Fengnian Xia

List of Publications by Year
in descending order

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178 papers	36,097 citations	9254 74 h-index	12258 133 g-index
181 all docs	181 docs citations	181 times ranked	30556 citing authors

#	Article	IF	Citations
1	Rediscovering black phosphorus as an anisotropic layered material for optoelectronics and electronics. Nature Communications, 2014, 5, 4458.	5.8	2,866
2	Ultrafast graphene photodetector. Nature Nanotechnology, 2009, 4, 839-843.	15.6	2,748
3	Two-dimensional material nanophotonics. Nature Photonics, 2014, 8, 899-907.	15.6	2,362
4	Graphene photodetectors for high-speed optical communications. Nature Photonics, 2010, 4, 297-301.	15.6	2,122
5	Recent Advances in Two-Dimensional Materials beyond Graphene. ACS Nano, 2015, 9, 11509-11539.	7.3	2,069
6	Highly anisotropic and robust excitons in monolayer black phosphorus. Nature Nanotechnology, 2015, 10, 517-521.	15.6	1,204
7	Graphene Field-Effect Transistors with High On/Off Current Ratio and Large Transport Band Gap at Room Temperature. Nano Letters, 2010, 10, 715-718.	4.5	1,191
8	The renaissance of black phosphorus. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 4523-4530.	3.3	1,143
9	Tunable infrared plasmonic devices using graphene/insulator stacks. Nature Nanotechnology, 2012, 7, 330-334.	15.6	1,097
10	Ultracompact optical buffers on a silicon chip. Nature Photonics, 2007, 1, 65-71.	15.6	1,033
11	Strong lightâ€“matter coupling in two-dimensional atomic crystals. Nature Photonics, 2015, 9, 30-34.	15.6	865
12	Damping pathways of mid-infrared plasmons in graphene nanostructures. Nature Photonics, 2013, 7, 394-399.	15.6	815
13	High-frequency, scaled graphene transistors on diamond-like carbon. Nature, 2011, 472, 74-78.	13.7	813
14	The origins and limits of metalâ€“graphene junction resistance. Nature Nanotechnology, 2011, 6, 179-184.	15.6	730
15	Microwave Absorption Enhancement of Multifunctional Composite Microspheres with Spinel Fe₃O₄ Cores and Anatase TiO₂ Shells. Small, 2012, 8, 1214-1221.	5.2	730
16	Black Phosphorus Mid-Infrared Photodetectors with High Gain. Nano Letters, 2016, 16, 4648-4655.	4.5	616
17	Tunable optical properties of multilayer black phosphorus thin films. Physical Review B, 2014, 90, .	1.1	592
18	Photocurrent Imaging and Efficient Photon Detection in a Graphene Transistor. Nano Letters, 2009, 9, 1039-1044.	4.5	543

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19	Plasmons and Screening in Monolayer and Multilayer Black Phosphorus. Physical Review Letters, 2014, 113, 106802.	2.9	515
20	Reinventing germanium avalanche photodetector for nanophotonic on-chip optical interconnects. Nature, 2010, 464, 80-84.	13.7	500
21	Photoconductivity of biased graphene. Nature Photonics, 2013, 7, 53-59.	15.6	467
22	High-throughput silicon nanophotonic wavelength-insensitive switch for on-chip optical networks. Nature Photonics, 2008, 2, 242-246.	15.6	420
23	Ultra-compact high order ring resonator filters using submicron silicon photonic wires for on-chip optical interconnects. Optics Express, 2007, 15, 11934.	1.7	399
24	Black Arsenicâ€“Phosphorus: Layered Anisotropic Infrared Semiconductors with Highly Tunable Compositions and Properties. Advanced Materials, 2015, 27, 4423-4429.	11.1	378
25	State-of-the-Art Graphene High-Frequency Electronics. Nano Letters, 2012, 12, 3062-3067.	4.5	371
26	Electronic transport and device prospects of monolayer molybdenum disulphide grown by chemical vapour deposition. Nature Communications, 2014, 5, 3087.	5.8	370
27	Role of contacts in graphene transistors: A scanning photocurrent study. Physical Review B, 2009, 79, .	1.1	347
28	Utilization of a Buffered Dielectric to Achieve High Field-Effect Carrier Mobility in Graphene Transistors. Nano Letters, 2009, 9, 4474-4478.	4.5	341
29	Black Phosphorus Radio-Frequency Transistors. Nano Letters, 2014, 14, 6424-6429.	4.5	307
30	Widely tunable black phosphorus mid-infrared photodetector. Nature Communications, 2017, 8, 1672.	5.8	283
31	Anisotropic Black Phosphorus Synaptic Device for Neuromorphic Applications. Advanced Materials, 2016, 28, 4991-4997.	11.1	281
32	Photocurrent in graphene harnessed by tunable intrinsic plasmons. Nature Communications, 2013, 4, 1951.	5.8	280
33	Group index and group velocity dispersion in silicon-on-insulator photonic wires. Optics Express, 2006, 14, 3853.	1.7	259
34	Efficient electrical control of thin-film black phosphorus bandgap. Nature Communications, 2017, 8, 14474.	5.8	249
35	Infrared Spectroscopy of Tunable Dirac Terahertz Magneto-Plasmons in Graphene. Nano Letters, 2012, 12, 3766-3771.	4.5	232
36	Solution-processed titanium carbide MXene films examined as highly transparent conductors. Nanoscale, 2016, 8, 16371-16378.	2.8	227

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37	Stacked 2D materials shed light. Nature Materials, 2015, 14, 264-265.	13.3	203
38	Black phosphorus and its isoelectronic materials. Nature Reviews Physics, 2019, 1, 306-317.	11.9	196
39	Graphene Plasmonic Metasurfaces to Steer Infrared Light. Scientific Reports, 2015, 5, 12423.	1.6	190
40	Infrared Spectroscopy of Wafer-Scale Graphene. ACS Nano, 2011, 5, 9854-9860.	7.3	187
41	Graphene applications in electronics and photonics. MRS Bulletin, 2012, 37, 1225-1234.	1.7	186
42	Optoelectronic devices based on two-dimensional transition metal dichalcogenides. Nano Research, 2016, 9, 1543-1560.	5.8	186
43	Semimetals for high-performance photodetection. Nature Materials, 2020, 19, 830-837.	13.3	181
44	Supercontinuum generation in silicon photonic wires. Optics Express, 2007, 15, 15242.	1.7	180
45	CMOS-integrated high-speed MSM germanium waveguide photodetector. Optics Express, 2010, 18, 4986.	1.7	171
46	Interlayer interactions in anisotropic atomically thin rhenium diselenide. Nano Research, 2015, 8, 3651-3661.	5.8	159
47	Air-Stable Room-Temperature Mid-Infrared Photodetectors Based on hBN/Black Arsenic Phosphorus/hBN Heterostructures. Nano Letters, 2018, 18, 3172-3179.	4.5	145
48	Telecommunications-band heralded single photons from a silicon nanophotonic chip. Applied Physics Letters, 2012, 100, .	1.5	133
49	A wavelength-scale black phosphorus spectrometer. Nature Photonics, 2021, 15, 601-607.	15.6	130
50	Tunable Phonon-Induced Transparency in Bilayer Graphene Nanoribbons. Nano Letters, 2014, 14, 4581-4586.	4.5	129
51	Ultrahigh-Bandwidth Silicon Photonic Nanowire Waveguides for On-Chip Networks. IEEE Photonics Technology Letters, 2008, 20, 398-400.	1.3	128
52	Synthesis of thin-film black phosphorus on a flexible substrate. 2D Materials, 2015, 2, 031002.	2.0	124
53	Mode conversion losses in silicon-on-insulator photonic wire based racetrack resonators. Optics Express, 2006, 14, 3872.	1.7	122
54	Efficient electrical detection of mid-infrared graphene plasmons at room temperature. Nature Materials, 2018, 17, 986-992.	13.3	119

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55	Microwave absorption enhancement and electron microscopy characterization of BaTiO3 nano-torus. Nanoscale, 2011, 3, 3860.	2.8	109
56	Graphene Electronics: Materials, Devices, and Circuits. Proceedings of the IEEE, 2013, 101, 1620-1637.	16.4	104
57	Approaching total absorption at near infrared in a large area monolayer graphene by critical coupling. Applied Physics Letters, 2014, 105, 181105.	1.5	103
58	Two-dimensional materials for nanophotonics application. Nanophotonics, 2015, 4, 128-142.	2.9	97
59	A Dynamically Reconfigurable Ambipolar Black Phosphorus Memory Device. ACS Nano, 2016, 10, 10428-10435.	7.3	97
60	The Interaction of Light and Graphene: Basics, Devices, and Applications. Proceedings of the IEEE, 2013, 101, 1717-1731.	16.4	94
61	Nonlinear-Optical Phase Control in Dispersion-Engineered Si Photonic Wires. Optics Express, 2008, 16, 1280.	1.7	93
62	Infrared Nanophotonics Based on Graphene Plasmonics. ACS Photonics, 2017, 4, 2989-2999.	3.2	92
63	Coupled resonator optical waveguides based on silicon-on-insulator photonic wires. Applied Physics Letters, 2006, 89, 041122.	1.5	90
64	Bright Mid-Infrared Photoluminescence from Thin-Film Black Phosphorus. Nano Letters, 2019, 19, 1488-1493.	4.5	90
65	Stable Graphene-Two-Dimensional Multiphase Perovskite Heterostructure Phototransistors with High Gain. Nano Letters, 2017, 17, 7330-7338.	4.5	88
66	Revealing the Contribution of Individual Factors to Hydrogen Evolution Reaction Catalytic Activity. Advanced Materials, 2018, 30, e1706076.	11.1	86
67	Synthesis of Crystalline Black Phosphorus Thin Film on Sapphire. Advanced Materials, 2018, 30, 1703748.	11.1	86
68	Plasmonics in Atomically Thin Crystalline Silver Films. ACS Nano, 2019, 13, 7771-7779.	7.3	86
69	A microcavity-controlled, current-driven, on-chip nanotube emitter at infrared wavelengths. Nature Nanotechnology, 2008, 3, 609-613.	15.6	85
70	An asymmetric twin-waveguide high-bandwidth photodiode using a lateral taper coupler. IEEE Photonics Technology Letters, 2001, 13, 845-847.	1.3	83
71	CMOS-Integrated Optical Receivers for On-Chip Interconnects. IEEE Journal of Selected Topics in Quantum Electronics, 2010, 16, 1376-1385.	1.9	82
72	Hierarchical magnetic yolkâ€“shell microspheres with mixed barium silicate and barium titanium oxide shells for microwave absorption enhancement. Journal of Materials Chemistry, 2012, 22, 9277.	6.7	81

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73	Widely tunable mid-infrared light emission in thin-film black phosphorus. Science Advances, 2020, 6, eaay6134.	4.7	80
74	Artificial Metaphotonics Born Naturally in Two Dimensions. Chemical Reviews, 2020, 120, 6197-6246.	23.0	78
75	Quantum Behavior of Graphene Transistors near the Scaling Limit. Nano Letters, 2012, 12, 1417-1423.	4.5	77
76	Single-crystalline germanium nanomembrane photodetectors on foreign nanocavities. Science Advances, 2017, 3, e1602783.	4.7	76
77	Strong mid-infrared photoresponse in small-twist-angle bilayer graphene. Nature Photonics, 2020, 14, 549-553.	15.6	76
78	Statistics of light transport in 235-ring silicon coupled-resonator optical waveguides. Optics Express, 2010, 18, 26505.	1.7	74
79	Tunable Plasmonâ€“Phonon Polaritons in Layered Grapheneâ€“Hexagonal Boron Nitride Heterostructures. ACS Photonics, 2015, 2, 907-912.	3.2	70
80	Intelligent infrared sensing enabled by tunable moirÃ© quantum geometry. Nature, 2022, 604, 266-272.	13.7	69
81	Plasmonics of coupled graphene micro-structures. New Journal of Physics, 2012, 14, 125001.	1.2	68
82	Coupling-Enhanced Broadband Mid-infrared Light Absorption in Graphene Plasmonic Nanostructures. ACS Nano, 2016, 10, 11172-11178.	7.3	62
83	Novel Midinfrared Plasmonic Properties of Bilayer Graphene. Physical Review Letters, 2014, 112, 116801.	2.9	56
84	Protective molecular passivation of black phosphorus. Npj 2D Materials and Applications, 2017, 1, .	3.9	52
85	High T/sub 0/ long-wavelength InGaAsN quantum-well lasers grown by GSMBE using a solid arsenic source. IEEE Photonics Technology Letters, 2002, 14, 597-599.	1.3	50
86	All-optical wavelength conversion using a regrowth-free monolithically integrated Sagnac interferometer. IEEE Photonics Technology Letters, 2003, 15, 254-256.	1.3	48
87	Large-Velocity Saturation in Thin-Film Black Phosphorus Transistors. ACS Nano, 2018, 12, 5003-5010.	7.3	44
88	Progress on Black Phosphorus Photonics. Advanced Optical Materials, 2018, 6, 1800365.	3.6	44
89	Photonic integration using asymmetric twin-waveguide (ATG) technology: part I-concepts and theory. IEEE Journal of Selected Topics in Quantum Electronics, 2005, 11, 17-29.	1.9	42
90	Room Temperature Graphene Mid-Infrared Bolometer with a Broad Operational Wavelength Range. ACS Photonics, 2020, 7, 1206-1215.	3.2	41

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91	A high-responsivity high-bandwidth asymmetric twin-waveguide coupled InGaAs-InP-InAlAs avalanche photodiode. IEEE Photonics Technology Letters, 2002, 14, 1590-1592.	1.3	40
92	Waveguide dispersion effects in silicon-on-insulator coupled-resonator optical waveguides. Optics Letters, 2010, 35, 3030.	1.7	36
93	Photonic integration using asymmetric twin-waveguide (ATG) technology: part II-devices. IEEE Journal of Selected Topics in Quantum Electronics, 2005, 11, 30-42.	1.9	35
94	Electrically tunable physical properties of two-dimensional materials. Nano Today, 2019, 27, 99-119.	6.2	35
95	MoirÃ© Band Topology in Twisted Bilayer Graphene. Nano Letters, 2020, 20, 6076-6083.	4.5	30
96	Monolithic integration of a semiconductor optical amplifier and a high bandwidth p-i-n photodiode using asymmetric twin-waveguide technology. IEEE Photonics Technology Letters, 2003, 15, 452-454.	1.3	28
97	Low-power continuous-wave four-wave mixing in silicon coupled-resonator optical waveguides. Optics Letters, 2011, 36, 2964.	1.7	25
98	Electrothermal Control of Graphene Plasmonâ€“Phonon Polaritons. Advanced Materials, 2017, 29, 1700566.	11.1	24
99	A Monolithically Integrated Long-Wavelength Balanced Photodiode Using Asymmetric Twin-Waveguide Technology. IEEE Photonics Technology Letters, 2004, 16, 236-238.	1.3	23
100	RF performance of short channel graphene field-effect transistor. , 2010, , .		23
101	Photothermal Engineering of Graphene Plasmons. Physical Review Letters, 2018, 121, 057404.	2.9	22
102	Valley-Selective Linear Dichroism in Layered Tin Sulfide. ACS Photonics, 2018, 5, 3814-3819.	3.2	22
103	CMOS-Integrated 40GHz Germanium Waveguide Photodetector for On-chip Optical Interconnects. , 2009, , .		21
104	Black Phosphorus High-Frequency Transistors with Local Contact Bias. ACS Nano, 2020, 14, 2118-2125.	7.3	21
105	Symmetry-Controlled Electronâ€“Phonon Interactions in van der Waals Heterostructures. ACS Nano, 2019, 13, 552-559.	7.3	20
106	Asymmetric twin-waveguide 1.55-Î¼m wavelength laser with a distributed Bragg reflector. IEEE Photonics Technology Letters, 2000, 12, 468-470.	1.3	18
107	Nonreciprocity of counterpropagating signals in a monolithically integrated Sagnac interferometer. Optics Letters, 2004, 29, 513.	1.7	18
108	Ultrafast Silicon Nanomembrane Microbolometer for Long-Wavelength Infrared Light Detection. Nano Letters, 2021, 21, 8385-8392.	4.5	16

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109	Graphene versus metal plasmons. Nature Photonics, 2013, 7, 420-420.	15.6	14
110	Emergent quantum materials. MRS Bulletin, 2020, 45, 340-347.	1.7	14
111	Probing interlayer interaction via chiral phonons in layered honeycomb materials. Physical Review B, 2021, 103, .	1.1	14
112	An Asymmetric Twin Waveguide Eight-Channel Polarization-Independent Arrayed Waveguide Grating With an Integrated Photodiode Array. IEEE Photonics Technology Letters, 2004, 16, 1170-1172.	1.3	13
113	Beyond Graphene: Low-Symmetry and Anisotropic 2D Materials. Journal of Applied Physics, 2020, 128, 140401.	1.1	13
114	Graphene Schottky Varactor Diodes for High-Performance Photodetection. ACS Photonics, 2019, 6, 1910-1915.	3.2	11
115	Reduction of Absorption Loss in Asymmetric Twin Waveguide Laser Tapers Using Argon Plasma-Enhanced Quantum-Well Intermixing. IEEE Photonics Technology Letters, 2004, 16, 2221-2223.	1.3	10
116	Graphene-based fast electronics and optoelectronics. , 2010, , .		10
117	Graphene Nanophotonics. IEEE Photonics Journal, 2011, 3, 293-295.	1.0	10
118	Introduction to the Issue on 2-D Materials Optoelectronics. IEEE Journal of Selected Topics in Quantum Electronics, 2017, 23, 4-6.	1.9	9
119	Enabling novel device functions with black phosphorus/MoS 2 van der Waals heterostructures. Science Bulletin, 2017, 62, 1557-1558.	4.3	9
120	Ultrafast nanoprobing. Nature Photonics, 2010, 4, 882-882.	15.6	8
121	Abnormal cubic-tetragonal phase transition of barium strontium titanate nanoparticles studied by in situ Raman spectroscopy and transmission electron microscopy heating experiments. Applied Physics Letters, 2015, 107, .	1.5	8
122	Ultra-compact silicon WDM optical filters with flat - top response for on-chip optical interconnects. , 2007, , .		7
123	Communication technologies for exascale systems. , 2009, , .		7
124	Introduction to the issue on graphene optoelectronics. IEEE Journal of Selected Topics in Quantum Electronics, 2014, 20, 6-8.	1.9	7
125	A monolithically integrated optical heterodyne receiver. IEEE Photonics Technology Letters, 2005, 17, 1716-1718.	1.3	6
126	Group index and group velocity dispersion in silicon-on-insulator photonic wires: errata. Optics Express, 2006, 14, 6372.	1.7	6

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127	Silicon micro-resonators for on-chip optical networks. , 2008, , .		6
128	Electrons en masse. Nature Nanotechnology, 2014, 9, 575-576.	15.6	6
129	Integrated photonics using asymmetric twin-waveguide structures. , 0, , .		5
130	Demonstration of 300 Gbps Error-Free Transmission of WDM Data Stream in Silicon Photonic Wires. , 2007, , .		5
131	Supercontinuum generation in silicon photonic wires. , 2008, , .		5
132	High-Throughput Silicon Nanophotonic Deflection Switch for On-Chip Optical Networks. , 2008, , .		5
133	235-ring Coupled-Resonator Optical Waveguides. , 2010, , .		4
134	Carbon nanotubes and optical confinement: controlling light emission in nanophotonic devices. Proceedings of SPIE, 2008, , .	0.8	3
135	High on-off ratio Bilayer Graphene complementary field effect transistors. , 2010, , .		3
136	Flat talk. Nature Photonics, 2016, 10, 205-206.	15.6	3
137	Slow light, fast computers. Nature Photonics, 2007, 1, 72-72.	15.6	2
138	Ultrafast Graphene Photodetector. , 2010, , .		2
139	The interaction of light and graphene: Basics, devices and applications. , 2013, , .		2
140	Titanum Carbide MXene Flakes as Novel 2D Metallic Solution-Processed Films. ECS Transactions, 2016, 75, 37-41.	0.3	2
141	Black Phosphorus MOSFET for Future-Generation Thin-Film Electronics Capable of Microwave Operation. , 2019, , .		2
142	Enhancing infrared emission of mercury telluride (HgTe) quantum dots by plasmonic structures. Light: Science and Applications, 2020, 9, 37.	7.7	2
143	CMOS-Integrated Small-Capacitance Germanium Waveguide Photodetector for Optical Interconnects. , 2009, , .		2
144	Monolithically integrated balanced photodiode using asymmetric twin-waveguide technology. , 0, , .		1

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145	Ultrahigh-Bandwidth WDM Signal Integrity in Silicon-on-Insulator Nanowire Waveguides. Conference Proceedings - Lasers and Electro-Optics Society Annual Meeting-LEOS, 2007, , .	0.0	1
146	Cavity-controlled, electrically-induced infrared emission from a single single-wall carbon nanotube (SWCT). , 2008, , .		1
147	Silicon photonic wire circuits for on-chip optical interconnects. Proceedings of SPIE, 2008, , .	0.8	1
148	CMOS-Integrated Low-Noise Germanium Waveguide Avalanche Photodetector Operating at 40Gbps. , 2010, , .		1
149	Graphene nanophotonics. , 2010, , .		1
150	Slow light enhancement of four-wave mixing in coupled silicon-on-insulator microrings. Proceedings of SPIE, 2012, , .	0.8	1
151	Feature issue introduction: two-dimensional materials for photonics and optoelectronics. Optical Materials Express, 2016, 6, 2458.	1.6	1
152	Black phosphorous optoelectronic devices. , 2017, , .		1
153	Black Phosphorus Optoelectronics. , 2016, , .		1
154	High efficiency InGaAsN based quantum well lasers grown by GSMBE using a solid As source. , 0, , .		0
155	Monolithically integrated Sagnac interferometer for all-optical wavelength conversion. , 0, , .		0
156	Nonreciprocity of counterpropagating signals in a monolithically integrated Sagnac interferometer:â€ƒerratum. Optics Letters, 2004, 29, 1156.	1.7	0
157	Resonantly enhanced all optical buffers on a silicon chip. , 2007, , .		0
158	Silicon integrated nanophotonics for on-chip optical interconnects. , 2008, , .		0
159	Broadband ultra-compact nanophotonic optical modulators and switches. , 2008, , .		0
160	Graphene and carbon nanotube photonics. , 2009, , .		0
161	Integration of nanophotonic devices for on-chip optical interconnects. , 2009, , .		0
162	Waveguide-Integrated Low-Noise Germanium Avalanche Photodetector with 6dB Sensitivity Improvement. , 2010, , .		0

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163	(Invited) Integration of Germanium Avalanche Photodetectors on Silicon for On-Chip Optical Interconnects. ECS Transactions, 2010, 33, 749-756.	0.3	0
164	Zero-dark current operation of a metal-graphene-metal photodetector at 10 Gbit/s data rate. , 2010, , .		0
165	Waveguide-integrated Germanium avalanche photodetector for low-noise and high-speed operation. , 2010, , .		0
166	Statistics of photon transport in hundreds of coupled resonators. , 2011, , .		0
167	Correlations between light at spectrally distant wavelengths in coupled microring resonator waveguides. , 2011, , .		0
168	Heralded single photons from silicon coupled-resonator optical waveguides. , 2012, , .		0
169	Heralded single photons from a silicon nanophotonic chip. , 2012, , .		0
170	Graphene and Beyond for Ultrafast Optical Communications and Interconnects. , 2014, , .		0
171	Strong light-matter coupling in atomic monolayers. , 2014, , .		0
172	Light Emission from Atomic Monolayers in a One-Dimensional Microcavity. , 2014, , .		0
173	Optical Phase Anisotropy in Layered Black Phosphorus. , 2016, , .		0
174	Vertical ambipolar barrier transistor based on black phosphorous-tin selenide van der waals heterojunction. , 2016, , .		0
175	Plasmonics in Atomically Thin Crystalline Silver. , 2019, , .		0
176	Design and fabrication of an ultra-compact silicon on insulator demultiplexer based on arrayed waveguide gratings. , 2008, , .		0
177	Intra- and Inter-band Four-wave Mixing in Silicon Coupled Resonator Optical Waveguides. , 2011, , .		0
178	A tale of two dimensionalities. Nature Materials, 2022, 21, 735-736.	13.3	0