Manuel Le Gallo

List of Publications by Citations

60 papers	3,768 citations	24 h-index	61 g-index
74 ext. papers	5,324 ext. citations	11.9 avg, IF	6.07 L-index

#	Paper	IF	Citations
60	Stochastic phase-change neurons. *Nature Nanotechnology*, **2016**, 11, 693-9	28.7	568
59	Neuromorphic computing using non-volatile memory. *Advances in Physics: X*, **2017**, 2, 89-124	5.1	424
58	Memory devices and applications for in-memory computing. *Nature Nanotechnology*, **2020**, 15, 529-544	28.7	373
57	Neuromorphic computing with multi-memristive synapses. *Nature Communications*, **2018**, 9, 2514	17.4	352
56	Mixed-precision in-memory computing. *Nature Electronics*, **2018**, 1, 246-253	28.4	191
55	Parallel convolutional processing using an integrated photonic tensor core. *Nature*, **2021**, 589, 52-58	50.4	177
54	Monatomic phase change memory. *Nature Materials*, **2018**, 17, 681-685	27	165
53	Crystal growth within a phase change memory cell. *Nature Communications*, **2014**, 5, 4314	17.4	163
52	Temporal correlation detection using computational phase-change memory. *Nature Communications*, **2017**, 8, 1115	17.4	129
51	In-memory computing on a photonic platform. *Science Advances*, **2019**, 5, eaau5759	14.3	120
50	Tutorial: Brain-inspired computing using phase-change memory devices. *Journal of Applied Physics*, **2018**, 124, 111101	2.5	118
49	Accurate deep neural network inference using computational phase-change memory. *Nature Communications*, **2020**, 11, 2473	17.4	111
48	An overview of phase-change memory device physics. *Journal Physics D: Applied Physics*, **2020**, 53, 213002	3	81
47	Evidence for thermally assisted threshold switching behavior in nanoscale phase-change memory cells. *Journal of Applied Physics*, **2016**, 119, 025704	2.5	65
46	In-memory hyperdimensional computing. *Nature Electronics*, **2020**, 3, 327-337	28.4	52
45	A phase-change memory model for neuromorphic computing. *Journal of Applied Physics*, **2018**, 124, 152135	2.5	52
44	Detecting Correlations Using Phase-Change Neurons and Synapses. *IEEE Electron Device Letters*, **2016**, 37, 1238-1241	4.4	44

43	Collective Structural Relaxation in Phase-Change Memory Devices. *Advanced Electronic Materials*, **2018**, 4, 1700627	6.4	44
42	Subthreshold electrical transport in amorphous phase-change materials. *New Journal of Physics*, **2015**, 17, 093035	2.9	43
41	Computational phase-change memory: beyond von Neumann computing. *Journal Physics D: Applied Physics*, **2019**, 52, 443002	3	41
40	Compressed Sensing With Approximate Message Passing Using In-Memory Computing. *IEEE Transactions on Electron Devices*, **2018**, 65, 4304-4312	2.9	41
39	Mixed-Precision Deep Learning Based on Computational Memory. *Frontiers in Neuroscience*, **2020**, 14, 406	5.1	31
38	Mixed-precision architecture based on computational memory for training deep neural networks **2018**,		31
37	8-bit Precision In-Memory Multiplication with Projected Phase-Change Memory **2018**,		26
36	2022 roadmap on neuromorphic computing and engineering. *Neuromorphic Computing and Engineering*,		24
35	Memristive technologies for data storage, computation, encryption, and radio-frequency communication. *Science*, **2022**, 376,	33.3	24
34	High-field electrical transport in amorphous phase-change materials. *Journal of Applied Physics*, **2015**, 118, 135707	2.5	23
33	Experimental Demonstration of Supervised Learning in Spiking Neural Networks with Phase-Change Memory Synapses. *Scientific Reports*, **2020**, 10, 8080	4.9	20
32	A collective relaxation model for resistance drift in phase change memory cells **2015**,		18
31	Robust high-dimensional memory-augmented neural networks. *Nature Communications*, **2021**, 12, 2468	17.4	15
30	HERMES Core A 14nm CMOS and PCM-based In-Memory Compute Core using an array of 300ps/LSB Linearized CCO-based ADCs and local digital processing **2021**,		15
29	Inherent stochasticity in phase-change memory devices **2016**,		13
28	Compressed sensing recovery using computational memory **2017**,		13
27	A Flexible and Fast PyTorch Toolkit for Simulating Training and Inference on Analog Crossbar Arrays **2021**,		13
26	Stochastic weight updates in phase-change memory-based synapses and their influence on artificial neural networks **2017**,		12

25	Applications of Computation-In-Memory Architectures based on Memristive Devices **2019**,		11
24	Memristive effects in oxygenated amorphous carbon nanodevices. *Nanotechnology*, **2018**, 29, 035201	3.4	10
23	Deep learning acceleration based on in-memory computing. *IBM Journal of Research and Development*, **2019**, 63, 7:1-7:16	2.5	9
22	State dependence and temporal evolution of resistance in projected phase change memory. *Scientific Reports*, **2020**, 10, 8248	4.9	8
21	Computational memory-based inference and training of deep neural networks **2019**,		7
20	Supervised learning in spiking neural networks with MLC PCM synapses **2017**,		7
19	HERMES-Core--A 1.59-TOPS/mm PCM on 14-nm CMOS In-Memory Compute Core Using 300-ps/LSB Linearized CCO-Based ADCs. *IEEE Journal of Solid-State Circuits*, **2022**, 1-1	5.5	6
18	The complete time/temperature dependence of I-V drift in PCM devices **2016**,		6
17	In-Memory Database Query. *Advanced Intelligent Systems*, **2020**, 2, 2000141	6	5
16	Fatiguing STDP: Learning from spike-timing codes in the presence of rate codes **2017**,		5
15	Precision of synaptic weights programmed in phase-change memory devices for deep learning inference **2020**,		5
14	Mushroom-Type phase change memory with projection liner: An array-level demonstration of conductance drift and noise mitigation **2021**,		5
13	Impact of conductance drift on multi-PCM synaptic architectures **2018**,		5
12	Multi-ReRAM Synapses for Artificial Neural Network Training **2019**,		4
11	BIGT control optimisation for overall loss reduction **2013**,		4
10	Measurement of Onset of Structural Relaxation in Melt-Quenched Phase Change Materials. *Advanced Functional Materials*, **2021**, 31, 2104422	15.6	4
9	Experimental validation of state equations and dynamic route maps for phase change memristive devices.. *Scientific Reports*, **2022**, 12, 6488	4.9	3
8	Phase-change memory **2020**, 63-96		2

List of Publications

7	A finite-element thermoelectric model for phase-change memory devices **2015**,		2
6	Energy Efficient In-Memory Hyperdimensional Encoding for Spatio-Temporal Signal Processing. *IEEE Transactions on Circuits and Systems II: Express Briefs*, **2021**, 68, 1725-1729	3.5	2
5	Phase-Change Memory Models for Deep Learning Training and Inference **2019**,		2
4	Training Neural Networks using Memristive Devices with Nonlinear Accumulative Behavior **2019**,		1
3	MNEMOSENE: Tile Architecture and Simulator for Memristor-based Computation-in-memory. *ACM Journal on Emerging Technologies in Computing Systems*, **2022**, 18, 1-24	1.7	1
2	A Multi-Memristive Unit-Cell Array with Diagonal Interconnects for In-Memory Computing. *IEEE Transactions on Circuits and Systems II: Express Briefs*, **2021**, 1-1	3.5	1
1	Mechanism and Impact of Bipolar Current Voltage Asymmetry in Computational Phase-Change Memory.. *Advanced Materials*, **2022**, e2201238	24	1