

Sangbum Kim

List of Publications by Year in descending order

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72
papers

4,251
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361413

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docs citations

74
times ranked

4063
citing authors

#	ARTICLE	IF	CITATIONS
1	Pattern Training, Inference, and Regeneration Demonstration Using On-Chip Trainable Neuromorphic Chips for Spiking Restricted Boltzmann Machine. <i>Advanced Intelligent Systems</i> , 2022, 4, .	6.1	3
2	Cluster-type analogue memristor by engineering redox dynamics for high-performance neuromorphic computing. <i>Nature Communications</i> , 2022, 13, .	12.8	26
3	Analysis of Effect of Weight Variation on SNN Chip with PCM-Refresh Method. <i>Neural Processing Letters</i> , 2021, 53, 1741-1751.	3.2	4
4	Nanofiber Channel Organic Electrochemical Transistors for Low-Power Neuromorphic Computing and Wide-Bandwidth Sensing Platforms. <i>Advanced Science</i> , 2021, 8, 2001544.	11.2	42
5	Elucidating Ionic Programming Dynamics of Metal-Oxide Electrochemical Memory for Neuromorphic Computing. <i>Advanced Electronic Materials</i> , 2021, 7, 2100185.	5.1	20
6	Catalyze Materials Science with Machine Learning. , 2021, 3, 1151-1171.		28
7	Elucidating Ionic Programming Dynamics of Metal-Oxide Electrochemical Memory for Neuromorphic Computing (<i>Adv. Electron. Mater.</i> 8/2021). <i>Advanced Electronic Materials</i> , 2021, 7, 2170034.	5.1	0
8	1/f noise in amorphous Sb ₂ Te ₃ for energy-efficient stochastic synapses in neuromorphic computing. <i>Semiconductor Science and Technology</i> , 2021, 36, 124001.	2.0	4
9	Simulation-based analysis of novel phase change memory structure with separated program and read paths for low program current and endurance enhancement. <i>Materials Science in Semiconductor Processing</i> , 2021, 134, 105987.	4.0	2
10	Modeling of void formation in phase change memory devices. <i>Solid-State Electronics</i> , 2020, 164, 107684.	1.4	5
11	Analog Coding in Emerging Memory Systems. <i>Scientific Reports</i> , 2020, 10, 6831.	3.3	3
12	Dual-Phase All-Inorganic Cesium Halide Perovskites for Conducting-Bridge Memory-Based Artificial Synapses. <i>Advanced Functional Materials</i> , 2019, 29, 1906686.	14.9	79
13	Phase-change memory cycling endurance. <i>MRS Bulletin</i> , 2019, 44, 710-714.	3.5	43
14	On-Chip Trainable 1.4M 6T2R PCM Synaptic Array with 1.6K Stochastic LIF Neurons for Spiking RBM. , 2019, , .		18
15	Training Large-Scale Spiking Neural Networks on Multi-core Neuromorphic System Using Backpropagation. <i>Lecture Notes in Computer Science</i> , 2019, , 185-194.	1.3	0
16	Self-Healing of a Confined Phase Change Memory Device with a Metallic Surfactant Layer. <i>Advanced Materials</i> , 2018, 30, 1705587.	21.0	69
17	Lightweight Refresh Method for PCM-based Neuromorphic Circuits. , 2018, , .		6
18	Reliability benefits of a metallic liner in confined PCM. , 2018, , .		6

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19	NVM Weight Variation Impact on Analog Spiking Neural Network Chip. Lecture Notes in Computer Science, 2018, , 676-685.	1.3	3
20	Tutorial: Brain-inspired computing using phase-change memory devices. Journal of Applied Physics, 2018, 124, .	2.5	206
21	Neuromorphic computing using non-volatile memory. Advances in Physics: X, 2017, 2, 89-124.	4.1	629
22	Spiking Neural Network with 256 Å— 256 PCM Array. , 2017, , 153-164.		0
23	A Resistance Drift Compensation Scheme to Reduce MLC PCM Raw BER by Over 100imes \$ for Storage Class Memory Applications. IEEE Journal of Solid-State Circuits, 2017, 52, 218-228.	5.4	15
24	(Invited) A Confined Phase Change Memory for M-Type Storage Class Memory. ECS Meeting Abstracts, 2017, , .	0.0	0
25	ALD-based confined PCM with a metallic liner toward unlimited endurance. , 2016, , .		51
26	Recent Progress in Phase-Change Memory Technology. IEEE Journal on Emerging and Selected Topics in Circuits and Systems, 2016, 6, 146-162.	3.6	273
27	A Phase Change Memory Cell With Metal Nitride Liner as a Resistance Stabilizer to Reduce Read Current Noise for MLC Optimization. IEEE Transactions on Electron Devices, 2016, 63, 3922-3927.	3.0	14
28	A Retention-Aware Multilevel Cell Phase Change Memory Program Evaluation Metric. IEEE Electron Device Letters, 2016, 37, 1422-1425.	3.9	5
29	A novel low power phase change memory using inter-granular switching. , 2016, , .		11
30	A Double-Data-Rate 2 (DDR2) Interface Phase-Change Memory with 533MB/s Read -Write Data Rate and 37.5ns Access Latency for Memory-Type Storage Class Memory Applications. , 2016, , .		6
31	Training a Probabilistic Graphical Model With Resistive Switching Electronic Synapses. IEEE Transactions on Electron Devices, 2016, 63, 5004-5011.	3.0	33
32	7.3 A resistance-drift compensation scheme to reduce MLC PCM raw BER by over 100Å— for storage-class memory applications. , 2016, , .		17
33	NVM neuromorphic core with 64k-cell (256-by-256) phase change memory synaptic array with on-chip neuron circuits for continuous in-situ learning. , 2015, , .		125
34	Crystalline-as-deposited ALD phase change material confined PCM cell for high density storage class memory. , 2015, , .		12
35	A novel self-converging write scheme for 2-bits/cell phase change memory for Storage Class Memory (SCM) application. , 2015, , .		13
36	A Procedure to Reduce Cell Variation in Phase Change Memory for Improving Multi-Level-Cell Performances. , 2015, , .		2

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37	Greater than 2-bits/cell MLC storage for ultra high density phase change memory using a novel sensing scheme. , 2015, , .		10
38	Capacity optimization of emerging memory systems: A shannon-inspired approach to device characterization. , 2014, , .		4
39	Towards the integration of both ROM and RAM functions phase change memory cells on a single die for system-on-chip (SOC) applications. , 2014, , .		1
40	A novel inspection and annealing procedure to rejuvenate phase change memory from cycling-induced degradations for storage class memory applications. , 2014, , .		16
41	Brain-like associative learning using a nanoscale non-volatile phase change synaptic device array. Frontiers in Neuroscience, 2014, 8, 205.	2.8	176
42	Phonon and electron transport through Ge ₂ Sb ₂ Te ₅ films and interfaces bounded by metals. Applied Physics Letters, 2013, 102, .	3.3	68
43	Atomic-level engineering of phase change material for novel fast-switching and high-endurance PCM for storage class memory application. , 2013, , .		19
44	A phase change memory cell with metallic surfactant layer as a resistance drift stabilizer. , 2013, , .		35
45	Experimental demonstration of array-level learning with phase change synaptic devices. , 2013, , .		35
46	A thermally robust phase change memory by engineering the Ge/N concentration in (Ge) _x (Te) _{1-x} GeTe ₂ / Overlock 10 Tf 50 382 Td (24)		24
47	The impact of melting during reset operation on the reliability of phase change memory. , 2012, , .		7
48	Transition of memory technologies. , 2012, , .		5
49	Optimization of programming current on endurance of phase change memory. , 2012, , .		5
50	Thermoelectric Characterization and Power Generation Using a Silicon-on-Insulator Substrate. Journal of Microelectromechanical Systems, 2012, 21, 4-6.	2.5	10
51	Post-silicon calibration of analog CMOS using phase-change memory cells. , 2011, , .		0
52	A low power phase change memory using thermally confined TaN/TiN bottom electrode. , 2011, , .		37
53	<i>In Situ</i> Transmission Electron Microscopy Observation of Nanostructural Changes in Phase-Change Memory. ACS Nano, 2011, 5, 2742-2748.	14.6	48
54	Recent Progress of Phase Change Memory (PCM) and Resistive Switching Random Access Memory (RRAM). , 2011, , .		6

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55	Resistance and Threshold Switching Voltage Drift Behavior in Phase-Change Memory and Their Temperature Dependence at Microsecond Time Scales Studied Using a Micro-Thermal Stage. IEEE Transactions on Electron Devices, 2011, 58, 584-592.	3.0	58
56	One-Dimensional Thickness Scaling Study of Phase Change Material $(\text{Ge}_{2}\text{Sb}_{2}\text{Te}_{5})$ Using a Pseudo 3-Terminal Device. IEEE Transactions on Electron Devices, 2011, 58, 1483-1489.	3.0	24
57	Microthermal Stage for Electrothermal Characterization of Phase-Change Memory. IEEE Electron Device Letters, 2011, 32, 952-954.	3.9	11
58	Phase Change Memory. Proceedings of the IEEE, 2010, 98, 2201-2227.	21.8	1,420
59	Recent progress of phase change memory (PCM) and resistive switching random access memory (RRAM). , 2010, , .		10
60	Oxygen migration in TiO ₂ -based higher-k gate stacks. Journal of Applied Physics, 2010, 107, 054102.	2.5	20
61	Decoupled thermal resistances of phase change material and their impact on PCM devices. , 2010, , .		3
62	Thermal Boundary Resistance Measurements for Phase-Change Memory Devices. IEEE Electron Device Letters, 2010, 31, 56-58.	3.9	105
63	Thermal disturbance and its impact on reliability of phase-change memory studied by the micro-thermal stage. , 2010, , .		26
64	Scaling the MOSFET gate dielectric: From high-k to higher-k? (Invited Paper). Microelectronic Engineering, 2009, 86, 1603-1608.	2.4	65
65	Measurement of anisotropy in the thermal conductivity of $\text{Ge}_{2}\text{Sb}_{2}\text{Te}_{5}$ films. , 2009, , .		1
66	1D thickness scaling study of phase change material ($\text{Ge}_{2}\text{Sb}_{2}\text{Te}_{5}$) using a pseudo 3-terminal device. , 2009, , .		12
67	Fabrication and characterization of emerging nanoscale memory. , 2009, , .		4
68	Integrating Phase-Change Memory Cell With Ge Nanowire Diode for Crosspoint Memory—Experimental Demonstration and Analysis. IEEE Transactions on Electron Devices, 2008, 55, 2307-2313.	3.0	20
69	Analysis of Temperature in Phase Change Memory Scaling. IEEE Electron Device Letters, 2007, 28, 697-699.	3.9	46
70	An Integrated Phase Change Memory Cell With Ge Nanowire Diode For Cross-Point Memory. , 2007, , .		33
71	Thickness and stoichiometry dependence of the thermal conductivity of GeSbTe films. Applied Physics Letters, 2007, 91, .	3.3	112
72	Generalized Phase Change Memory Scaling Rule Analysis. , 0, , .		1