Zhongrui Wang

List of Publications by Year
in descending order

Source: https://exaly.com/author-pdf/8265097/publications.pdf

Version: 2024-02-01

76 papers	11,100 citations	81743 39 h-index	110170 64 g-index
76 all docs	76 docs citations	76 times ranked	6441 citing authors

#	Article	IF	Citations
1	Memristors with diffusive dynamics as synaptic emulators for neuromorphic computing. Nature Materials, 2017, 16, 101-108.	13.3	1,655
2	Analogue signal and image processing with large memristor crossbars. Nature Electronics, 2018, 1, 52-59.	13.1	879
3	Fully memristive neural networks for pattern classification with unsupervised learning. Nature Electronics, 2018, 1, 137-145.	13.1	787
4	Resistive switching materials forÂinformation processing. Nature Reviews Materials, 2020, 5, 173-195.	23.3	668
5	Efficient and self-adaptive in-situ learning in multilayer memristor neural networks. Nature Communications, 2018, 9, 2385.	5.8	575
6	Parallel programming of an ionic floating-gate memory array for scalable neuromorphic computing. Science, 2019, 364, 570-574.	6.0	484
7	Bridging Biological and Artificial Neural Networks with Emerging Neuromorphic Devices: Fundamentals, Progress, and Challenges. Advanced Materials, 2019, 31, e1902761.	11.1	418
8	Review of memristor devices in neuromorphic computing: materials sciences and device challenges. Journal Physics D: Applied Physics, 2018, 51, 503002.	1.3	326
9	Emerging Memory Devices for Neuromorphic Computing. Advanced Materials Technologies, 2019, 4, 1800589.	3.0	307
10	An artificial nociceptor based on a diffusive memristor. Nature Communications, 2018, 9, 417.	5.8	295
11	Anatomy of Ag/Hafniaâ€Based Selectors with 10¹⁰ Nonlinearity. Advanced Materials, 2017, 29, 1604457.	11.1	292
12	Long short-term memory networks in memristor crossbar arrays. Nature Machine Intelligence, 2019, 1, 49-57.	8.3	288
13	A novel true random number generator based on a stochastic diffusive memristor. Nature Communications, 2017, 8, 882.	5.8	287
14	Reinforcement learning with analogue memristor arrays. Nature Electronics, 2019, 2, 115-124.	13.1	247
15	Three-dimensional memristor circuits as complex neural networks. Nature Electronics, 2020, 3, 225-232.	13.1	242
16	Threshold Switching of Ag or Cu in Dielectrics: Materials, Mechanism, and Applications. Advanced Functional Materials, 2018, 28, 1704862.	7.8	239
17	An artificial spiking afferent nerve based on Mott memristors for neurorobotics. Nature Communications, 2020, 11, 51.	5.8	217
18	Brain-inspired computing with memristors: Challenges in devices, circuits, and systems. Applied Physics Reviews, 2020, 7, .	5.5	217

#	Article	IF	Citations
19	Gate-tunable van der Waals heterostructure for reconfigurable neural network vision sensor. Science Advances, 2020, 6, eaba6173.	4.7	202
20	In situ training of feed-forward and recurrent convolutional memristor networks. Nature Machine Intelligence, 2019, 1, 434-442.	8.3	201
21	Capacitive neural network with neuro-transistors. Nature Communications, 2018, 9, 3208.	5.8	199
22	Sub-10 nm Ta Channel Responsible for Superior Performance of a HfO2 Memristor. Scientific Reports, 2016, 6, 28525.	1.6	177
23	In-sensor reservoir computing for language learning via two-dimensional memristors. Science Advances, 2021, 7, .	4.7	175
24	Reservoir Computing Using Diffusive Memristors. Advanced Intelligent Systems, 2019, 1, 1900084.	3.3	147
25	Bioinspired bio-voltage memristors. Nature Communications, 2020, 11, 1861.	5.8	144
26	Temperature Instability of Resistive Switching on $ hbox{HfO}_{x}$-Based RRAM Devices. IEEE Electron Device Letters, 2010, 31, 476-478.	2.2	110
27	Oxideâ€Based Electrolyteâ€Gated Transistors for Spatiotemporal Information Processing. Advanced Materials, 2020, 32, e2003018.	11.1	104
28	Volatile and Nonvolatile Memristive Devices for Neuromorphic Computing. Advanced Electronic Materials, 2022, 8, .	2.6	94
29	Artificial Neural Network (ANN) to Spiking Neural Network (SNN) Converters Based on Diffusive Memristors. Advanced Electronic Materials, 2019, 5, 1900060.	2.6	92
30	Memristive Crossbar Arrays for Storage and Computing Applications. Advanced Intelligent Systems, 2021, 3, 2100017.	3.3	80
31	Highly Uniform, Self-Compliance, and Forming-Free ALD $hbox{HfO}_{2}$ -Based RRAM With Ge Doping. IEEE Transactions on Electron Devices, 2012, 59, 1203-1208.	1.6	77
32	Truly Electroformingâ€Free and Lowâ€Energy Memristors with Preconditioned Conductive Tunneling Paths. Advanced Functional Materials, 2017, 27, 1702010.	7.8	75
33	Oxide-based RRAM: Unified microscopic principle for both unipolar and bipolar switching. , 2011, , .		58
34	A High-Yield $hbox{HfO}_{x}$-Based Unipolar Resistive RAM Employing Ni Electrode Compatible With Si-Diode Selector for Crossbar Integration. IEEE Electron Device Letters, 2011, 32, 396-398.	2.2	52
35	Nanoscale diffusive memristor crossbars as physical unclonable functions. Nanoscale, 2018, 10, 2721-2726.	2.8	52
36	Hybrid memristor-CMOS neurons for in-situ learning in fully hardware memristive spiking neural networks. Science Bulletin, 2021, 66, 1624-1633.	4.3	52

#	Article	IF	Citations
37	Transport properties of HfO<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mrow /><mml:mrow><mml:mn>2</mml:mn><mml:mo>â^’</mml:mo><mml:mi>x</mml:mi></mml:mrow></mml:msub></mml:math>based resistive-switching memories. Physical Review B, 2012, 85, .	1.1	51
38	A Memristor with Low Switching Current and Voltage for 1S1R Integration and Array Operation. Advanced Electronic Materials, 2020, 6, 1901411.	2.6	51
39	One Transistor One Electrolyteâ€Gated Transistor Based Spiking Neural Network for Powerâ€Efficient Neuromorphic Computing System. Advanced Functional Materials, 2021, 31, 2100042.	7.8	46
40	Study of preferential localized degradation and breakdown of HfO2/SiOx dielectric stacks at grain boundary sites of polycrystalline HfO2 dielectrics. Microelectronic Engineering, 2013, 109, 364-369.	1.1	45
41	A fully hardware-based memristive multilayer neural network. Science Advances, 2021, 7, eabj4801.	4.7	37
42	Electrochemical metallization switching with a platinum group metal in different oxides. Nanoscale, 2016, 8, 14023-14030.	2.8	35
43	Investigation of HfO2 high-k dielectrics electronic structure on SiO2/Si substrate by x-ray photoelectron spectroscopy. Applied Physics Letters, 2011, 99, .	1.5	29
44	A Self-Rectifying $hbox{HfO}_{x}$ -Based Unipolar RRAM With NiSi Electrode. IEEE Electron Device Letters, 2012, 33, 585-587.	2.2	22
45	A Dynamical Compact Model of Diffusive and Drift Memristors for Neuromorphic Computing. Advanced Electronic Materials, 2022, 8, 2100696.	2.6	19
46	Timing Selector: Using Transient Switching Dynamics to Solve the Sneak Path Issue of Crossbar Arrays. Small Science, 2022, 2, 2100072.	5.8	18
47	Mechanism of Different Switching Directions in Graphene Oxide Based RRAM. Journal of the Electrochemical Society, 2012, 159, K177-K182.	1.3	17
48	The transport properties of oxygen vacancy-related polaron-like bound state in HfOx. Scientific Reports, 2013, 3, 3246.	1.6	17
49	Experimental Demonstration of Conversion-Based SNNs with 1T1R Mott Neurons for Neuromorphic Inference. , 2019, , .		17
50	Positive Bias-Induced $V_{m th}$ Instability in Graphene Field Effect Transistors. IEEE Electron Device Letters, 2012, 33, 339-341.	2.2	15
51	Electronic trap characterization of the Sc2O3â^•La2O3 high-Î² gate stack by scanning tunneling microscopy. Applied Physics Letters, 2008, 92, 022904.	1.5	14
52	Observation of the Ambient Effect in BTI Characteristics of Back-Gated Single Layer Graphene Field Effect Transistors. IEEE Transactions on Electron Devices, 2013, 60, 2682-2686.	1.6	14
53	Large Memristor Crossbars for Analog Computing. , 2018, , .		14
54	$V_{m th}$ Shift in Single-Layer Graphene Field-Effect Transistors and Its Correlation With Raman Inspection. IEEE Transactions on Device and Materials Reliability, 2012, 12, 478-481.	1.5	13

#	Article	IF	Citations
55	Impact of local structural and electrical properties of grain boundaries in polycrystalline HfO2 on reliability of SiOx interfacial layer. Microelectronics Reliability, 2014, 54, 1712-1717.	0.9	11
56	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.	7.8	10
57	Convolutional Echoâ€State Network with Random Memristors for Spatiotemporal Signal Classification. Advanced Intelligent Systems, 2022, 4, .	3.3	10
58	Schottky-Ohmic transition in metal-all-around electrical contacts to silicon nanowires. Journal of Applied Physics, 2009, 105, .	1.1	9
59	Efficient AI with MRAM. Nature Electronics, 2022, 5, 67-68.	13.1	9
60	Energyâ€Efficient Memristive Euclidean Distance Engine for Brainâ€Inspired Competitive Learning. Advanced Intelligent Systems, 2021, 3, 2100114.	3.3	8
61	Constructing van der Waals heterostructures by dry-transfer assembly for novel optoelectronic device. Nanotechnology, 2022, 33, 465601.	1.3	7
62	Learning with Resistive Switching Neural Networks. , 2019, , .		6
63	Memristive Crossbar Arrays for Storage and Computing Applications. Advanced Intelligent Systems, 2021, 3, 2170065.	3.3	6
64	One Transistor One Electrolyte-Gated Transistor for Supervised Learning in SNNs. IEEE Electron Device Letters, 2022, 43, 296-299.	2.2	6
65	Oscillator-Network-Based Ising Machine. Micromachines, 2022, 13, 1016.	1.4	5
66	Bias temperature instability of binary oxide based ReRAM. , 2010, , .		4
67	Unconventional computing with diffusive memristors. , 2018, , .		4
68	RRAM/memristor for computing. , 2019, , 539-583.		4
69	Mixedâ€Precision Continual Learning Based on Computational Resistance Random Access Memory. Advanced Intelligent Systems, 2022, 4, .	3.3	4
70	Oxide-Based RRAM: A Novel Defect-Engineering-Based Implementation for Multilevel Data Storage. , 2012, , .		3
71	Energyâ€Efficient Memristive Euclidean Distance Engine for Brainâ€Inspired Competitive Learning. Advanced Intelligent Systems, 2021, 3, 2170079.	3.3	3
72	Correction: Electrochemical metallization switching with a platinum group metal in different oxides. Nanoscale, 2016, 8, 11766-11766.	2.8	1

#	Article	IF	Citations
73	BATMANN: A Binarized-All-Through Memory-Augmented Neural Network for Efficient In-Memory Computing. , 2021, , .		1
74	Ta/HfO2-based Memristor and Crossbar Arrays for In-Memory Computing. , 2022, , 167-188.		1
75	Neuronal realizations based on memristive devices. , 2020, , 407-426.		0
76	All Hardware-Based Two-Layer Perceptron Implemented in Memristor Crossbar Arrays. , 2021, , .		0