Hua-Qiang Wu

List of Publications by Year
in descending order

262 papers	14,195 citations	38742 50 h-index	24982 109 g-index
269 all docs	269 docs citations	269 times ranked	9429 citing authors

#	Article	IF	Citations
1	Fully hardware-implemented memristor convolutional neural network. Nature, 2020, 577, 641-646.	27.8	1,198
2	Fully memristive neural networks for pattern classification with unsupervised learning. Nature Electronics, 2018, 1, 137-145.	26.0	787
3	Face classification using electronic synapses. Nature Communications, 2017, 8, 15199.	12.8	683
4	Resistive switching materials forÂinformation processing. Nature Reviews Materials, 2020, 5, 173-195.	48.7	668
5	Towards artificial general intelligence with hybrid Tianjic chip architecture. Nature, 2019, 572, 106-111.	27.8	517
6	Recommended Methods to Study Resistive Switching Devices. Advanced Electronic Materials, 2019, 5, 1800143.	5.1	452
7	Bridging Biological and Artificial Neural Networks with Emerging Neuromorphic Devices: Fundamentals, Progress, and Challenges. Advanced Materials, 2019, 31, e1902761.	21.0	418
8	Neuro-inspired computing chips. Nature Electronics, 2020, 3, 371-382.	26.0	402
9	An artificial nociceptor based on a diffusive memristor. Nature Communications, 2018, 9, 417.	12.8	295
10	Understanding memristive switching via in situ characterization and device modeling. Nature Communications, 2019, 10, 3453.	12.8	275
11	Large-scale neuromorphic optoelectronic computing with a reconfigurable diffractive processing unit. Nature Photonics, 2021, 15, 367-373.	31.4	266
12	Threshold Switching of Ag or Cu in Dielectrics: Materials, Mechanism, and Applications. Advanced Functional Materials, 2018, 28, 1704862.	14.9	239
13	Dynamic memristor-based reservoir computing for high-efficiency temporal signal processing. Nature Communications, 2021, 12, 408.	12.8	231
14	Graphene Oxide Quantum Dots Based Memristors with Progressive Conduction Tuning for Artificial Synaptic Learning. Advanced Functional Materials, 2018, 28, 1803728.	14.9	218
15	Improving Analog Switching in HfO$_x$-Based Resistive Memory With a Thermal Enhanced Layer. IEEE Electron Device Letters, 2017, 38, 1019-1022.	3.9	203
16	In situ training of feed-forward and recurrent convolutional memristor networks. Nature Machine Intelligence, 2019, 1, 434-442.	16.0	201
17	Capacitive neural network with neuro-transistors. Nature Communications, 2018, 9, 3208.	12.8	199
18	Reliability of analog resistive switching memory for neuromorphic computing. Applied Physics Reviews, 2020, 7, .	11.3	199

#	Article	IF	Citations
19	Memory materials and devices: From concept to application. InformaÄnÃ-MateriÃ¡ly, 2020, 2, 261-290.	17.3	181
20	Synthesis and characterization of vertically standing MoS2 nanosheets. Scientific Reports, 2016, 6, 21171.	3.3	168
21	Alloying conducting channels for reliable neuromorphic computing. Nature Nanotechnology, 2020, 15, 574-579.	31.5	160
22	Binary neural network with 16 Mb RRAM macro chip for classification and online training. , 2016, , .		154
23	Neurohybrid Memristive CMOS-Integrated Systems for Biosensors and Neuroprosthetics. Frontiers in Neuroscience, 2020, 14, 358.	2.8	143
24	Power-efficient neural network with artificial dendrites. Nature Nanotechnology, 2020, 15, 776-782.	31.5	141
25	Scaling-up resistive synaptic arrays for neuro-inspired architecture: Challenges and prospect. , 2015, , .		128
26	A Methodology to Improve Linearity of Analog RRAM for Neuromorphic Computing. , 2018, , .		124
27	33.2 A Fully Integrated Analog ReRAM Based 78.4TOPS/W Compute-In-Memory Chip with Fully Parallel MAC Computing. , 2020, , .		121
28	Competition between Metallic and Vacancy Defect Conductive Filaments in a $CH_3NH_3PbI_3$-Based Memory Device. Journal of Physical Chemistry C, 2018, 122, 6431-6436.	3.1	115
29	Observation of the antiferromagnetic spin Hall effect. Nature Materials, 2021, 20, 800-804.	27.5	113
30	Experimental Characterization of Physical Unclonable Function Based on 1 kb Resistive Random Access Memory Arrays. IEEE Electron Device Letters, 2015, 36, 1380-1383.	3.9	109
31	Synaptic silicon-nanocrystal phototransistors for neuromorphic computing. Nano Energy, 2019, 63, 103859.	16.0	107
32	Device and materials requirements for neuromorphic computing. Journal Physics D: Applied Physics, 2019, 52, 113001.	2.8	105
33	Study of Multi-level Characteristics for 3D Vertical Resistive Switching Memory. Scientific Reports, 2014, 4, 5780.	3.3	98
34	In-memory Learning with Analog Resistive Switching Memory: A Review and Perspective. Proceedings of the IEEE, 2021, 109, 14-42.	21.3	96
35	In situ optical backpropagation training of diffractive optical neural networks. Photonics Research, 2020, 8, 940.	7.0	95
36	Study of conduction and switching mechanisms in Al/AlOx/WOx/W resistive switching memory for multilevel applications. Applied Physics Letters, 2013, 102, .	3.3	92

#	Article	IF	Citations
37	A Threshold Switching Selector Based on Highly Ordered Ag Nanodots for X‑Point Memory Applications. Advanced Science, 2019, 6, 1900024.	11.2	91
38	Resistive Random Access Memory for Future Information Processing System. Proceedings of the IEEE, 2017, 105, 1770-1789.	21.3	88
39	Thermal generation, manipulation and thermoelectric detection of skyrmions. Nature Electronics, 2020, 3, 672-679.	26.0	86
40	33.1 A 74 TMACS/W CMOS-RRAM Neurosynaptic Core with Dynamically Reconfigurable Dataflow and In-situ Transposable Weights for Probabilistic Graphical Models. , 2020, , .		85
41	Analog‑Type Resistive Switching Devices for Neuromorphic Computing. Physica Status Solidi - Rapid Research Letters, 2019, 13, 1900204.	2.4	83
42	Neural signal analysis with memristor arrays towards high-efficiency brain–machine interfaces. Nature Communications, 2020, 11, 4234.	12.8	82
43	Magnetoelectric Coupling Induced by Interfacial Orbital Reconstruction. Advanced Materials, 2015, 27, 6651-6656.	21.0	81
44	Metallic to hopping conduction transition in Ta_2O_{5-x}/TaO_y resistive switching device. Applied Physics Letters, 2014, 105, .	3.3	79
45	Probing the Photovoltage and Photocurrent in Perovskite Solar Cells with Nanoscale Resolution. Advanced Functional Materials, 2016, 26, 3048-3058.	14.9	79
46	Three-Dimensional nand Flash for Vector–Matrix Multiplication. IEEE Transactions on Very Large Scale Integration (VLSI) Systems, 2019, 27, 988-991.	3.1	78
47	Truly Electroforming‑Free and Low‑Energy Memristors with Preconditioned Conductive Tunneling Paths. Advanced Functional Materials, 2017, 27, 1702010.	14.9	75
48	Artificial Synapse Based on van der Waals Heterostructures with Tunable Synaptic Functions for Neuromorphic Computing. ACS Applied Materials & Interfaces, 2020, 12, 11945-11954.	8.0	75
49	Analog memristive synapse based on topotactic phase transition for high-performance neuromorphic computing and neural network pruning. Science Advances, 2021, 7, .	10.3	63
50	Resistive Switching Performance Improvement of ${\rm Ta}_{2}{\rm O}_{5-x}/{\rm TaO}_{y}$ Bilayer ReRAM Devices by Inserting ${\rm AlO}_{delta}$ Barrier Layer. IEEE Electron Device Letters, 2014, 35, 39-41.	3.9	60
51	Conduction mechanisms, dynamics and stability in ReRAMs. Microelectronic Engineering, 2018, 187-188, 121-133.	2.4	59
52	Fabrication and characterization of pre-aligned gallium nitride nanowire field-effect transistors. Nanotechnology, 2006, 17, 1264-1271.	2.6	58
53	Graphene applications in electronic and optoelectronic devices and circuits. Chinese Physics B, 2013, 22, 098106.	1.4	58
54	Investigation of statistical retention of filamentary analog RRAM for neuromophic computing. , 2017, , .		57

#	Article	IF	Citations
55	Reconfigurable heterogeneous integration using stackable chips with embedded artificial intelligence. Nature Electronics, 2022, 5, 386-393.	26.0	57
56	Performance‐Enhancing Selector via Symmetrical Multilayer Design. Advanced Functional Materials, 2019, 29, 1808376.	14.9	56
57	Recent progress of integrated circuits and optoelectronic chips. Science China Information Sciences, 2021, 64, 1.	4.3	56
58	Conduction Mechanism and Improved Endurance in HfO2-Based RRAM with Nitridation Treatment. Nanoscale Research Letters, 2017, 12, 574.	5.7	54
59	Device and circuit optimization of RRAM for neuromorphic computing. , 2017, , .		53
60	Residual D^{2}NN: training diffractive deep neural networks via learnable light shortcuts. Optics Letters, 2020, 45, 2688.	3.3	53
61	Atomic threshold-switching enabled MoS2 transistors towards ultralow-power electronics. Nature Communications, 2020, 11, 6207.	12.8	52
62	Low power W:AlOx/WOx bilayer resistive switching structure based on conductive filament formation and rupture mechanism. Applied Physics Letters, 2013, 102, .	3.3	50
63	Unsupervised Learning on Resistive Memory Array Based Spiking Neural Networks. Frontiers in Neuroscience, 2019, 13, 812.	2.8	50
64	Associative Memory for Image Recovery with a High‐Performance Memristor Array. Advanced Functional Materials, 2019, 29, 1900155.	14.9	50
65	Electrode-induced digital-to-analog resistive switching in TaO$_x$-based RRAM devices. Nanotechnology, 2016, 27, 305201.	2.6	48
66	Sign backpropagation: An on-chip learning algorithm for analog RRAM neuromorphic computing systems. Neural Networks, 2018, 108, 217-223.	5.9	48
67	Fabrication and characterization of thermoelectric power generators with segmented legs synthesized by one-step spark plasma sintering. Energy, 2016, 113, 35-43.	8.8	46
68	Ultrafast RESET Analysis of HfO$_x$‐Based RRAM by Sub‐Nanosecond Pulses. Advanced Electronic Materials, 2017, 3, 1700263.	5.1	46
69	Optimization of RRAM-Based Physical Unclonable Function With a Novel Differential Read-Out Method. IEEE Electron Device Letters, 2017, 38, 168-171.	3.9	44
70	Characterizing Endurance Degradation of Incremental Switching in Analog RRAM for Neuromorphic Systems. , 2018, , .		44
71	Rotating neurons for all-analog implementation of cyclic reservoir computing. Nature Communications, 2022, 13, 1549.	12.8	44
72	High‐Uniformity Threshold Switching HfO$_2$‐Based Selectors with Patterned Ag Nanodots. Advanced Science, 2020, 7, 2002251.	11.2	43

#	Article	IF	Citations
73	Memristor-based analogue computing for brain-inspired sound localization with in situ training. Nature Communications, 2022, 13, 2026.	12.8	42
74	HfO_2/Al_2O_3 multilayer for RRAM arrays: a technique to improve tail-bit retention. Nanotechnology, 2016, 27, 395201.	2.6	41
75	Stateful Logic Operations in One-Transistor-One- Resistor Resistive Random Access Memory Array. IEEE Electron Device Letters, 2019, 40, 1538-1541.	3.9	41
76	Design Guidelines of RRAM based Neural-Processing-Unit. , 2019, , .		39
77	Stacked 3D RRAM Array with Graphene/CNT as Edge Electrodes. Scientific Reports, 2015, 5, 13785.	3.3	38
78	Quantitative, Dynamic TaO_x Memristor/Resistive Random Access Memory Model. ACS Applied Electronic Materials, 2020, 2, 701-709.	4.3	38
79	Double-Balanced Graphene Integrated Mixer with Outstanding Linearity. Nano Letters, 2015, 15, 6677-6682.	9.1	37
80	Impacts of State Instability and Retention Failure of Filamentary Analog RRAM on the Performance of Deep Neural Network. IEEE Transactions on Electron Devices, 2019, 66, 4517-4522.	3.0	37
81	Modulating metallic conductive filaments via bilayer oxides in resistive switching memory. Applied Physics Letters, 2019, 114, 193502.	3.3	37
82	A highly reliable and tamper-resistant RRAM PUF: Design and experimental validation. , 2016, , .		36
83	Multichannel parallel processing of neural signals in memristor arrays. Science Advances, 2020, 6, .	10.3	36
84	Reconfigurable Magnetic Logic Combined with Nonvolatile Memory Writing. Advanced Materials, 2017, 29, 1605027.	21.0	35
85	Lowâ€Voltage Oscillatory Neurons for Memristorâ€Based Neuromorphic Systems. Global Challenges, 2019, 3, 1900015.	3.6	35
86	Memristors for Hardware Security Applications. Advanced Electronic Materials, 2019, 5, 1800872.	5.1	35
87	A Parallel Multibit Programing Scheme With High Precision for RRAM-Based Neuromorphic Systems. IEEE Transactions on Electron Devices, 2020, 67, 2213-2217.	3.0	34
88	Distributions of Conduction Electrons as Manifested in MAS NMR of Gallium Nitride. Journal of the American Chemical Society, 2006, 128, 4952-4953.	13.7	33
89	Atomistic study of dynamics for metallic filament growth in conductive-bridge random access memory. Physical Chemistry Chemical Physics, 2015, 17, 8627-8632.	2.8	33
90	Gallium nitride nanowire nonvolatile memory device. Journal of Applied Physics, 2006, 100, 024307.	2.5	32

#	Article	IF	Citations
91	Stable self-compliance resistive switching in $AlO_{\hat{I}}/Ta_2O_{5-x}/TaO_y$ triple layer devices. Nanotechnology, 2015, 26, 035203.	2.6	32
92	Î¦ memristor: Real memristor found. Journal of Applied Physics, 2019, 125, 054504.	2.5	32
93	A Highly Reliable RRAM Physically Unclonable Function Utilizing Post-Process Randomness Source. IEEE Journal of Solid-State Circuits, 2021, 56, 1641-1650.	5.4	32
94	Photoluminescence and cathodoluminescence analyses of GaN powder doped with Eu. Applied Physics Letters, 2006, 88, 011921.	3.3	31
95	Modeling disorder effect of the oxygen vacancy distribution in filamentary analog RRAM for neuromorphic computing. , 2017, , .		31
96	A Compact Model of Analog RRAM With Device and Array Nonideal Effects for Neuromorphic Systems. IEEE Transactions on Electron Devices, 2020, 67, 1593-1599.	3.0	29
97	Green emission from Er-doped GaN powder. Applied Physics Letters, 2005, 86, 191918.	3.3	28
98	The study of the effects of cooling conditions on high quality graphene growth by the APCVD method. Nanoscale, 2013, 5, 5524.	5.6	28
99	Electrochemical control of the phase transition of ultrathin FeRh films. Applied Physics Letters, 2016, 108, .	3.3	27
100	Relaxation Effect in RRAM Arrays: Demonstration and Characteristics. IEEE Electron Device Letters, 2016, 37, 182-185.	3.9	27
101	Resistance Switching Characteristics Induced by O_2 Plasma Treatment of an Indium Tin Oxide Film for Use as an Insulator in Resistive Random Access Memory. ACS Applied Materials & Interfaces, 2017, 9, 3149-3155.	8.0	27
102	25.2 A Reconfigurable RRAM Physically Unclonable Function Utilizing Post-Process Randomness Source With <$6Å—10^{-6}$ Native Bit Error Rate. , 2019, , .		27
103	Concealable physically unclonable function chip with a memristor array. Science Advances, 2022, 8, .	10.3	27
104	High-yield GaN nanowire synthesis and field-effect transistor fabrication. Journal of Electronic Materials, 2006, 35, 670-674.	2.2	26
105	Deep-submicron Graphene Field-Effect Transistors with State-of-Art fmax. Scientific Reports, 2016, 6, 35717.	3.3	26
106	A Unified PUF and TRNG Design Based on 40-nm RRAM With High Entropy and Robustness for IoT Security. IEEE Transactions on Electron Devices, 2022, 69, 536-542.	3.0	26
107	Rapid synthesis of gallium nitride powder. Journal of Crystal Growth, 2005, 279, 303-310.	1.5	25
108	Artificial intelligence accelerated by light. Nature, 2021, 589, 25-26.	27.8	25

#	Article	IF	Citations
109	Memristor-based signal processing for edge computing. Tsinghua Science and Technology, 2022, 27, 455-471.	6.1	24
110	Short Time High-Resistance State Instability of TaOx-Based RRAM Devices. IEEE Electron Device Letters, 2017, 38, 32-35.	3.9	22
111	A drain leakage phenomenon in poly silicon channel 3D NAND flash caused by conductive paths along grain boundaries. Microelectronic Engineering, 2018, 192, 66-69.	2.4	22
112	Engineering interface-type resistance switching based on forming current compliance in ITO/Ga2O3:ITO/TiN resistance random access memory: Conduction mechanisms, temperature effects, and electrode influence. Applied Physics Letters, 2016, 109, .	3.3	21
113	Circuit design for beyond von Neumann applications using emerging memory: From nonvolatile logics to neuromorphic computing. , 2017, , .		21
114	Boosting the performance of resistive switching memory with a transparent ITO electrode using supercritical fluid nitridation. RSC Advances, 2017, 7, 11585-11590.	3.6	21
115	A High-Speed and High-Reliability TRNG Based on Analog RRAM for IoT Security Application. , 2019, , .		21
116	A Voltage-Mode Sensing Scheme with Differential-Row Weight Mapping for Energy-Efficient RRAM-Based In-Memory Computing. , 2020, , .		21
117	Random telegraph noise analysis in AlOx/WOy resistive switching memories. Applied Physics Letters, 2014, 104, .	3.3	20
118	Fractional memristor. Applied Physics Letters, 2017, 111, .	3.3	20
119	Endurance and Retention Degradation of Intermediate Levels in Filamentary Analog RRAM. IEEE Journal of the Electron Devices Society, 2019, 7, 1239-1247.	2.1	20
120	Oxide-based filamentary RRAM for deep learning. Journal Physics D: Applied Physics, 2021, 54, 083002.	2.8	20
121	Oxide-based analog synapse: Physical modeling, experimental characterization, and optimization. , 2016, , .		19
122	Suppress variations of analog resistive memory for neuromorphic computing by localizing Vo formation. Journal of Applied Physics, 2018, 124, 152108.	2.5	19
123	R2D2: Runtime reassurance and detection of A2 Trojan. , 2018, , .		19
124	Demonstration of Generative Adversarial Network by Intrinsic Random Noises of Analog RRAM Devices. , 2018, , .		18
125	Conductive metallic filaments dominate in hybrid perovskite-based memory devices. Science China Materials, 2019, 62, 1323-1331.	6.3	18
126	Triple-Cation Perovskite Resistive Switching Memory with Enhanced Endurance and Retention. ACS Applied Electronic Materials, 2020, 2, 3695-3703.	4.3	18

#	Article	IF	Citations
127	A Memristors–Based Dendritic NeuronÂfor High–Efficiency Spatial–Temporal Information Processing. Advanced Materials, 2023, 35, .	21.0	18
128	High carrier mobility in suspended-channel graphene field effect transistors. Applied Physics Letters, 2013, 103, .	3.3	17
129	A novel PUF against machine learning attack: Implementation on a 16 Mb RRAM chip. , 2017, , .		17
130	Toward memristive in-memory computing: principles and applications. Frontiers of Optoelectronics, 2022, 15, .	3.7	17
131	Graphene mobility enhancement by organosilane interface engineering. Applied Physics Letters, 2013, 102, .	3.3	16
132	Multiplication on the edge. Nature Electronics, 2018, 1, 8-9.	26.0	16
133	Electrically Reconfigurable 3D Spin–Orbitronics. Advanced Functional Materials, 2021, 31, 2007485.	14.9	16
134	Inverted process for graphene integrated circuits fabrication. Nanoscale, 2014, 6, 5826-5830.	5.6	15
135	Optimization of TiN/TaOx/HfO2/TiN RRAM Arrays for Improved Switching and Data Retention. , 2015, , .		15
136	Ultralow Power Resistance Random Access Memory Device and Oxygen Accumulation Mechanism in an Indium–Tin-Oxide Electrode. IEEE Transactions on Electron Devices, 2016, 63, 4737-4743.	3.0	15
137	On-Chip Analog Trojan Detection Framework for Microprocessor Trustworthiness. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2019, 38, 1820-1830.	2.7	15
138	Diagonal Matrix Regression Layer: Training Neural Networks on Resistive Crossbars With Interconnect Resistance Effect. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2021, 40, 1662-1671.	2.7	15
139	An Improved RRAM-Based Binarized Neural Network With High Variation-Tolerated Forward/Backward Propagation Module. IEEE Transactions on Electron Devices, 2020, 67, 469-473.	3.0	14
140	Current-Induced In-Plane Magnetization Switching in a Biaxial Ferrimagnetic Insulator. Physical Review Applied, 2020, 13, .	3.8	14
141	A nondestructive approach to study resistive switching mechanism in metal oxide based on defect photoluminescence mapping. Nanoscale, 2017, 9, 13449-13456.	5.6	13
142	Bayesian Neural Network Realization by Exploiting Inherent Stochastic Characteristics of Analog RRAM. , 2019, , .		13
143	Array-level boosting method with spatial extended allocation to improve the accuracy of memristor based computing-in-memory chips. Science China Information Sciences, 2021, 64, 1.	4.3	13
144	Thermal Stability of HfO$_x$-Based Resistive Memory Array: A Temperature Coefficient Study. IEEE Electron Device Letters, 2018, 39, 192-195.	3.9	12

#	Article	IF	Citations
145	Novel In-Memory Matrix-Matrix Multiplication with Resistive Cross-Point Arrays. , 2018, , .		12
146	Cryogenic HfO<i>â‚‚</i>-Based Resistive Memory With a Thermal Enhancement Capping Layer. IEEE Electron Device Letters, 2021, 42, 1276-1279.	3.9	12
147	Trends and challenges in the circuit and macro of RRAM-based computing-in-memory systems. , 2022, 1, 100004.		12
148	Investigation of Resistive Switching Mechanisms in Ti/TiO<i>_x</i>/Pdâ€Based RRAM Devices. Advanced Electronic Materials, 2022, 8, .	5.1	12
149	Theory study and implementation of configurable ECC on RRAM memory. , 2015, , .		11
150	Electrochemical simulation of filament growth and dissolution in conductive-bridging RAM (CBRAM) with cylindrical coordinates. , 2012, , .		10
151	Geometry Optimization of Planar Hall Devices Under Voltage Biasing. IEEE Transactions on Electron Devices, 2014, 61, 4216-4223.	3.0	10
152	Graphene Distributed Amplifiers: Generating Desirable Gain for Graphene Field-Effect Transistors. Scientific Reports, 2015, 5, 17649.	3.3	10
153	Threshold Switching: Threshold Switching of Ag or Cu in Dielectrics: Materials, Mechanism, and Applications (Adv. Funct. Mater. 6/2018). Advanced Functional Materials, 2018, 28, 1870036.	14.9	10
154	Weighted Synapses Without Carry Operations for RRAM-Based Neuromorphic Systems. Frontiers in Neuroscience, 2018, 12, 167.	2.8	10
155	Reliability Perspective on Neuromorphic Computing Based on Analog RRAM. , 2019, , .		10
156	The Impact of Thermal Enhance Layers on the Relaxation Effect in Analog RRAM. IEEE Transactions on Electron Devices, 2022, 69, 4254-4258.	3.0	10
157	Computed depth profile method of X-ray diffraction and its application to Ni/Pd films. Surface and Coatings Technology, 2002, 149, 198-205.	4.8	9
158	Bulk GaN growth by Gallium Vapor Transport technique. Physica Status Solidi C: Current Topics in Solid State Physics, 2005, 2, 2032-2035.	0.8	9
159	Controlling the Degree of Forming Soft-Breakdown and Producing Superior Endurance Performance by Inserting BN-Based Layers in Resistive Random Access Memory. IEEE Electron Device Letters, 2017, 38, 445-448.	3.9	9
160	Monolithic integration of flexible lithium-ion battery on a plastic substrate by printing methods. Nano Research, 2019, 12, 2477-2484.	10.4	9
161	Compact Reliability Model of Analog RRAM for Computation-in-Memory Device-to-System Codesign and Benchmark. IEEE Transactions on Electron Devices, 2021, 68, 2686-2692.	3.0	9
162	Luminescence dynamics and waveguide applications of europium doped gallium nitride powder. Applied Physics Letters, 2006, 89, 111912.	3.3	8

#	Article	IF	Citations
163	Oscillation neuron based on a low-variability threshold switching device for high-performance neuromorphic computing. Journal of Semiconductors, 2021, 42, 064101.	3.7	8
164	Crossbar-Level Retention Characterization in Analog RRAM Array-Based Computation-in-Memory System. IEEE Transactions on Electron Devices, 2021, 68, 3813-3818.	3.0	8
165	Optimization of writing scheme on 1T1R RRAM to achieve both high speed and good uniformity. , 2017, , .		7
166	Ratio-based multi-level resistive memory cells. Scientific Reports, 2021, 11, 1351.	3.3	7
167	Atomic-Device Hybrid Modeling of Relaxation Effect in Analog RRAM for Neuromorphic Computing. , 2020, , .		7
168	Flexible Threshold Switching Selectors with Ultrahigh Endurance Based on Halide Perovskites. Advanced Electronic Materials, 2022, 8, .	5.1	7
169	Rapid synthesis of high purity GaN powder. Physica Status Solidi C: Current Topics in Solid State Physics, 2005, 2, 2074-2078.	0.8	6
170	Graphene nonvolatile memory prototype based on charge-transfer mechanism. Applied Physics Express, 2014, 7, 045101.	2.4	6
171	An efficient method for evaluating RRAM crossbar array performance. Solid-State Electronics, 2016, 120, 32-40.	1.4	6
172	Uniformity improvements of low current 1T1R RRAM arrays through optimized verification strategy. , 2017, , .		6
173	Design and optimization of strong Physical Unclonable Function (PUF) based on RRAM array. , 2017, , .		6
174	New structure with SiO 2 -gate-dielectric select gates in vertical-channel three-dimensional (3D) NAND flash memory. Microelectronics Reliability, 2017, 78, 80-84.	1.7	6
175	Improving electrical performance in Ge–Si core–shell nanowire transistor with a new stripped structure. Semiconductor Science and Technology, 2018, 33, 095004.	2.0	6
176	Circuit Design Challenges in Computing-in-Memory for AI Edge Devices. , 2019, , .		6
177	Parasitic Resistance Effect Analysis in RRAM-based TCAM for Memory Augmented Neural Networks. , 2020, , .		6
178	Extending 1kb RRAM array from weak PUF to strong PUF by employment of SHA module. , 2017, , .		5
179	Building Towards "Invisible Cloak": Robust Physical Adversarial Attack on YOLO Object Detector. , 2018, , .		5
180	Impact of variations of threshold voltage and hold voltage of threshold switching selectors in 1S1R crossbar array. Chinese Physics B, 2018, 27, 118502.	1.4	5

#	Article	IF	Citations
181	Enhanced performance of Ag-filament threshold switching selector by rapid thermal processing. , 2018, , .		5
182	A Unified Memory and Hardware Security Module Based on the Adjustable Switching Window of Resistive Memory. IEEE Journal of the Electron Devices Society, 2020, 8, 1257-1265.	2.1	5
183	Impact and Quantization of Short-Term Relaxation effect in Analog RRAM. , 2020, , .		5
184	A Self€Terminated Operation Scheme for High€Parallel and Energy€Efficient Forming of RRAM Array. Advanced Electronic Materials, 2020, 6, 1901324.	5.1	5
185	Preface to the Special Issue on Beyond Moore: Resistive Switching Devices for Emerging Memory and Neuromorphic Computing. Journal of Semiconductors, 2021, 42, 010101.	3.7	5
186	An On-chip Layer-wise Training Method for RRAM based Computing-in-memory Chips. , 2021, , .		5
187	Application of mathematical morphology operation with memristor-based computation-in-memory architecture for detecting manufacturing defects. Fundamental Research, 2022, 2, 123-130.	3.3	5
188	A High-performance and Calibration-free True Random Number Generator Based on the Resistance Perturbation in RRAM Array. , 2020, , .		5
189	An N-channel graded-junction lateral diffused MOS transistor in 0.18μm low-power logic CMOS process. , 2011, , .		4
190	Monolithic graphene frequency multiplier working at 10GHz range. , 2014, , .		4
191	Graphene oxide and TiO_2 nano-particle composite based nonvolatile memory. , 2015, , .		4
192	Redistribution of carbon atoms in Pt substrate for high quality monolayer graphene synthesis. Journal of Semiconductors, 2015, 36, 013005.	3.7	4
193	Neuromorphic Computing based on Resistive RAM. , 2017, , .		4
194	Online training on RRAM based neuromorphic network: Experimental demonstration and operation scheme optimization. , 2017, , .		4
195	Threshold Switching Selectors: A Threshold Switching Selector Based on Highly Ordered Ag Nanodots for X€Point Memory Applications (Adv. Sci. 10/2019). Advanced Science, 2019, 6, 1970058.	11.2	4
196	A Novel Bi-functional Memory-PUF Module Utilizing Adjustable Switching Window of RRAM. , 2020, , .		4
197	Dipole-induced modulation of effective work function of metal gate in junctionless FETs. AIP Advances, 2020, 10, .	1.3	4
198	A Novel Capacitor-based Stateful Logic Operation Scheme for In-memory Computing in 1T1R RRAM Array. , 2020, , .		4

#	Article	IF	Citations
199	Resisitive switching variability study on 1T1R AlOx/WOx-based RRAM array. , 2013, , .		3
200	Non-Volatile Threshold Adaptive Transistors with Embedded RRAM. Chinese Physics Letters, 2014, 31, 108504.	3.3	3
201	The effect of variation on neuromorphic network based on 1T1R memristor array. , 2015, , .		3
202	A 16 Mb RRAM test chip based on analog power system with tunable write pulses. , 2015, , .		3
203	Synaptic learning behaviors achieved by metal ion migration in a Cu/PEDOT:PSS/Ta memristor. , 2015, , .		3
204	Asymmetric resistive switching processes in W:AlO$_x$/WO$_y$ bilayer devices. Chinese Physics B, 2015, 24, 058501.	1.4	3
205	Bipolar resistive switching in Al/GO-PEDOT:PSS/Pt memory devices. , 2016, , .		3
206	Performance Improvements by SL-Current Limiter and Novel Programming Methods on 16MB RRAM Chip. , 2017, , .		3
207	Optimization Strategy for Accelerating Multi-Bit Resistive Weight Programming on the RRAM Array. , 2019, , .		3
208	Identifying relaxation and random telegraph noises in filamentary analog RRAM for neuromorphic computing. , 2021, , .		3
209	Artificial Neuron with Spike Frequency Adaptation Based on Mott Memristor. , 2021, , .		3
210	Rapid growth of bulk GaN crystal using GaN powder as source material. Materials Research Society Symposia Proceedings, 2005, 892, 684.	0.1	3
211	Memristive Behaviors Dominated by Reversible Nucleation Dynamics of Phaseâ€Change Nanoclusters. Small, 2022, , 2105070.	10.0	3
212	Luminescence and Lifetime Properties of Europium Doped Gallium Nitride Compatible with CMOS Technology. Materials Research Society Symposia Proceedings, 2005, 866, 71.	0.1	2
213	A compact model for the SET parameter variations of oxide RRAM array. , 2016, , .		2
214	The Statistical Evaluation of Correlations between LRS and HRS Relaxations in RRAM Array. , 2016, , .		2
215	RRAM Cross-Point Arrays. , 2016, , 223-260.		2
216	Intelligent Computing with RRAM. , 2019, , .		2

#	Article	IF	Citations
217	A Novel RRAM Based Watermark Technique Utilizing the Impact of Forming Conditions on Reset Distribution. , 2019, , .		2
218	Impact of Switching Window on Endurance Degradation in Analog RRAM. , 2019, , .		2
219	Amplitude and frequency modulation based on memristor-controlled spin nano-oscillators. Nanotechnology, 2020, 31, 045202.	2.6	2
220	Preface to the Special Issue on Beyond Moore: Three-Dimensional (3D) Heterogeneous Integration. Journal of Semiconductors, 2021, 42, 020101.	3.7	2
221	Vertical TSV-Like Diode ESD Protection. , 2021, , .		2
222	Nonvolatile magnetic half adder combined with memory writing. Applied Physics Letters, 2021, 118, .	3.3	2
223	In situ optical backpropagation training of diffractive optical neural networks: publisher's note. Photonics Research, 2020, 8, 1323.	7.0	2
224	Memristive structure of Nb/HfOx/Pd with controllable switching mechanisms to perform featured actions in neuromorphic networks. Nano Research, 0, , .	10.4	2
225	Pt/TiO_x/Ti-based Dynamic Optoelectronic Memristor for Neuromorphic Computing. , 2022, , .		2
226	Growth and Characterization of bulk GaN by Ga Vapor Transport. Materials Research Society Symposia Proceedings, 2004, 831, 176.	0.1	1
227	Synaptic learning behavior based on a Ag/PEDOT:PSS/Ta memristor. , 2016, , .		1
228	A novel speed-up coding method in quadruple-level-cell 3D NAND flash memory. , 2016, , .		1
229	A high speed low power negative sensing architecture for 3D NAND Flash memory. , 2016, , .		1
230	Evaluation and optimization of physical unclonable function (PUF) based on the variability of FinFET SRAM. , 2017, , .		1
231	A Novel Graphene Double-Balanced Passive Mixer. , 2018, , .		1
232	A compact model of analog RRAM for neuromorphic computing system design. , 2018, , .		1
233	Efficient Weight Mapping Scheme without Verification for RRAM Based Neuromorphic Computing. , 2019, , .		1
234	The Impact of Interconnect Resistance on One-Selector One-Resistor (1S1R) Crossbar Array Performance. , 2019, , .		1

#	Article	IF	Citations
235	In-Hole Diodes for on-Chip Thermal Sensing. , 2020, , .		1
236	RRAM-based coprocessors for deep learning. , 2020, , 363-395.		1
237	A RRAM-based Data Hiding Technique Utilizing the Impact of Form Condition on SET Performance. , 2020, , .		1
238	Neuronal Firing Characteristics in the NbO_2 based Mott Memristor. , 2021, , .		1
239	A Threshold Switching Selector Based on Highly Ordered Ag Nanodots for X-Point Memory Applications. , 2019, 6, 1900024.		1
240	Optical backpropagation training method and its applications. , 2020, , .		1
241	High Quality, Low Cost Continuous Poly-GaN Film on Si and Glass Substrates Produced by Spin Coating. Materials Research Society Symposia Proceedings, 2004, 831, 619.	0.1	0
242	X-ray characterization of GaN single crystal layers grown by the ammonothermal technique on HVPE GaN seeds and by the sublimation technique on sapphire seeds. Materials Research Society Symposia Proceedings, 2004, 831, 55.	0.1	0
243	THICK GaN LAYER GROWN BY Ga VAPOR TRANSPORT TECHNIQUE. International Journal of High Speed Electronics and Systems, 2004, 14, 745-749.	0.7	0
244	Thick GaN layer grown by Ga vapor transport technique. , 0, , .		0
245	A CMOS Compatible WOx RRAM with Optimized Switching Operations. ECS Transactions, 2012, 44, 1235-1240.	0.5	0
246	Uniform 3D vertical $AlO_\delta/Ta_2O_{5-x}/TaO_y$ RRAM: Fabrication, characterization and mechanism analysis. , 2014, , .		0
247	Investigation on Hot-Carrier-Induced degradation of LDMOS transistor fabricated in logic CMOS process. , 2014, , .		0
248	Stack engineering for ReRAM devices performance improvement. , 2014, , .		0
249	1S1R device with self-compliance property for high density cross-point memory applications. , 2015, , .		0
250	A self-compliance RRAM device for high density cross-point array applications. , 2015, , .		0
251	Suppression of relaxation effect in HfO2 resistive random access memory array by improved program operations. Applied Physics Express, 2016, 9, 051501.	2.4	0
252	AFD: A feature detection method for outdoor real-time video stitching system. , 2017, , .		0

#	Article	IF	Citations
253	Si Interface Barrier Modification on Memristor for Brain-Inspired Computing. Journal of Physics: Conference Series, 2017, 864, 012064.	0.4	0
254	A new 3D NAND flash structure to improve program/erase operation speed. , 2017, , .		0
255	First-principles study on Ge<inf>1â^'x</inf>Sn<inf>x</inf>-Si core-shell nanowire transistors. , 2018, , .		0
256	The Impact of Endurance Degradation in Analog RRAM for In-Situ Training. , 2019, , .		0
257	THICK GaN LAYER GROWN BY Ga VAPOR TRANSPORT TECHNIQUE. , 2005, , .		0
258	Structural characterization of GaN single crystal layers grown by vapor transport from a gallium oxide (Ga2O3) powder source. Materials Research Society Symposia Proceedings, 2005, 892, 708.	0.1	0
259	Stitching video streams captured by multi-UAVs with stabilization. , 2019, , .		0
260	Neural Spike Detection Based on 1T1R Memristor. , 2020, , .		0
261	Effects of Gate Metal Work Function and Line Edge Roughness on the Variability of Junctionless Field-Effect Transistor. , 2022, , .		0
262	Real-Time-Scale 3D Kinetic Monte Carlo Simulation for Hafnium Oxide Based RRAM in 1T1R Cell. , 2022, , .		0