

Gengchiau Liang

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133
papers

3,399
citations

32
h-index

55
g-index

152
ext. papers

3,913
ext. citations

5
avg. IF

5.4
L-index

#	Paper	IF	Citations
133	Performance Projections for Ballistic Graphene Nanoribbon Field-Effect Transistors. <i>IEEE Transactions on Electron Devices</i> , 2007 , 54, 677-682	2.9	204
132	Silicon-based Molecular Electronics. <i>Nano Letters</i> , 2004 , 4, 1803-1807	11.5	180
131	Thermoelectric performance of MX ₂ (M = Mo,W; X = S,Se) monolayers. <i>Journal of Applied Physics</i> , 2013 , 113, 104304	2.5	168
130	Graphene-based spin caloritronics. <i>Nano Letters</i> , 2011 , 11, 1369-73	11.5	156
129	Performance analysis of a Ge/Si core/shell nanowire field-effect transistor. <i>Nano Letters</i> , 2007 , 7, 642-6	11.5	143
128	Sub-100 nanometer channel length Ge/Si nanowire transistors with potential for 2 THz switching speed. <i>Nano Letters</i> , 2008 , 8, 925-30	11.5	140
127	Theoretical study of thermoelectric properties of few-layer MoS ₂ and WSe ₂ . <i>Physical Chemistry Chemical Physics</i> , 2014 , 16, 10866-74	3.6	137
126	Disorder enhances thermoelectric figure of merit in armchair graphene nanoribbons. <i>Applied Physics Letters</i> , 2009 , 95, 192114	3.4	114
125	All-electric magnetization switching and Dzyaloshinskii-Moriya interaction in WTe/ferromagnet heterostructures. <i>Nature Nanotechnology</i> , 2019 , 14, 945-949	28.7	104
124	Ballistic graphene nanoribbon metal-oxide-semiconductor field-effect transistors: A full real-space quantum transport simulation. <i>Journal of Applied Physics</i> , 2007 , 102, 054307	2.5	101
123	Electrostatic potential profiles of molecular conductors. <i>Physical Review B</i> , 2004 , 69,	3.3	96
122	Single Atomically Sharp Lateral Monolayer p-n Heterojunction Solar Cells with Extraordinarily High Power Conversion Efficiency. <i>Advanced Materials</i> , 2017 , 29, 1701168	24	82
121	Ultrafast and energy-efficient spin-orbit torque switching in compensated ferrimagnets. <i>Nature Electronics</i> , 2020 , 3, 37-42	28.4	78
120	Molecules on silicon: Self-consistent first-principles theory and calibration to experiments. <i>Physical Review B</i> , 2005 , 72,	3.3	59
119	High oscillator strength interlayer excitons in two-dimensional heterostructures for mid-infrared photodetection. <i>Nature Nanotechnology</i> , 2020 , 15, 675-682	28.7	56
118	Spin-dependent thermoelectric effects in graphene-based spin valves. <i>Nanoscale</i> , 2013 , 5, 200-8	7.7	56
117	Contact effects in graphene nanoribbon transistors. <i>Nano Letters</i> , 2008 , 8, 1819-24	11.5	54

116	Theoretical study on thermoelectric properties of kinked graphene nanoribbons. <i>Physical Review B</i> , 2011 , 84,	3-3	53
115	An ab initio study on energy gap of bilayer graphene nanoribbons with armchair edges. <i>Applied Physics Letters</i> , 2008 , 92, 223106	3-4	53
114	A Simulation Study of Graphene-Nanoribbon Tunneling FET With Heterojunction Channel. <i>IEEE Electron Device Letters</i> , 2010 , 31, 555-557	4-4	49
113	Bilayer graphene nanoribbon nanoelectromechanical system device: A computational study. <i>Applied Physics Letters</i> , 2009 , 95, 143107	3-4	48
112	Shape effects in graphene nanoribbon resonant tunneling diodes: A computational study. <i>Journal of Applied Physics</i> , 2009 , 105, 084317	2-5	47
111	Suppression of dark current in germanium-tin on silicon p-i-n photodiode by a silicon surface passivation technique. <i>Optics Express</i> , 2015 , 23, 18611-9	3-3	46
110	Ballistic Transport Performance of Silicane and Germanane Transistors. <i>IEEE Transactions on Electron Devices</i> , 2014 , 61, 1590-1598	2-9	44
109	Device Physics and Characteristics of Graphene Nanoribbon Tunneling FETs. <i>IEEE Transactions on Electron Devices</i> , 2010 , 57, 3144-3152	2-9	44
108	Germanium-Tin on Si Avalanche Photodiode: Device Design and Technology Demonstration. <i>IEEE Transactions on Electron Devices</i> , 2015 , 62, 128-135	2-9	42
107	Extended Hückel theory for band structure, chemistry, and transport. II. Silicon. <i>Journal of Applied Physics</i> , 2006 , 100, 043715	2-5	39
106	Floating-base germanium-tin heterojunction phototransistor for high-efficiency photodetection in short-wave infrared range. <i>Optics Express</i> , 2017 , 25, 18502-18507	3-3	38
105	Geometry effects on thermoelectric properties of silicon nanowires based on electronic band structures. <i>Journal of Applied Physics</i> , 2010 , 107, 014317	2-5	37
104	Stability and electronic structure of two dimensional C _x (BN) _y compound. <i>Applied Physics Letters</i> , 2011 , 98, 022101	3-4	37
103	Photoacoustic Trace Detection of Methane Using Compact Solid-State Lasers. <i>Journal of Physical Chemistry A</i> , 2000 , 104, 10179-10183	2-8	36
102	Klein tunneling in Weyl semimetals under the influence of magnetic field. <i>Scientific Reports</i> , 2016 , 6, 38862	4-9	35
101	Enhanced Faraday rotation in magnetophotonic crystal infiltrated with graphene. <i>Applied Physics Letters</i> , 2011 , 98, 261915	3-4	32
100	Photoacoustic measurement of methane concentrations with a compact pulsed optical parametric oscillator. <i>Applied Optics</i> , 2002 , 41, 2985-93	1-7	30
99	Ge _{0.83} Sn _{0.17} p-channel metal-oxide-semiconductor field-effect transistors: Impact of sulfur passivation on gate stack quality. <i>Journal of Applied Physics</i> , 2016 , 119, 024502	2-5	29

98	Ambipolar bistable switching effect of graphene. <i>Applied Physics Letters</i> , 2010 , 97, 262105	3.4	28
97	Efficient dual spin-valley filter in strained silicene. <i>Applied Physics Express</i> , 2015 , 8, 105201	2.4	27
96	Perfect valley filter in strained graphene with single barrier region. <i>AIP Advances</i> , 2016 , 6, 056303	1.5	23
95	Improved carrier injection in gate-all-around Schottky barrier silicon nanowire field-effect transistors. <i>Applied Physics Letters</i> , 2008 , 93, 073503	3.4	22
94	Identifying contact effects in electronic conduction through C60 on silicon. <i>Physical Review Letters</i> , 2005 , 95, 076403	7.4	22
93	Germanium-tin multiple quantum well on silicon avalanche photodiode for photodetection at two micron wavelength. <i>Semiconductor Science and Technology</i> , 2016 , 31, 095001	1.8	21
92	Transition-Metal-Atom-Embedded Graphane and Its Spintronic Device Applications. <i>Journal of Physical Chemistry C</i> , 2011 , 115, 22701-22706	3.8	21
91	Computational study of double-gate graphene nano-ribbon transistors. <i>Journal of Computational Electronics</i> , 2008 , 7, 394-397	1.8	21
90	Room-temperature nonlinear Hall effect and wireless radiofrequency rectification in Weyl semimetal TaIrTe. <i>Nature Nanotechnology</i> , 2021 , 16, 421-425	28.7	21
89	Magnetoresistive effect in graphene nanoribbon due to magnetic field induced band gap modulation. <i>Journal of Applied Physics</i> , 2010 , 108, 033709	2.5	20
88	Ultra-low specific contact resistivity ($1.4 \times 10^9 \Omega\text{m}^2$) for metal contacts on in-situ Ga-doped Ge _{0.95} Sn _{0.05} film. <i>Journal of Applied Physics</i> , 2017 , 122, 224503	2.5	19
87	Electrically tunable valley polarization in Weyl semimetals with tilted energy dispersion. <i>Scientific Reports</i> , 2019 , 9, 4480	4.9	17
86	Temperature Dependence of Carrier Transport of a Silicon Nanowire Schottky-Barrier Field-Effect Transistor. <i>IEEE Nanotechnology Magazine</i> , 2008 , 7, 728-732	2.6	15
85	Thermally induced currents in graphene-based heterostructure. <i>Applied Physics Letters</i> , 2011 , 99, 123114	3.4	14
84	Ultimate Performance Projection of Ultrathin Body Transistor Based on Group IV, III-V, and 2-D-Materials. <i>IEEE Transactions on Electron Devices</i> , 2016 , 63, 773-780	2.9	13
83	Tunneling characteristics of graphene. <i>Applied Physics Letters</i> , 2010 , 97, 252102	3.4	13
82	Exploring Low Power and Ultrafast Memristor on p-Type van der Waals SnS. <i>Nano Letters</i> , 2021 , 21, 8800-8807	1.5	13
81	A Physics-Based Compact Model for Transition-Metal Dichalcogenides Transistors With the Band-Tail Effect. <i>IEEE Electron Device Letters</i> , 2018 , 39, 761-764	4.4	11

80	Y-shape spin-separator for two-dimensional group-IV nanoribbons based on quantum spin hall effect. <i>Applied Physics Letters</i> , 2014 , 104, 032410	3.4	11
79	Conductance modulation in Weyl semimetals with tilted energy dispersion without a band gap. <i>Journal of Applied Physics</i> , 2017 , 121, 244303	2.5	11
78	Evaluation of mobility in thin Bi ₂ Se ₃ topological insulator for prospects of local electrical interconnects. <i>Scientific Reports</i> , 2014 , 4, 6838	4.9	11
77	Role of acoustic phonons in Bi ₂ Se ₃ topological insulator slabs: A quantum transport investigation. <i>Physical Review B</i> , 2014 , 89,	3.3	10
76	A unified surface potential based physical compact model for both unipolar and ambipolar 2D-FET: Experimental verification and circuit demonstration 2017 ,		10
75	A Computational Study on the Device Performance of Graphene Nanoribbon Resonant Tunneling Diodes. <i>Japanese Journal of Applied Physics</i> , 2009 , 48, 04C156	1.4	10
74	Gate-All-Around In _{0.53} Ga _{0.47} As Junctionless Nanowire FET With Tapered Source/Drain Structure. <i>IEEE Transactions on Electron Devices</i> , 2016 , 63, 1027-1033	2.9	9
73	Performance evaluation of electro-optic effect based graphene transistors. <i>Nanoscale</i> , 2012 , 4, 6365-73	7.7	9
72	The effects of interlayer mismatch on electronic properties of bilayer armchair graphene nanoribbons. <i>Carbon</i> , 2012 , 50, 1659-1666	10.4	9
71	Time-dependent quantum transport and power-law decay of the transient current in a nano-relay and nano-oscillator. <i>Journal of Applied Physics</i> , 2011 , 110, 083704	2.5	9
70	Influence of edge roughness on graphene nanoribbon resonant tunnelling diodes. <i>Journal Physics D: Applied Physics</i> , 2010 , 43, 215101	3	9
69	Theoretical Study on Thermoelectric Properties of Ge Nanowires Based on Electronic Band Structures. <i>IEEE Electron Device Letters</i> , 2010 , 31, 1026-1028	4.4	9
68	High magnetoresistance at room temperature in p-i-n graphene nanoribbons due to band-to-band tunneling effects. <i>Applied Physics Letters</i> , 2011 , 99, 083107	3.4	9
67	Spin filtering and spin separating effects in U-shaped topological insulator devices. <i>Journal of Applied Physics</i> , 2012 , 112, 073707	2.5	9
66	Spin tunneling in multilayer spintronic devices. <i>Physical Review B</i> , 2008 , 77,	3.3	9
65	Monolithic Integration of InAs Quantum-Well n-MOSFETs and Ultrathin Body Ge p-MOSFETs on a Si Substrate. <i>IEEE Transactions on Electron Devices</i> , 2017 , 64, 353-360	2.9	8
64	Effect of Body Thickness on the Electrical Performance of Ballistic n-Channel GaSb Double-Gate Ultrathin-Body Transistor. <i>IEEE Transactions on Electron Devices</i> , 2015 , 62, 788-794	2.9	8
63	Anomalous tunneling characteristic of Weyl semimetals with tilted energy dispersion. <i>Applied Physics Letters</i> , 2017 , 111, 063101	3.4	8

62	Quantum transport simulations of graphene nanoribbon devices using Dirac equation calibrated with tight-binding δ bond model. <i>Nanoscale Research Letters</i> , 2012 , 7, 114	5	8
61	Shape Effects on the Performance of Si and Ge Nanowire Field-Effect Transistors Based on Size Dependent Bandstructure. <i>Japanese Journal of Applied Physics</i> , 2010 , 49, 04DN07	1.4	8
60	Analysis on Performance of Ferroelectric NC-FETs Based on Real-Space Gibbs-Free Energy With Atomic Channel Structure. <i>IEEE Transactions on Electron Devices</i> , 2019 , 66, 1100-1106	2.9	8
59	Ultrafast and low-energy switching in voltage-controlled elliptical pMTJ. <i>Scientific Reports</i> , 2017 , 7, 16562	2.9	7
58	The effect of magnetic field and disorders on the electronic transport in graphene nanoribbons. <i>Journal of Physics Condensed Matter</i> , 2010 , 22, 375303	1.8	7
57	Electrostatics of Ultimately Thin-Body Tunneling FET Using Graphene Nanoribbon. <i>IEEE Electron Device Letters</i> , 2011 , 32, 431-433	4.4	7
56	Role of carrier-transfer in the optical nonlinearity of graphene/BiTe heterojunctions. <i>Nanoscale</i> , 2020 , 12, 16956-16966	7.7	7
55	Voltage-Controlled Spintronic Stochastic Neuron for Restricted Boltzmann Machine With Weight Sparsity. <i>IEEE Electron Device Letters</i> , 2020 , 41, 1102-1105	4.4	6
54	Graphene Nanoribbon Tunneling Field-Effect Transistors With a Semiconducting and a Semimetallic Heterojunction Channel. <i>IEEE Transactions on Electron Devices</i> , 2012 , 59, 1454-1461	2.9	6
53	Integration of InGaAs MOSFETs and GaAs/ AlGaAs lasers on Si Substrate for advanced opto-electronic integrated circuits (OEICs). <i>Optics Express</i> , 2017 , 25, 31853-31862	3.3	6
52	Effect of band-alignment operation on carrier transport in Bi ₂ Se ₃ topological insulator. <i>Scientific Reports</i> , 2014 , 4, 6220	4.9	6
51	Influence of contact doping on graphene nanoribbon heterojunction tunneling field effect transistors. <i>Solid-State Electronics</i> , 2012 , 77, 51-55	1.7	6
50	Observation of the Out-of-Plane Polarized Spin Current from CVD Grown WTe ₂ . <i>Advanced Quantum Technologies</i> , 2021 , 4, 2100038	4.3	6
49	Influence of Size and Shape on the Performance of VCMA-Based MTJs. <i>IEEE Transactions on Electron Devices</i> , 2019 , 66, 944-949	2.9	6
48	Theoretical proposal for determining angular momentum compensation in ferrimagnets. <i>Physical Review B</i> , 2018 , 97,	3.3	6
47	Effects of Contact Placement and Intra/Interlayer Interaction in Current Distribution of Black Phosphorus Sub-10-nm FET. <i>IEEE Transactions on Electron Devices</i> , 2017 , 64, 579-586	2.9	5
46	Nanoscale FETs Simulation Based on Full-Complex-Band Structure and Self-Consistently Solved Atomic Potential. <i>IEEE Transactions on Electron Devices</i> , 2017 , 64, 58-65	2.9	5
45	Effect of phase transition on quantum transport in group-IV two-dimensional U-shape device. <i>Journal of Applied Physics</i> , 2014 , 116, 153708	2.5	5

44	Effects of interlayer interaction in van der Waals layered black phosphorus for sub-10 nm FET 2015 ,		5
43	Electrical transport of bottom-up grown single-crystal Si(1-x)Ge(x) nanowire. <i>Nanotechnology</i> , 2008 , 19, 225203	3-4	5
42	GeSn Gate-All-Around p-Channel Metal-Oxide-Semiconductor Field-Effect Transistors with Sub-3 nm Nanowire Width. <i>Nano Letters</i> , 2021 , 21, 5555-5563	11.5	5
41	Field-Free Switching of Perpendicular Magnetization Through Spin Hall and Anomalous Hall Effects in Ferromagnet/Heavy-Metal/Ferromagnet Structures. <i>Physical Review Applied</i> , 2019 , 12,	4-3	4
40	Electrical Generation and Detection of Terahertz Signal Based on Spin-Wave Emission From Ferrimagnets. <i>Physical Review Applied</i> , 2020 , 13,	4-3	4
39	Electric-field-induced three-terminal pMTJ switching in the absence of an external magnetic field. <i>Applied Physics Letters</i> , 2018 , 112, 252405	3-4	4
38	Etching of germanium-tin using ammonia peroxide mixture. <i>Journal of Applied Physics</i> , 2015 , 118, 245303	3.5	4
37	Effect of Ribbon Width and Doping Concentration on Device Performance of Graphene Nanoribbon Tunneling Field-Effect Transistors. <i>Japanese Journal of Applied Physics</i> , 2010 , 49, 04DJ10	1-4	4
36	Impact of Structure Relaxation on the Ultimate Performance of a Small Diameter, n-Type ϕ angle 110 ϕ angle ϕ Si-Nanowire MOSFET. <i>IEEE Nanotechnology Magazine</i> , 2007 , 6, 225-229	2.6	4
35	Time-Dependent Landau-Ginzburg Equation-Based Ferroelectric Tunnel Junction Modeling With Dynamic Response and Multi-Domain Characteristics. <i>IEEE Electron Device Letters</i> , 2022 , 43, 158-161	4-4	4
34	Spin-wave mediated interactions for majority computation using Skyrmions and spin-torque nano-oscillators. <i>Journal of Magnetism and Magnetic Materials</i> , 2019 , 486, 165271	2.8	3
33	Performance Evaluation and Device Physics Investigation of Negative-Capacitance MOSFETs Based on Ultrathin Body Silicon and Monolayer MoS ₂ . <i>IEEE Transactions on Electron Devices</i> , 2020 , 67, 3049-3055 ⁹		3
32	Germanium-Tin heterojunction phototransistor: Towards high-efficiency low-power photodetection in short-wave infrared range 2016 ,		3
31	Percolation theory based statistical resistance model for resistive random access memory. <i>Applied Physics Letters</i> , 2018 , 112, 253505	3-4	3
30	A surface potential based compact model for two-dimensional field effect transistors with disorders induced transition behaviors. <i>Journal of Applied Physics</i> , 2018 , 124, 034302	2.5	3
29	Avalanche photodiode featuring Germanium-tin multiple quantum wells on silicon: Extending photodetection to wavelengths of 2 and beyond 2015 ,		3
28	Conductance modulation in graphene nanoribbon under transverse asymmetric electric potential. <i>Journal of Applied Physics</i> , 2011 , 109, 073704	2.5	3
27	Device Performance of Graphene Nanoribbon Field Effect Transistors with Edge Roughness Effects: A Computational Study 2009 ,		3

26	Growth and characterization of highly tensile strained Ge _{1-x} Sn _x formed on relaxed In _y Ga _{1-y} P buffer layers. <i>Journal of Applied Physics</i> , 2016 , 119, 125303	2.5	3
25	Damping-like spin-orbit-torque-induced magnetization dynamics in ferrimagnets based on Landau-Lifshitz-Bloch equation. <i>Journal of Applied Physics</i> , 2018 , 124, 193901	2.5	3
24	Effects of scalability and floating metal on NC-FETs based on a real-space atomic model. <i>Semiconductor Science and Technology</i> , 2018 , 33, 08LT01	1.8	3
23	Voltage-input spintronic oscillator based on competing effect for extended oscillation regions. <i>Journal of Applied Physics</i> , 2019 , 125, 183902	2.5	2
22	Contact effects in thin 3D-topological insulators: how does the current flow?. <i>Scientific Reports</i> , 2015 , 5, 9479	4.9	2
21	A Compact Model for 2-D Poly-MoS ₂ FETs With Resistive Switching in Postsynaptic Simulation. <i>IEEE Transactions on Electron Devices</i> , 2019 , 66, 4092-4100	2.9	2
20	Record low specific contact resistivity (1.2 $\times 10^{-9}$ Ωcm^2) for P-type semiconductors: Incorporation of Sn into Ge and in-Situ Ga doping 2017 ,		2
19	High and tunable spin current induced by magnetic-electric fields in a single-mode spintronic device. <i>Nanotechnology</i> , 2009 , 20, 365204	3.4	2
18	Design evaluation of graphene nanoribbon nanoelectromechanical devices. <i>Journal of Applied Physics</i> , 2011 , 110, 024302	2.5	2
17	A computational evaluation of the designs of a novel nanoelectromechanical switch based on bilayer graphene nanoribbon 2009 ,		2
16	An Ab Initio Investigation of Energy Bandgap of Monolayer and Bilayer Graphene Nanoribbon Based on Different Basis Sets 2008 ,		2
15	Reply to: Detectivities of WS/HfS heterojunctions.. <i>Nature Nanotechnology</i> , 2022 ,	28.7	2
14	A statistical Seebeck coefficient model based on percolation theory in two-dimensional disordered systems. <i>Journal of Applied Physics</i> , 2019 , 125, 224302	2.5	1
13	Carrier transport in Bi ₂ Se ₃ topological insulator slab. <i>Physica E: Low-Dimensional Systems and Nanostructures</i> , 2015 , 74, 10-19	3	1
12	Enabling low power and high speed OEICs: First monolithic integration of InGaAs n-FETs and lasers on Si substrate 2017 ,		1
11	Inherent orbital spin textures in Rashba effect and their implications in spin-orbitronics. <i>Journal of Physics Condensed Matter</i> , 2018 , 30, 285502	1.8	1
10	Ultimate performance projection of ballistic III-V ultra-thin-body MOSFET 2013 ,		1
9	Performance evaluation of ferroelectric MOSFETs based on Gibbs free energy 2017 ,		1

8	Monolithic integration of InGaAs n-FETs and lasers on Ge substrate. <i>Optics Express</i> , 2017 , 25, 5146-5155	3.3	1
7	Is sub-10nm thick 3D-topological insulator good for the local electrical interconnects? 2013 ,		1
6	Electronic Structure of Bilayer Graphene Nanoribbon and Its Device Application: A Computational Study. <i>Nanoscience and Technology</i> , 2011 , 509-527	0.6	1
5	FANTASI: A novel devices-to-circuits simulation framework for fast estimation of write error rates in spintronics 2018 ,		1
4	Guest Editorial Special Issue on 2-D Materials for Electronic, Optoelectronic, and Sensor Devices. <i>IEEE Transactions on Electron Devices</i> , 2018 , 65, 4034-4039	2.9	1
3	Wave Function Parity Loss Used to Mitigate Thermal Broadening in Spin-orbit Coupled Zigzag Graphene Analogues. <i>Scientific Reports</i> , 2017 , 7, 40546	4.9	
2	Torque engineering in trilayer spin-hall system. <i>Journal Physics D: Applied Physics</i> , 2016 , 49, 045004	3	
1	A pseudopotential method for investigating the surface roughness effect in ultrathin body transistors. <i>Journal of Physics Condensed Matter</i> , 2008 , 20, 235229	1.8	