Themis Prodromakis

List of Publications by Citations

170 papers	4,056 citations	30 h-index	59 g-index
216 ext. papers	5,132 ext. citations	5.1 avg, IF	5.78 L-index

#	Paper	IF	Citations
170	Integration of nanoscale memristor synapses in neuromorphic computing architectures. *Nanotechnology*, **2013**, 24, 384010	3.4	356
169	A Versatile Memristor Model With Nonlinear Dopant Kinetics. *IEEE Transactions on Electron Devices*, **2011**, 58, 3099-3105	2.9	302
168	STDP and STDP variations with memristors for spiking neuromorphic learning systems. *Frontiers in Neuroscience*, **2013**, 7, 2	5.1	274
167	Two centuries of memristors. *Nature Materials*, **2012**, 11, 478-81	27	250
166	Unsupervised learning in probabilistic neural networks with multi-state metal-oxide memristive synapses. *Nature Communications*, **2016**, 7, 12611	17.4	216
165	Multibit memory operation of metal-oxide bi-layer memristors. *Scientific Reports*, **2017**, 7, 17532	4.9	133
164	The effect of microgrooved culture substrates on calcium cycling of cardiac myocytes derived from human induced pluripotent stem cells. *Biomaterials*, **2013**, 34, 2399-411	15.6	123
163	Engineering the Maxwell–Wagner polarization effect. *Applied Surface Science*, **2009**, 255, 6989-6994	6.7	119
162	Real-time encoding and compression of neuronal spikes by metal-oxide memristors. *Nature Communications*, **2016**, 7, 12805	17.4	97
161	Analog Memristive Synapse in Spiking Networks Implementing Unsupervised Learning. *Frontiers in Neuroscience*, **2016**, 10, 482	5.1	95
160	Emulating short-term synaptic dynamics with memristive devices. *Scientific Reports*, **2016**, 6, 18639	4.9	84
159	Memory impedance in TiO2 based metal-insulator-metal devices. *Scientific Reports*, **2014**, 4, 4522	4.9	67
158	An Extended CMOS ISFET Model Incorporating the Physical Design Geometry and the Effects on Performance and Offset Variation. *IEEE Transactions on Electron Devices*, **2011**, 58, 4414-4422	2.9	50
157	. *IEEE Transactions on Electron Devices*, **2015**, 62, 2190-2196	2.9	49
156	Resistive switching of oxygen enhanced TiO2 thin-film devices. *Applied Physics Letters*, **2013**, 102, 013506	3.4	49
155	A Proposal for Hybrid Memristor-CMOS Spiking Neuromorphic Learning Systems. *IEEE Circuits and Systems Magazine*, **2013**, 13, 74-88	3.2	48
154	Investigation of the Switching Mechanism in TiO2-Based RRAM: A Two-Dimensional EDX Approach. *ACS Applied Materials & Interfaces*, **2016**, 8, 19605-11	9.5	46

153	Oxygen plasma induced hydrophilicity of Parylene-C thin films. *Applied Surface Science*, **2012**, 261, 43-51	6.7	45
152	Experimental study of gradual/abrupt dynamics of HfO2-based memristive devices. *Applied Physics Letters*, **2016**, 109, 133504	3.4	42
151	Challenges hindering memristive neuromorphic hardware from going mainstream. *Nature Communications*, **2018**, 9, 5267	17.4	41
150	A Memristor SPICE Model Accounting for Volatile Characteristics of Practical ReRAM. *IEEE Electron Device Letters*, **2014**, 35, 135-137	4.4	40
149	A CMOS-Based ISFET Chemical Imager With Auto-Calibration Capability. *IEEE Sensors Journal*, **2011**, 11, 3253-3260	4	40
148	A Data-Driven Verilog-A ReRAM Model. *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*, **2018**, 37, 3151-3162	2.5	38
147	Role and Optimization of the Active Oxide Layer in TiO2-Based RRAM. *Advanced Functional Materials*, **2016**, 26, 507-513	15.6	36
146	Standards for the Characterization of Endurance in Resistive Switching Devices. *ACS Nano*, **2021**,	16.7	36
145	Memristive synapses connect brain and silicon spiking neurons. *Scientific Reports*, **2020**, 10, 2590	4.9	33
144	A review on memristive devices and applications **2010**,		33
143	Selective hydrophilic modification of Parylene C films: a new approach to cell micro-patterning for synthetic biology applications. *Biofabrication*, **2014**, 6, 025004	10.5	32
142	Amperometric IFN- immunosensors with commercially fabricated PCB sensing electrodes. *Biosensors and Bioelectronics*, **2016**, 86, 805-810	11.8	32
141	Switching mechanisms in microscale memristors. *Electronics Letters*, **2010**, 46, 63	1.1	31
140	High precision analogue memristor state tuning. *Electronics Letters*, **2012**, 48, 1105-1107	1.1	30
139	Biomimetic model of the outer plexiform layer by incorporating memristive devices. *Physical Review E*, **2012**, 85, 041918	2.4	30
138	Poly(N-isopropylacrylamide) based thin microgel films for use in cell culture applications. *Scientific Reports*, **2020**, 10, 6126	4.9	30
137	Pulse-induced resistive and capacitive switching in TiO2 thin film devices. *Applied Physics Letters*, **2013**, 103, 233513	3.4	29
136	Implementation of a spike-based perceptron learning rule using TiO2-x memristors. *Frontiers in Neuroscience*, **2015**, 9, 357	5.1	28

135	Conductive Atomic Force Microscopy Investigation of Switching Thresholds in Titanium Dioxide Thin Films. *Journal of Physical Chemistry C*, **2015**, 119, 11958-11964	3.8	27
134	The dual role of Parylene C in chemical sensing: Acting as an encapsulant and as a sensing membrane for pH monitoring applications. *Sensors and Actuators B: Chemical*, **2013**, 186, 1-8	8.5	27
133	Surface and Electrical Characterization of Ag/AgCl Pseudo-Reference Electrodes Manufactured with Commercially Available PCB Technologies. *Sensors*, **2015**, 15, 18102-13	3.8	26
132	X-ray Absorption Spectroscopy Study of TiO2 Thin Films for Memory Applications. *Journal of Physical Chemistry C*, **2015**, 119, 4362-4370	3.8	26
131	High Density Crossbar Arrays with Sub- 15 nm Single Cells via Liftoff Process Only. *Scientific Reports* , **2016**, 6, 32614	4.9	24
130	Memristive devices as parameter setting elements in programmable gain amplifiers. *Applied Physics Letters*, **2012**, 101, 243502	3.4	24
129	A memristor SPICE model accounting for synaptic activity dependence. *PLoS ONE*, **2015**, 10, e0120506	3.7	24
128	A Novel Microfluidic Point-of-Care Biosensor System on Printed Circuit Board for Cytokine Detection. *Sensors*, **2018**, 18,	3.8	24
127	Conduction mechanisms at distinct resistive levels of Pt/TiO2-x/Pt memristors. *Applied Physics Letters*, **2018**, 113, 143503	3.4	24
126	Effects of Ar and O2 Plasma Etching on Parylene C: Topography versus Surface Chemistry and the Impact on Cell Viability. *Plasma Processes and Polymers*, **2016**, 13, 324-333	3.4	22
125	HfO2-based memristors for neuromorphic applications **2016**,		22
124	Impact of ultra-thin Al2O3 layers on TiO2 ReRAM switching characteristics. *Journal of Applied Physics*, **2017**, 121, 184505	2.5	21
123	Parylene C-based flexible electronics for pH monitoring applications. *Sensors*, **2014**, 14, 11629-39	3.8	21
122	Microfluidic evaporator for on-chip sample concentration. *Lab on A Chip*, **2012**, 12, 4049-54	7.2	21
121	. *IEEE Transactions on Electron Devices*, **2015**, 62, 3685-3691	2.9	20
120	Origin of the OFF state variability in ReRAM cells. *Journal Physics D: Applied Physics*, **2014**, 47, 145102	3	20
119	Functional Connectivity of Organic Neuromorphic Devices by Global Voltage Oscillations. *Advanced Intelligent Systems*, **2019**, 1, 1900013	6	19
118	Spatially resolved TiOx phases in switched RRAM devices using soft X-ray spectromicroscopy. *Scientific Reports*, **2016**, 6, 21525	4.9	19

117	Seamlessly fused digital-analogue reconfigurable computing using memristors. *Nature Communications*, **2018**, 9, 2170	17.4	19
116	Coexistence of memory resistance and memory capacitance in TiO2 solid-state devices. *Nanoscale Research Letters*, **2014**, 9, 552	5	19
115	An Assay System for Point-of-Care Diagnosis of Tuberculosis using Commercially Manufactured PCB Technology. *Scientific Reports*, **2017**, 7, 685	4.9	18
114	Exploiting CMOS Technology to Enhance the Performance of ISFET Sensors. *IEEE Electron Device Letters*, **2010**, 31, 1053-1055	4.4	18
113	A Low-Cost Disposable Chemical Sensing Platform Based on Discrete Components. *IEEE Electron Device Letters*, **2011**, 32, 417-419	4.4	18
112	Engineering the switching dynamics of TiOx-based RRAM with Al doping. *Journal of Applied Physics*, **2016**, 120, 025108	2.5	18
111	A Cell Classifier for RRAM Process Development. *IEEE Transactions on Circuits and Systems II: Express Briefs*, **2015**, 62, 676-680	3.5	17
110	Practical Determination of Individual Element Resistive States in Selectorless RRAM Arrays. *IEEE Transactions on Circuits and Systems I: Regular Papers*, **2016**, 63, 827-835	3.9	17
109	Biorealistic cardiac cell culture platforms with integrated monitoring of extracellular action potentials. *Scientific Reports*, **2015**, 5, 11067	4.9	17
108	An amorphous titanium dioxide metal insulator metal selector device for resistive random access memory crossbar arrays with tunable voltage margin. *Applied Physics Letters*, **2016**, 108, 033505	3.4	16
107	Practical Implementation of Memristor-Based Threshold Logic Gates. *IEEE Transactions on Circuits and Systems I: Regular Papers*, **2019**, 66, 3041-3051	3.9	15
106	Electrical characteristics of interfacial barriers at metal□TiO2 contacts. *Journal Physics D: Applied Physics*, **2018**, 51, 425101	3	15
105	Biocompatible encapsulation of CMOS based chemical sensors **2009**,		15
104	Resistive switching of Pt/TiO /Pt devices fabricated on flexible Parylene-C substrates. *Nanotechnology*, **2017**, 28, 025303	3.4	14
103	Transformation of digital to analog switching in TaOx-based memristor device for neuromorphic applications. *Applied Physics Letters*, **2021**, 118, 112103	3.4	14
102	Sub 100 nW Volatile Nano-Metal-Oxide Memristor as Synaptic-Like Encoder of Neuronal Spikes. *IEEE Transactions on Biomedical Circuits and Systems*, **2018**, 12, 351-359	5.1	13
101	Long-lasting FR-4 surface hydrophilisation towards commercial PCB passive microfluidics. *Applied Surface Science*, **2016**, 368, 69-75	6.7	13
100	Gradual set dynamics in HfO2-based memristor driven by sub-threshold voltage pulses **2015**,		13

99	Stochastic switching of TiO2-based memristive devices with identical initial memory states. *Nanoscale Research Letters*, **2014**, 9, 293	5	12
98	High-performance PCB-based capillary pumps for affordable point-of-care diagnostics. *Microfluidics and Nanofluidics*, **2017**, 21, 103	2.8	11
97	On the origin of resistive switching volatility in Ni/TiO2/Ni stacks. *Journal of Applied Physics*, **2016**, 120, 065104	2.5	11
96	An Electrical Characterisation Methodology for Benchmarking Memristive Device Technologies. *Scientific Reports*, **2019**, 9, 19412	4.9	11
95	A Memristive Switching Uncertainty Model. *IEEE Transactions on Electron Devices*, **2019**, 66, 2946-2953	2.9	10
94	Effect of patterned polyacrylamide hydrogel on morphology and orientation of cultured NRVMs. *Scientific Reports*, **2018**, 8, 11991	4.9	10
93	A novel design approach for developing chemical sensing platforms using inexpensive technologies **2011**,		10
92	Computing Shortest Paths in 2D and 3D Memristive Networks **2014**, 537-552		10
91	Low-power electronic technologies for harsh radiation environments. *Nature Electronics*, **2021**, 4, 243-252	28.4	10
90	. *IEEE Transactions on Circuits and Systems I: Regular Papers*, **2016**, 63, 818-826	3.9	10
89	Assessment of Parylene C Thin Films for Heart Valve Tissue Engineering. *Tissue Engineering - Part A*, **2015**, 21, 2504-14	3.9	9
88	Live demonstration: A versatile, low-cost platform for testing large ReRAM cross-bar arrays **2014**,		9
87	Parylene C topographic micropattern as a template for patterning PDMS and Polyacrylamide hydrogel. *Scientific Reports*, **2017**, 7, 5764	4.9	9
86	Cost-effective fabrication of nanoscale electrode memristors with reproducible electrical response. *Micro and Nano Letters*, **2010**, 5, 91	0.9	9
85	Surface Chemistry and Microtopography of Parylene C Films Control the Morphology and Microtubule Density of Cardiac Myocytes. *Tissue Engineering - Part C: Methods*, **2016**, 22, 464-72	2.9	9
84	X-ray spectromicroscopy investigation of soft and hard breakdown in RRAM devices. *Nanotechnology*, **2016**, 27, 345705	3.4	8
83	Computationally efficient concentration-based model for accurate evaluation of T -junction inlet staggered herringbone micromixers. *Micro and Nano Letters*, **2016**, 11, 236-239	0.9	7
82	Fabrication and electrical characteristics of memristors with TiO2/TiO2+x active layers **2010**,		7

81	Batch encapsulation technique for CMOS based chemical sensors **2008**,		7
80	Magnetic stimulation in the microscale: the development of a 6 6 array of micro-coils for stimulation of excitable cells in vitro. *Biomedical Physics and Engineering Express*, **2018**, 4, 025016	1.5	7
79	An electrical characterisation methodology for identifying the switching mechanism in TiO memristive stacks. *Scientific Reports*, **2019**, 9, 8168	4.9	6
78	Interface Asymmetry Induced by Symmetric Electrodes on Metal Al:TiO $_{x}$ Metal Structures. *IEEE Nanotechnology Magazine*, **2018**, 17, 867-872	2.6	6
77	A CMOS-based lab-on-chip array for the combined magnetic stimulation and opto-chemical sensing of neural tissue **2010**,		6
76	Limitations and precision requirements for read-out of passive, linear, selectorless RRAM arrays **2015**,		5
75	Bidirectional Volatile Signatures of Metal Oxide Memristors Part I: Characterization. *IEEE Transactions on Electron Devices*, **2020**, 67, 5158-5165	2.9	5
74	A TiO2 ReRAM parameter extraction method **2017**,		5
73	Temporal processing with volatile memristors **2013**,		5
72	Practical micro/nano fabrication implementations of memristive devices **2010**,		5
71	Computing Image and Motion with 3-D Memristive Grids **2014**, 553-583		5
70	Electrochemical metallization ReRAMs (ECM) - Experiments and modelling: general discussion. *Faraday Discussions*, **2019**, 213, 115-150	3.6	4
69	Design considerations for a CMOS Lab-on-Chip microheater array to facilitate the in vitro thermal stimulation of neurons **2014**,		4
68	Volatility Characterization for RRAM Devices. *IEEE Electron Device Letters*, **2017**, 38, 28-31	4.4	4
67	Live demonstration: A TiO2 ReRAM parameter extraction method **2017**,		4
66	TWO CENTURIES OF MEMRISTORS **2013**, 508-517		4
65	Effect of mobile ionic-charge on CMOS based ion-sensitive field-effect transistors (ISFETs) **2009**,		4
64	Live demonstration: A CMOS-based lab-on-chip array for combined magnetic manipulation and opto-chemical sensing **2011**,		4

63	Review□Progress in Electrolytes for Rechargeable Aluminium Batteries. *Journal of the Electrochemical Society*, **2021**, 168, 056509	3.9	4
62	The Lab-on-PCB framework for affordable, electronic-based point-of-care diagnostics: From design to manufacturing **2016**,		4
61	A PCB-based electronic ELISA system for rapid, portable infectious disease diagnosis **2016**,		4
60	A TiO2-based volatile threshold switching selector device with 107 non linearity and sub 100 pA Off current **2016**,		4
59	Conduction channel configuration controlled digital and analog□response in TiO2-based inorganic memristive artificial synapses. *APL Materials*, **2021**, 9, 121103	5.7	4
58	Impact of active areas on electrical characteristics of TiO2 based solid-state memristors **2015**,		3
57	Metal Oxide-enabled Reconfigurable Memristive Threshold Logic Gates **2018**,		3
56	Applications of solid-state memristors in tunable filters **2014**,		3
55	Resistive switching characteristics of indium-tin-oxide thin film devices. *Physica Status Solidi (A) Applications and Materials Science*, **2014**, 211, 1194-1199	1.6	3
54	Application of Maxwell□Wagner polarization in delay lines. *Microelectronics Journal*, **2010**, 41, 17-24	1.8	3
53	Towards a microstrip antenna on synthetic high-dielectric constant substrates		3
52	Tissue engineering techniques in cardiac repair and disease modelling. *Current Pharmaceutical Design*, **2014**, 20, 2048-56	3.3	3
51	Monitoring PSA levels as chemical state-variables in metal-oxide memristors. *Scientific Reports*, **2020**, 10, 15281	4.9	3
50	Formation and Stability of Smooth Thin Films with Soft Microgels Made of Poly(-Isopropylacrylamide) and Poly(Acrylic Acid). *Polymers*, **2020**, 12,	4.5	3
49	Bidirectional Volatile Signatures of Metal-Oxide Memristors□Part II: Modeling. *IEEE Transactions on Electron Devices*, **2020**, 67, 5166-5173	2.9	3
48	Surface Acoustic Wave Resonators for Wireless Sensor Network Applications in the 433.92 MHz ISM Band. *Sensors*, **2020**, 20,	3.8	3
47	An Embedded Environmental Control Micro-chamber System for RRAM Memristor Characterisation **2018**,		3
46	Advances in Organic and Perovskite Photovoltaics Enabling a Greener Internet of Things. *Advanced Functional Materials*,2200694	15.6	3

45	Correlated resistive/capacitive state variability in solid TiO2 based memory devices. *Applied Physics A: Materials Science and Processing*, **2017**, 123, 1	2.6	2
44	Towards a smartphone-aided electronic ELISA for real-time electrochemical monitoring **2017**,		2
43	Structured Culture Scaffolds Improve the Calcium Handling Properties of Cardiomyocytes Differentiated from Induced Pluripotent Stem Cells. *Biophysical Journal*, **2012**, 102, 103a	2.9	2
42	Low-cost implementations of pH monitoring platforms **2011**,		2
41	Microstrip stepped impedance lowpass filters based on the maxwell-wagner polarization mechanism **2008**,		2
40	Negative effect of cations out-diffusion and auto-doping on switching mechanisms of transparent memristor devices employing ZnO/ITO heterostructure. *Applied Physics Letters*, **2021**, 118, 173502	3.4	2
39	A planar micro-magnetic platform for stimulation of neural cells in vitro **2016**,		2
38	Towards a memristor-based spike-sorting platform **2016**,		2
37	Formation of a ternary oxide barrier layer and its role in switching characteristic of ZnO-based conductive bridge random access memory devices. *APL Materials*, **2022**, 10, 031103	5.7	2
36	A memristor-CMOS hybrid architecture concept for on-line template matching **2017**,		1
35	Spike sorting using non-volatile metal-oxide memristors. *Faraday Discussions*, **2019**, 213, 511-520	3.6	1
34	Synaptic and neuromorphic functions: general discussion. *Faraday Discussions*, **2019**, 213, 553-578	3.6	1
33	Microstructured hybrid scaffolds for aligning neonatal rat ventricular myocytes. *Materials Science and Engineering C*, **2019**, 103, 109783	8.3	1
32	Modular Pressure and Flow Rate-Balanced Microfluidic Serial Dilution Networks for Miniaturised Point-of-Care Diagnostic Platforms. *Sensors*, **2019**, 19,	3.8	1
31	UV induced resistive switching in hybrid polymer metal oxide memristors. *Scientific Reports*, **2020**, 10, 21130	4.9	1
30	Electrothermal deterioration factors in gold planar inductors designed for microscale bio-applications. *Microelectronic Engineering*, **2018**, 197, 61-66	2.5	1
29	A Sub-30 mpH Resolution Thin Film Transistor-Based Nanoribbon Biosensing Platform. *Sensors*, **2017**, 17,	3.8	1
28	Towards a high-precision, embedded system for versatile sensitive biosensing measurements **2015**,		1

27	Qualitative SPICE modeling accounting for volatile dynamics of TiO2 memristors **2014**,		1
26	**2014**,		1
25	Thermal Effects on Initial Volatile Response and Relaxation Dynamics of Resistive RAM Devices. *IEEE Electron Device Letters*, **2022**, 1-1	4.4	1
24	Design Flow for Hybrid CMOS/Memristor Systems--Part II: Circuit Schematics and Layout. *IEEE Transactions on Circuits and Systems I: Regular Papers*, **2021**, 1-13	3.9	1
23	Design Flow for Hybrid CMOS/Memristor Systems--Part I: Modeling and Verification Steps. *IEEE Transactions on Circuits and Systems I: Regular Papers*, **2021**, 1-14	3.9	1
22	Technology agnostic frequency characterization methodology for memristors. *Scientific Reports*, **2021**, 11, 20599	4.9	1
21	Practical operation considerations for memristive integrating sensors **2016**,		1
20	Compact Modeling of the Switching Dynamics and Temperature Dependencies in TiOx MemristorsPart II: Physics-Based Model. *IEEE Transactions on Electron Devices*, **2021**, 68, 4885-4890	2.9	1
19	Computing Image and Motion with 3-D Memristive Grids **2019**, 1177-1210		0
18	A semi-holographic hyperdimensional representation system for hardware-friendly cognitive computing. *Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences*, **2020**, 378, 20190162	3	0
17	Practical demonstration of a RRAM memory fuse. *International Journal of Circuit Theory and Applications*, **2021**, 49, 2363	2	0
16	Frequency Response of Metal-Oxide Memristors. *IEEE Transactions on Electron Devices*, **2021**, 68, 3636-3642	2.9	0
15	Compact Modeling of the Switching Dynamics and Temperature Dependencies in TiOx-Based MemristorsPart I: Behavioral Model. *IEEE Transactions on Electron Devices*, **2021**, 68, 4877-4884	2.9	0
14	Introducing the nanoworld. *Nature Nanotechnology*, **2017**, 12, 832	28.7	
13	Guest Editorial Solid-state Memristive Devices and Systems. *IEEE Journal on Emerging and Selected Topics in Circuits and Systems*, **2015**, 5, 121-122	5.2	
12	P396Improved calcium cycling is associated with microtubule reorganisation in anisotropic cardiomyocyte cultures. *Cardiovascular Research*, **2014**, 103, S73.1-S73	9.9	
11	Sensing H+ with conventional neural probes. *Applied Physics Letters*, **2013**, 102, 223506	3.4	
10	Surface texturing for Maxwell–Wagner polarisation engineering. *Micro and Nano Letters*, **2009**, 4, 5-8	0.9	

List of Publications

9	Application of gold nanodots for Maxwell–Wagner loss reduction. *Micro and Nano Letters*, **2009**, 4, 80-83	0.9
8	Interfacial polarisation on gallium arsenide membranes. *Micro and Nano Letters*, **2010**, 5, 178	0.9
7	An Experimental Technique for Characterizing Slow-Wave Characteristics of MIS-Like Transmission Lines Using Aqueous Dielectrics. *IEEE Transactions on Microwave Theory and Techniques*, **2010**, 58, 985-993	4.1
6	Computing Shortest Paths in 2D and 3D Memristive Networks **2019**, 1161-1176	
5	Poster: Memristive Systems523-587	
4	Nanosession: Neuromorphic Concepts197-206	
3	ZrOX insertion layer enhanced switching and synaptic performances of TiOX-based memristive devices. *IOP Conference Series: Materials Science and Engineering*, **2021**, 1034, 012142	0.4
2	Band tailoring by annealing and current conduction of Co-doped ZnO transparent resistive switching memory. *IOP Conference Series: Materials Science and Engineering*, **2021**, 1034, 012140	0.4
1	Conduction mechanism of Co-doped ZnO transparent memristive devices. *IOP Conference Series: Materials Science and Engineering*, **2021**, 1034, 012139	0.4