Fengnian Xia

List of Publications by Year
in descending order

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	Intelligent infrared sensing enabled by tunable moirÃ© quantum geometry. Nature, 2022, 604, 266-272.	13.7	69
2	A tale of two dimensionalities. Nature Materials, 2022, 21, 735-736.	13.3	0
3	Probing interlayer interaction via chiral phonons in layered honeycomb materials. Physical Review B, 2021, 103, .	1.1	14
4	A wavelength-scale black phosphorus spectrometer. Nature Photonics, 2021, 15, 601-607.	15.6	130
5	Ultrafast Silicon Nanomembrane Microbolometer for Long-Wavelength Infrared Light Detection. Nano Letters, 2021, 21, 8385-8392.	4.5	16
6	Beyond Graphene: Low-Symmetry and Anisotropic 2D Materials. Journal of Applied Physics, 2020, 128, 140401.	1.1	13
7	MoirÃ© Band Topology in Twisted Bilayer Graphene. Nano Letters, 2020, 20, 6076-6083.	4.5	30
8	Strong mid-infrared photoresponse in small-twist-angle bilayer graphene. Nature Photonics, 2020, 14, 549-553.	15.6	76
9	Emergent quantum materials. MRS Bulletin, 2020, 45, 340-347.	1.7	14
10	Artificial Metaphotonics Born Naturally in Two Dimensions. Chemical Reviews, 2020, 120, 6197-6246.	23.0	78
11	Enhancing infrared emission of mercury telluride (HgTe) quantum dots by plasmonic structures. Light: Science and Applications, 2020, 9, 37.	7.7	2
12	Room Temperature Graphene Mid-Infrared Bolometer with a Broad Operational Wavelength Range. ACS Photonics, 2020, 7, 1206-1215.	3.2	41
13	Semimetals for high-performance photodetection. Nature Materials, 2020, 19, 830-837.	13.3	181
14	Widely tunable mid-infrared light emission in thin-film black phosphorus. Science Advances, 2020, 6, eaay6134.	4.7	80
15	Black Phosphorus High-Frequency Transistors with Local Contact Bias. ACS Nano, 2020, 14, 2118-2125.	7.3	21
16	Graphene Schottky Varactor Diodes for High-Performance Photodetection. ACS Photonics, 2019, 6, 1910-1915.	3.2	11
17	Black Phosphorus MOSFET for Future-Generation Thin-Film Electronics Capable of Microwave Operation. , 2019, , .		2
18	Electrically tunable physical properties of two-dimensional materials. Nano Today, 2019, 27, 99-119.	6.2	35

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19	Plasmonics in Atomically Thin Crystalline Silver Films. ACS Nano, 2019, 13, 7771-7779.	7.3	86
20	Black phosphorus and its isoelectronic materials. Nature Reviews Physics, 2019, 1, 306-317.	11.9	196
21	Bright Mid-Infrared Photoluminescence from Thin-Film Black Phosphorus. Nano Letters, 2019, 19, 1488-1493.	4.5	90
22	Plasmonics in Atomically Thin Crystalline Silver. , 2019, , .		0
23	Symmetry-Controlled Electronâ€“Phonon Interactions in van der Waals Heterostructures. ACS Nano, 2019, 13, 552-559.	7.3	20
24	Revealing the Contribution of Individual Factors to Hydrogen Evolution Reaction Catalytic Activity. Advanced Materials, 2018, 30, e1706076.	11.1	86
25	Synthesis of Crystalline Black Phosphorus Thin Film on Sapphire. Advanced Materials, 2018, 30, 1703748.	11.1	86
26	Large-Velocity Saturation in Thin-Film Black Phosphorus Transistors. ACS Nano, 2018, 12, 5003-5010.	7.3	44
27	Air-Stable Room-Temperature Mid-Infrared Photodetectors Based on hBN/Black Arsenic Phosphorus/hBN Heterostructures. Nano Letters, 2018, 18, 3172-3179.	4.5	145
28	Photothermal Engineering of Graphene Plasmons. Physical Review Letters, 2018, 121, 057404.	2.9	22
29	Progress on Black Phosphorus Photonics. Advanced Optical Materials, 2018, 6, 1800365.	3.6	44
30	Valley-Selective Linear Dichroism in Layered Tin Sulfide. ACS Photonics, 2018, 5, 3814-3819.	3.2	22
31	Efficient electrical detection of mid-infrared graphene plasmons at room temperature. Nature Materials, 2018, 17, 986-992.	13.3	119
32	Introduction to the Issue on 2-D Materials Optoelectronics. IEEE Journal of Selected Topics in Quantum Electronics, 2017, 23, 4-6.	1.9	9
33	Efficient electrical control of thin-film black phosphorus bandgap. Nature Communications, 2017, 8, 14474.	5.8	249
34	Electrothermal Control of Graphene Plasmonâ€“Phonon Polaritons. Advanced Materials, 2017, 29, 1700566.	11.1	24
35	Protective molecular passivation of black phosphorus. Npj 2D Materials and Applications, 2017, 1, .	3.9	52
36	Black phosphorous optoelectronic devices. , 2017, , .		1

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37	Single-crystalline germanium nanomembrane photodetectors on foreign nanocavities. Science Advances, 2017, 3, e1602783.	4.7	76
38	Infrared Nanophotonics Based on Graphene Plasmonics. ACS Photonics, 2017, 4, 2989-2999.	3.2	92
39	Enabling novel device functions with black phosphorus/MoS 2 van der Waals heterostructures. Science Bulletin, 2017, 62, 1557-1558.	4.3	9
40	Widely tunable black phosphorus mid-infrared photodetector. Nature Communications, 2017, 8, 1672.	5.8	283
41	Stable Graphene-Two-Dimensional Multiphase Perovskite Heterostructure Phototransistors with High Gain. Nano Letters, 2017, 17, 7330-7338.	4.5	88
42	Optical Phase Anisotropy in Layered Black Phosphorus. , 2016, , .		0
43	Coupling-Enhanced Broadband Mid-infrared Light Absorption in Graphene Plasmonic Nanostructures. ACS Nano, 2016, 10, 11172-11178.	7.3	62
44	Flat talk. Nature Photonics, 2016, 10, 205-206.	15.6	3
45	Optoelectronic devices based on two-dimensional transition metal dichalcogenides. Nano Research, 2016, 9, 1543-1560.	5.8	186
46	Titanum Carbide MXene Flakes as Novel 2D Metallic Solution-Processed Films. ECS Transactions, 2016, 75, 37-41.	0.3	2
47	Feature issue introduction: two-dimensional materials for photonics and optoelectronics. Optical Materials Express, 2016, 6, 2458.	1.6	1
48	Solution-processed titanium carbide MXene films examined as highly transparent conductors. Nanoscale, 2016, 8, 16371-16378.	2.8	227
49	Vertical ambipolar barrier transistor based on black phosphorous-tin selenide van der waals heterojunction. , 2016, , .		0
50	A Dynamically Reconfigurable Ambipolar Black Phosphorus Memory Device. ACS Nano, 2016, 10, 10428-10435.	7.3	97
51	Black Phosphorus Mid-Infrared Photodetectors with High Gain. Nano Letters, 2016, 16, 4648-4655.	4.5	616
52	Anisotropic Black Phosphorus Synaptic Device for Neuromorphic Applications. Advanced Materials, 2016, 28, 4991-4997.	11.1	281
53	Black Phosphorus Optoelectronics. , 2016, , .		1
54	Graphene Plasmonic Metasurfaces to Steer Infrared Light. Scientific Reports, 2015, 5, 12423.	1.6	190

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55	Abnormal cubic-tetragonal phase transition of barium strontium titanate nanoparticles studied by <i>in situ</i> Raman spectroscopy and transmission electron microscopy heating experiments. Applied Physics Letters, 2015, 107, .	1.5	8
56	Black Arsenicâ€"Phosphorus: Layered Anisotropic Infrared Semiconductors with Highly Tunable Compositions and Properties. Advanced Materials, 2015, 27, 4423-4429.	11.1	378
57	Two-dimensional materials for nanophotonics application. Nanophotonics, 2015, 4, 128-142.	2.9	97
58	Stacked 2D materials shed light. Nature Materials, 2015, 14, 264-265.	13.3	203
59	Tunable Plasmonâ€"Phonon Polaritons in Layered Grapheneâ€"Hexagonal Boron Nitride Heterostructures. ACS Photonics, 2015, 2, 907-912.	3.2	70
60	Synthesis of thin-film black phosphorus on a flexible substrate. 2D Materials, 2015, 2, 031002.	2.0	124
61	Highly anisotropic and robust excitons in monolayer black phosphorus. Nature Nanotechnology, 2015, 10, 517-521.	15.6	1,204
62	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
63	Interlayer interactions in anisotropic atomically thin rhenium diselenide. Nano Research, 2015, 8, 3651-3661.	5.8	159
64	Recent Advances in Two-Dimensional Materials beyond Graphene. ACS Nano, 2015, 9, 11509-11539.	7.3	2,069
65	Strong lightâ€"matter coupling in two-dimensional atomic crystals. Nature Photonics, 2015, 9, 30-34.	15.6	865
66	Graphene and Beyond for Ultrafast Optical Communications and Interconnects. , 2014, , .		0
67	Approaching total absorption at near infrared in a large area monolayer graphene by critical coupling. Applied Physics Letters, 2014, 105, 181105.	1.5	103
68	Strong light-matter coupling in atomic monolayers. , 2014, , .		0
69	Two-dimensional material nanophotonics. Nature Photonics, 2014, 8, 899-907.	15.6	2,362
70	Introduction to the issue on graphene optoelectronics. IEEE Journal of Selected Topics in Quantum Electronics, 2014, 20, 6-8.	1.9	7
71	Electronic transport and device prospects of monolayer molybdenum disulphide grown by chemical vapour deposition. Nature Communications, 2014, 5, 3087.	5.8	370
72	Light Emission from Atomic Monolayers in a One-Dimensional Microcavity. , 2014, , .		0

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73	Black Phosphorus Radio-Frequency Transistors. Nano Letters, 2014, 14, 6424-6429.	4.5	307
74	Tunable optical properties of multilayer black phosphorus thin films. Physical Review B, 2014, 90, .	1.1	592
75	Rediscovering black phosphorus as an anisotropic layered material for optoelectronics and electronics. Nature Communications, 2014, 5, 4458.	5.8	2,866
76	Electrons en masse. Nature Nanotechnology, 2014, 9, 575-576.	15.6	6
77	Novel Midinfrared Plasmonic Properties of Bilayer Graphene. Physical Review Letters, 2014, 112, 116801.	2.9	56
78	Plasmons and Screening in Monolayer and Multilayer Black Phosphorus. Physical Review Letters, 2014, 113, 106802.	2.9	515
79	Tunable Phonon-Induced Transparency in Bilayer Graphene Nanoribbons. Nano Letters, 2014, 14, 4581-4586.	4.5	129
80	Photoconductivity of biased graphene. Nature Photonics, 2013, 7, 53-59.	15.6	467
81	Damping pathways of mid-infrared plasmons in graphene nanostructures. Nature Photonics, 2013, 7, 394-399.	15.6	815
82	Graphene versus metal plasmons. Nature Photonics, 2013, 7, 420-420.	15.6	14
83	The Interaction of Light and Graphene: Basics, Devices, and Applications. Proceedings of the IEEE, 2013, 101, 1717-1731.	16.4	94
84	Photocurrent in graphene harnessed by tunable intrinsic plasmons. Nature Communications, 2013, 4, 1951.	5.8	280
85	Graphene Electronics: Materials, Devices, and Circuits. Proceedings of the IEEE, 2013, 101, 1620-1637.	16.4	104
86	The interaction of light and graphene: Basics, devices and applications. , 2013, , .		2
87	Heralded single photons from silicon coupled-resonator optical waveguides. , 2012, , .		0
88	Heralded single photons from a silicon nanophotonic chip. , 2012, , .		0
89	Graphene applications in electronics and photonics. MRS Bulletin, 2012, 37, 1225-1234.	1.7	186
90	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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91	Infrared Spectroscopy of Tunable Dirac Terahertz Magneto-Plasmons in Graphene. Nano Letters, 2012, 12, 3766-3771.	4.5	232
92	Plasmonics of coupled graphene micro-structures. New Journal of Physics, 2012, 14, 125001.	1.2	68
93	Slow light enhancement of four-wave mixing in coupled silicon-on-insulator microrings. Proceedings of SPIE, 2012, , .	0.8	1
94	Microwave Absorption Enhancement of Multifunctional Composite Microspheres with Spinel Fe₃O₄ Cores and Anatase TiO₂ Shells. Small, 2012, 8, 1214-1221.	5.2	730
95	State-of-the-Art Graphene High-Frequency Electronics. Nano Letters, 2012, 12, 3062-3067.	4.5	371
96	Quantum Behavior of Graphene Transistors near the Scaling Limit. Nano Letters, 2012, 12, 1417-1423.	4.5	77
97	Tunable infrared plasmonic devices using graphene/insulator stacks. Nature Nanotechnology, 2012, 7, 330-334.	15.6	1,097
98	Telecommunications-band heralded single photons from a silicon nanophotonic chip. Applied Physics Letters, 2012, 100, .	1.5	133
99	Microwave absorption enhancement and electron microscopy characterization of BaTiO3 nano-torus. Nanoscale, 2011, 3, 3860.	2.8	109
100	Low-power continuous-wave four-wave mixing in silicon coupled-resonator optical waveguides. Optics Letters, 2011, 36, 2964.	1.7	25
101	Statistics of photon transport in hundreds of coupled resonators. , 2011, , .		0
102	Correlations between light at spectrally distant wavelengths in coupled microring resonator waveguides. , 2011, , .		0
103	The origins and limits of metalâ€“graphene junction resistance. Nature Nanotechnology, 2011, 6, 179-184.	15.6	730
104	High-frequency, scaled graphene transistors on diamond-like carbon. Nature, 2011, 472, 74-78.	13.7	813
105	Infrared Spectroscopy of Wafer-Scale Graphene. ACS Nano, 2011, 5, 9854-9860.	7.3	187
106	Graphene Nanophotonics. IEEE Photonics Journal, 2011, 3, 293-295.	1.0	10
107	Intra- and Inter-band Four-wave Mixing in Silicon Coupled Resonator Optical Waveguides. , 2011, , .		0
108	235-ring Coupled-Resonator Optical Waveguides. , 2010, , .		4

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109	Waveguide-Integrated Low-Noise Germanium Avalanche Photodetector with 6dB Sensitivity Improvement. , 2010, , .		0
110	CMOS-Integrated Optical Receivers for On-Chip Interconnects. IEEE Journal of Selected Topics in Quantum Electronics, 2010, 16, 1376-1385.	1.9	82
111	Reinventing germanium avalanche photodetector for nanophotonic on-chip optical interconnects. Nature, 2010, 464, 80-84.	13.7	500
112	Ultrafast nanoprobing. Nature Photonics, 2010, 4, 882-882.	15.6	8
113	Graphene photodetectors for high-speed optical communications. Nature Photonics, 2010, 4, 297-301.	15.6	2,122
114	Ultrafast Graphene Photodetector. , 2010, , .		2
115	(Invited) Integration of Germanium Avalanche Photodetectors on Silicon for On-Chip Optical Interconnects. ECS Transactions, 2010, 33, 749-756.	0.3	0
116	Zero-dark current operation of a metal-graphene-metal photodetector at 10 Gbit/s data rate. , 2010, , .		0
117	CMOS-Integrated Low-Noise Germanium Waveguide Avalanche Photodetector Operating at 40Gbps. , 2010, , .		1
118	High on-off ratio Bilayer Graphene complementary field effect transistors. , 2010, , .		3
119	RF performance of short channel graphene field-effect transistor. , 2010, , .		23
120	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
121	Graphene-based fast electronics and optoelectronics. , 2010, , .		10
122	Graphene nanophotonics. , 2010, , .		1
123	CMOS-integrated high-speed MSM germanium waveguide photodetector. Optics Express, 2010, 18, 4986.	1.7	171
124	Statistics of light transport in 235-ring silicon coupled-resonator optical waveguides. Optics Express, 2010, 18, 26505.	1.7	74
125	Waveguide dispersion effects in silicon-on-insulator coupled-resonator optical waveguides. Optics Letters, 2010, 35, 3030.	1.7	36
126	Waveguide-integrated Germanium avalanche photodetector for low-noise and high-speed operation. , 2010, , .		0

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127	Graphene and carbon nanotube photonics. , 2009, , .		0
128	CMOS-Integrated 40GHz Germanium Waveguide Photodetector for On-chip Optical Interconnects. , 2009, , .		21
129	Ultrafast graphene photodetector. Nature Nanotechnology, 2009, 4, 839-843.	15.6	2,748
130	Utilization of a Buffered Dielectric to Achieve High Field-Effect Carrier Mobility in Graphene Transistors. Nano Letters, 2009, 9, 4474-4478.	4.5	341
131	Role of contacts in graphene transistors: A scanning photocurrent study. Physical Review B, 2009, 79, .	1.1	347
132	Photocurrent Imaging and Efficient Photon Detection in a Graphene Transistor. Nano Letters, 2009, 9, 1039-1044.	4.5	543
133	Integration of nanophotonic devices for on-chip optical interconnects. , 2009, , .		0
134	Communication technologies for exascale systems. , 2009, , .		7
135	CMOS-Integrated Small-Capacitance Germanium Waveguide Photodetector for Optical Interconnects. , 2009, , .		2
136	A microcavity-controlled, current-driven, on-chip nanotube emitter at infrared wavelengths. Nature Nanotechnology, 2008, 3, 609-613.	15.6	85
137	High-throughput silicon nanophotonic wavelength-insensitive switch for on-chip optical networks. Nature Photonics, 2008, 2, 242-246.	15.6	420
138	Ultrahigh-Bandwidth Silicon Photonic Nanowire Waveguides for On-Chip Networks. IEEE Photonics Technology Letters, 2008, 20, 398-400.	1.3	128
139	Nonlinear-Optical Phase Control in Dispersion-Engineered Si Photonic Wires. Optics Express, 2008, 16, 1280.	1.7	93
140	Supercontinuum generation in silicon photonic wires. , 2008, , .		5
141	Silicon integrated nanophotonics for on-chip optical interconnects. , 2008, , .		0
142	High-Throughput Silicon Nanophotonic Deflection Switch for On-Chip Optical Networks. , 2008, , .		5
143	Cavity-controlled, electrically-induced infrared emission from a single single-wall carbon nanotube (SWCT). , 2008, , .		1
144	Broadband ultra-compact nanophotonic optical modulators and switches. , 2008, , .		0

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145	Silicon micro-resonators for on-chip optical networks. , 2008, , .		6
146	Carbon nanotubes and optical confinement: controlling light emission in nanophotonic devices. Proceedings of SPIE, 2008, , .	0.8	3
147	Silicon photonic wire circuits for on-chip optical interconnects. Proceedings of SPIE, 2008, , .	0.8	1
148	Design and fabrication of an ultra-compact silicon on insulator demultiplexer based on arrayed waveguide gratings. , 2008, , .		0
149	Demonstration of 300 Gbps Error-Free Transmission of WDM Data Stream in Silicon Photonic Wires. , 2007, , .		5
150	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
151	Ultra-compact silicon WDM optical filters with flat - top response for on-chip optical interconnects. , 2007, , .		7
152	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
153	Supercontinuum generation in silicon photonic wires. Optics Express, 2007, 15, 15242.	1.7	180
154	Resonantly enhanced all optical buffers on a silicon chip. , 2007, , .		0
155	Ultracompact optical buffers on a silicon chip. Nature Photonics, 2007, 1, 65-71.	15.6	1,033
156	Slow light, fast computers. Nature Photonics, 2007, 1, 72-72.	15.6	2
157	Coupled resonator optical waveguides based on silicon-on-insulator photonic wires. Applied Physics Letters, 2006, 89, 041122.	1.5	90
158	Group index and group velocity dispersion in silicon-on-insulator photonic wires. Optics Express, 2006, 14, 3853.	1.7	259
159	Mode conversion losses in silicon-on-insulator photonic wire based racetrack resonators. Optics Express, 2006, 14, 3872.	1.7	122
160	Group index and group velocity dispersion in silicon-on-insulator photonic wires: errata. Optics Express, 2006, 14, 6372.	1.7	6
161	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
162	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

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163	A monolithically integrated optical heterodyne receiver. IEEE Photonics Technology Letters, 2005, 17, 1716-1718.	1.3	6
164	A Monolithically Integrated Long-Wavelength Balanced Photodiode Using Asymmetric Twin-Waveguide Technology. IEEE Photonics Technology Letters, 2004, 16, 236-238.	1.3	23
165	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
166	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
167	Nonreciprocity of counterpropagating signals in a monolithically integrated Sagnac interferometer. Optics Letters, 2004, 29, 513.	1.7	18
168	Nonreciprocity of counterpropagating signals in a monolithically integrated Sagnac interferometer:â€ƒerratum. Optics Letters, 2004, 29, 1156.	1.7	0
169	All-optical wavelength conversion using a regrowth-free monolithically integrated Sagnac interferometer. IEEE Photonics Technology Letters, 2003, 15, 254-256.	1.3	48
170	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
171	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
172	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
173	An asymmetric twin-waveguide high-bandwidth photodiode using a lateral taper coupler. IEEE Photonics Technology Letters, 2001, 13, 845-847.	1.3	83
174	Asymmetric twin-waveguide 1.55-Î¼m wavelength laser with a distributed Bragg reflector. IEEE Photonics Technology Letters, 2000, 12, 468-470.	1.3	18
175	Integrated photonics using asymmetric twin-waveguide structures. , 0, , .		5
176	High efficiency InGaAsN based quantum well lasers grown by GSMBE using a solid As source. , 0, , .		0
177	Monolithically integrated Sagnac interferometer for all-optical wavelength conversion. , 0, , .		0
178	Monolithically integrated balanced photodiode using asymmetric twin-waveguide technology. , 0, , .		1