# Manuel Le Gallo

## List of Publications by Year in Descending Order



| | | | |
|---|---|---|---|
| 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 | 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 |
| 59 | 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 |
| 58 | Experimental validation of state equations and dynamic route maps for phase change memristive devices.. *Scientific Reports*, **2022**, 12, 6488 | 4.9 | 3 |
| 57 | Mechanism and Impact of Bipolar Current Voltage Asymmetry in Computational Phase-Change Memory.. *Advanced Materials*, **2022**, e2201238 | 24 | 1 |
| 56 | Memristive technologies for data storage, computation, encryption, and radio-frequency communication. *Science*, **2022**, 376, | 33.3 | 24 |
| 55 | Mushroom-Type phase change memory with projection liner: An array-level demonstration of conductance drift and noise mitigation **2021**, | | 5 |
| 54 | Robust high-dimensional memory-augmented neural networks. *Nature Communications*, **2021**, 12, 2468 | 17.4 | 15 |
| 53 | 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 |
| 52 | 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 |
| 51 | Measurement of Onset of Structural Relaxation in Melt-Quenched Phase Change Materials. *Advanced Functional Materials*, **2021**, 31, 2104422 | 15.6 | 4 |
| 50 | A Flexible and Fast PyTorch Toolkit for Simulating Training and Inference on Analog Crossbar Arrays **2021**, | | 13 |
| 49 | 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 |
| 48 | Parallel convolutional processing using an integrated photonic tensor core. *Nature*, **2021**, 589, 52-58 | 50.4 | 177 |
| 47 | In-Memory Database Query. *Advanced Intelligent Systems*, **2020**, 2, 2000141 | 6 | 5 |
| 46 | Accurate deep neural network inference using computational phase-change memory. *Nature Communications*, **2020**, 11, 2473 | 17.4 | 111 |
| 45 | Mixed-Precision Deep Learning Based on Computational Memory. *Frontiers in Neuroscience*, **2020**, 14, 406 | 5.1 | 31 |
| 44 | State dependence and temporal evolution of resistance in projected phase change memory. *Scientific Reports*, **2020**, 10, 8248 | 4.9 | 8 |

| | | | |
|---|---|---|---|
| 43 | In-memory hyperdimensional computing. *Nature Electronics*, **2020**, 3, 327-337 | 28.4 | 52 |
| 42 | Experimental Demonstration of Supervised Learning in Spiking Neural Networks with Phase-Change Memory Synapses. *Scientific Reports*, **2020**, 10, 8080 | 4.9 | 20 |
| 41 | Memory devices and applications for in-memory computing. *Nature Nanotechnology*, **2020**, 15, 529-544 | 28.7 | 373 |
| 40 | Phase-change memory **2020**, 63-96 | | 2 |
| 39 | An overview of phase-change memory device physics. *Journal Physics D: Applied Physics*, **2020**, 53, 213002 | 3 | 81 |
| 38 | Precision of synaptic weights programmed in phase-change memory devices for deep learning inference **2020**, | | 5 |
| 37 | Deep learning acceleration based on in-memory computing. *IBM Journal of Research and Development*, **2019**, 63, 7:1-7:16 | 2.5 | 9 |
| 36 | Applications of Computation-In-Memory Architectures based on Memristive Devices **2019**, | | 11 |
| 35 | Multi-ReRAM Synapses for Artificial Neural Network Training **2019**, | | 4 |
| 34 | In-memory computing on a photonic platform. *Science Advances*, **2019**, 5, eaau5759 | 14.3 | 120 |
| 33 | Computational phase-change memory: beyond von Neumann computing. *Journal Physics D: Applied Physics*, **2019**, 52, 443002 | 3 | 41 |
| 32 | Computational memory-based inference and training of deep neural networks **2019**, | | 7 |
| 31 | Training Neural Networks using Memristive Devices with Nonlinear Accumulative Behavior **2019**, | | 1 |
| 30 | Phase-Change Memory Models for Deep Learning Training and Inference **2019**, | | 2 |
| 29 | Mixed-precision in-memory computing. *Nature Electronics*, **2018**, 1, 246-253 | 28.4 | 191 |
| 28 | Collective Structural Relaxation in Phase-Change Memory Devices. *Advanced Electronic Materials*, **2018**, 4, 1700627 | 6.4 | 44 |
| 27 | Neuromorphic computing with multi-memristive synapses. *Nature Communications*, **2018**, 9, 2514 | 17.4 | 352 |
| 26 | Mixed-precision architecture based on computational memory for training deep neural networks **2018**, | | 31 |

| | | | |
|---|---|---|---|
| 25 | Monatomic phase change memory. *Nature Materials*, **2018**, 17, 681-685 | 27 | 165 |
| 24 | Memristive effects in oxygenated amorphous carbon nanodevices. *Nanotechnology*, **2018**, 29, 035201 | 3.4 | 10 |
| 23 | Impact of conductance drift on multi-PCM synaptic architectures **2018**, | | 5 |
| 22 | 8-bit Precision In-Memory Multiplication with Projected Phase-Change Memory **2018**, | | 26 |
| 21 | A phase-change memory model for neuromorphic computing. *Journal of Applied Physics*, **2018**, 124, 152135 | 2.5 | 52 |
| 20 | Tutorial: Brain-inspired computing using phase-change memory devices. *Journal of Applied Physics*, **2018**, 124, 111101 | 2.5 | 118 |
| 19 | Compressed Sensing With Approximate Message Passing Using In-Memory Computing. *IEEE Transactions on Electron Devices*, **2018**, 65, 4304-4312 | 2.9 | 41 |
| 18 | Neuromorphic computing using non-volatile memory. *Advances in Physics: X*, **2017**, 2, 89-124 | 5.1 | 424 |
| 17 | Temporal correlation detection using computational phase-change memory. *Nature Communications*, **2017**, 8, 1115 | 17.4 | 129 |
| 16 | Stochastic weight updates in phase-change memory-based synapses and their influence on artificial neural networks **2017**, | | 12 |
| 15 | Fatiguing STDP: Learning from spike-timing codes in the presence of rate codes **2017**, | | 5 |
| 14 | Compressed sensing recovery using computational memory **2017**, | | 13 |
| 13 | Supervised learning in spiking neural networks with MLC PCM synapses **2017**, | | 7 |
| 12 | Detecting Correlations Using Phase-Change Neurons and Synapses. *IEEE Electron Device Letters*, **2016**, 37, 1238-1241 | 4.4 | 44 |
| 11 | Inherent stochasticity in phase-change memory devices **2016**, | | 13 |
| 10 | The complete time/temperature dependence of I-V drift in PCM devices **2016**, | | 6 |
| 9 | Evidence for thermally assisted threshold switching behavior in nanoscale phase-change memory cells. *Journal of Applied Physics*, **2016**, 119, 025704 | 2.5 | 65 |
| 8 | Stochastic phase-change neurons. *Nature Nanotechnology*, **2016**, 11, 693-9 | 28.7 | 568 |

# List of Publications

| | | | |
|---|---|---|---|
| 7 | A collective relaxation model for resistance drift in phase change memory cells **2015**, | | 18 |
| 6 | High-field electrical transport in amorphous phase-change materials. *Journal of Applied Physics*, **2015**, 118, 135707 | 2.5 | 23 |
| 5 | Subthreshold electrical transport in amorphous phase-change materials. *New Journal of Physics*, **2015**, 17, 093035 | 2.9 | 43 |
| 4 | A finite-element thermoelectric model for phase-change memory devices **2015**, | | 2 |
| 3 | Crystal growth within a phase change memory cell. *Nature Communications*, **2014**, 5, 4314 | 17.4 | 163 |
| 2 | BIGT control optimisation for overall loss reduction **2013**, | | 4 |
| 1 | 2022 roadmap on neuromorphic computing and engineering. *Neuromorphic Computing and Engineering*, | | 24 |