

Jacques-Olivier Klein

List of Publications by Year in descending order

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153
papers

4,870
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94269

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all docs

156
docs citations

156
times ranked

2826
citing authors

#	ARTICLE	IF	CITATIONS
1	Implementation of Ternary Weights With Resistive RAM Using a Single Sense Operation Per Synapse. IEEE Transactions on Circuits and Systems I: Regular Papers, 2021, 68, 138-147.	3.5	5
2	Ultrafast and Energy-Efficient Ferrimagnetic XNOR Logic Gates for Binary Neural Networks. IEEE Electron Device Letters, 2021, 42, 621-624.	2.2	6
3	Model of the Weak Reset Process in HfO ₂ Resistive Memory for Deep Learning Frameworks. IEEE Transactions on Electron Devices, 2021, 68, 4925-4932.	1.6	3
4	In-Memory Resistive RAM Implementation of Binarized Neural Networks for Medical Applications. , 2020, , .		5
5	Embracing the Unreliability of Memory Devices for Neuromorphic Computing. , 2020, , .		1
6	Stochastic Computing for Hardware Implementation of Binarized Neural Networks. IEEE Access, 2019, 7, 76394-76403.	2.6	26
7	Efficient Magnetic Domain Nucleation and Domain Wall Motion With Voltage Control Magnetic Anisotropy Effect and Antiferromagnetic/Ferromagnetic Coupling. IEEE Transactions on Magnetics, 2019, 55, 1-4.	1.2	5
8	Contrasting Advantages of Learning With Random Weights and Backpropagation in Non-Volatile Memory Neural Networks. IEEE Access, 2019, 7, 73938-73953.	2.6	8
9	Compact Modeling of Perpendicular-Magnetic-Anisotropy Double-Barrier Magnetic Tunnel Junction With Enhanced Thermal Stability Recording Structure. IEEE Transactions on Electron Devices, 2019, 66, 2431-2436.	1.6	51
10	Proposal of Toggle Spin Torques Magnetic RAM for Ultrafast Computing. IEEE Electron Device Letters, 2019, 40, 726-729.	2.2	74
11	Implementing Binarized Neural Networks with Magnetoresistive RAM without Error Correction. , 2019, , .		10
12	Memory-Centric Neuromorphic Computing With Nanodevices. , 2019, , .		0
13	Ultra-Dense Ring-Shaped Racetrack Memory Cache Design. IEEE Transactions on Circuits and Systems I: Regular Papers, 2019, 66, 215-225.	3.5	31
14	A comprehensive compact model for the design of all-spin-logic based circuits. Microelectronics Journal, 2019, 92, 104442.	1.1	2
15	Digital Biologically Plausible Implementation of Binarized Neural Networks With Differential Hafnium Oxide Resistive Memory Arrays. Frontiers in Neuroscience, 2019, 13, 1383.	1.4	51
16	Large scale, high density integration of all spin logic. , 2018, , .		0
17	Proposal for Multi-Gate Spin Field-Effect Transistor. IEEE Transactions on Magnetics, 2018, 54, 1-5.	1.2	4
18	Multiscaled Simulation Methodology for Neuro-Inspired Circuits Demonstrated with an Organic Memristor. IEEE Transactions on Multi-Scale Computing Systems, 2018, 4, 822-832.	2.5	6

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19	Reliability-Enhanced Hybrid CMOS/MTJ Logic Circuit Architecture. IEEE Transactions on Magnetics, 2017, 53, 1-5.	1.2	18
20	Modeling for Spin-FET and Design of Spin-FET-Based Logic Gates. IEEE Transactions on Magnetics, 2017, 53, 1-6.	1.2	11
21	Reliability-Enhanced Separated Pre-Charge Sensing Amplifier for Hybrid CMOS/MTJ Logic Circuits. IEEE Transactions on Magnetics, 2017, 53, 1-5.	1.2	19
22	High Tunnel Magnetoresistance in Mo/CoFe/MgO Magnetic Tunnel Junction: A First-Principles Study. IEEE Transactions on Magnetics, 2017, 53, 1-4.	1.2	4
23	Gate-Driven Pure Spin Current in Graphene. Physical Review Applied, 2017, 8, .	1.5	39
24	Arithmetic Logic Unit based on all-spin logic devices. , 2017, , .		6
25	Offset Analysis and Design Optimization of a Dynamic Sense Amplifier for Resistive Memories. , 2017, , .		0
26	Partial spin absorption induced magnetization switching and its voltage-assisted improvement in an asymmetrical all spin logic device at the mesoscopic scale. Applied Physics Letters, 2017, 111, .	1.5	14
27	Spatio-temporal learning with arrays of analog nanosynapses. , 2017, , .		12
28	Failure Analysis in Magnetic Tunnel Junction Nanopillar with Interfacial Perpendicular Magnetic Anisotropy. Materials, 2016, 9, 41.	1.3	72
29	A recurrent crossbar of memristive nanodevices implements online novelty detection. , 2016, , .		0
30	Perspectives of Racetrack Memory for Large-Capacity On-Chip Memory: From Device to System. IEEE Transactions on Circuits and Systems I: Regular Papers, 2016, 63, 629-638.	3.5	18
31	A process-variation-resilient methodology of circuit design by using asymmetrical forward body bias in 28nm FDSOI. Microelectronics Reliability, 2016, 64, 26-30.	0.9	9
32	Exploiting the short-term to long-term plasticity transition in memristive nanodevice learning architectures. , 2016, , .		5
33	Read disturbance issue and design techniques for nanoscale STT-MRAM. Journal of Systems Architecture, 2016, 71, 2-11.	2.5	11
34	Physical Realization of a Supervised Learning System Built with Organic Memristive Synapses. Scientific Reports, 2016, 6, 31932.	1.6	47
35	All Spin Artificial Neural Networks Based on Compound Spintronic Synapse and Neuron. IEEE Transactions on Biomedical Circuits and Systems, 2016, 10, 828-836.	2.7	84
36	High-Speed, Low-Power, and Error-Free Asynchronous Write Circuit for STT-MRAM and Logic. IEEE Transactions on Magnetics, 2016, 52, 1-4.	1.2	14

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37	Spintronic logic design methodology based on spin Hall effect-driven magnetic tunnel junctions. Journal Physics D: Applied Physics, 2016, 49, 065008.	1.3	40
38	Compact Model of Dielectric Breakdown in Spin-Transfer Torque Magnetic Tunnel Junction. IEEE Transactions on Electron Devices, 2016, 63, 1762-1767.	1.6	132
39	Current-limiting challenges for all-spin logic devices. Scientific Reports, 2015, 5, 14905.	1.6	39
40	Magnetic non-volatile flip-flop with spin-Hall assistance. Physica Status Solidi - Rapid Research Letters, 2015, 9, 375-378.	1.2	33
41	Spintronic Devices as Key Elements for Energy-Efficient Neuroinspired Architectures. , 2015, , .		18
42	Analytical Macrospin Modeling of the Stochastic Switching Time of Spin-Transfer Torque Devices. IEEE Transactions on Electron Devices, 2015, 62, 164-170.	1.6	82
43	On-Chip Universal Supervised Learning Methods for Neuro-Inspired Block of Memristive Nanodevices. ACM Journal on Emerging Technologies in Computing Systems, 2015, 11, 1-20.	1.8	8
44	Approximate programming of magnetic memory elements for energy saving. , 2015, , .		1
45	Channel Modeling and Reliability Enhancement Design Techniques for STT-MRAM. , 2015, , .		1
46	Read disturbance issue for nanoscale STT-MRAM. , 2015, , .		9
47	Perpendicular-anisotropy magnetic tunnel junction switched by spin-Hall-assisted spin-transfer torque. Journal Physics D: Applied Physics, 2015, 48, 065001.	1.3	176
48	Yield and Reliability Improvement Techniques for Emerging Nonvolatile STT-MRAM. IEEE Journal on Emerging and Selected Topics in Circuits and Systems, 2015, 5, 28-39.	2.7	57
49	Peristaltic perpendicular-magnetic-anisotropy racetrack memory based on chiral domain wall motions. Journal Physics D: Applied Physics, 2015, 48, 105001.	1.3	10
50	Synchronous 8-bit Non-Volatile Full-Adder based on Spin Transfer Torque Magnetic Tunnel Junction. IEEE Transactions on Circuits and Systems I: Regular Papers, 2015, 62, 1757-1765.	3.5	50
51	Current-Induced Magnetic Switching for High-Performance Computing. , 2015, , 1-51.		3
52	High-Frequency Low-Power Magnetic Full-Adder Based on Magnetic Tunnel Junction With Spin-Hall Assistance. IEEE Transactions on Magnetics, 2015, 51, 1-4.	1.2	28
53	Compact thermal modeling of spin transfer torque magnetic tunnel junction. Microelectronics Reliability, 2015, 55, 1649-1653.	0.9	37
54	Ultrahigh Density Memristor Neural Crossbar for On-Chip Supervised Learning. IEEE Nanotechnology Magazine, 2015, 14, 954-962.	1.1	40

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55	Spin-Transfer Torque Magnetic Memory as a Stochastic Memristive Synapse for Neuromorphic Systems. IEEE Transactions on Biomedical Circuits and Systems, 2015, 9, 166-174.	2.7	332
56	Proposal for a graphene-based all-spin logic gate. Applied Physics Letters, 2015, 106, .	1.5	30
57	Reconfigurable Codesign of STT-MRAM Under Process Variations in Deeply Scaled Technology. IEEE Transactions on Electron Devices, 2015, 62, 1769-1777.	1.6	135
58	Compact Model of Subvolume MTJ and Its Design Application at Nanoscale Technology Nodes. IEEE Transactions on Electron Devices, 2015, 62, 2048-2055.	1.6	78
59	Robust magnetic full-adder with voltage sensing 2T/2MTJ cell. , 2015, , .		19
60	Full-adder circuit design based on all-spin logic device. , 2015, , .		12
61	Vortex-based spin transfer oscillator compact model for IC design. , 2015, , .		3
62	Supervised learning with organic memristor devices and prospects for neural crossbar arrays. , 2015, , .		12
63	Perspectives of racetrack memory based on current-induced domain wall motion: From device to system. , 2015, , .		6
64	Spintronics. ACM Journal on Emerging Technologies in Computing Systems, 2015, 12, 1-42.	1.8	83
65	Design Optimization and Analysis of Multicontext STT-MTJ/CMOS Logic Circuits. IEEE Nanotechnology Magazine, 2015, 14, 169-177.	1.1	29
66	Spin transfer torque memories and logic gates. , 2014, , .		0
67	A dynamic reference scheme to improve the sensing reliability of magnetic random access memory. , 2014, , .		2
68	Spintronics for low-power computing. , 2014, , .		16
69	Electro-grafted organic memristors: Properties and prospects for artificial neural networks based on STDP. , 2014, , .		9
70	A novel SEU-tolerant MRAM latch circuit based on C-element. , 2014, , .		5
71	On-chip supervised learning rule for ultra high density neural crossbar using memristor for synapse and neuron. , 2014, , .		6
72	Monte-Carlo Simulations of Magnetic Tunnel Junctions: From physics to application. , 2014, , .		1

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73	Sneak paths effects in CBRAM memristive devices arrays for spiking neural networks. , 2014, , .		3
74	Design and Analysis of Radiation Hardened Sensing Circuits for Spin Transfer Torque Magnetic Memory and Logic. IEEE Transactions on Nuclear Science, 2014, 61, 3258-3264.	1.2	20
75	Spin-transfer torque magnetic memory as a stochastic memristive synapse. , 2014, , .		39
76	Variation-Tolerant High-Reliability Sensing Scheme for Deep Submicrometer STT-MRAM. IEEE Transactions on Magnetics, 2014, 50, 1-4.	1.2	10
77	Nonvolatile Boolean Logic Block Based on Ferroelectric Tunnel Memristor. IEEE Transactions on Magnetics, 2014, 50, 1-4.	1.2	20
78	Synchronous Non-Volatile Logic Gate Design Based on Resistive Switching Memories. IEEE Transactions on Circuits and Systems I: Regular Papers, 2014, 61, 443-454.	3.5	90
79	Compact modelling of ferroelectric tunnel memristor and its use for neuromorphic simulation. Applied Physics Letters, 2014, 104, 053505.	1.5	32
80	Ultra Low Power Magnetic Flip-Flop Based on Checkpointing/Power Gating and Self-Enable Mechanisms. IEEE Transactions on Circuits and Systems I: Regular Papers, 2014, 61, 1755-1765.	3.5	79
81	A physics-based compact model of ferroelectric tunnel junction for memory and logic design. Journal Physics D: Applied Physics, 2014, 47, 045001.	1.3	24
82	Current induced perpendicular-magnetic-anisotropy racetrack memory with magnetic field assistance. Applied Physics Letters, 2014, 104, .	1.5	15
83	Variation-Tolerant and Disturbance-Free Sensing Circuit for Deep Nanometer STT-MRAM. IEEE Nanotechnology Magazine, 2014, 13, 1088-1092.	1.1	52
84	One-step majority-logic-decodable codes enable STT-MRAM for high speed working memories. , 2014, , .		3
85	Sneak paths effects in CBRAM memristive devices arrays for spiking neural networks. , 2014, , .		5
86	Compact model of magnetic tunnel junction with stochastic spin transfer torque switching for reliability analyses. Microelectronics Reliability, 2014, 54, 1774-1778.	0.9	89
87	Robust learning approach for neuro-inspired nanoscale crossbar architecture. ACM Journal on Emerging Technologies in Computing Systems, 2014, 10, 1-20.	1.8	24
88	On-chip supervised learning rule for ultra high density neural crossbar using memristor for synapse and neuron. , 2014, , .		6
89	DFSTT-MRAM: Dual Functional STT-MRAM Cell Structure for Reliability Enhancement and 3-D MLC Functionality. IEEE Transactions on Magnetics, 2014, 50, 1-7.	1.2	14
90	Ferroelectric tunnel memristor-based neuromorphic network with 1T1R crossbar architecture. , 2014, , .		16

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91	Separated Precharge Sensing Amplifier for Deep Submicrometer MTJ/CMOS Hybrid Logic Circuits. IEEE Transactions on Magnetics, 2014, 50, 1-5.	1.2	22
92	A radiation hardened hybrid spintronic/CMOS nonvolatile unit using magnetic tunnel junctions. Journal Physics D: Applied Physics, 2014, 47, 405003.	1.3	60
93	Design and analysis of crossbar architecture based on complementary resistive switching non-volatile memory cells. Journal of Parallel and Distributed Computing, 2014, 74, 2484-2496.	2.7	14
94	An overview of spin-based integrated circuits. , 2014, , .		17
95	Spintronics for low-power computing. , 2014, , .		5
96	Implementation of magnetic field assistance to current-induced perpendicular-magnetic-anisotropy racetrack memory. Journal of Applied Physics, 2014, 115, 17D509.	1.1	5
97	Write operation study of Co/BTO/LSMO ferroelectric tunnel junction. Journal of Applied Physics, 2013, 114, 044108.	1.1	11
98	Electrical Modeling of Stochastic Spin Transfer Torque Writing in Magnetic Tunnel Junctions for Memory and Logic Applications. IEEE Transactions on Magnetics, 2013, 49, 4375-4378.	1.2	74
99	A low-cost built-in error correction circuit design for STT-MRAM reliability improvement. Microelectronics Reliability, 2013, 53, 1224-1229.	0.9	43
100	Low Power Magnetic Full-Adder Based on Spin Transfer Torque MRAM. IEEE Transactions on Magnetics, 2013, 49, 4982-4987.	1.2	126
101	Multi-level cell Spin Transfer Torque MRAM based on stochastic switching. , 2013, , .		16
102	Emerging hybrid logic circuits based on non-volatile magnetic memories. , 2013, , .		1
103	Spin-electronics based logic fabrics. , 2013, , .		6
104	Racetrack memory based reconfigurable computing. , 2013, , .		11
105	Design study of efficient digital order-based STDP neuron implementations for extracting temporal features. , 2013, , .		8
106	Magnetic Adder Based on Racetrack Memory. IEEE Transactions on Circuits and Systems I: Regular Papers, 2013, 60, 1469-1477.	3.5	74
107	Neuromorphic function learning with carbon nanotube based synapses. Nanotechnology, 2013, 24, 384013.	1.3	37
108	Low power magnetic flip-flop based on checkpointing and self-enable mechanism. , 2013, , .		3

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109	Synchronous full-adder based on complementary resistive switching memory cells. , 2013, , .		3
110	High reliability sensing circuit for deep submicron spin transfer torque magnetic random access memory. Electronics Letters, 2013, 49, 1283-1285.	0.5	49
111	Compact modelling for Co/BTO/LSMO Ferroelectric Tunnel Junction. , 2013, , .		0
112	SPINTRONIC MEMORY-BASED RECONFIGURABLE COMPUTING. Spin, 2013, 03, 1340010.	0.6	5
113	Domain wall motion based magnetic adder. Electronics Letters, 2012, 48, 1049-1051.	0.5	18
114	MRAM crossbar based configurable logic block. , 2012, , .		9
115	High Density Spin-Transfer Torque (STT)-MRAM Based on Cross-Point Architecture. , 2012, , .		9
116	Cross-Point Architecture for Spin-Transfer Torque Magnetic Random Access Memory. IEEE Nanotechnology Magazine, 2012, 11, 907-917.	1.1	35
117	Ultra-High Density Content Addressable Memory Based on Current Induced Domain Wall Motion in Magnetic Track. IEEE Transactions on Magnetics, 2012, 48, 3219-3222.	1.2	41
118	Self-Enabled "Error-Free" Switching Circuit for Spin Transfer Torque MRAM and Logic. IEEE Transactions on Magnetics, 2012, 48, 2403-2406.	1.2	71
119	Nanodevice-based novel computing paradigms and the neuromorphic approach. , 2012, , .		27
120	Hardening Techniques for MRAM-Based Nonvolatile Latches and Logic. IEEE Transactions on Nuclear Science, 2012, 59, 1136-1141.	1.2	47
121	Failure and reliability analysis of STT-MRAM. Microelectronics Reliability, 2012, 52, 1848-1852.	0.9	192
122	Magnetic domain-wall racetrack memory for high density and fast data storage. , 2012, , .		15
123	Perpendicular-magnetic-anisotropy CoFeB racetrack memory. Journal of Applied Physics, 2012, 111, .	1.1	111
124	Compact Modeling of Perpendicular-Anisotropy CoFeB/MgO Magnetic Tunnel Junctions. IEEE Transactions on Electron Devices, 2012, 59, 819-826.	1.6	330
125	High Performance SoC Design Using Magnetic Logic and Memory. International Federation for Information Processing, 2012, , 10-33.	0.4	12
126	Design and Modeling of a Neuro-Inspired Learning Circuit Using Nanotube-Based Memory Devices. IEEE Transactions on Circuits and Systems I: Regular Papers, 2011, 58, 2172-2181.	3.5	12

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127	Design of MRAM based logic circuits and its applications. , 2011, , .		24
128	Robust neural logic block (NLB) based on memristor crossbar array. , 2011, , .		62
129	Design considerations and strategies for high-reliable STT-MRAM. Microelectronics Reliability, 2011, 51, 1454-1458.	0.9	99
130	A High-Reliability, Low-Power Magnetic Full Adder. IEEE Transactions on Magnetics, 2011, 47, 4611-4616.	1.2	84
131	Domain Wall Shift Register-Based Reconfigurable Logic. IEEE Transactions on Magnetics, 2011, 47, 2966-2969.	1.2	54
132	A compact model for magnetic tunnel junction (MTJ) switched by thermally assisted Spin transfer torque (TAS + STT). Nanoscale Research Letters, 2011, 6, 368.	3.1	37
133	A compact model of domain wall propagation for logic and memory design. Journal of Applied Physics, 2011, 109, .	1.1	29
134	Magnetic Look-Up Table (MLUT) Featuring Radiation Hardness, High Performance and Low Power. Lecture Notes in Computer Science, 2011, , 275-280.	1.0	4
135	Design of embedded MRAM macros for memory-in-logic applications. , 2010, , .		4
136	Design of TAS-MRAM prototype for NV embedded memory applications. , 2010, , .		8
137	Electrical simulation of learning stage in OG-CNTFET based neural crossbar. , 2010, , .		3
138	Hight fault tolerance in neural crossbar. , 2010, , .		6
139	Low power, high reliability magnetic flip-flop. Electronics Letters, 2010, 46, 1493.	0.5	29
140	Dynamic compact model of Spin-Transfer Torque based Magnetic Tunnel Junction (MTJ). , 2009, , .		50
141	Mixed analog-digital design of a learning nano-circuit for neuronal architectures. , 2008, , .		0
142	Synthesis methodology for magnetic domain wall logic. International Journal of Electronics, 2008, 95, 249-263.	0.9	4
143	Design and electrical simulation of on-chip neural learning based on nanocomponents. Electronics Letters, 2008, 44, 575.	0.5	9
144	Time comparison in image processing: APS sensors versus an artificial retina based vision system. Measurement Science and Technology, 2007, 18, 2817-2826.	1.4	3

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145	Architecture of neural synaptic array, design and simulation. , 2007, , .		1
146	Synthesis of Finite State Machines with Magnetic Domain Wall Logic. , 2007, , .		3
147	Image Processing Vision Systems: Standard Image Sensors Versus Retinas. IEEE Transactions on Instrumentation and Measurement, 2007, 56, 1675-1687.	2.4	13
148	VHDL Simulation of Magnetic Domain Wall Logic. IEEE Transactions on Magnetics, 2006, 42, 2754-2756.	1.2	5
149	A smart sensor-based vision system: implementation and evaluation. Journal Physics D: Applied Physics, 2006, 39, 1694-1705.	1.3	4
150	A Smart Sensor for Image Processing: Towards a System on Chip. , 2006, , .		8
151	A DSP-like analogue processing unit for smart image sensors. International Journal of Circuit Theory and Applications, 2002, 30, 595-609.	1.3	27
152	Chip-in-the-loop learning algorithm for Boltzmann machine. Electronics Letters, 1995, 31, 986-988.	0.5	4
153	Improved ARAM for PARIS, an original programmable vision chip. , 0, , .		5