

# Wang Kang

## List of Publications by Year in descending order

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152  
papers

6,848  
citations

76326

40  
h-index

64796

79  
g-index

153  
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153  
docs citations

153  
times ranked

3590  
citing authors

#	ARTICLE	IF	CITATIONS
1	Granularity-Driven Management for Reliable and Efficient Skyrmion Racetrack Memories. IEEE Transactions on Emerging Topics in Computing, 2023, 11, 95-111.	4.6	0
2	Surface acoustic wave controlled skyrmion-based synapse devices. Nanotechnology, 2022, 33, 115205.	2.6	9
3	A Novel Computing-in-Memory Platform Based on Hybrid Spintronic/CMOS Memory. IEEE Transactions on Electron Devices, 2022, 69, 1698-1705.	3.0	15
4	A Spintronic In-Memory Computing Network for Efficient Hamming Codec Implementation. IEEE Transactions on Circuits and Systems II: Express Briefs, 2022, 69, 2086-2090.	3.0	5
5	Novel Nonvolatile Lookup Table Design Based on Voltage-Controlled Spin Orbit Torque Memory. IEEE Transactions on Electron Devices, 2022, 69, 1677-1682.	3.0	1
6	Efficient and controllable magnetization switching induced by intermixing-enhanced bulk spin-orbit torque in ferromagnetic multilayers. Applied Physics Reviews, 2022, 9, .	11.3	13
7	Foreword Special Issue on Spintronics-Devices and Circuits. IEEE Transactions on Electron Devices, 2022, 69, 1622-1628.	3.0	0
8	Linear Error Correction Codec Implementation Based on an In-Memory Computing Architecture for Nonvolatile Memories. IEEE Transactions on Electron Devices, 2022, 69, 3455-3461.	3.0	3
9	Anomalous Thermal-Assisted Spin-Orbit Torque-Induced Magnetization Switching for Energy-Efficient Logic-in-Memory. ACS Nano, 2022, 16, 8264-8272.	14.6	9
10	A Mini Tutorial of Processing in Memory: From Principles, Devices to Prototypes. IEEE Transactions on Circuits and Systems II: Express Briefs, 2022, 69, 3044-3050.	3.0	3
11	Efficient Computation Reduction in Bayesian Neural Networks Through Feature Decomposition and Memorization. IEEE Transactions on Neural Networks and Learning Systems, 2021, 32, 1703-1712.	11.3	17
12	Design of an Area-Efficient Computing in Memory Platform Based on STT-MRAM. IEEE Transactions on Magnetics, 2021, 57, 1-4.	2.1	15
13	Magnetic skyrmions for unconventional computing. Materials Horizons, 2021, 8, 854-868.	12.2	74
14	A Survey of Test and Reliability Solutions for Magnetic Random Access Memories. Proceedings of the IEEE, 2021, 109, 149-169.	21.3	24
15	Toward Energy-Efficient STT-MRAM Design With Multi-Modes Reconfiguration. IEEE Transactions on Circuits and Systems II: Express Briefs, 2021, 68, 2633-2639.	3.0	9
16	Nonvolatile NULL Convention Logic Pipeline Using Magnetic Tunnel Junctions. IEEE Nanotechnology Magazine, 2021, 20, 703-707.	2.0	1
17	SpinLiM: Spin Orbit Torque Memory for Ternary Neural Networks Based on the Logic-in-Memory Architecture. , 2021, , .		6
18	3D Ferrimagnetic Device for Multi-Bit Storage and Efficient In-Memory Computing. IEEE Electron Device Letters, 2021, 42, 152-155.	3.9	8

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19	Experimental demonstration of voltage-gated spin-orbit torque switching in an antiferromagnet/ferromagnet structure. <i>Physical Review B</i> , 2021, 103, .	3.2	14
20	Exploiting Carbon Nanotube FET and Magnetic Tunneling Junction for Near-Memory-Computing Paradigm. <i>IEEE Transactions on Electron Devices</i> , 2021, 68, 1975-1979.	3.0	20
21	Ultrafast and Energy-Efficient Ferrimagnetic XNOR Logic Gates for Binary Neural Networks. <i>IEEE Electron Device Letters</i> , 2021, 42, 621-624.	3.9	6
22	Computing-in-Memory Paradigm Based on STT-MRAM with Synergetic Read/Write-Like Modes. , 2021, , .		2
23	HSC: A Hybrid Spin/CMOS Logic Based In-Memory Engine with Area-Efficient Mapping Strategy. , 2021, , .		0
24	Variability Study of Toggle Spin Torques Magnetic Random Access Memory. <i>IEEE Transactions on Magnetics</i> , 2021, 57, 1-5.	2.1	2
25	Spintronics for Energy- Efficient Computing: An Overview and Outlook. <i>Proceedings of the IEEE</i> , 2021, 109, 1398-1417.	21.3	112
26	Phase-change-assisted spin-transfer torque switching in perpendicular magnetic tunnel junctions. <i>Applied Physics Letters</i> , 2021, 119, .	3.3	22
27	Spintronic Computing-in-Memory Architecture Based on Voltage-Controlled Spin-Orbit Torque Devices for Binary Neural Networks. <i>IEEE Transactions on Electron Devices</i> , 2021, 68, 4944-4950.	3.0	13
28	A Computing-in-memory Scheme with Series Bit-cell in STT-MRAM for Efficient Multi-bit Analog Multiplication. , 2021, , .		3
29	A Novel High Performance and Energy Efficient NUCA Architecture for STT-MRAM LLCs With Thermal Consideration. <i>IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems</i> , 2020, 39, 803-815.	2.7	7
30	SPINBIS: Spintronics-Based Bayesian Inference System With Stochastic Computing. <i>IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems</i> , 2020, 39, 789-802.	2.7	12
31	Amplitude and frequency modulation based on memristor-controlled spin nano-oscillators. <i>Nanotechnology</i> , 2020, 31, 045202.	2.6	2
32	Skyrmion-electronics: writing, deleting, reading and processing magnetic skyrmions toward spintronic applications. <i>Journal of Physics Condensed Matter</i> , 2020, 32, 143001.	1.8	268
33	A Self-Timed Voltage-Mode Sensing Scheme With Successive Sensing and Checking for STT-MRAM. <i>IEEE Transactions on Circuits and Systems I: Regular Papers</i> , 2020, 67, 1602-1614.	5.4	29
34	An STT-MRAM based reconfigurable computing-in-memory architecture for general purpose computing. <i>CCF Transactions on High Performance Computing</i> , 2020, 2, 272-281.	1.7	5
35	PRISM: Energy-Efficient Polymorphic Operation Based on Spin-Orbit Torque Memory for Reconfigurable Computing. , 2020, , .		1
36	Efficient Time-Domain In-Memory Computing Based on TST-MRAM. , 2020, , .		4



#	ARTICLE	IF	CITATIONS
55	Modulation of Heavy Metal/Ferromagnetic Metal Interface for High-Performance Spintronic Devices. <i>Advanced Electronic Materials</i> , 2019, 5, 1900134.	5.1	64
56	Efficient Magnetic Domain Nucleation and Domain Wall Motion With Voltage Control Magnetic Anisotropy Effect and Antiferromagnetic/Ferromagnetic Coupling. <i>IEEE Transactions on Magnetics</i> , 2019, 55, 1-4.	2.1	5
57	CORN: In-Buffer Computing for Binary Neural Network. , 2019, , .		11
58	DASM: Data-Streaming-Based Computing in Nonvolatile Memory Architecture for Embedded System. <i>IEEE Transactions on Very Large Scale Integration (VLSI) Systems</i> , 2019, 27, 2046-2059.	3.1	13
59	Compact Model for Negative Capacitance Enhanced Spintronics Devices. <i>IEEE Transactions on Electron Devices</i> , 2019, 66, 2795-2801.	3.0	4
60	Spintronic Processing Unit Within Voltage-Gated Spin Hall Effect MRAMs. <i>IEEE Nanotechnology Magazine</i> , 2019, 18, 473-483.	2.0	24
61	Skyrmion-Induced Memristive Magnetic Tunnel Junction for Ternary Neural Network. <i>IEEE Journal of the Electron Devices Society</i> , 2019, 7, 529-533.	2.1	13
62	Compact Modeling of Perpendicular-Magnetic-Anisotropy Double-Barrier Magnetic Tunnel Junction With Enhanced Thermal Stability Recording Structure. <i>IEEE Transactions on Electron Devices</i> , 2019, 66, 2431-2436.	3.0	51
63	Proposal of Toggle Spin Torques Magnetic RAM for Ultrafast Computing. <i>IEEE Electron Device Letters</i> , 2019, 40, 726-729.	3.9	74
64	Spintronic Processing Unit in Spin Transfer Torque Magnetic Random Access Memory. <i>IEEE Transactions on Electron Devices</i> , 2019, 66, 2017-2022.	3.0	50
65	Sky-RAM: Skyrmionic Random Access Memory. <i>IEEE Electron Device Letters</i> , 2019, 40, 722-725.	3.9	7
66	Novel Radiation Hardening Read/Write Circuits Using Feedback Connections for Spin-Orbit Torque Magnetic Random Access Memory. <i>IEEE Transactions on Circuits and Systems I: Regular Papers</i> , 2019, 66, 1853-1862.	5.4	16
67	Ring-shaped content addressable memory based on spin orbit torque driven chiral domain wall motions. , 2019, , .		0
68	Spintronic Memories: From Memory to Computing-in-Memory. , 2019, , .		5
69	Ultra-Dense Ring-Shaped Racetrack Memory Cache Design. <i>IEEE Transactions on Circuits and Systems I: Regular Papers</i> , 2019, 66, 215-225.	5.4	31
70	Low-Power (1T1N) Skyrmionic Synapses for Spiking Neuromorphic Systems. <i>IEEE Access</i> , 2019, 7, 5034-5044.	4.2	18
71	An STT-MRAM Based in Memory Architecture for Low Power Integral Computing. <i>IEEE Transactions on Computers</i> , 2019, 68, 617-623.	3.4	10
72	Exploiting Spin-Orbit Torque Devices As Reconfigurable Logic for Circuit Obfuscation. <i>IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems</i> , 2019, 38, 57-69.	2.7	21

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73	A compact skyrmionic leaky“integrate“fire spiking neuron device. <i>Nanoscale</i> , 2018, 10, 6139-6146.	5.6	96
74	Negative Capacitance Enhanced All Spin Logic Devices With an Ultra-Low 1 mV Working Voltage. <i>IEEE Journal of the Electron Devices Society</i> , 2018, 6, 245-249.	2.1	9
75	High-Density NAND-Like Spin Transfer Torque Memory With Spin Orbit Torque Erase Operation. <i>IEEE Electron Device Letters</i> , 2018, 39, 343-346.	3.9	119
76	Addressing the Thermal Issues of STT-MRAM From Compact Modeling to Design Techniques. <i>IEEE Nanotechnology Magazine</i> , 2018, 17, 345-352.	2.0	33
77	A Fast and Power-Efficient Hardware Architecture for Visual Feature Detection in Affine-SIFT. <i>IEEE Transactions on Circuits and Systems I: Regular Papers</i> , 2018, 65, 3362-3375.	5.4	7
78	Skyrmions in Magnetic Tunnel Junctions. <i>ACS Applied Materials &amp; Interfaces</i> , 2018, 10, 16887-16892.	8.0	68
79	Dynamics of a magnetic skyrmionium driven by spin waves. <i>Applied Physics Letters</i> , 2018, 112, .	3.3	43
80	Current-induced magnetization switching in atom-thick tungsten engineered perpendicular magnetic tunnel junctions with large tunnel magnetoresistance. <i>Nature Communications</i> , 2018, 9, 671.	12.8	259
81	Skyrmion Racetrack Memory With Random Information Update/Deletion/Insertion. <i>IEEE Transactions on Electron Devices</i> , 2018, 65, 87-95.	3.0	41
82	Demonstration of Multi-State Memory Device Combining Resistive and Magnetic Switching Behaviors. <i>IEEE Electron Device Letters</i> , 2018, 39, 684-687.	3.9	14
83	Self-Adaptive Write Circuit for Magnetic Tunneling Junction Memory With Voltage-Controlled Magnetic Anisotropy Effect. <i>IEEE Nanotechnology Magazine</i> , 2018, 17, 492-499.	2.0	15
84	A spin orbit torque based true random number generator with real-time optimization. , 2018, , .		6
85	Micromagnetic Simulation of Spin-Orbit Torque Induced Ultrafast Switching of In-Plane Magnetization. , 2018, , .		1
86	In-memory direct processing based on nanoscale perpendicular magnetic tunnel junctions. <i>Nanoscale</i> , 2018, 10, 21225-21230.	5.6	22
87	Field-free switching of a perpendicular magnetic tunnel junction through the interplay of spin“orbit and spin-transfer torques. <i>Nature Electronics</i> , 2018, 1, 582-588.	26.0	304
88	Modeling and Evaluation of Sub-10-nm Shape Perpendicular Magnetic Anisotropy Magnetic Tunnel Junctions. <i>IEEE Transactions on Electron Devices</i> , 2018, 65, 5537-5544.	3.0	18
89	High-Density and Fast-Configuration Non-Volatile Look-Up Table Based on NAND-Like Spintronic Memory. , 2018, , .		4
90	A Full-Sensing-Margin Dual-Reference Sensing Scheme for Deeply-Scaled STT-RAM. <i>IEEE Access</i> , 2018, 6, 64250-64260.	4.2	6

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91	A Comparative Study on Racetrack Memories: Domain Wall vs. Skyrmion. , 2018, , .		10
92	Complementary Skyrmion Racetrack Memory Enables Voltage-Controlled Local Data Update Functionality. IEEE Transactions on Electron Devices, 2018, 65, 4667-4673.	3.0	7
93	Proposal for Multi-Gate Spin Field-Effect Transistor. IEEE Transactions on Magnetism, 2018, 54, 1-5.	2.1	4
94	Evaluation of Ultrahigh-Speed Magnetic Memories Using Field-Free Spin-Orbit Torque. IEEE Transactions on Magnetism, 2018, 54, 1-5.	2.1	9
95	Enhancement of Perpendicular Magnetic Anisotropy Through Fe Insertion at the CoFe/W Interface. IEEE Transactions on Magnetism, 2018, 54, 1-5.	2.1	6
96	A Multilevel Cell STT-MRAM-Based Computing In-Memory Accelerator for Binary Convolutional Neural Network. IEEE Transactions on Magnetism, 2018, 54, 1-5.	2.1	51
97	Dynamics of Magnetic Skyrmion Clusters Driven by Spin-Polarized Current With a Spatially Varied Polarization. IEEE Magnetism Letters, 2018, 9, 1-5.	1.1	6
98	Progresses and challenges of spin orbit torque driven magnetization switching and application (Invited). , 2018, , .		15
99	Radiation-Hardening Techniques for Spin Orbit Torque-MRAM Peripheral Circuitry. IEEE Transactions on Magnetism, 2018, 54, 1-5.	2.1	11
100	Domain-Wall Motion Driven by Laplace Pressure in $\text{Co}/\text{Fe}/\text{MgO}$ Nanodots with Perpendicular Anisotropy. Physical Review Applied, 2018, 9, .	2.1	22
101	Magnetic skyrmion-based synaptic devices. Nanotechnology, 2017, 28, 08LT02.	2.6	223
102	Modeling and Exploration of the Voltage-Controlled Magnetic Anisotropy Effect for the Next-Generation Low-Power and High-Speed MRAM Applications. IEEE Nanotechnology Magazine, 2017, 16, 387-395.	2.0	112
103	Giant interfacial perpendicular magnetic anisotropy in MgO/CoFe/capping layer structures. Applied Physics Letters, 2017, 110, .	3.3	73
104	Compact Modeling and Evaluation of Magnetic Skyrmion-Based Racetrack Memory. IEEE Transactions on Electron Devices, 2017, 64, 1060-1068.	3.0	26
105	Interfacial Perpendicular Magnetic Anisotropy in Sub-20 nm Tunnel Junctions for Large-Capacity Spin-Transfer Torque Magnetic Random-Access Memory. IEEE Magnetism Letters, 2017, 8, 1-5.	1.1	25
106	Magnetic skyrmion-based artificial neuron device. Nanotechnology, 2017, 28, 31LT01.	2.6	169
107	A true random number generator based on parallel STT-MTJs. , 2017, , .		31
108	Influence of heavy metal materials on magnetic properties of Pt/Co/heavy metal tri-layered structures. Applied Physics Letters, 2017, 110, .	3.3	26

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109	A microwave field-driven transistor-like skyrmionic device with the microwave current-assisted skyrmion creation. <i>Journal of Applied Physics</i> , 2017, 122, .	2.5	24
110	Stateful Reconfigurable Logic via a Single-Voltage-Gated Spin Hall-Effect Driven Magnetic Tunnel Junction in a Spintronic Memory. <i>IEEE Transactions on Electron Devices</i> , 2017, 64, 4295-4301.	3.0	76
111	Partial spin absorption induced magnetization switching and its voltage-assisted improvement in an asymmetrical all spin logic device at the mesoscopic scale. <i>Applied Physics Letters</i> , 2017, 111, .	3.3	14
112	Skyrmion dynamics in width-varying nanotracks and implications for skyrmionic applications. <i>Applied Physics Letters</i> , 2017, 111, .	3.3	29
113	Large voltage-controlled magnetic anisotropy in the SrTiO <sub>3</sub> /Fe/Cu structure. <i>Applied Physics Letters</i> , 2017, 111, 152403.	3.3	16
114	Robust Ultra-Low Power Non-Volatile Logic-in-Memory Circuits in FD-SOI Technology. <i>IEEE Transactions on Circuits and Systems I: Regular Papers</i> , 2017, 64, 847-857.	5.4	85
115	PRESCOTT: Preset-based cross-point architecture for spin-orbit-torque magnetic random access memory. , 2017, , .		12
116	Novel Magnetic Tunneling Junction Memory Cell With Negative Capacitance-Amplified Voltage-Controlled Magnetic Anisotropy Effect. <i>IEEE Transactions on Electron Devices</i> , 2017, 64, 4919-4927.	3.0	6
117	Thermosiphon: A thermal aware NUCA architecture for write energy reduction of the STT-MRAM based LLCs. , 2017, , .		1
118	Compact modeling of high spin transfer torque efficiency double-barrier magnetic tunnel junction. , 2017, , .		4
119	Failure Analysis in Magnetic Tunnel Junction Nanopillar with Interfacial Perpendicular Magnetic Anisotropy. <i>Materials</i> , 2016, 9, 41.	2.9	72
120	Low Store Power, High Speed, High Density, Nonvolatile SRAM Design with Spin Hall Effect-Driven Magnetic Tunnel Junctions. <i>IEEE Nanotechnology Magazine</i> , 2016, , 1-1.	2.0	30
121	Large influence of capping layers on tunnel magnetoresistance in magnetic tunnel junctions. <i>Applied Physics Letters</i> , 2016, 109, .	3.3	26
122	Quantitative evaluation of reliability and performance for STT-MRAM. , 2016, , .		12
123	Voltage Controlled Magnetic Skyrmion Motion for Racetrack Memory. <i>Scientific Reports</i> , 2016, 6, 23164.	3.3	180
124	Skyrmion-Electronics: An Overview and Outlook. <i>Proceedings of the IEEE</i> , 2016, 104, 2040-2061.	21.3	289
125	Control and manipulation of a magnetic skyrmionium in nanostructures. <i>Physical Review B</i> , 2016, 94, .	3.2	137
126	Temperature Impact Analysis and Access Reliability Enhancement for 1T1MTJ STT-RAM. <i>IEEE Transactions on Reliability</i> , 2016, 65, 1755-1768.	4.6	40



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127	All Spin Artificial Neural Networks Based on Compound Spintronic Synapse and Neuron. IEEE Transactions on Biomedical Circuits and Systems, 2016, 10, 828-836.	4.0	84
128	Complementary Skyrmion Racetrack Memory With Voltage Manipulation. IEEE Electron Device Letters, 2016, 37, 924-927.	3.9	70
129	Reliability and performance evaluation for STT-MRAM under temperature variation. , 2016, , .		11
130	Compact Model of Dielectric Breakdown in Spin-Transfer Torque Magnetic Tunnel Junction. IEEE Transactions on Electron Devices, 2016, 63, 1762-1767.	3.0	132
131	Radiation-Induced Soft Error Analysis of STT-MRAM: A Device to Circuit Approach. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2016, 35, 380-393.	2.7	29
132	Origin of interfacial perpendicular magnetic anisotropy in MgO/CoFe/metallic capping layer structures. Scientific Reports, 2015, 5, 18173.	3.3	120
133	Magnetic non-volatile flip-flop with spin-Hall assistance. Physica Status Solidi - Rapid Research Letters, 2015, 9, 375-378.	2.4	33
134	Perpendicular-anisotropy magnetic tunnel junction switched by spin-Hall-assisted spin-transfer torque. Journal Physics D: Applied Physics, 2015, 48, 065001.	2.8	176
135	Magnetic skyrmion transistor: skyrmion motion in a voltage-gated nanotrack. Scientific Reports, 2015, 5, 11369.	3.3	205
136	High-Frequency Low-Power Magnetic Full-Adder Based on Magnetic Tunnel Junction With Spin-Hall Assistance. IEEE Transactions on Magnetics, 2015, 51, 1-4.	2.1	28
137	Reconfigurable Codesign of STT-MRAM Under Process Variations in Deeply Scaled Technology. IEEE Transactions on Electron Devices, 2015, 62, 1769-1777.	3.0	135
138	Compact Model of Subvolume MTJ and Its Design Application at Nanoscale Technology Nodes. IEEE Transactions on Electron Devices, 2015, 62, 2048-2055.	3.0	78
139	Design Optimization and Analysis of Multicontext STT-MTJ/CMOS Logic Circuits. IEEE Nanotechnology Magazine, 2015, 14, 169-177.	2.0	29
140	Synchronous Non-Volatile Logic Gate Design Based on Resistive Switching Memories. IEEE Transactions on Circuits and Systems I: Regular Papers, 2014, 61, 443-454.	5.4	90
141	One-step majority-logic-decodable codes enable STT-MRAM for high speed working memories. , 2014, , .		3
142	Low Power Magnetic Full-Adder Based on Spin Transfer Torque MRAM. IEEE Transactions on Magnetics, 2013, 49, 4982-4987.	2.1	126
143	High reliability sensing circuit for deep submicron spin transfer torque magnetic random access memory. Electronics Letters, 2013, 49, 1283-1285.	1.0	49
144	ZFTL: A Zone-based Flash Translation Layer with a two-tier selective caching mechanism. , 2012, , .		2

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145	SER analysis and power allocation for hybrid cooperative transmission system. Journal of Systems Engineering and Electronics, 2012, 23, 661-670.	2.2	8
146	Ultra-High Density Content Addressable Memory Based on Current Induced Domain Wall Motion in Magnetic Track. IEEE Transactions on Magnetics, 2012, 48, 3219-3222.	2.1	41
147	Improving flash memory reliability with dynamic thresholds: Signal processing and coding schemes. , 2012, , .		2
148	Compact Modeling of Perpendicular-Anisotropy CoFeB/MgO Magnetic Tunnel Junctions. IEEE Transactions on Electron Devices, 2012, 59, 819-826.	3.0	330
149	A novel reader anti-collision protocol using Priority Cluster for dense reader RFID system. , 2011, , .		1
150	High Speed, High Stability and Low Power Sensing Amplifier for MTJ/CMOS Hybrid Logic Circuits. IEEE Transactions on Magnetics, 2009, 45, 3784-3787.	2.1	311
151	Dynamic compact model of Spin-Transfer Torque based Magnetic Tunnel Junction (MTJ). , 2009, , .		50
152	SpinCIM: spin orbit torque memory for ternary neural networks based on the computing-in-memory architecture. CCF Transactions on High Performance Computing, 0, , .	1.7	3