Xiaodong Pi

List of Publications by Year
in descending order

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130	5,079	76196	98622
papers	citations	40 h-index	67 g-index

133	133	133	5225
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Plasmonic Silicon Quantum Dots Enabled High-Sensitivity Ultrabroadband Photodetection of Graphene-Based Hybrid Phototransistors. ACS Nano, 2017, 11, 9854-9862.	7.3	285
2	A self-powered high-performance graphene/silicon ultraviolet photodetector with ultra-shallow junction: breaking the limit of silicon?. Npj 2D Materials and Applications, 2017, 1, .	3.9	211
3	Graphene Coupled with Silicon Quantum Dots for Highâ€Performance Bulkâ€Siliconâ€Based Schottkyâ€Junction Photodetectors. Advanced Materials, 2016, 28, 4912-4919.	11.1	206
4	Doping efficiency, dopant location, and oxidation of Si nanocrystals. Applied Physics Letters, 2008, 92, .	1.5	186
5	Tuning the Band Gap in Silicene by Oxidation. ACS Nano, 2014, 8, 10019-10025.	7.3	175
6	Broadband optoelectronic synaptic devices based on silicon nanocrystals for neuromorphic computing. Nano Energy, 2018, 52, 422-430.	8.2	150
7	Optoelectronic Synaptic Devices for Neuromorphic Computing. Advanced Intelligent Systems, 2021, 3, 2000099.	3.3	143
8	Comparative Study on the Localized Surface Plasmon Resonance of Boron- and Phosphorus-Doped Silicon Nanocrystals. ACS Nano, 2015, 9, 378-386.	7.3	133
9	Air-stable full-visible-spectrum emission from silicon nanocrystals synthesized by an all-gas-phase plasma approach. Nanotechnology, 2008, 19, 245603.	1.3	126
10	Optically Stimulated Synaptic Devices Based on the Hybrid Structure of Silicon Nanomembrane and Perovskite. Nano Letters, 2020, 20, 3378-3387.	4.5	121
11	Enhancing the Efficiency of Multicrystalline Silicon Solar Cells by the Inkjet Printing of Silicon-Quantum-Dot Ink. Journal of Physical Chemistry C, 2012, 116, 21240-21243.	1.5	119
12	Spin-coating silicon-quantum-dot ink to improve solar cell efficiency. Solar Energy Materials and Solar Cells, 2011, 95, 2941-2945.	3.0	117
13	A Broadband Fluorographene Photodetector. Advanced Materials, 2017, 29, 1700463.	11.1	110
14	Synaptic silicon-nanocrystal phototransistors for neuromorphic computing. Nano Energy, 2019, 63, 103859.	8.2	107
15	Zero-power optoelectronic synaptic devices. Nano Energy, 2020, 73, 104790.	8.2	94
16	Quasi-Two-Dimensional SiC and SiC₂: Interaction of Silicon and Carbon at Atomic Thin Lattice Plane. Journal of Physical Chemistry C, 2015, 119, 19772-19779.	1.5	87
17	Ink Engineering of Inkjet Printing Perovskite. ACS Applied Materials & Interfaces, 2020, 12, 39082-39091.	4.0	85
18	Optimum Quantum Yield of the Light Emission from 2 to 10 nm Hydrosilylated Silicon Quantum Dots. Particle and Particle Systems Characterization, 2016, 33, 44-52.	1.2	83

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19	Electroluminescent synaptic devices with logic functions. Nano Energy, 2018, 54, 383-389.	8.2	80
20	Silicon nanocrystals: unfading silicon materials for optoelectronics. Materials Science and Engineering Reports, 2019, 138, 85-117.	14.8	74
21	Ligand-Free, Colloidal, and Plasmonic Silicon Nanocrystals Heavily Doped with Boron. ACS Photonics, 2016, 3, 415-422.	3.2	72
22	Boron- and Phosphorus-Hyperdoped Silicon Nanocrystals. Particle and Particle Systems Characterization, 2015, 32, 213-221.	1.2	68
23	Light-Emitting Diodes Based on Colloidal Silicon Quantum Dots with Octyl and Phenylpropyl Ligands. ACS Applied Materials & Interfaces, 2018, 10, 5959-5966.	4.0	68
24	Dualâ€Modal Optoelectronic Synaptic Devices with Versatile Synaptic Plasticity. Advanced Functional Materials, 2022, 32, 2107973.	7.8	68
25	Efficient silicon quantum dots light emitting diodes with an inverted device structure. Journal of Materials Chemistry C, 2016, 4, 673-677.	2.7	64
26	Fluorine in Silicon: Diffusion, Trapping, and Precipitation. Physical Review Letters, 2003, 90, 155901.	2.9	63
27	Sizeâ€Dependent Structures and Optical Absorption of Boronâ€Hyperdoped Silicon Nanocrystals. Advanced Optical Materials, 2016, 4, 700-707.	3.6	63
28	Nonthermal plasma synthesized freestanding siliconâ€“germanium alloy nanocrystals. Nanotechnology, 2009, 20, 295602.	1.3	62
29	Silicene oxides: formation, structures and electronic properties. Scientific Reports, 2013, 3, 3507.	1.6	62
30	Tight-Binding Calculations of the Optical Response of Optimally P-Doped Si Nanocrystals: A Model for Localized Surface Plasmon Resonance. Physical Review Letters, 2013, 111, 177402.	2.9	59
31	Electronic and magnetic properties of graphene, silicene and germanene with varying vacancy concentration. AIP Advances, 2017, 7, .	0.6	58
32	First-Principles Study of 2.2 nm Silicon Nanocrystals Doped with Boron. Journal of Physical Chemistry C, 2011, 115, 9838-9843.	1.5	55
33	Perovskite/Organic Bulkâ€Heterojunction Integrated Ultrasensitive Broadband Photodetectors with High Nearâ€Infrared External Quantum Efficiency over 70%. Small, 2018, 14, e1802349.	5.2	52
34	Bioinspired molecules design for bilateral synergistic passivation in buried interfaces of planar perovskite solar cells. Nano Research, 2022, 15, 1069-1078.	5.8	52
35	First-Principles Study on the Surface Chemistry of 1.4 nm Silicon Nanocrystals: Case of Hydrosilylation. Journal of Physical Chemistry C, 2012, 116, 19434-19443.	1.5	51
36	Critical Role of Dopant Location for P-Doped Si Nanocrystals. Journal of Physical Chemistry C, 2011, 115, 661-666.	1.5	50

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37	Silicon nanocrystal conjugated polymer hybrid solar cells with improved performance. Nano Energy, 2014, 9, 25-31.	8.2	50
38	A review of theoretical study of graphene chemical vapor deposition synthesis on metals: nucleation, growth, and the role of hydrogen and oxygen. Reports on Progress in Physics, 2018, 81, 036501.	8.1	43
39	High and Fast Response of a Grapheneâ€“Silicon Photodetector Coupled with 2D Fractal Platinum Nanoparticles. Advanced Optical Materials, 2018, 6, 1700793.	3.6	42
40	Theoretical Study of Chlorine for Silicon Nanocrystals. Journal of Physical Chemistry C, 2011, 115, 12822-12825.	1.5	41
41	Bonding of Oxygen at the Oxide/Nanocrystal Interface of Oxidized Silicon Nanocrystals: An Ab Initio Study. Journal of Physical Chemistry C, 2010, 114, 8774-8781.	1.5	40
42	Fluorine-Passivated Silicon Nanocrystals: Surface Chemistry versus Quantum Confinement. Journal of Physical Chemistry C, 2012, 116, 5401-5406.	1.5	40
43	Fully Transparent Quantum Dot Light-Emitting Diode with a Laminated Top Graphene Anode. ACS Applied Materials & Interfaces, 2017, 9, 24005-24010.	4.0	38
44	Silicon-nanocrystal-incorporated ternary hybrid solar cells. Nano Energy, 2016, 26, 305-312.	8.2	37
45	Observation of van Hove Singularities in Twisted Silicene Multilayers. ACS Central Science, 2016, 2, 517-521.	5.3	37
46	Doping Si nanocrystals embedded in SiO<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:msub><mml:mrow /><mml:mn>2</mml:mn></mml:msub></mml:math>with P in the framework of density functional theory. Physical Review B, 2014, 89, .	1.1	35
47	Resolving the Controversial Existence of Silicene and Germanene Nanosheets Grown on Graphite. ACS Nano, 2018, 12, 4754-4760.	7.3	35
48	Waterâ€Dispersible Siliconâ€Quantumâ€Dotâ€Containing Micelles Selfâ€Assembled from an Amphiphilic Polymer. Particle and Particle Systems Characterization, 2014, 31, 751-756.	1.2	33
49	Density functional theory study on boron- and phosphorus-doped hydrogen-passivated silicene. Physical Chemistry Chemical Physics, 2015, 17, 4146-4151.	1.3	33
50	Fully radiative relaxation of silicon nanocrystals in colloidal ensemble revealed by advanced treatment of decay kinetics. Journal of Applied Physics, 2017, 122, 034304.	1.1	33
51	Developing near-infrared quantum-dot light-emitting diodes to mimic synaptic plasticity. Science China Materials, 2019, 62, 1470-1478.	3.5	31
52	Freestanding doped silicon nanocrystals synthesized by plasma. Journal Physics D: Applied Physics, 2015, 48, 314006.	1.3	30
53	Reflectivity of porous-pyramids structured silicon surface. Applied Surface Science, 2010, 257, 472-475.	3.1	27
54	Surface modification of chlorine-passivated silicon nanocrystals. Physical Chemistry Chemical Physics, 2013, 15, 1815.	1.3	26

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55	A parametric study of non-thermal plasma synthesis of silicon nanoparticles from a chlorinated precursor. Journal Physics D: Applied Physics, 2014, 47, 485202.	1.3	26
56	Highly efficient and stable inorganic CsPbBr3 perovskite solar cells via vacuum co-evaporation. Applied Surface Science, 2021, 562, 150153.	3.1	26
57	Theoretical Study of Interfacial and Electronic Properties of Transition Metal Dichalcogenides and Organic Molecules Based van der Waals Heterostructures. Advanced Theory and Simulations, 2020, 3, 2000045.	1.3	25
58	Doping Silicon Nanocrystals with Boron and Phosphorus. Journal of Nanomaterials, 2012, 2012, 1-9.	1.5	24
59	Silicon-Quantum-Dot Light-Emitting Diodes With Interlayer-Enhanced Hole Transport. IEEE Photonics Journal, 2017, 9, 1-10.	1.0	24
60	Density functional theory study on the B doping and B/P codoping of Si nanocrystals embedded in <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:mi>Si</mml:mi><mml:msub><mml:mi mathvariant="normal">O</mml:mi><mml:mn>2</mml:mn></mml:msub></mml:mrow></mml:math>. Physical Review B, 2017, 95, .	1.1	23
61	Doped silicon nanocrystals from organic dopant precursor by a SiCl4-based high frequency nonthermal plasma. Applied Physics Letters, 2014, 105, .	1.5	22
62	Constructing submicron textures on mc-Si solar cells via copper-catalyzed chemical etching. Applied Physics Letters, 2017, 110, .	1.5	22
63	Enhancement of electroluminescence from TiO2/p+-Si heterostructure-based devices through engineering of oxygen vacancies in TiO2. Applied Physics Letters, 2009, 95, .	1.5	21
64	Density functional theory study on organically surface-modified silicene. RSC Advances, 2015, 5, 33831-33837.	1.7	21
65	Low-temperature processed tantalum/niobium co-doped TiO₂ electron transport layer for high-performance planar perovskite solar cells. Nanotechnology, 2021, 32, 245201.	1.3	21
66	Structures, Oxidation, and Charge Transport of Phosphorusâ€Doped Germanium Nanocrystals. Particle and Particle Systems Characterization, 2016, 33, 271-278.	1.2	19
67	Silicon-based optoelectronic synaptic devices*. Chinese Physics B, 2020, 29, 070703.	0.7	19
68	Recent progress of heterostructures based on two dimensional materials and wide bandgap semiconductors. Journal of Physics Condensed Matter, 2022, 34, 183001.	0.7	19
69	Light-emitting diodes based on colloidal silicon quantum dots. Journal of Semiconductors, 2018, 39, 061008.	2.0	17
70	A Silicon Cluster Based Single Electron Transistor with Potential Room-Temperature Switching. Chinese Physics Letters, 2018, 35, 037301.	1.3	17
71	Silicon-based inorganic-organic hybrid optoelectronic synaptic devices simulating cross-modal learning. Science China Information Sciences, 2021, 64, 1.	2.7	17
72	Toward Waferâ€Scale Production of 2D Transition Metal Chalcogenides. Advanced Electronic Materials, 2021, 7, 2100278.	2.6	16

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73	Chemical synthesis of Cu(In) metal inks to prepare CuInS2 thin films and solar cells. Journal of Alloys and Compounds, 2010, 507, 317-321.	2.8	15
74	Lightly boron and phosphorus co-doped silicon nanocrystals. Journal of Nanoparticle Research, 2012, 14, 1.	0.8	15
75	Al2O3-Interlayer-Enhanced Performance of All-Inorganic Silicon-Quantum-Dot Near-Infrared Light-Emitting Diodes. IEEE Transactions on Electron Devices, 2018, 65, 577-583.	1.6	15
76	Hybrid Structure of Silicon Nanocrystals and 2D WSe<inf>2</inf> for Broadband Optoelectronic Synaptic Devices. , 2018, , .		15
77	Enhanced field emission from carbon nanotubes by electroplating of silver nanoparticles. Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics, 2011, 29, .	0.6	14
78	Perovskite-Enhanced Silicon-Nanocrystal Optoelectronic Synaptic Devices for the Simulation of Biased and Correlated Random-Walk Learning. Research, 2020, 2020, 7538450.	2.8	14
79	Electronic and Optical Properties of Threading Dislocations in n-Type 4H-SiC. ACS Applied Electronic Materials, 2022, 4, 1678-1683.	2.0	13
80	Density functional theory study on a 1.4 nm silicon nanocrystal coated with carbon. RSC Advances, 2012, 2, 11227.	1.7	12
81	Doping Silicon Wafers with Boron by Use of Silicon Paste. Journal of Materials Science and Technology, 2013, 29, 652-654.	5.6	12
82	Formation, Structures and Electronic Properties of Silicene Oxides on Ag(111). Journal of Materials Science and Technology, 2017, 33, 751-757.	5.6	12
83	Formation, Stability, Geometry and Band Structure of Organically Surface-Modified Germanane. Journal of Materials Science and Technology, 2017, 33, 59-64.	5.6	12
84	Optical absorption and emission of nitrogen-doped silicon nanocrystals. Nanoscale, 2011, 3, 4584.	2.8	11
85	Graphene/silicon-quantum-dots/Si Schottky-PN cascade heterojunction for short-wavelength infrared photodetection. , 2017, , .		11
86	Plasmon-Coupled FÃ¶rster Resonance Energy Transfer between Silicon Quantum Dots. Journal of Physical Chemistry C, 2019, 123, 23604-23609.	1.5	11
87	CKAP4 Antibody-Conjugated Si Quantum Dot Micelles for Targeted Imaging of Lung Cancer. Nanoscale Research Letters, 2021, 16, 124.	3.1	10
88	Deformation of 4H-SiC: The role of dopants. Applied Physics Letters, 2022, 120, 052105.	1.5	10
89	Intrinsic gettering of Czochralski silicon annealed in argon and nitrogen atmosphere. Physica B: Condensed Matter, 2001, 307, 40-44.	1.3	9
90	Growth of In2O3 Nanowires Catalyzed by Cu via a Solidâ€“Liquidâ€“Solid Mechanism. Nanoscale Research Letters, 2010, 5, 898-903.	3.1	9

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91	Numerical Simulation of a Novel Method for PVT Growth of SiC by Adding a Graphite Block. Crystals, 2021, 11, 1581.	1.0	9
92	Silicon nanocrystals doped with substitutional or interstitial manganese. Applied Physics Letters, 2011, 99, 193108.	1.5	8
93	Ab initio study on the effect of structural relaxation on the electronic and optical properties of P-doped Si nanocrystals. Journal of Applied Physics, 2014, 116, .	1.1	8
94	Interfacial Properties for a Monolayer CrS 2 Contact with Metal: A Theoretical Perspective. Physica Status Solidi (B): Basic Research, 2019, 256, 1800597.	0.7	8
95	Theoretical study on the improvement of the doping efficiency of Al in 4H-SiC by co-doping group-IVB elements. Chinese Physics B, 2022, 31, 046104.	0.7	8
96	Recent Progress on the Scanning Tunneling Microscopy and Spectroscopy Study of Semiconductor Heterojunctions. Small, 2021, , 2100655.	5.2	8
97	Compensation of p-type doping in Al-doped 4H-SiC. Journal of Applied Physics, 2022, 131, .	1.1	8
98	Optical properties of free-standing gelatinâ€“Si nanoparticle composite films and gelatinâ€“Siâ€“Au nanoparticle composite films. Physical Chemistry Chemical Physics, 2013, 15, 20140.	1.3	7
99	Trap-Free Heterostructure of PbS Nanoplatelets on InP(001) by Chemical Epitaxy. ACS Nano, 2019, 13, 1961-1967.	7.3	7
100	Spontaneous symmetry lowering of Si (001) towards two-dimensional ferro/antiferroelectric behavior. Physical Review Materials, 2019, 3, .	0.9	7
101	Recent progress on optoelectronic synaptic devices. Scientia Sinica Informationis, 2020, 50, 892-912.	0.2	7
102	CdSe Quantum Dots Sensitized Mesoporous TiO₂Solar Cells with CuSCN as Solid-State Electrolyte. Journal of Nanomaterials, 2011, 2011, 1-5.	1.5	6
103	Density Functional Theory Study on the Oxidation of Hydrosilylated Silicon Nanocrystals. Journal of Materials Science and Technology, 2014, 30, 639-643.	5.6	6
104	Low-resistivity bulk silicon prepared by hot-pressing boron- and phosphorus-hyperdoped silicon nanocrystals. AIP Advances, 2014, 4, .	0.6	6
105	Cera alba-assisted ultraclean graphene transfer for high-performance PbI2 UV photodetectors. Nanotechnology, 2020, 31, 365204.	1.3	6
106	Doping-dependent nucleation of basal plane dislocations in 4H-SiC. Journal Physics D: Applied Physics, 2022, 55, 334002.	1.3	6
107	Facile synthesis of highly fluorescent gelatin/Si nanocrystals composite thin films for optical detection of amines in water. Journal of Materials Chemistry C, 2014, 2, 1971.	2.7	5
108	Twinned silicon and germanium nanocrystals: Formation, stability and quantum confinement. AIP Advances, 2015, 5, .	0.6	5

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109	Boron nanocrystals as high-energy-density fuels. Journal Physics D: Applied Physics, 2018, 51, 025305.	1.3	5
110	Electronic and thermoelectric properties of atomically thin C₃Si₃/C and C₃Ge₃/C superlattices. Nanotechnology, 2018, 29, 045402.	1.3	5
111	Enhanced photoluminescence of silicon quantum dots in the presence of both energy transfer enhancement and emission enhancement mechanisms assisted by the double plasmon modes of gold nanorods. Nanoscale Advances, 2021, 3, 4810-4815.	2.2	5
112	Nitrogen Decoration of Basal-Plane Dislocations in <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline" overflow="scroll"><mml:mn>4</mml:mn><mml:mrow><mml:mrow><mml:mi mathvariant="normal">H</mml:mi></mml:mrow></mml:mrow></mml:math> - <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline" overflow="scroll"><mml:mi>SiC</mml:mi></mml:math>. Physical Review Applied, 2022, 17, .	1.5	5
113	Optical-switched proton logic gate: Indocyanine green decorated HSB-W5 MOFs nanosheets. Science China Materials, 0, , 1.	3.5	4
114	Silicon nanocrystals synthesized using very high frequency non-thermal plasma and their application in photovoltaics. Journal Physics D: Applied Physics, 2015, 48, 314011.	1.3	3
115	Regulation of bifurcated cytokine induction by surface charge of nanoparticles during interaction between CpG oligodeoxynucleotides and toll-like receptor 9. Journal of Drug Delivery Science and Technology, 2015, 29, 251-260.	1.4	3
116	Reduction in Modulus of Suspended Subâ€2 nm Single Crystalline Silicon Nanomembranes. Advanced Materials Interfaces, 2017, 4, 1700529.	1.9	3
117	Electrical Activity of Nitrogen-Oxygen Complexes in Silicon. Physica Status Solidi (B): Basic Research, 2000, 221, 641-645.	0.7	2
118	Silicon Nanocrystals: Sizeâ€Dependent Structures and Optical Absorption of Boronâ€Hyperdoped Silicon Nanocrystals (Advanced Optical Materials 5/2016). Advanced Optical Materials, 2016, 4, 646-646.	3.6	2
119	Doping Effects in Co-deposited Mixed Phase Films of Hydrogenated Amorphous Silicon Containing Nanocrystalline Inclusions. Materials Research Society Symposia Proceedings, 2008, 1066, 1.	0.1	1
120	Silicon and Germanium Nanocrystal Inks for Low-Cost Solar Cells. , 2010, , .		1
121	Defects in TiO2 films on p+-Si studied by positron annihilation spectroscopy. Materials Science and Engineering B: Solid-State Materials for Advanced Technology, 2012, 177, 625-628.	1.7	1
122	Graphene coupled with silicon quantum dots for high-performance silicon Schottky photodetectors. , 2016, , .		1
123	Density functional theory study on the boron and phosphorus doping of germanium quantum dots. RSC Advances, 2017, 7, 50935-50941.	1.7	1
124	Colloidal Silicon Quantum Dots and Solar Cells. , 2017, , 1-27.		1
125	Kick-out diffusion of Al in 4H-SiC: an ab initio study. Journal of Applied Physics, 2022, 132, .	1.1	1
126	Light emitting transistors using silicon quantum dots in an organic matrix. , 2008, , .		0

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127	Silicon-quantum-dot light-emitting diodes with varying emission layer thickness. , 2016, , .		0
128	Optoelectronic Synaptic Devices Based on the Heterostructure of Silicon Nanomembrane and P3HT. , 2021, , .		0
129	Silicon nanocrystals doped with boron and phosphorous. Series in Materials Science and Engineering, 2017, , 341-366.	0.1	0
130	Colloidal Silicon Quantum Dots and Solar Cells. , 2019, , 933-958.		0