A M Agarwal

List of Publications by Year
in descending order

169 papers	5,067 citations	81900 39 h-index	95266 68 g-index
170 all docs	170 docs citations	170 times ranked	4144 citing authors

#	Article	IF	Citations
1	Effect of size and roughness on light transmission in a Si/SiO2 waveguide: Experiments and model. Applied Physics Letters, 2000, 77, 1617-1619.	3.3	405
2	Mid-infrared integrated photonics on silicon: a perspective. Nanophotonics, 2017, 7, 393-420.	6.0	280
3	Reconfigurable all-dielectric metalens with diffraction-limited performance. Nature Communications, 2021, 12, 1225.	12.8	221
4	Nonlinear Group IV photonics based on silicon and germanium: from near-infrared to mid-infrared. Nanophotonics, 2014, 3, 247-268.	6.0	219
5	Fabrication and testing of planar chalcogenide waveguide integrated microfluidic sensor. Optics Express, 2007, 15, 2307.	3.4	159
6	Correlation between leakage current density and threading dislocation density in SiGe p-i-n diodes grown on relaxed graded buffer layers. Applied Physics Letters, 2001, 78, 541-543.	3.3	157
7	Design guidelines for optical resonator biochemical sensors. Journal of the Optical Society of America B: Optical Physics, 2009, 26, 1032.	2.1	157
8	Pushing the limits of CMOS optical parametric amplifiers with USRN:Si7N3 above the two-photon absorption edge. Nature Communications, 2017, 8, 13878.	12.8	155
9	Mid-infrared materials and devices on a Si platform for optical sensing. Science and Technology of Advanced Materials, 2014, 15, 014603.	6.1	143
10	On-chip mid-infrared gas detection using chalcogenide glass waveguide. Applied Physics Letters, 2016, 108, .	3.3	129
11	Nonlinear conversion efficiency in Kerr frequency comb generation. Optics Letters, 2014, 39, 6126.	3.3	125
12	Planar waveguide-coupled, high-index-contrast, high-Q resonators in chalcogenide glass for sensing. Optics Letters, 2008, 33, 2500.	3.3	107
13	Single-Element Diffraction-Limited Fisheye Metalens. Nano Letters, 2020, 20, 7429-7437.	9.1	104
14	Si-CMOS-compatible lift-off fabrication of low-loss planar chalcogenide waveguides. Optics Express, 2007, 15, 11798.	3.4	100
15	Integrated chalcogenide waveguide resonators for mid-IR sensing: leveraging material properties to meet fabrication challenges. Optics Express, 2010, 18, 26728.	3.4	91
16	Demonstration of high-Q mid-infrared chalcogenide glass-on-silicon resonators. Optics Letters, 2013, 38, 1470.	3.3	87
17	Optical transmission losses in polycrystalline silicon strip waveguides: Effects of waveguide dimensions, thermal treatment, hydrogen passivation, and wavelength. Journal of Electronic Materials, 2000, 29, 1380-1386.	2.2	86
18	Mid-Infrared Spectrometer Using Opto-Nanofluidic Slot-Waveguide for Label-Free On-Chip Chemical Sensing. Nano Letters, 2014, 14, 231-238.	9.1	79

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19	Chip-scale Mid-Infrared chemical sensors using air-clad pedestal silicon waveguides. Lab on A Chip, 2013, 13, 2161.	6.0	70
20	Generation of two-cycle pulses and octave-spanning frequency combs in a dispersion-flattened micro-resonator. Optics Letters, 2013, 38, 5122.	3.3	70
21	Monolithic on-chip mid-IR methane gas sensor with waveguide-integrated detector. Applied Physics Letters, 2019, 114, .	3.3	69
22	Comparison of the optical, thermal and structural properties of Geâ€“Sbâ€“S thin films deposited using thermal evaporation and pulsed laser deposition techniques. Acta Materialia, 2011, 59, 5032-5039.	7.9	68
23	Lowâ€loss polycrystalline silicon waveguides for silicon photonics. Journal of Applied Physics, 1996, 80, 6120-6123.	2.5	66
24	Optical loss reduction in high-index-contrast chalcogenide glass waveguides via thermal reflow. Optics Express, 2010, 18, 1469.	3.4	63
25	Photo-induced trimming of chalcogenide-assisted silicon waveguides. Optics Express, 2012, 20, 15807.	3.4	56
26	Demonstration of chalcogenide glass racetrack microresonators. Optics Letters, 2008, 33, 761.	3.3	55
27	Air-clad silicon pedestal structures for broadband mid-infrared microphotonics. Optics Letters, 2013, 38, 1031.	3.3	55
28	Losses in polycrystalline silicon waveguides. Applied Physics Letters, 1996, 68, 2052-2054.	3.3	51
29	Nonlinear characterization of GeSbS chalcogenide glass waveguides. Scientific Reports, 2016, 6, 39234.	3.3	50
30	Labelâ€Free Glucose Sensing Using Chipâ€Scale Midâ€Infrared Integrated Photonics. Advanced Optical Materials, 2016, 4, 1755-1759.	7.3	50
31	On-Chip Infrared Spectroscopic Sensing: Redefining the Benefits of Scaling. IEEE Journal of Selected Topics in Quantum Electronics, 2017, 23, 340-349.	2.9	49
32	Quantifying the Performance of Proteinâ€Resisting Surfaces at Ultraâ€Low Protein Coverages using Kinesin Motor Proteins as Probes. Advanced Materials, 2007, 19, 3171-3176.	21.0	48
33	Lowâ€loss aluminium nitride thin film for midâ€infrared microphotonics. Laser and Photonics Reviews, 2014, 8, L23.	8.7	48
34	Structural, electrical, and optical properties of thermally evaporated nanocrystalline PbTe films. Journal of Applied Physics, 2008, 104, 053707.	2.5	47
35	Cavity-Enhanced IR Absorption in Planar Chalcogenide Glass Microdisk Resonators: Experiment and Analysis. Journal of Lightwave Technology, 2009, 27, 5240-5245.	4.6	43
36	PROGRESS ON THE FABRICATION OF ON-CHIP, INTEGRATED CHALCOGENIDE GLASS (CHG)-BASED SENSORS. Journal of Nonlinear Optical Physics and Materials, 2010, 19, 75-99.	1.8	43

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37	Resonant-cavity-enhanced mid-infrared photodetector on a silicon platform. Optics Express, 2010, 18, 12890.	3.4	41
38	Photo-induced trimming of coupled ring-resonator filters and delay lines in As_2S_3 chalcogenide glass. Optics Letters, 2011, 36, 4002.	3.3	41
39	Si-CMOS compatible materials and devices for mid-IR microphotonics. Optical Materials Express, 2013, 3, 1474.	3.0	41
40	Integration of Self-Assembled Porous Alumina and Distributed Bragg Reflector for Light Trapping in Si Photovoltaic Devices. IEEE Photonics Technology Letters, 2010, 22, 1394-1396.	2.5	39
41	Resonant cavity-enhanced photosensitivity in As_2S_3 chalcogenide glass at 1550 nm telecommunication wavelength. Optics Letters, 2010, 35, 874.	3.3	38
42	On-chip chalcogenide glass waveguide-integrated mid-infrared PbTe detectors. Applied Physics Letters, 2016, 109, .	3.3	38
43	Mapping the design space of photonic topological states via deep learning. Optics Express, 2020, 28, 27893.	3.4	35
44	Post-fabrication trimming of athermal silicon waveguides. Optics Letters, 2013, 38, 5450.	3.3	34
45	On-Chip Octave-Spanning Supercontinuum in Nanostructured Silicon Waveguides Using Ultralow Pulse Energy. IEEE Journal of Selected Topics in Quantum Electronics, 2012, 18, 1799-1806.	2.9	33
46	Ultra-flat dispersion in an integrated waveguide with five and six zero-dispersion wavelengths for mid-infrared photonics. Photonics Research, 2019, 7, 1279.	7.0	33
47	Pulsed Electrode Surfacing of Steel with TiC Coating: Microstructure and Wear Properties. Journal of Materials Engineering and Performance, 1999, 8, 479-486.	2.5	32
48	Exploration of waveguide fabrication from thermally evaporated Geâ€“Sbâ€“S glass films. Optical Materials, 2008, 30, 1560-1566.	3.6	32
49	Gamma radiation effects in amorphous silicon and silicon nitride photonic devices. Optics Letters, 2017, 42, 587.	3.3	29
50	Low-loss high-index-contrast planar waveguides with graded-index cladding layers. Optics Express, 2007, 15, 14566.	3.4	28
51	Nonlinear photonic waveguides for on-chip optical pulse compression. Laser and Photonics Reviews, 2015, 9, 294-308.	8.7	28
52	Mid-IR supercontinuum generated in low-dispersion Ge-on-Si waveguides pumped by sub-ps pulses. Optics Express, 2017, 25, 16116.	3.4	28
53	Monolithically integrated, resonant-cavity-enhanced dual-band mid-infrared photodetector on silicon. Applied Physics Letters, 2012, 100, 211106.	3.3	27
54	Direct Electrospray Printing of Gradient Refractive Index Chalcogenide Glass Films. ACS Applied Materials & Interfaces, 2017, 9, 26990-26995.	8.0	27

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55	Femtosecond laser photo-response of Ge_23Sb_7S_70 films. Optics Express, 2008, 16, 20081.	3.4	26
56	Inverted-Rib Chalcogenide Waveguides by Solution Process. ACS Photonics, 2014, 1, 153-157.	6.6	26
57	Observation of very high order multi-photon absorption in GeSbS chalcogenide glass. APL Photonics, 2019, 4, 036102.	5.7	25
58	Room-temperature oxygen sensitization in highly textured, nanocrystalline PbTe films: A mechanistic study. Journal of Applied Physics, 2011, 110, .	2.5	22
59	Kerr nonlinearity and multi-photon absorption in germanium at mid-infrared wavelengths. Applied Physics Letters, 2017, 111, .	3.3	21
60	Design and fabrication of a high transmissivity metal-dielectric ultraviolet band-pass filter. Applied Physics Letters, 2013, 102, .	3.3	20
61	High efficiency four wave mixing and optical bistability in amorphous silicon carbide ring resonators. APL Photonics, 2020, 5, 076110.	5.7	20
62	Label-Free Water Sensors Using Hybrid Polymerâ€"Dielectric Mid-Infrared Optical Waveguides. ACS Applied Materials & Interfaces, 2015, 7, 11189-11194.	8.0	19
63	Reconfigurable Parfocal Zoom Metalens. Advanced Optical Materials, 2022, 10, .	7.3	18
64	Gamma radiation effects on silicon photonic waveguides. Optics Letters, 2016, 41, 3053.	3.3	17
65	Parameter Space Exploration in Dispersion Engineering of Multilayer Silicon Waveguides from Near-Infrared to Mid-Infrared. Journal of Lightwave Technology, 2016, 34, 3696-3702.	4.6	17
66	Towards on-chip mid infrared photonic aerosol spectroscopy. Applied Physics Letters, 2018, 113, 231107.	3.3	17
67	Cavity-enhanced multispectral photodetector using phase-tuned propagation: theory and design. Optics Letters, 2010, 35, 742.	3.3	16
68	Stability of Grafted Polymer Nanoscale Films toward Gamma Irradiation. ACS Applied Materials & Interfaces, 2015, 7, 19455-19465.	8.0	16
69	Loss reduction of silicon-on-insulator waveguides for deep mid-infrared applications. Optics Letters, 2017, 42, 3454.	3.3	16
70	Power-efficient generation of two-octave mid-IR frequency combs in a germanium microresonator. Nanophotonics, 2018, 7, 1461-1467.	6.0	16
71	High performance asymmetric graded index coupler with integrated lens for high index waveguides. Applied Physics Letters, 2007, 90, 201116.	3.3	15
72	Real-time, in situ probing of gamma radiation damage with packaged integrated photonic chips. Photonics Research, 2020, 8, 186.	7.0	15

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73	Alpha Radiation Effects on Silicon Oxynitride Waveguides. ACS Photonics, 2016, 3, 1569-1574.	6.6	14
74	Dynamic Complex Emulsions as Amplifiers for On-Chip Photonic Cavity-Enhanced Resonators. ACS Sensors, 2020, 5, 1996-2002.	7.8	14
75	Intra-Cavity Dispersion of Microresonators and its Engineering for Octave-Spanning Kerr Frequency Comb Generation. IEEE Journal of Selected Topics in Quantum Electronics, 2014, 20, 111-117.	2.9	13
76	Point defect states in Sb-doped germanium. Journal of Applied Physics, 2015, 118, 155702.	2.5	13
77	Design of optical meta-structures with applications to beam engineering using deep learning. Scientific Reports, 2020, 10, 19923.	3.3	13
78	Materials For Monolithic Silicon Microphotonics. Materials Research Society Symposia Proceedings, 1997, 486, 45.	0.1	12
79	Evanescently coupled mid-infrared photodetector for integrated sensing applications: Theory and design. Sensors and Actuators B: Chemical, 2013, 185, 195-200.	7.8	12
80	High level active <i>n</i>+ doping of strained germanium through co-implantation and nanosecond pulsed laser melting. Journal of Applied Physics, 2018, 123, .	2.5	12
81	Towards universal enrichment nanocoating for IR-ATR waveguides. Chemical Communications, 2011, 47, 9104.	4.1	11
82	Simulation of an erbium-doped chalcogenide micro-disk mid-infrared laser source. Optics Express, 2011, 19, 11951.	3.4	11
83	Towards ultra-subwavelength optical latches. Applied Physics Letters, 2013, 103, .	3.3	11
84	Long wavelength infrared detection using amorphous InSb and InAs0.3Sb0.7. Journal of Crystal Growth, 2011, 334, 84-89.	1.5	10
85	Multispectral pixel performance using a one-dimensional photonic crystal design. Applied Physics Letters, 2006, 89, 223522.	3.3	9
86	Low-loss integrated planar chalcogenide waveguides for microfluidic chemical sensing. , 2007, , .		9
87	Engineering broadband and anisotropic photoluminescence emission from rare earth doped tellurite thin film photonic crystals. Optics Express, 2012, 20, 2124.	3.4	9
88	Robust cavity soliton formation with hybrid dispersion. Photonics Research, 2018, 6, 647.	7.0	9
89	Development of novel integrated bio/chemical sensor systems using chalcogenide glass materials. International Journal of Nanotechnology, 2009, 6, 799.	0.2	8
90	Development of chipscale chalcogenide glass based infrared chemical sensors. Proceedings of SPIE, 2011, , .	0.8	8

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91	Monolithic chalcogenide glass waveguide integrated interband cascaded laser. Optical Materials Express, 2021, 11, 2869.	3.0	8
92	Interstitial Defect Reactions In Silicon. Materials Research Society Symposia Proceedings, 1996, 442, 231.	0.1	7
93	Strategies for increased donor electrical activity in germanium (opto-) electronic materials: a review. International Materials Reviews, 2017, 62, 334-347.	19.3	7
94	Robust generation of frequency combs in a microresonator with strong and narrowband loss. Photonics Research, 2017, 5, 552.	7.0	6
95	Improved retention of phosphorus donors in germanium using a non-amorphizing fluorine co-implantation technique. Journal of Applied Physics, 2018, 123, 161524.	2.5	6
96	Electrospray Deposition of Uniform Thickness Ge₂₃Sb₇S₇₀ and As₄₀S₆₀ Chalcogenide Glass Films. Journal of Visualized Experiments, 2016, , .	0.3	6
97	Spectral selective mid-infrared detector on a silicon platform. , 2009, , .		5
98	Integrated Optical Sensors. IEEE Photonics Journal, 2012, 4, 638-641.	2.0	5
99	Trimming of Athermal Silicon Resonators. , 2012, , .		5
100	Er3+â€“photon interaction. Journal of Luminescence, 2000, 87-89, 323-325.	3.1	4
101	Positron annihilation lifetime spectroscopy (PALS) studies of gamma irradiated As2Se3 films used in MIR integrated photonics. Journal of Non-Crystalline Solids, 2017, 455, 29-34.	3.1	4
102	Ternary Lead Chalcogenide Alloys for Mid-Infrared Detectors. Journal of Electronic Materials, 2020, 49, 4577-4580.	2.2	4
103	Low-cost, Deterministic Quasi-periodic Photonic Structures for light trapping in thin film silicon solar cells. , 2009, , .		3
104	Resonant cavity enhancement of polycrystalline PbTe films for IR detectors on Si-ROICs. , 2011, , .		3
105	Integrated Midinfrared Laser Based on an Er-Doped Chalcogenide Microresonator. IEEE Journal of Selected Topics in Quantum Electronics, 2015, 21, 311-317.	2.9	3
106	1/f Noise Characteristics of Waveguide-Integrated PbTe MIR Detectors and Impact on Limit of Detection. Journal of Lightwave Technology, 2021, 39, 7326-7333.	4.6	3
107	Design guidelines for optical resonator biochemical sensors. , 2009, , .		2
108	Integrating optics and micro-fluidic channels using femtosecond laser irradiation. , 2009, , .		2

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109	Efficient light trapping structure in thin film silicon solar cells. , 2010, , .		2
110	Photothermal nano-cavities for ultra-sensitive chem-bio detection. Proceedings of SPIE, 2011, , .	0.8	2
111	Enhanced Self-frequency Shift of Cavity Soliton in Mode-locked Octave-spanning Frequency Comb Generation. , 2014, , .		2
112	Annealing bounds to prevent further Charge Transfer Inefficiency increase of the Chandra X-ray CCDs. Nuclear Instruments & Methods in Physics Research B, 2016, 389-390, 23-27.	1.4	2
113	SiC-on-insulator on-chip photonic sensor in a radiative environment. , 2016, , .		2
114	High detectivity PbSxSe1-x films for mid-wavelength infrared detectors. Thin Solid Films, 2021, 731, 138749.	1.8	2
115	Optical loss reduction in HIC chalcogenide glass waveguides via thermal reflow. , 2009, , .		2
116	One-dimensional Photonic Crystal and Photoconductive PbTe Film for Low Cost Resonant-cavity-enhanced Mid-infrared Photodetector. , 2008, , .		2
117	Novel Designs for On-chip Mid-Infrared Detectors Integrated with Chalcogenide Waveguides. , 2011, , .		2
118	Er-doped polycrystalline silicon for light emission at Î»=1.54 Âµm. Journal of Electronic Materials, 2000, 29, 973-978.	2.2	1
119	Compact 3 dB single mode fiber-to-waveguide coupler. , 0, , .		1
120	Amorphous InSb and InAs 0.3 Sb 0.7 for long wavelength infrared detection. Proceedings of SPIE, 2011, , .	0.8	1
121	Mid-infrared As<inf>2</inf>Se<inf>3</inf> chalcogenide glass-on-silicon waveguides. , 2012, , .		1
122	Two-cycle pulse generation from mode-locked Kerr frequency combs based on an integrated dispersion-flattened micro-resonator. , 2014, , .		1
123	Effect of Gamma Exposure on Chalcogenide Glass Films for Microphotonic Devices. , 2016, , .		1
124	Integrated photonics for infrared spectroscopic sensing. Proceedings of SPIE, 2017, , .	0.8	1
125	Nonlinear optical properties of GeSbS chalcogenide waveguides. , 2017, , .		1
126	Progress on the Fabrication of On-Chip, Integrated Chalcogenide Glass (ChG)-based Sensors. , 2009, , .		1

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127	Chalcogenide Glasses and their Photosensitivity: Engineered Materials for Device Applications. , 2010, , .		1
128	Supercontinuum generation beyond 2Âµm in GeSbS waveguides. , 2016, , .		1
129	Exploiting photosensitivity in chalcogenide-assisted integrated optics. , 2011, , .		1
130	Polysilicon Waveguides for Silicon Photonics. Materials Research Society Symposia Proceedings, 1995, 403, 327.	0.1	0
131	Surface Smoothing of Polycrystalline Si Waveguides With Gas-Cluster Ion Beams. Materials Research Society Symposia Proceedings, 1999, 597, 51.	0.1	0
132	Asymmetric GRIN Lensed Single Mode Fiber-to-Waveguide Coupler. , 2006, , .		0
133	Integrated HIC high-Q resonators in chalcogenide glass. , 2008, , .		0
134	Microstructured chalcogenide glasses using femtosecond laser irradiation or photolithography. , 2008, , .		0
135	Cavity-enhanced photosensitivity in chalcogenide glass. , 2009, , .		0
136	Cavity-enhanced Multispectral Photodetector on a Si Platform: Theory, Materials, and Devices. , 2010, , .		0
137	Infrared Colloidal Quantum Dot Chalcogenide Films for Integrated Light Sources. , 2011, , .		0
138	Resonant Cavity Enhancement of Polycrystalline PbTe Films for Two-Color IR detectors on Si-ROICs. , 2011, , .		0
139	Exploiting photosensitive As<inf>2</inf>S<inf>3</inf> chalcogenide glass in photonic integrated circuits. , 2012, , .		0
140	High capacity, photo-trimmable athermal silicon waveguides. , 2012, , .		0
141	Photo-induced trimming of chalcogenide-assisted silicon photonic circuits. Proceedings of SPIE, 2012, , .	0.8	0
142	Reversed self-steepening in nonlinear pulse propagation along a silicon nano-crystal slot waveguide with engineered dispersion of nonlinearity. , 2013, , .		0
143	Mid-Infrared Opto-nanofluidics for Label-free On-Chip Sensing. , 2014, , .		0
144	Low-Loss Aluminium Nitride Thin Film for Mid-Infrared Waveguiding. , 2014, , .		0

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145	Effects of High-Energy Irradiation on Silicon Oxynitride and Silicon Photonic Waveguides. , 2016, , .		0
146	Mid-infrared supercontinuum generation in a low-dispersion Ge-on-Si waveguide using sub-picosecond pulses. , 2016, , .		0
147	Low-loss SOI waveguides at Mid-IR wavelengths (4800 nm) using the second-order TE mode. , 2016, , .		0
148	Irradiation of on-chip chalcogenide glass waveguide mid-infrared gas sensor. , 2016, , .		0
149	Suspended chalcogenide microcavities for ultra-sensitive chemical detection. , 2016, , .		0
150	Robust generation of Kerr frequency combs with strong and localized spectral loss. , 2016, , .		0
151	The mid-IR silicon photonics sensor platform (Conference Presentation). , 2017, , .		0
152	THE EXPERIMENTAL AND THEORETICAL STUDY OF SCATTERING LOSSES IN Si/SiO2 WAVEGUIDES. , 2000, , .		0
153	Cavity-Enhanced Photosensitivity in As2S3 Chalcogenide glass. , 2010, , .		0
154	Towards on-chip, integrated chalcogenide glass based biochemical sensors. , 2010, , .		0
155	Ultra Broadband Mid-IR Detectors Using Multilayer Anti-reflection Coupling. , 2011, , .		0
156	Erbium-Doped Chalcogenide Glass Micro-Disks as Monolithic Mid-IR Laser Sources. , 2011, , .		0
157	Temperature-enhanced light emission from Er-TeO2 Photonic Crystals. , 2011, , .		0
158	Resonant Cavity Enhanced LWIR Sensing in Polycrystalline Pb1â˜xSnxTe. , 2011, , .		0
159	Engineering Spectral Variation of FSR by Tailoring Dispersion for Octave-Spanning Comb Generation Based on Micro-Resonators. , 2012, , .		0
160	Low loss mid-infrared silicon waveguides by using pedestal geometry. , 2012, , .		0
161	Mid-Infrared Microphotonics Using Air-clad Silicon Pedestal Structures. , 2013, , .		0
162	Mid-Infrared Chemical Sensors On-a-Chip Using Air-clad Pedestal Silicon Waveguides. , 2013, , .		0

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163	Silicon Nitride 1Ã—8 Power Splitter for Mid-Infrared Applications. , 2014, , .		0
164	Mid-Infrared Opto-nanofluidics for on-Chip Chemical Sensing. , 2014, , .		0
165	Mid-IR Kerr Frequency Comb Generation from 4000 to 10000 nm in a CMOS-compatible Germanium Microcavity. , 2016, , .		0
166	Observation of eleven-photon absorption and four-photon absorption excited photoluminescence in GeSbS chalcogenide glass. , 2019, , .		0
167	Leveraging Integrated Photonics for Ultrasound Sensing Applications. , 2020, , .		0
168	Integrated Mid-IR Photonics for Gas and Aerosol Sensors. , 2020, , .		0
169	Impacts of oxygen sensitization methods on the deposition and microstructure of ternary lead chalcogenide alloys. Current Applied Physics, 2021, 36, 71-71.	2.4	0