

Fengnian Xia

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136
papers

28,933
citations

66
h-index

170
g-index

181
ext. papers

33,045
ext. citations

14
avg, IF

7.38
L-index

#	Paper	IF	Citations
136	Rediscovering black phosphorus as an anisotropic layered material for optoelectronics and electronics. <i>Nature Communications</i> , 2014 , 5, 4458	17.4	2389
135	Ultrafast graphene photodetector. <i>Nature Nanotechnology</i> , 2009 , 4, 839-43	28.7	2309
134	Two-dimensional material nanophotonics. <i>Nature Photonics</i> , 2014 , 8, 899-907	33.9	1805
133	Graphene photodetectors for high-speed optical communications. <i>Nature Photonics</i> , 2010 , 4, 297-301	33.9	1782
132	Recent Advances in Two-Dimensional Materials beyond Graphene. <i>ACS Nano</i> , 2015 , 9, 11509-39	16.7	1581
131	Graphene field-effect transistors with high on/off current ratio and large transport band gap at room temperature. <i>Nano Letters</i> , 2010 , 10, 715-8	11.5	1034
130	Highly anisotropic and robust excitons in monolayer black phosphorus. <i>Nature Nanotechnology</i> , 2015 , 10, 517-21	28.7	999
129	Tunable infrared plasmonic devices using graphene/insulator stacks. <i>Nature Nanotechnology</i> , 2012 , 7, 330-4	28.7	935
128	The renaissance of black phosphorus. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2015 , 112, 4523-30	11.5	900
127	Ultracompact optical buffers on a silicon chip. <i>Nature Photonics</i> , 2007 , 1, 65-71	33.9	814
126	High-frequency, scaled graphene transistors on diamond-like carbon. <i>Nature</i> , 2011 , 472, 74-8	50.4	727
125	Damping pathways of mid-infrared plasmons in graphene nanostructures. <i>Nature Photonics</i> , 2013 , 7, 394-399	33.9	682
124	The origins and limits of metal-graphene junction resistance. <i>Nature Nanotechnology</i> , 2011 , 6, 179-84	28.7	640
123	Microwave absorption enhancement of multifunctional composite microspheres with spinel Fe ₃ O ₄ Cores and Anatase TiO ₂ shells. <i>Small</i> , 2012 , 8, 1214-21	11	621
122	Strong light-matter coupling in two-dimensional atomic crystals. <i>Nature Photonics</i> , 2015 , 9, 30-34	33.9	619
121	Tunable optical properties of multilayer black phosphorus thin films. <i>Physical Review B</i> , 2014 , 90,	3.3	496
120	Photocurrent imaging and efficient photon detection in a graphene transistor. <i>Nano Letters</i> , 2009 , 9, 1039-44	11.5	486

119	Black Phosphorus Mid-Infrared Photodetectors with High Gain. <i>Nano Letters</i> , 2016 , 16, 4648-55	11.5	476
118	Reinventing germanium avalanche photodetector for nanophotonic on-chip optical interconnects. <i>Nature</i> , 2010 , 464, 80-4	50.4	410
117	Plasmons and screening in monolayer and multilayer black phosphorus. <i>Physical Review Letters</i> , 2014 , 113, 106802	7.4	405
116	Photoconductivity of biased graphene. <i>Nature Photonics</i> , 2013 , 7, 53-59	33.9	382
115	High-throughput silicon nanophotonic wavelength-insensitive switch for on-chip optical networks. <i>Nature Photonics</i> , 2008 , 2, 242-246	33.9	346
114	Electronic transport and device prospects of monolayer molybdenum disulphide grown by chemical vapour deposition. <i>Nature Communications</i> , 2014 , 5, 3087	17.4	327
113	Role of contacts in graphene transistors: A scanning photocurrent study. <i>Physical Review B</i> , 2009 , 79,	3.3	319
112	State-of-the-art graphene high-frequency electronics. <i>Nano Letters</i> , 2012 , 12, 3062-7	11.5	318
111	Utilization of a buffered dielectric to achieve high field-effect carrier mobility in graphene transistors. <i>Nano Letters</i> , 2009 , 9, 4474-8	11.5	310
110	Ultra-compact high order ring resonator filters using submicron silicon photonic wires for on-chip optical interconnects. <i>Optics Express</i> , 2007 , 15, 11934-41	3.3	307
109	Black Arsenic-Phosphorus: Layered Anisotropic Infrared Semiconductors with Highly Tunable Compositions and Properties. <i>Advanced Materials</i> , 2015 , 27, 4423-4429	24	282
108	Black phosphorus radio-frequency transistors. <i>Nano Letters</i> , 2014 , 14, 6424-9	11.5	270
107	Photocurrent in graphene harnessed by tunable intrinsic plasmons. <i>Nature Communications</i> , 2013 , 4, 1951	17.4	242
106	Anisotropic Black Phosphorus Synaptic Device for Neuromorphic Applications. <i>Advanced Materials</i> , 2016 , 28, 4991-7	24	217
105	Group index and group velocity dispersion in silicon-on-insulator photonic wires. <i>Optics Express</i> , 2006 , 14, 3853-63	3.3	200
104	Infrared spectroscopy of tunable Dirac terahertz magneto-plasmons in graphene. <i>Nano Letters</i> , 2012 , 12, 3766-71	11.5	198
103	Widely tunable black phosphorus mid-infrared photodetector. <i>Nature Communications</i> , 2017 , 8, 1672	17.4	191
102	Efficient electrical control of thin-film black phosphorus bandgap. <i>Nature Communications</i> , 2017 , 8, 14474	17.4	183

101	Solution-processed titanium carbide MXene films examined as highly transparent conductors. <i>Nanoscale</i> , 2016 , 8, 16371-16378	7.7	165
100	Graphene Plasmonic Metasurfaces to Steer Infrared Light. <i>Scientific Reports</i> , 2015 , 5, 12423	4.9	165
99	Infrared spectroscopy of wafer-scale graphene. <i>ACS Nano</i> , 2011 , 5, 9854-60	16.7	159
98	Graphene applications in electronics and photonics. <i>MRS Bulletin</i> , 2012 , 37, 1225-1234	3.2	144
97	Supercontinuum generation in silicon photonic wires. <i>Optics Express</i> , 2007 , 15, 15242-9	3.3	142
96	Optoelectronic devices based on two-dimensional transition metal dichalcogenides. <i>Nano Research</i> , 2016 , 9, 1543-1560	10	136
95	CMOS-integrated high-speed MSM germanium waveguide photodetector. <i>Optics Express</i> , 2010 , 18, 4986-99	3.9	135
94	Interlayer interactions in anisotropic atomically thin rhenium diselenide. <i>Nano Research</i> , 2015 , 8, 3651-3661	6.1	133
93	Tunable phonon-induced transparency in bilayer graphene nanoribbons. <i>Nano Letters</i> , 2014 , 14, 4581-6	11.5	109
92	Ultrahigh-Bandwidth Silicon Photonic Nanowire Waveguides for On-Chip Networks. <i>IEEE Photonics Technology Letters</i> , 2008 , 20, 398-400	2.2	109
91	Black phosphorus and its isoelectronic materials. <i>Nature Reviews Physics</i> , 2019 , 1, 306-317	23.6	107
90	Telecommunications-band heralded single photons from a silicon nanophotonic chip. <i>Applied Physics Letters</i> , 2012 , 100, 261104	3.4	103
89	Microwave absorption enhancement and electron microscopy characterization of BaTiO ₃ nano-torus. <i>Nanoscale</i> , 2011 , 3, 3860-7	7.7	102
88	Synthesis of thin-film black phosphorus on a flexible substrate. <i>2D Materials</i> , 2015 , 2, 031002	5.9	96
87	Mode conversion losses in silicon-on-insulator photonic wire based racetrack resonators. <i>Optics Express</i> , 2006 , 14, 3872-86	3.3	95
86	Air-Stable Room-Temperature Mid-Infrared Photodetectors Based on hBN/Black Arsenic Phosphorus/hBN Heterostructures. <i>Nano Letters</i> , 2018 , 18, 3172-3179	11.5	87
85	Efficient electrical detection of mid-infrared graphene plasmons at room temperature. <i>Nature Materials</i> , 2018 , 17, 986-992	27	84
84	Approaching total absorption at near infrared in a large area monolayer graphene by critical coupling. <i>Applied Physics Letters</i> , 2014 , 105, 181105	3.4	83

83	The Interaction of Light and Graphene: Basics, Devices, and Applications. <i>Proceedings of the IEEE</i> , 2013 , 101, 1717-1731	14.3	77
82	Two-dimensional materials for nanophotonics application. <i>Nanophotonics</i> , 2015 , 4, 128-142	6.3	76
81	Hierarchical magnetic yolk-shell microspheres with mixed barium silicate and barium titanium oxide shells for microwave absorption enhancement. <i>Journal of Materials Chemistry</i> , 2012 , 22, 9277		76
80	. <i>Proceedings of the IEEE</i> , 2013 , 101, 1620-1637	14.3	75
79	A microcavity-controlled, current-driven, on-chip nanotube emitter at infrared wavelengths. <i>Nature Nanotechnology</i> , 2008 , 3, 609-13	28.7	75
78	Nonlinear-optical phase modification in dispersion-engineered Si photonic wires. <i>Optics Express</i> , 2008 , 16, 1280-99	3.3	73
77	Coupled resonator optical waveguides based on silicon-on-insulator photonic wires. <i>Applied Physics Letters</i> , 2006 , 89, 041122	3.4	73
76	A Dynamically Reconfigurable Ambipolar Black Phosphorus Memory Device. <i>ACS Nano</i> , 2016 , 10, 10428-10435	14.3	72
75	Semimetals for high-performance photodetection. <i>Nature Materials</i> , 2020 , 19, 830-837	27	70
74	Infrared Nanophotonics Based on Graphene Plasmonics. <i>ACS Photonics</i> , 2017 , 4, 2989-2999	6.3	70
73	Synthesis of Crystalline Black Phosphorus Thin Film on Sapphire. <i>Advanced Materials</i> , 2018 , 30, 1703748	24	67
72	Plasmonics of coupled graphene micro-structures. <i>New Journal of Physics</i> , 2012 , 14, 125001	2.9	66
71	An asymmetric twin-waveguide high-bandwidth photodiode using a lateral taper coupler. <i>IEEE Photonics Technology Letters</i> , 2001 , 13, 845-847	2.2	65
70	Stable Graphene-Two-Dimensional Multiphase Perovskite Heterostructure Phototransistors with High Gain. <i>Nano Letters</i> , 2017 , 17, 7330-7338	11.5	63
69	CMOS-Integrated Optical Receivers for On-Chip Interconnects. <i>IEEE Journal of Selected Topics in Quantum Electronics</i> , 2010 , 16, 1376-1385	3.8	63
68	Quantum behavior of graphene transistors near the scaling limit. <i>Nano Letters</i> , 2012 , 12, 1417-23	11.5	62
67	Bright Mid-Infrared Photoluminescence from Thin-Film Black Phosphorus. <i>Nano Letters</i> , 2019 , 19, 1488-1493	14.3	58
66	Tunable Plasmon-Phonon Polaritons in Layered Graphene-Hexagonal Boron Nitride Heterostructures. <i>ACS Photonics</i> , 2015 , 2, 907-912	6.3	57

65	Statistics of light transport in 235-ring silicon coupled-resonator optical waveguides. <i>Optics Express</i> , 2010 , 18, 26505-16	3.3	57
64	Revealing the Contribution of Individual Factors to Hydrogen Evolution Reaction Catalytic Activity. <i>Advanced Materials</i> , 2018 , 30, e1706076	24	54
63	Single-crystalline germanium nanomembrane photodetectors on foreign nanocavities. <i>Science Advances</i> , 2017 , 3, e1602783	14.3	51
62	Plasmonics in Atomically Thin Crystalline Silver Films. <i>ACS Nano</i> , 2019 , 13, 7771-7779	16.7	50
61	Protective molecular passivation of black phosphorus. <i>Npj 2D Materials and Applications</i> , 2017 , 1,	8.8	46
60	Coupling-Enhanced Broadband Mid-infrared Light Absorption in Graphene Plasmonic Nanostructures. <i>ACS Nano</i> , 2016 , 10, 11172-11178	16.7	46
59	Artificial Metaphotonics Born Naturally in Two Dimensions. <i>Chemical Reviews</i> , 2020 , 120, 6197-6246	68.1	42
58	Widely tunable mid-infrared light emission in thin-film black phosphorus. <i>Science Advances</i> , 2020 , 6, eaay6134	61.34	42
57	Novel midinfrared plasmonic properties of bilayer graphene. <i>Physical Review Letters</i> , 2014 , 112, 116801	7.4	42
56	All-optical wavelength conversion using a regrowth-free monolithically integrated Sagnac interferometer. <i>IEEE Photonics Technology Letters</i> , 2003 , 15, 254-256	2.2	41
55	High T0 long-wavelength InGaAsN quantum-well lasers grown by GSMBE using a solid arsenic source. <i>IEEE Photonics Technology Letters</i> , 2002 , 14, 597-599	2.2	40
54	Strong mid-infrared photoresponse in small-twist-angle bilayer graphene. <i>Nature Photonics</i> , 2020 , 14, 549-553	33.9	37
53	A high-responsivity high-bandwidth asymmetric twin-waveguide coupled InGaAs-InP-InAlAs avalanche photodiode. <i>IEEE Photonics Technology Letters</i> , 2002 , 14, 1590-1592	2.2	35
52	Large-Velocity Saturation in Thin-Film Black Phosphorus Transistors. <i>ACS Nano</i> , 2018 , 12, 5003-5010	16.7	32
51	Progress on Black Phosphorus Photonics. <i>Advanced Optical Materials</i> , 2018 , 6, 1800365	8.1	29
50	Photonic integration using asymmetric twin-waveguide (ATG) technology: part I-concepts and theory. <i>IEEE Journal of Selected Topics in Quantum Electronics</i> , 2005 , 11, 17-29	3.8	29
49	A wavelength-scale black phosphorus spectrometer. <i>Nature Photonics</i> , 2021 , 15, 601-607	33.9	28
48	Waveguide dispersion effects in silicon-on-insulator coupled-resonator optical waveguides. <i>Optics Letters</i> , 2010 , 35, 3030-2	3	27

47	Photonic integration using asymmetric twin-waveguide (ATG) technology: part II-devices. <i>IEEE Journal of Selected Topics in Quantum Electronics</i> , 2005 , 11, 30-42	3.8	26
46	Monolithic integration of a semiconductor optical amplifier and a high bandwidth p-i-n photodiode using asymmetric twin-waveguide technology. <i>IEEE Photonics Technology Letters</i> , 2003 , 15, 452-454	2.2	23
45	Electrically tunable physical properties of two-dimensional materials. <i>Nano Today</i> , 2019 , 27, 99-119	17.9	22
44	RF performance of short channel graphene field-effect transistor 2010 ,		21
43	Electrothermal Control of Graphene Plasmon-Phonon Polaritons. <i>Advanced Materials</i> , 2017 , 29, 170056624	2.4	20
42	A monolithically integrated long-wavelength balanced photodiode using asymmetric twin-waveguide technology. <i>IEEE Photonics Technology Letters</i> , 2004 , 16, 236-238	2.2	20
41	Room Temperature Graphene Mid-Infrared Bolometer with a Broad Operational Wavelength Range. <i>ACS Photonics</i> , 2020 , 7, 1206-1215	6.3	19
40	Valley-Selective Linear Dichroism in Layered Tin Sulfide. <i>ACS Photonics</i> , 2018 , 5, 3814-3819	6.3	18
39	CMOS-Integrated 40GHz Germanium Waveguide Photodetector for On-chip Optical Interconnects 2009 ,		16
38	Asymmetric twin-waveguide 1.55- μ m wavelength laser with a distributed Bragg reflector. <i>IEEE Photonics Technology Letters</i> , 2000 , 12, 468-470	2.2	16
37	Photothermal Engineering of Graphene Plasmons. <i>Physical Review Letters</i> , 2018 , 121, 057404	7.4	15
36	Low-power continuous-wave four-wave mixing in silicon coupled-resonator optical waveguides. <i>Optics Letters</i> , 2011 , 36, 2964-6	3	15
35	Nonreciprocity of counterpropagating signals in a monolithically integrated Sagnac interferometer. <i>Optics Letters</i> , 2004 , 29, 513-5	3	15
34	Black Phosphorus High-Frequency Transistors with Local Contact Bias. <i>ACS Nano</i> , 2020 , 14, 2118-2125	16.7	14
33	An asymmetric twin waveguide eight-channel polarization-independent arrayed waveguide grating with an integrated photodiode array. <i>IEEE Photonics Technology Letters</i> , 2004 , 16, 1170-1172	2.2	12
32	Moiré Band Topology in Twisted Bilayer Graphene. <i>Nano Letters</i> , 2020 , 20, 6076-6083	11.5	12
31	Symmetry-Controlled Electron-Phonon Interactions in van der Waals Heterostructures. <i>ACS Nano</i> , 2019 , 13, 552-559	16.7	10
30	Abnormal cubic-tetragonal phase transition of barium strontium titanate nanoparticles studied by in situ Raman spectroscopy and transmission electron microscopy heating experiments. <i>Applied Physics Letters</i> , 2015 , 107, 182902	3.4	8

29	Graphene Nanophotonics. <i>IEEE Photonics Journal</i> , 2011 , 3, 293-295	1.8	8
28	Reduction of absorption loss in asymmetric twin waveguide laser tapers using argon plasma-enhanced quantum-well intermixing. <i>IEEE Photonics Technology Letters</i> , 2004 , 16, 2221-2223	2.2	8
27	Emergent quantum materials. <i>MRS Bulletin</i> , 2020 , 45, 340-347	3.2	7
26	Graphene Schottky Varactor Diodes for High-Performance Photodetection. <i>ACS Photonics</i> , 2019 , 6, 191061915	7	7
25	Graphene-based fast electronics and optoelectronics 2010 ,		7
24	Intelligent infrared sensing enabled by tunable moiré quantum geometry.. <i>Nature</i> , 2022 , 604, 266-272	50.4	7
23	Enabling novel device functions with black phosphorus/MoS ₂ van der Waals heterostructures. <i>Science Bulletin</i> , 2017 , 62, 1557-1558	10.6	5
22	Communication technologies for exascale systems 2009 ,		4
21	Probing interlayer interaction via chiral phonons in layered honeycomb materials. <i>Physical Review B</i> , 2021 , 103,	3.3	4
20	Introduction to the issue on graphene optoelectronics. <i>IEEE Journal of Selected Topics in Quantum Electronics</i> , 2014 , 20, 6-8	3.8	3
19	High on-off ratio Bilayer Graphene complementary field effect transistors 2010 ,		3
18	Silicon micro-resonators for on-chip optical networks 2008 ,		3
17	Carbon nanotubes and optical confinement: controlling light emission in nanophotonic devices 2008 ,		3
16	A monolithically integrated optical heterodyne receiver. <i>IEEE Photonics Technology Letters</i> , 2005 , 17, 1716-1718	2.2	3
15	Group index and group velocity dispersion in silicon-on-insulator photonic wires: errata. <i>Optics Express</i> , 2006 , 14, 6372	3.3	3
14	Ultrafast Silicon Nanomembrane Microbolometer for Long-Wavelength Infrared Light Detection. <i>Nano Letters</i> , 2021 , 21, 8385-8392	11.5	3
13	235-ring Coupled-Resonator Optical Waveguides 2010 ,		2
12	High-Throughput Silicon Nanophotonic Deflection Switch for On-Chip Optical Networks 2008 ,		2

11	Demonstration of 300 Gbps Error-Free Transmission of WDM Data Stream in Silicon Photonic Wires 2007,		2
10	Ultra-compact silicon WDM optical filters with flat - top response for on-chip optical interconnects 2007,		2
9	Integrated photonics using asymmetric twin-waveguide structures		2
8	Titanium Carbide MXene Flakes as Novel 2D Metallic Solution-Processed Films. <i>ECS Transactions,</i> 2016, 75, 37-41	1	2
7	Black phosphorous optoelectronic devices 2017,		1
6	Feature issue introduction: two-dimensional materials for photonics and optoelectronics. <i>Optical Materials Express,</i> 2016, 6, 2458	2.6	1
5	Slow light enhancement of four-wave mixing in coupled silicon-on-insulator microrings 2012,		1
4	Silicon photonic wire circuits for on-chip optical interconnects 2008,		1
3	Black Phosphorus Optoelectronics 2016,		1
2	(Invited) Integration of Germanium Avalanche Photodetectors on Silicon for On-Chip Optical Interconnects. <i>ECS Transactions,</i> 2010, 33, 749-756	1	
1	Nonreciprocity of counterpropagating signals in a monolithically integrated Sagnac interferometer: erratum. <i>Optics Letters,</i> 2004, 29, 1156		3