

Qiangfei Xia

List of Publications by Year in Descending Order

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

100
papers

9,563
citations

44
h-index

97
g-index

106
ext. papers

12,048
ext. citations

12.8
avg, IF

6.6
L-index

#	Paper	IF	Citations
100	Ta/HfO ₂ -based Memristor and Crossbar Arrays for In-Memory Computing 2022 , 167-188		
99	Standards for the Characterization of Endurance in Resistive Switching Devices. <i>ACS Nano</i> , 2021 ,	16.7	36
98	A fully hardware-based memristive multilayer neural network. <i>Science Advances</i> , 2021 , 7, eabj4801	14.3	10
97	The secret order of disorder. <i>Nature Materials</i> , 2021 ,	27	1
96	Engineering Tunneling Selector to Achieve High Non-linearity for 1S1R Integration. <i>Frontiers in Nanotechnology</i> , 2021 , 3,	5.5	2
95	Roadmap on emerging hardware and technology for machine learning. <i>Nanotechnology</i> , 2021 , 32, 012003	3.4	45
94	Three-dimensional hybrid circuits: the future of neuromorphic computing hardware. <i>Nano Express</i> , 2021 , 2, 031003	2	
93	A Memristor with Low Switching Current and Voltage for 1S1R Integration and Array Operation. <i>Advanced Electronic Materials</i> , 2020 , 6, 1901411	6.4	21
92	Power-efficient combinatorial optimization using intrinsic noise in memristor Hopfield neural networks. <i>Nature Electronics</i> , 2020 , 3, 409-418	28.4	79
91	Resistive switching materials for information processing. <i>Nature Reviews Materials</i> , 2020 , 5, 173-195	73.3	318
90	A Low-Current and Analog Memristor with Ru as Mobile Species. <i>Advanced Materials</i> , 2020 , 32, e1904592	2.4	32
89	Three-dimensional memristor circuits as complex neural networks. <i>Nature Electronics</i> , 2020 , 3, 225-232	28.4	112
88	An artificial spiking afferent nerve based on Mott memristors for neurorobotics. <i>Nature Communications</i> , 2020 , 11, 51	17.4	105
87	Committee machines-a universal method to deal with non-idealities in memristor-based neural networks. <i>Nature Communications</i> , 2020 , 11, 4273	17.4	20
86	In situ training of feed-forward and recurrent convolutional memristor networks. <i>Nature Machine Intelligence</i> , 2019 , 1, 434-442	22.5	93
85	Memristive crossbar arrays for brain-inspired computing. <i>Nature Materials</i> , 2019 , 18, 309-323	27	582
84	Artificial Neural Network (ANN) to Spiking Neural Network (SNN) Converters Based on Diffusive Memristors. <i>Advanced Electronic Materials</i> , 2019 , 5, 1900060	6.4	55

83	Reinforcement learning with analogue memristor arrays. <i>Nature Electronics</i> , 2019 , 2, 115-124	28.4	166
82	Scalable 3D Ta:SiO _x Memristive Devices. <i>Advanced Electronic Materials</i> , 2019 , 5, 1800958	6.4	2
81	Understanding memristive switching via in situ characterization and device modeling. <i>Nature Communications</i> , 2019 , 10, 3453	17.4	138
80	Artificial Neural Network Based on Doped HfO ₂ Ferroelectric Capacitors With Multilevel Characteristics. <i>IEEE Electron Device Letters</i> , 2019 , 40, 1309-1312	4.4	24
79	Reservoir Computing Using Diffusive Memristors. <i>Advanced Intelligent Systems</i> , 2019 , 1, 1900084	6	65
78	Three-Dimensional Crossbar Arrays of Self-rectifying Si/SiO ₂ /Si Memristors 2019 , 791-813		7
77	Learning with Resistive Switching Neural Networks 2019 ,		4
76	Experimental Demonstration of Conversion-Based SNNs with 1T1R Mott Neurons for Neuromorphic Inference 2019 ,		10
75	Memristor crossbar arrays with 6-nm half-pitch and 2-nm critical dimension. <i>Nature Nanotechnology</i> , 2019 , 14, 35-39	28.7	231
74	Long short-term memory networks in memristor crossbar arrays. <i>Nature Machine Intelligence</i> , 2019 , 1, 49-57	22.5	176
73	Emerging Memory Devices for Neuromorphic Computing. <i>Advanced Materials Technologies</i> , 2019 , 4, 1800589	6.8	181
72	An artificial nociceptor based on a diffusive memristor. <i>Nature Communications</i> , 2018 , 9, 417	17.4	183
71	Threshold Switching: Threshold Switching of Ag or Cu in Dielectrics: Materials, Mechanism, and Applications (Adv. Funct. Mater. 6/2018). <i>Advanced Functional Materials</i> , 2018 , 28, 1870036	15.6	7
70	Fully memristive neural networks for pattern classification with unsupervised learning. <i>Nature Electronics</i> , 2018 , 1, 137-145	28.4	511
69	Threshold Switching of Ag or Cu in Dielectrics: Materials, Mechanism, and Applications. <i>Advanced Functional Materials</i> , 2018 , 28, 1704862	15.6	168
68	Nanoscale diffusive memristor crossbars as physical unclonable functions. <i>Nanoscale</i> , 2018 , 10, 2721-2726	7.7	36
67	Memristor-Based Analog Computation and Neural Network Classification with a Dot Product Engine. <i>Advanced Materials</i> , 2018 , 30, 1705914	24	339
66	Nucleation limited switching (NLS) model for HfO ₂ -based metal-ferroelectric-metal (MFM) capacitors: Switching kinetics and retention characteristics. <i>Applied Physics Letters</i> , 2018 , 112, 262903	3.4	46

65	Unconventional computing with diffusive memristors 2018 ,		2
64	Large Memristor Crossbars for Analog Computing 2018 ,		6
63	Capacitive neural network with neuro-transistors. <i>Nature Communications</i> , 2018 , 9, 3208	17.4	132
62	Pulse-Width Modulation based Dot-Product Engine for Neuromorphic Computing System using Memristor Crossbar Array 2018 ,		10
61	Efficient and self-adaptive in-situ learning in multilayer memristor neural networks. <i>Nature Communications</i> , 2018 , 9, 2385	17.4	371
60	Analogue signal and image processing with large memristor crossbars. <i>Nature Electronics</i> , 2018 , 1, 52-59	28.4	550
59	Tutorial: Fabrication and three-dimensional integration of nanoscale memristive devices and arrays. <i>Journal of Applied Physics</i> , 2018 , 124, 152001	2.5	5
58	A provable key destruction scheme based on memristive crossbar arrays. <i>Nature Electronics</i> , 2018 , 1, 548-554	28.4	32
57	Memristor-CMOS Analog Coprocessor for Acceleration of High-Performance Computing Applications. <i>ACM Journal on Emerging Technologies in Computing Systems</i> , 2018 , 14, 1-30	1.7	2
56	Review of memristor devices in neuromorphic computing: materials sciences and device challenges. <i>Journal Physics D: Applied Physics</i> , 2018 , 51, 503002	3	183
55	Artificial neural networks based on memristive devices. <i>Science China Information Sciences</i> , 2018 , 61, 1	3.4	9
54	Silicon Oxide (SiO ₂): A Promising Material for Resistance Switching?. <i>Advanced Materials</i> , 2018 , 30, e1801187	18.7	105
53	In-Memory Computing with Memristor Arrays 2018 ,		12
52	Anatomy of Ag/Hafnia-Based Selectors with 10 Nonlinearity. <i>Advanced Materials</i> , 2017 , 29, 1604457	24	245
51	Organic electronics: Battery-like artificial synapses. <i>Nature Materials</i> , 2017 , 16, 396-397	27	24
50	An efficient analog Hamming distance comparator realized with a unipolar memristor array: a showcase of physical computing. <i>Scientific Reports</i> , 2017 , 7, 40135	4.9	22
49	Efficient electrical control of thin-film black phosphorus bandgap. <i>Nature Communications</i> , 2017 , 8, 14474	17.4	183
48	Three-dimensional crossbar arrays of self-rectifying Si/SiO ₂ /Si memristors. <i>Nature Communications</i> , 2017 , 8, 15666	17.4	115

47	A novel true random number generator based on a stochastic diffusive memristor. <i>Nature Communications</i> , 2017 , 8, 882	17.4	180
46	Truly Electroforming-Free and Low-Energy Memristors with Preconditioned Conductive Tunneling Paths. <i>Advanced Functional Materials</i> , 2017 , 27, 1702010	15.6	56
45	Ferroelectric transistors with monolayer molybdenum disulfide and ultra-thin aluminum-doped hafnium oxide. <i>Applied Physics Letters</i> , 2017 , 111, 013103	3.4	33
44	Memristors with diffusive dynamics as synaptic emulators for neuromorphic computing. <i>Nature Materials</i> , 2017 , 16, 101-108	27	1201
43	Synthetic Biological Protein Nanowires with High Conductivity. <i>Small</i> , 2016 , 12, 4481-5	11	87
42	A Dynamically Reconfigurable Ambipolar Black Phosphorus Memory Device. <i>ACS Nano</i> , 2016 , 10, 10428-10435	10.4	72
41	Cyclical sensing integrate-and-fire circuit for memristor array based neuromorphic computing 2016 ,		8
40	Black Phosphorus Mid-Infrared Photodetectors with High Gain. <i>Nano Letters</i> , 2016 , 16, 4648-55	11.5	476
39	Memristive nanodevices: CMOS compatibility and novel applications 2016 ,		2
38	Built-in selectors self-assembled into memristors 2016 ,		1
37	Memristors as radiofrequency switches 2016 ,		6
36	Fabrication of sub-10 nm metal nanowire arrays with sub-1 nm critical dimension control. <i>Nanotechnology</i> , 2016 , 27, 464004	3.4	10
35	Sub-10 nm Ta Channel Responsible for Superior Performance of a HfO ₂ Memristor. <i>Scientific Reports</i> , 2016 , 6, 28525	4.9	128
34	Correction: Electrochemical metallization switching with a platinum group metal in different oxides. <i>Nanoscale</i> , 2016 , 8, 11766	7.7	1
33	Electrochemical metallization switching with a platinum group metal in different oxides. <i>Nanoscale</i> , 2016 , 8, 14023-30	7.7	33
32	Nanoimprint lithography enables memristor crossbars and hybrid circuits. <i>Applied Physics A: Materials Science and Processing</i> , 2015 , 121, 467-479	2.6	7
31	Nanoscale memristive radiofrequency switches. <i>Nature Communications</i> , 2015 , 6, 7519	17.4	76
30	Nanoimprint lithography 20 years on. <i>Nanotechnology</i> , 2015 , 26, 182501	3.4	8

29	Nanoscale memristors: Devices engineering, CMOS integration and novel applications 2015 ,		1
28	Device engineering and CMOS integration of nanoscale memristors 2014 ,		2
27	3D integration of planar crossbar memristive devices with CMOS substrate. <i>Nanotechnology</i> , 2014 , 25, 405202	3.4	22
26	Single- and bi-layer memristive devices with tunable properties using TiO _x switching layers deposited by reactive sputtering. <i>Applied Physics Letters</i> , 2014 , 104, 153505	3.4	12
25	Memristor Device Engineering and CMOS Integration for Reconfigurable Logic Applications 2014 , 327-351		3
24	Low voltage resistive switching devices based on chemically produced silicon oxide. <i>Applied Physics Letters</i> , 2013 , 103, 062104	3.4	28
23	Effect of voltage polarity and amplitude on electroforming of TiO ₂ based memristive devices. <i>Nanoscale</i> , 2013 , 5, 3257-61	7.7	16
22	Mold cleaning with polydimethylsiloxane for nanoimprint lithography. <i>Nanotechnology</i> , 2013 , 24, 325301	3.4	7
21	Cross point arrays of 8 nm \times 8 nm memristive devices fabricated with nanoimprint lithography. <i>Journal of Vacuum Science and Technology B: Nanotechnology and Microelectronics</i> , 2013 , 31, 06FA02	1.3	56
20	Improvement of resistive switching uniformity for TiO ₂ -based memristive devices by introducing a thin HfO ₂ layer. <i>Journal of Vacuum Science and Technology B: Nanotechnology and Microelectronics</i> , 2013 , 31, 06FA04	1.3	12
19	Two- and Three-Terminal Resistive Switches: Nanometer-Scale Memristors and Memistors. <i>Advanced Functional Materials</i> , 2011 , 21, 2660-2665	15.6	64
18	Nanoscale resistive switches: devices, fabrication and integration. <i>Applied Physics A: Materials Science and Processing</i> , 2011 , 102, 955-965	2.6	17
17	Impact of geometry on the performance of memristive nanodevices. <i>Nanotechnology</i> , 2011 , 22, 254026	3.4	22
16	Hybrid CMOS/memristor circuits 2010 ,		39
15	A memristor-based nonvolatile latch circuit. <i>Nanotechnology</i> , 2010 , 21, 235203	3.4	56
14	Self-aligned memristor cross-point arrays fabricated with one nanoimprint lithography step. <i>Nano Letters</i> , 2010 , 10, 2909-14	11.5	85
13	Applications of excimer laser in nanofabrication. <i>Applied Physics A: Materials Science and Processing</i> , 2010 , 98, 9-59	2.6	18
12	Diffusion of adhesion layer metals controls nanoscale memristive switching. <i>Advanced Materials</i> , 2010 , 22, 4034-8	24	95

11	Fabrication of a 60-nm-diameter perfectly round metal-dot array over a large area on a plastic substrate using nanoimprint lithography and self-perfection by liquefaction. <i>Small</i> , 2010 , 6, 1242-7	11	14
10	On the integration of memristors with CMOS using nanoimprint lithography 2009 ,		8
9	The fabrication of periodic metal nanodot arrays through pulsed laser melting induced fragmentation of metal nanogratings. <i>Nanotechnology</i> , 2009 , 20, 285310	3-4	25
8	Ultrafast and selective reduction of sidewall roughness in silicon waveguides using self-perfection by liquefaction. <i>Nanotechnology</i> , 2009 , 20, 345302	3-4	16
7	Memristor-CMOS hybrid integrated circuits for reconfigurable logic. <i>Nano Letters</i> , 2009 , 9, 3640-5	11.5	507
6	Improved nanofabrication through guided transient liquefaction. <i>Nature Nanotechnology</i> , 2008 , 3, 295-300.7		63
5	Sub-10 nm self-enclosed self-limited nanofluidic channel arrays. <i>Nano Letters</i> , 2008 , 8, 3830-3	11.5	79
4	Fabrication of sub-25nm diameter pillar nanoimprint molds with smooth sidewalls using self-perfection by liquefaction and reactive ion etching. <i>Nanotechnology</i> , 2008 , 19, 455301	3-4	14
3	Ultrafast patterning of nanostructures in polymers using laser assisted nanoimprint lithography. <i>Applied Physics Letters</i> , 2003 , 83, 4417-4419	3-4	57
2	Timing Selector: Using Transient Switching Dynamics to Solve the Sneak Path Issue of Crossbar Arrays. <i>Small Science</i> , 2100072		8
1	A Dynamical Compact Model of Diffusive and Drift Memristors for Neuromorphic Computing. <i>Advanced Electronic Materials</i> , 2100696	6.4	6