular gratings. <i>Optics Express</i> , 2006, 14, 5664.	3.4	131

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19	Wide Field Super-Resolution Surface Imaging through Plasmonic Structured Illumination Microscopy. Nano Letters, 2014, 14, 4634-4639.	9.1	130
20	Fast compressed sensing-based CBCT reconstruction using Barzilai-Borwein formulation for application to on-line IGRT. Medical Physics, 2012, 39, 1207-1217.	3.0	125
21	Regenerating evanescent waves from a silver superlens. Optics Express, 2003, 11, 682.	3.4	115
22	High performance multi-scaled nanostructured spectrally selective coating for concentrating solar power. Nano Energy, 2014, 8, 238-246.	16.0	110
23	Tuning the focus of a plasmonic lens by the incident angle. Applied Physics Letters, 2006, 88, 171108.	3.3	106
24	Combined Surface Plasmon and Classical Waveguiding through Metamaterial Fiber Design. Nano Letters, 2010, 10, 1-5.	9.1	103
25	Metasurface enabled quantum edge detection. Science Advances, 2020, 6, .	10.3	103
26	A simple design of flat hyperlens for lithography and imaging with half-pitch resolution down to 20 nm. Applied Physics Letters, 2009, 94, .	3.3	101
27	Efficient light generation from enhanced inelastic electron tunnelling. Nature Photonics, 2018, 12, 485-488.	31.4	100
28	Broad Band Two-Dimensional Manipulation of Surface Plasmons. Nano Letters, 2009, 9, 462-466.	9.1	93
29	Liver motion during cone beam computed tomography guided stereotactic body radiation therapy. Medical Physics, 2012, 39, 6431-6442.	3.0	93
30	Projecting deep-subwavelength patterns from diffraction-limited masks using metal-dielectric multilayers. Applied Physics Letters, 2008, 93, .	3.3	90
31	A super resolution metalens with phase compensation mechanism. Applied Physics Letters, 2010, 96, .	3.3	89
32	Giant Kerr response of ultrathin gold films from quantum size effect. Nature Communications, 2016, 7, 13153.	12.8	89
33	Controlled Homoepitaxial Growth of Hybrid Perovskites. Advanced Materials, 2018, 30, e1705992.	21.0	82
34	Ray Optics at a Deep-Subwavelength Scale: A Transformation Optics Approach. Nano Letters, 2008, 8, 4243-4247.	9.1	79
35	Broadband Photonic Spin Hall Meta-Lens. ACS Nano, 2018, 12, 82-88.	14.6	79
36	Ultralow Thermal Conductivity of Multilayers with Highly Dissimilar Debye Temperatures. Nano Letters, 2014, 14, 2448-2455.	9.1	77

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37	Enhanced spontaneous emission inside hyperbolic metamaterials. <i>Optics Express</i> , 2014, 22, 4301.	3.4	76
38	Experimental Demonstration of Localized Plasmonic Structured Illumination Microscopy. <i>ACS Nano</i> , 2017, 11, 5344-5350.	14.6	76
39	Experimental studies of far-field superlens for sub-diffractive optical imaging. <i>Optics Express</i> , 2007, 15, 6947.	3.4	74
40	Two-dimensional optical spatial differentiation and high-contrast imaging. <i>National Science Review</i> , 2021, 8, nwa176.	9.5	74
41	Black oxide nanoparticles as durable solar absorbing material for high-temperature concentrating solar power system. <i>Solar Energy Materials and Solar Cells</i> , 2015, 134, 417-424.	6.2	68
42	All Optical Interface for Parallel, Remote, and Spatiotemporal Control of Neuronal Activity. <i>Nano Letters</i> , 2007, 7, 3859-3863.	9.1	67
43	Localized plasmon assisted structured illumination microscopy for wide-field high-speed dispersion-independent super resolution imaging. <i>Nanoscale</i> , 2014, 6, 5807-5812.	5.6	61
44	Near-perfect broadband absorption from hyperbolic metamaterial nanoparticles. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2017, 114, 1264-1268.	7.1	59
45	Etalon Array Reconstructive Spectrometry. <i>Scientific Reports</i> , 2017, 7, 40693.	3.3	53
46	Plasmon-Enhanced Two-Photon Absorption in Photoluminescent Semiconductor Nanocrystals. <i>ACS Photonics</i> , 2016, 3, 526-531.	6.6	52
47	Focusing light into deep subwavelength using metamaterial immersion lenses. <i>Optics Express</i> , 2010, 18, 4838.	3.4	51
48	Copper-alloyed spinel black oxides and tandem-structured solar absorbing layers for high-temperature concentrating solar power systems. <i>Solar Energy</i> , 2016, 132, 257-266.	6.1	49
49	Nanostructuring Multilayer Hyperbolic Metamaterials for Ultrafast and Bright Green InGaN Quantum Wells. <i>Advanced Materials</i> , 2018, 30, e1706411.	21.0	49
50	Localized plasmonic structured illumination microscopy with an optically trapped microlens. <i>Nanoscale</i> , 2017, 9, 14907-14912.	5.6	47
51	High Spatiotemporal Resolution Imaging with Localized Plasmonic Structured Illumination Microscopy. <i>ACS Nano</i> , 2018, 12, 8248-8254.	14.6	45
52	Imaging visible light using anisotropic metamaterial slab lens. <i>Optics Express</i> , 2009, 17, 22380.	3.4	44
53	Plasmonic dark field microscopy. <i>Applied Physics Letters</i> , 2010, 96, .	3.3	44
54	Hyperbolic metamaterials for dispersion-assisted directional light emission. <i>Nanoscale</i> , 2017, 9, 9034-9048.	5.6	43

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55	Design, fabrication and characterization of indefinite metamaterials of nanowires. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2011, 369, 3434-3446.	3.4	41
56	Large optical nonlinearity enabled by coupled metallic quantum wells. Light: Science and Applications, 2019, 8, 13.	16.6	41
57	Tuning the far-field superlens: from UV to visible. Optics Express, 2007, 15, 7095.	3.4	40
58	From Fano-like interference to superscattering with a single metallic nanodisk. Nanoscale, 2014, 6, 9093-9102.	5.6	39
59	High-Quality, Ultraconformal Aluminum-Doped Zinc Oxide Nanoplasmonic and Hyperbolic Metamaterials. Small, 2016, 12, 892-901.	10.0	37
60	Four-dimensional cone-beam computed tomography and digital tomosynthesis reconstructions using respiratory signals extracted from transcutaneously inserted metal markers for liver SBRT. Medical Physics, 2011, 38, 1028-1036.	3.0	36
61	Extraordinary light focusing and Fourier transform properties of gradient-index metalenses. Physical Review B, 2011, 84, .	3.2	36
62	Direction Modulated Brachytherapy for Treatment of Cervical Cancer. II: Comparative Planning Study With Intracavitary and Intracavitary Interstitial Techniques. International Journal of Radiation Oncology Biology Physics, 2016, 96, 440-448.	0.8	35
63	Near-field Moiré effect mediated by surface plasmon polariton excitation. Optics Letters, 2007, 32, 629.	3.3	34
64	Super-Resolution Imaging by Random Adsorbed Molecule Probes. Nano Letters, 2008, 8, 1159-1162.	9.1	33
65	Optical Observation of Plasmonic Nonlocal Effects in a 2D Superlattice of Ultrasmall Gold Nanoparticles. Nano Letters, 2017, 17, 2234-2239.	9.1	33
66	Enhanced Second Harmonic Generation in Double-Resonance Colloidal Metasurfaces. Advanced Functional Materials, 2018, 28, 1803019.	14.9	33
67	Metamaterial assisted illumination nanoscopy via random super-resolution speckles. Nature Communications, 2021, 12, 1559.	12.8	32
68	Metamaterials for Enhanced Polarization Conversion in Plasmonic Excitation. ACS Nano, 2011, 5, 5100-5106.	14.6	30
69	Tandem structured spectrally selective coating layer of copper oxide nanowires combined with cobalt oxide nanoparticles. Nano Energy, 2015, 11, 247-259.	16.0	30
70	Coherent Four-Fold Super-Resolution Imaging with Composite Photonic Plasmonic Structured Illumination. ACS Photonics, 2015, 2, 341-348.	6.6	29
71	Tubular optical microcavities of indefinite medium for sensitive liquid refractometers. Lab on A Chip, 2016, 16, 182-187.	6.0	28
72	Photothermal Modulation of Propagating Surface Plasmons on Silver Nanowires. ACS Photonics, 2019, 6, 2133-2140.	6.6	28

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73	Organic Bulk Heterojunction Infrared Photodiodes for Imaging Out to 1300 nm. ACS Applied Electronic Materials, 2019, 1, 660-666.	4.3	28
74	Tunable surface plasmon polaritons in Ag composite films by adding dielectrics or semiconductors. Applied Physics Letters, 2011, 98, 243114.	3.3	26
75	Robustness of the far-field response of nonlocal plasmonic ensembles. Scientific Reports, 2016, 6, 28441.	3.3	26
76	Super-resolution imaging by metamaterial-based compressive spatial-to-spectral transformation. Nanoscale, 2017, 9, 18268-18274.	5.6	26
77	Ultra-Fast Digital Tomosynthesis Reconstruction Using General-Purpose GPU Programming for Image-Guided Radiation Therapy. Technology in Cancer Research and Treatment, 2011, 10, 295-306.	1.9	24
78	Advances in the hyperlens. Science Bulletin, 2010, 55, 2618-2624.	1.7	23
79	Design and Analysis of Blue InGaN/GaN Plasmonic LED for High-Speed, High-Efficiency Optical Communications. ACS Photonics, 2018, 5, 3557-3564.	6.6	22
80	Highly-efficient electrically-driven localized surface plasmon source enabled by resonant inelastic electron tunneling. Nature Communications, 2021, 12, 3111.	12.8	22
81	Form birefringence metal and its plasmonic anisotropy. Applied Physics Letters, 2010, 96, 041112.	3.3	21
82	Anomalously Weak Scattering in Metal-Semiconductor Multilayer Hyperbolic Metamaterials. Physical Review X, 2015, 5, .	8.9	21
83	Positively charged and flexible SiO ₂ @ZrO ₂ nanofibrous membranes and their application in adsorption and separation. RSC Advances, 2018, 8, 13018-13025.	3.6	20
84	Nonlinear Metasurface Based on Giant Optical Kerr Response of Gold Quantum Wells. ACS Photonics, 2018, 5, 1654-1659.	6.6	20
85	Experimental Demonstration of Hyperbolic Metamaterial Assisted Illumination Nanoscopy. ACS Nano, 2018, 12, 11316-11322.	14.6	20
86	Multi-layer nanoarrays sandwiched by anodized aluminium oxide membranes: an approach to an inexpensive, reproducible, highly sensitive SERS substrate. Nanoscale, 2018, 10, 16278-16283.	5.6	20
87	Motion-constrained image reconstruction (MCIR): Application to four-dimensional cone-beam computed tomography. Medical Physics, 2013, 40, 121710.	3.0	19
88	Quantum Electrostatic Model for Optical Properties of Nanoscale Gold Films. Nanophotonics, 2015, 4, 413-418.	6.0	19
89	Nonlinear Computational Edge Detection Metalens. Advanced Functional Materials, 2022, 32, .	14.9	19
90	Three-dimensional fluorescent microscopy via simultaneous illumination and detection at multiple planes. Scientific Reports, 2016, 6, 31445.	3.3	18

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91	Adsorption and separation properties of positively charged ZrO ₂ nanofibrous membranes fabricated by electrospinning. RSC Advances, 2017, 7, 42505-42512.	3.6	18
92	Array atomic force microscopy for real-time multiparametric analysis. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 5872-5877.	7.1	18
93	Imaging of Nanoscale Light Confinement in Plasmonic Nanoantennas by Brownian Optical Microscopy. ACS Nano, 2020, 14, 7666-7672.	14.6	18
94	TIRF microscopy with ultra-short penetration depth. Optics Express, 2014, 22, 10728.	3.4	17
95	NiO _x -Fe ₂ O ₃ -coated p-Si photocathodes for enhanced solar water splitting in neutral pH water. Nanoscale, 2015, 7, 4900-4905.	5.6	17
96	Unprecedented Fluorophore Photostability Enabled by Low-Loss Organic Hyperbolic Materials. Advanced Materials, 2021, 33, e2006496.	21.0	17
97	Nanoscale optical pulse limiter enabled by refractory metallic quantum wells. Science Advances, 2020, 6, eaay3456.	10.3	16
98	Fourier Optical Spin Splitting Microscopy. Physical Review Letters, 2022, 129, .	7.8	16
99	Metamaterial-assisted illumination nanoscopy. National Science Review, 2018, 5, 141-143.	9.5	15
100	A spin controlled wavefront shaping metasurface with low dispersion in visible frequencies. Nanoscale, 2019, 11, 17111-17119.	5.6	14
101	Imaging of Cell Morphology Changes via Metamaterial-Assisted Photobleaching Microscopy. Nano Letters, 2021, 21, 1716-1721.	9.1	14
102	Localized plasmonic structured illumination microscopy with gaps in spatial frequencies. Optics Letters, 2019, 44, 2915.	3.3	14
103	Asymmetrically Curved Hyperbolic Metamaterial Structure with Gradient Thicknesses for Enhanced Directional Spontaneous Emission. ACS Applied Materials & Interfaces, 2018, 10, 7704-7708.	8.0	13
104	Low-Loss Organic Hyperbolic Materials in the Visible Spectral Range: A Joint Experimental and First-Principles Study. Advanced Materials, 2020, 32, e2002387.	21.0	13
105	Design, fabrication and characterization of a Far-field Superlens. Solid State Communications, 2008, 146, 202-207.	1.9	12
106	Direct observation of plasmonic index ellipsoids on a deep-subwavelength metallic grating. Applied Optics, 2011, 50, G1.	2.1	12
107	Breaking the imaging symmetry in negative refraction lenses. Optics Express, 2012, 20, 2581.	3.4	12
108	Ultrafast Imaging using Spectral Resonance Modulation. Scientific Reports, 2016, 6, 25240.	3.3	12

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109	Numerical study of hyperlenses for three-dimensional imaging and lithography. Optics Express, 2015, 23, 18501.	3.4	11
110	Si boride-coated Si nanoparticles with improved thermal oxidation resistance. Nano Energy, 2014, 9, 32-40.	16.0	10
111	SECOND-ORDER NONLINEAR SUSCEPTIBILITY ENHANCEMENT IN GALLIUM NITRIDE NANOWIRES (INVITED). Progress in Electromagnetics Research, 2020, 168, 25-30.	4.4	10
112	Organic Hyperbolic Material Assisted Illumination Nanoscopy. Advanced Science, 2021, 8, e2102230.	11.2	10
113	Negative group velocity of surface plasmons on thin metallic films. , 2006, 6323, 224.		9
114	Three-dimensional ZnO/Si broom-like nanowire heterostructures as photoelectrochemical anodes for solar energy conversion. Physica Status Solidi (A) Applications and Materials Science, 2013, 210, 2561-2568.	1.8	9
115	Metamaterial-Assisted Photobleaching Microscopy with Nanometer Scale Axial Resolution. Nano Letters, 2020, 20, 6038-6044.	9.1	9
116	Plasmonically Enhanced Amorphous Silicon Photodetector With Internal Gain. IEEE Photonics Technology Letters, 2019, 31, 959-962.	2.5	8
117	Kerr Metasurface Enabled by Metallic Quantum Wells. Nano Letters, 2021, 21, 330-336.	9.1	8
118	Highly stretchable, printable nanowire array optical polarizers. Nanoscale, 2016, 8, 15850-15856.	5.6	7
119	Optimization of Nanopatterned Multilayer Hyperbolic Metamaterials for Spontaneous Light Emission Enhancement. Physica Status Solidi (A) Applications and Materials Science, 2018, 215, 1800263.	1.8	6
120	Focusing surface waves with an inhomogeneous metamaterial lens. Applied Optics, 2010, 49, A18.	2.1	5
121	Organic light-emitting-diode-based plasmonic dark-field microscopy. Optics Letters, 2012, 37, 4359.	3.3	5
122	Anomalous scaling laws of hyperbolic metamaterials in a tubular geometry. Journal of the Optical Society of America B: Optical Physics, 2018, 35, 391.	2.1	5
123	LED control of gene expression in a nanobiosystem composed of metallic nanoparticles and a genetically modified E. coli strain. Journal of Nanobiotechnology, 2021, 19, 190.	9.1	4
124	Theory of optical imaging beyond the diffraction limit with a far-field superlens. , 2006, 6323, 207.		3
125	Control the dispersive properties of compound plasmonic lenses. Optics Communications, 2013, 291, 390-394.	2.1	3
126	Surface wave resonance and chirality in a tubular cavity with metasurface design. Optics Communications, 2018, 417, 42-45.	2.1	3

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127	Surface plasmon beats formed on thin metal films. , 2006, 6323, 215.		2
128	Propagation properties of metallic dielectric cladded waveguides. , 2016, , .		2
129	Influence of Hafnium Defects on the Optical and Structural Properties of Zirconium Nitride. Physica Status Solidi - Rapid Research Letters, 2021, 15, 2100372.	2.4	2
130	Investigation of the light generation from crystalline Ag-cubes based metal-insulator-metal tunnel junctions. , 2017, , .		2
131	Ultrathin Layered Hyperbolic Metamaterial-Assisted Illumination Nanoscopy. Nano Letters, 0, , .	9.1	2
132	Three-dimensional nanoscale imaging by plasmonic Brownian microscopy. Nanophotonics, 2017, 7, 489-495.	6.0	1
133	Anomalous Nonlinear Optical Selection Rules in Metallic Quantum Wells. Advanced Functional Materials, 2020, 30, 2000829.	14.9	1
134	Bulky Nanowire Metamaterials for Negative Refraction at Broadband Frequencies from Visible to NIR. , 2009, , .		1
135	Plasmonic imaging beyond the diffraction limit. , 2009, , .		0
136	Metamaterial based lenses with distinctive imaging properties in forward and backward directions. , 2011, , .		0
137	Strongly Enhanced Fluorescence Decay Rates on Multilayered Plasmonic Metamaterials. , 2012, , .		0
138	Enhanced spontaneous emission from the inside of a multilayer hyperbolic metamaterial (presentation) Tj ETQq0 0 0 rgBT /Oyerlock 10		0
139	Localized plasmon assisted structured illumination microscopy (presentation video). Proceedings of SPIE, 2014, , .	0.8	0
140	Localized surface plasmon assisted contrast microscopy for ultrathin transparent specimens. Applied Physics Letters, 2014, 105, 163102.	3.3	0
141	Nanopatterned Multilayer Hyperbolic Metamaterials for Enhancing Spontaneous Light Emission. , 2014, , .		0
142	Enhanced spontaneous emission by embedding light emitters inside hyperbolic metamaterials. , 2014, , .		0
143	Light emission enhancement by using patterned multilayer hyperbolic metamaterials. , 2015, , .		0
144	External occulter edge scattering control using metamaterials for exoplanet detection. Proceedings of SPIE, 2015, , .	0.8	0

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145	Nonlinear Optics: Enhanced Second Harmonic Generation in Double-Resonance Colloidal Metasurfaces (Adv. Funct. Mater. 51/2018). Advanced Functional Materials, 2018, 28, 1870367.	14.9	0
146	Localized Plasmonic Structured Illumination Microscopy. , 2018, , .		0
147	Large second-order nonlinearity in asymmetric metallic quantum wells. Applied Physics Letters, 2020, 116, 241105.	3.3	0
148	Application of Anisotropic Metamaerials: Imaging Visible Light with Slab Lens. , 2010, , .		0
149	High-Speed Super-Resolution Microscopy for Biological Imaging. , 2017, , .		0
150	Plasmonic Structured Illumination Microscopy. , 2017, , 127-163.		0
151	Realization of the spin-dependent manipulation of structured light by tailoring the polarization. , 2018, , .		0
152	Engineering the dispersion properties of multilayered periodic segmented waveguides and nanowire waveguides. Optical Engineering, 2019, 58, 1.	1.0	0