Jun-Wei Luo

List of Publications by Year
in descending order

108 papers	3,651 citations	126907 33 h-index	144013 57 g-index
108 all docs	108 docs citations	108 times ranked	5430 citing authors

#	Article	IF	Citations
1	Hidden spin polarization in inversion-symmetric bulk crystals. Nature Physics, 2014, 10, 387-393.	16.7	400
2	Self-assembled quantum dots in a nanowire system for quantum photonics. Nature Materials, 2013, 12, 439-444.	27.5	306
3	Highly sensitive and fast phototransistor based on large size CVD-grown SnS₂nanosheets. Nanoscale, 2015, 7, 14093-14099.	5.6	126
4	Mapping the orbital wavefunction of the surface states in three-dimensional topological insulators. Nature Physics, 2013, 9, 499-504.	16.7	118
5	In-plane Schottky-barrier field-effect transistors based on 1 <i>T</i> /2 <i>H</i> heterojunctions of transition-metal dichalcogenides. Physical Review B, 2017, 96, .	3.2	117
6	Genetic-Algorithm Discovery of a Direct-Gap and Optically Allowed Superstructure from Indirect-Gap Si and Ge Semiconductors. Physical Review Letters, 2012, 108, 027401.	7.8	103
7	Giant momentum-dependent spin splitting in centrosymmetric low- <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mi>Z</mml:mi></mml:math> antiferromagnets. Physical Review B, 2020, 102, .	3.2	101
8	False-positive and false-negative assignments of topological insulators in density functional theory and hybrids. Physical Review B, 2011, 84, .	3.2	93
9	Improving Performances of In-Plane Transition-Metal Dichalcogenide Schottky Barrier Field-Effect Transistors. ACS Applied Materials & Interfaces, 2018, 10, 19271-19277.	8.0	89
10	Carrier Multiplication in Semiconductor Nanocrystals: Theoretical Screening of Candidate Materials Based on Band-Structure Effects. Nano Letters, 2008, 8, 3174-3181.	9.1	80
11	Wide InP Nanowires with Wurtzite/Zincblende Superlattice Segments Are Type-II whereas Narrower Nanowires Become Type-I: An Atomistic Pseudopotential Calculation. Nano Letters, 2010, 10, 4055-4060.	9.1	76
12	Matrix-embedded silicon quantum dots for photovoltaic applications: a theoretical study of critical factors. Energy and Environmental Science, 2011, 4, 2546.	30.8	72
13	Split Dirac cones in HgTe/CdTe quantum wells due to symmetry-enforced level anticrossing at interfaces. Physical Review B, 2015, 91, .	3.2	67
14	Prediction of low-Z collinear and noncollinear antiferromagnetic compounds having momentum-dependent spin splitting even without spin-orbit coupling. Physical Review Materials, 2021, 5, .	2.4	64
15	Strained Interface Defects in Silicon Nanocrystals. Advanced Functional Materials, 2012, 22, 3223-3232.	14.9	63
16	Quasi-Direct Optical Transitions in Silicon Nanocrystals with Intensity Exceeding the Bulk. Nano Letters, 2016, 16, 1583-1589.	9.1	62
17	Tunable Electronic Structures of GeSe Nanosheets and Nanoribbons. Journal of Physical Chemistry C, 2017, 121, 14373-14379.	3.1	62
18	Unified theory of direct or indirect band-gap nature of conventional semiconductors. Physical Review B, 2018, 98, .	3.2	60

#	Article	IF	Citations
19	Genomic Design of Strong Direct-Gap Optical Transition in Si/Ge Core/Multishell Nanowires. Nano Letters, 2012, 12, 984-991.	9.1	54
20	Revealing the Origin of Fast Electron Transfer in TiO₂-Based Dye-Sensitized Solar Cells. Journal of the American Chemical Society, 2016, 138, 8165-8174.	13.7	54
21	Uncovering and tailoring hidden Rashba spinâ€"orbit splitting in centrosymmetric crystals. Nature Communications, 2019, 10, 906.	12.8	53
22	The Pentagonal Nature of Self-Assembled Silicon Chains and Magic Clusters on Ag(110). Nano Letters, 2018, 18, 2937-2942.	9.1	52
23	Genetic design of enhanced valley splitting towards a spin qubit in silicon. Nature Communications, 2013, 4, 2396.	12.8	49
24	Chemical trends of defect formation in Si quantum dots: The case of group-III and group-V dopants. Physical Review B, 2007, 75, .	3.2	48
25	Full-Zone Spin Splitting for Electrons and Holes in Bulk GaAs and GaSb. Physical Review Letters, 2009, 102, 056405.	7.8	47
26	Sulfur vacancy activated field effect transistors based on ReS₂nanosheets. Nanoscale, 2015, 7, 15757-15762.	5.6	44
27	Photocorrosion-Limited Maximum Efficiency of Solar Photoelectrochemical Water Splitting. Physical Review Applied, 2018, 10, .	3.8	44
28	Discovery of a Novel Linear-in-<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mi>k</mml:mi></mml:math>Spin Splitting for Holes in the 2D<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mi>GaAs</mml:mi><mml:mo>/</mml:mo><mml:mi>AlAs</mml:mi></mml:math>System. Physical Review Letters, 2010, 104, 066405.	7.8	41
29	Single-dot absorption spectroscopy and theory of silicon nanocrystals. Physical Review B, 2016, 93, .	3.2	39
30	The origin of electronic band structure anomaly in topological crystalline insulator group-IV tellurides. Npj Computational Materials, 2015, 1, .	8.7	38
31	Two dimensional Schottky contact structure based on in-plane zigzag phosphorene nanoribbon. Organic Electronics, 2017, 44, 20-24.	2.6	38
32	Design Principles of p-Type Transparent Conductive Materials. ACS Applied Materials & Interfaces, 2019, 11, 24837-24849.	8.0	35
33	Chiral Mesostructured NiO Films with Spin Polarisation. Angewandte Chemie - International Edition, 2021, 60, 9421-9426.	13.8	35
34	Photoluminescence pressure coefficients ofInAsâˆ•GaAsquantum dots. Physical Review B, 2005, 71, .	3.2	32
35	Design Principles and Coupling Mechanisms in the 2D Quantum Well Topological InsulatorHgTe/CdTe. Physical Review Letters, 2010, 105, 176805.	7.8	31
36	Supercoupling between heavy-hole and light-hole states in nanostructures. Physical Review B, 2015, 92, .	3.2	31

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37	Quantum-size-induced electronic transitions in quantum dots: Indirect band-gap GaAs. Physical Review B, 2008, 78, .	3.2	30
38	Realistic dimension-independent approach for charged-defect calculations in semiconductors. Physical Review B, 2020, 101, .	3.2	30
39	Large insulating gap in topological insulators induced by negative spin-orbit splitting. Physical Review B, 2012, 86, .	3.2	26
40	Origin of the Distinct Diffusion Behaviors of Cu and Ag in Covalent and Ionic Semiconductors. Physical Review Letters, 2016, 117, 165901.	7.8	25
41	Atomistic pseudopotential calculations of thickness-fluctuation GaAs quantum dots. Physical Review B, 2009, 79, .	3.2	24
42	Absence of intrinsic spin splitting in one-dimensional quantum wires of tetrahedral semiconductors. Physical Review B, 2011, 84, .	3.2	24
43	Image charge interaction correction in charged-defect calculations. Physical Review B, 2020, 102, .	3.2	24
44	Emergence of strong tunable linear Rashba spin-orbit coupling in two-dimensional hole gases in semiconductor quantum wells. Physical Review B, 2021, 103, .	3.2	24
45	Suppress carrier recombination by introducing defects: The case of Si solar cell. Applied Physics Letters, 2016, 108, .	3.3	23
46	Absence of redshift in the direct bandgap of silicon nanocrystals with reduced size. Nature Nanotechnology, 2017, 12, 930-932.	31.5	22
47	<i>Ab Initio</i> Investigation of Charge Trapping Across the Crystalline- <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline" overflow="scroll"><mml:mi>Si</mml:mi></mml:math> â€“Amorphous- <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline" overflow="scroll"><mml:msub><mml:mrow><mml:mi>Si</mml:mi><mml:mi mathvariant="normal">O</mml:mi></mml:mrow><mml:mn>2</mml:mn></mml:msub></mml:math> Interf	3.8	22
48	Chemical trends of stability and band alignment of lattice-matched II-VI/III-V semiconductor interfaces. Physical Review B, 2015, 91, .	3.2	21
49	Rapid Transition of the Hole Rashba Effect from Strong Field Dependence to Saturation in Semiconductor Nanowires. Physical Review Letters, 2017, 119, 126401.	7.8	21
50	Nonmonotonic size dependence of the dark/bright exciton splitting in GaAs nanocrystals. Physical Review B, 2009, 79, .	3.2	20
51	Long- and short-range electronâ€“hole exchange interaction in different types of quantum dots. New Journal of Physics, 2009, 11, 123024.	2.9	19
52	Origin of one-photon and two-photon optical transitions in PbSe nanocrystals. Physical Review B, 2009, 79, .	3.2	18
53	Characterizing the Charge Trapping across Crystalline and Amorphous Si/SiO ₂ /HfO ₂ Stacks from First-Principle Calculations. Physical Review Applied, 2019, 12, .	3.8	18
54	Influence of the atomic-scale structure on the exciton fine-structure splitting in InGaAs and GaAs quantum dots in a vertical electric field. Physical Review B, 2012, 86, .	3.2	17

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55	Improved quantum dot stacking for intermediate band solar cells using strain compensation. Nanotechnology, 2014, 25, 445402.	2.6	17
56	Band structure engineering and defect control of oxides for energy applications. Chinese Physics B, 2018, 27, 117104.	1.4	17
57	Hidden spin polarization in the centrosymmetric <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:mi>Mo</mml:mi><mml:msub><mml:mi mathvariant="normal">S</mml:mi><mml:mn>2</mml:mn></mml:msub></mml:mrow></mml:math> crystal revealed via elliptically polarized terahertz emission. Physical Review B, 2020, 102, .	3.2	17
58	Geometry of epitaxial GaAs/(Al,Ga)As quantum dots as seen by excitonic spectroscopy. Physical Review B, 2011, 84, .	3.2	16
59	Statistical properties of exciton fine structure splitting and polarization angles in quantum dot ensembles. Physical Review B, 2014, 89, .	3.2	16
60	Comparative study for colloidal quantum dot conduction band state calculations. Applied Physics Letters, 2006, 88, 143108.	3.3	15
61	Direct-Bandgap InAs Quantum-Dots Have Long-Range Electronâ˘'Hole Exchange whereas Indirect Gap Si Dots Have Short-Range Exchange. Nano Letters, 2009, 9, 2648-2653.	9.1	15
62	Excitons and excitonic fine structures in Si nanowires: Prediction of an electronic state crossover with diameter changes. Physical Review B, 2011, 84, .	3.2	15
63	The Birth of a Type-II Nanostructure: Carrier Localization and Optical Properties of Isoelectronically Doped CdSe:Te Nanocrystals. ACS Nano, 2012, 6, 8325-8334.	14.6	15
64	Digging for topological property in disordered alloys: the emergence of Weyl semimetal phase and sequential band inversions in PbSeâ€“SnSe alloys. Materials Horizons, 2019, 6, 2124-2134.	12.2	15
65	Microscopic force driving the photoinduced ultrafast phase transition: Time-dependent density functional theory simulations of <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:msub><mml:mi mathvariant="normal">IrTe</mml:mi><mml:mn>2</mml:mn></mml:msub></mml:math>. Physical Review B, 2020, 102, .	3.2	15
66	Origin of the failed ensemble average rule for the band gaps of disordered nonisovalent semiconductor alloys. Physical Review B, 2014, 90, .	3.2	13
67	How good is mono-layer transition-metal dichalcogenide tunnel field-effect transistors in sub-10 nm? - An ab initio simulation study. , 2015, , .		13
68	Electrically switchable hidden spin polarization in antiferroelectric crystals. Physical Review B, 2020, 102, .	3.2	13
69	2D optical photon echo spectroscopy of a selfâ€assembled quantum dot. Annalen Der Physik, 2013, 525, 31-42.	2.4	11
70	Strong Absorption Enhancement in Si Nanorods. Nano Letters, 2016, 16, 7937-7941.	9.1	11
71	Revealing angular momentum transfer channels and timescales in the ultrafast demagnetization process of ferromagnetic semiconductors. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 19258-19263.	7.1	11
72	The critical role of hot carrier cooling in optically excited structural transitions. Npj Computational Materials, 2021, 7, .	8.7	11

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73	Dissecting biexciton wave functions of self-assembled quantum dots by double-quantum-coherence optical spectroscopy. Physical Review B, 2012, 86, .	3.2	10
74	Origin of the anomalous trends in band alignment of GaX/ZnGeX₂ (X = N, P, As, Sb) heterojunctions. Journal of Semiconductors, 2019, 40, 042102.	3.7	10
75	A systematic study of the negative thermal expansion in zinc-blende and diamond-like semiconductors. New Journal of Physics, 2019, 21, 123015.	2.9	10
76	Quantum mechanical effects in nanometer field effect transistors. Applied Physics Letters, 2007, 90, 143108.	3.3	9
77	Reinterpretation of the Expected Electronic Density of States of Semiconductor Nanowires. Nano Letters, 2015, 15, 88-95.	9.1	9
78	A Fully Three-Dimensional Atomistic Quantum Mechanical Study on Random Dopant-Induced Effects in 25-nm MOSFETs. IEEE Transactions on Electron Devices, 2008, 55, 1720-1726.	3.0	8
79	Impurity diffusion induced dynamic electron donors in semiconductors. Physical Review B, 2019, 100, .	3.2	8
80	Decoupling of the Electrical and Thermal Transports in Strongly Coupled Interlayer Materials. Journal of Physical Chemistry Letters, 2021, 12, 7832-7839.	4.6	8
81	Emergent linear Rashba spin-orbit coupling offers fast manipulation of hole-spin qubits in germanium. Physical Review B, 2022, 105, .	3.2	8
82	Zinc-blende and wurtzite GaAs quantum dots in nanowires studied using hydrostatic pressure. Physical Review B, 2015, 92, .	3.2	7
83	Electronic band structure of epitaxial PbTe (111) thin films observed by angle-resolved photoemission spectroscopy. Physical Review B, 2017, 95, .	3.2	6
84	Atomic-Ordering-Induced Quantum Phase Transition between Topological Crystalline Insulator and Z 2 Topological Insulator. Chinese Physics Letters, 2018, 35, 057301.	3.3	6
85	Algorithm advances and applications of timeâ€dependent firstâ€principles simulations for ultrafast dynamics. Wiley Interdisciplinary Reviews: Computational Molecular Science, 2022, 12, e1577.	14.6	6
86	Progress of hidden spin polarization in inversion-symmetric crystals. Science China: Physics, Mechanics and Astronomy, 2022, 65, 1.	5.1	6
87	Rashba spin splitting of the minibands of coupled InAsâˆ•GaAs pyramid quantum dots. Applied Physics Letters, 2008, 92, .	3.3	5
88	Interface-engineering enhanced light emission from Si/Ge quantum dots. New Journal of Physics, 2020, 22, 093037.	2.9	5
89	Orientation-dependent Rashba spin-orbit coupling of two-dimensional hole gases in semiconductor quantum wells: Linear or cubic. Physical Review B, 2022, 105, .	3.2	5
90	Origin of giant valley splitting in silicon quantum wells induced by superlattice barriers. Physical Review B, 2022, 105, .	3.2	5

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91	Multiple valley couplings in nanometer Si metalâ€“oxideâ€“semiconductor field-effect transistors. Journal of Applied Physics, 2008, 103, 124507.	2.5	4
92	Three-Dimensional Mechanistic Modeling of Gate Leakage Current in High- Îº MOSFETs. Physical Review Applied, 2020, 13, .	3.8	4
93	New quantum dot nanomaterials to boost solar energy harvesting. SPIE Newsroom, 0, , .	0.1	4
94	Cryogenic Mobility Enhancement in Si MOS Devices via SiO₂ Regrowth. IEEE Transactions on Electron Devices, 2022, 69, 2585-2589.	3.0	4
95	Fundamental Intrinsic Lifetimes in Semiconductor Self-Assembled Quantum Dots. Physical Review Applied, 2018, 10, .	3.8	3
96	Alloy theory with atomic resolution for Rashba or topological systems. Physical Review Materials, 2019, 3, .	2.4	3
97	Quantum mechanical simulation of nanosized metal-oxide-semiconductor field-effect transistor using empirical pseudopotentials: A comparison for charge density occupation methods. Journal of Applied Physics, 2009, 106, 084510.	2.5	2
98	Directly confirming the Z 1/2 center as the electron trap in SiC through accessing the nonâ€radiative recombination. Physica Status Solidi - Rapid Research Letters, 0, , 2100458.	2.4	2
99	Low-thermal-budget n-type ohmic contacts for ultrathin Si/Ge superlattice materials. Journal Physics D: Applied Physics, 2022, 55, 355110.	2.8	2
100	Understanding the physics of Carrier-Multiplication and intermediate-band solar cells based on nanostructures - What is going on?. , 2009, , .		1
101	Chiral Mesostructured NiO Films with Spin Polarisation. Angewandte Chemie, 2021, 133, 9507-9512.	2.0	1
102	(Invited) Theory of Silicon-Based Light Emitting. ECS Transactions, 2020, 98, 77-89.	0.5	1
103	Dynamic short-range correlation in photoinduced disorder phase transitions. Physical Review B, 2022, 105, .	3.2	1
104	Quantum mechanical simulations of nano-structures and nano-devices. , 2012, , .		0
105	ab initio simulation on mono-layer MoS2 tunnel FET: Impact of metal contact configuration and defect assisted tunneling. , 2016, , .		0
106	Group velocity matters for accurate prediction of phonon-limited carrier mobility*. Chinese Physics B, 2021, 30, 087201.	1.4	0
107	Semiconductor Materials Genome Initiative: silicon-based light emission material. Wuli Xuebao/Acta Physica Sinica, 2015, 64, 207803.	0.5	0
108	(Invited) Theory of Silicon-Based Light Emitting. ECS Meeting Abstracts, 2020, MA2020-02, 1719-1719.	0.0	0