Xi-Chao Zhang

List of Publications by Year
in descending order

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112	7,435	94433 37	54911 84
papers	citations	h-index	g-index

114	114	114	3234
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Direct observation of the skyrmion Hall effect. Nature Physics, 2017, 13, 162-169.	16.7	858
2	Magnetic skyrmion logic gates: conversion, duplication and merging of skyrmions. Scientific Reports, 2015, 5, 9400.	3.3	610
3	Magnetic bilayer-skyrmions without skyrmion Hall effect. Nature Communications, 2016, 7, 10293.	12.8	384
4	Skyrmion-skyrmion and skyrmion-edge repulsions in skyrmion-based racetrack memory. Scientific Reports, 2015, 5, 7643.	3.3	360
5	Skyrmion-based artificial synapses for neuromorphic computing. Nature Electronics, 2020, 3, 148-155.	26.0	346
6	Antiferromagnetic Skyrmion: Stability, Creation and Manipulation. Scientific Reports, 2016, 6, 24795.	3.3	306
7	Current-driven dynamics and inhibition of the skyrmion Hall effect of ferrimagnetic skyrmions in GdFeCo films. Nature Communications, 2018, 9, 959.	12.8	301
8	Skyrmion-Electronics: An Overview and Outlook. Proceedings of the IEEE, 2016, 104, 2040-2061.	21.3	289
9	Skyrmion-electronics: writing, deleting, reading and processing magnetic skyrmions toward spintronic applications. Journal of Physics Condensed Matter, 2020, 32, 143001.	1.8	268
10	Magnetic skyrmion-based synaptic devices. Nanotechnology, 2017, 28, 08LT02.	2.6	223
11	Magnetic skyrmion transistor: skyrmion motion in a voltage-gated nanotrack. Scientific Reports, 2015, 5, 11369.	3.3	205
12	Voltage Controlled Magnetic Skyrmion Motion for Racetrack Memory. Scientific Reports, 2016, 6, 23164.	3.3	180
13	Magnetic skyrmion-based artificial neuron device. Nanotechnology, 2017, 28, 31LT01.	2.6	169
14	Skyrmion dynamicsÂin a frustrated ferromagnetic filmÂand current-induced helicity locking-unlocking transition. Nature Communications, 2017, 8, 1717.	12.8	147
15	Control and manipulation of a magnetic skyrmionium in nanostructures. Physical Review B, 2016, 94, .	3.2	137
16	Electric-field-driven non-volatile multi-state switching of individual skyrmions in a multiferroic heterostructure. Nature Communications, 2020, 11, 3577.	12.8	117
17	NÃ©el-type skyrmions and their current-induced motion in van der Waals ferromagnet-based heterostructures. Physical Review B, 2021, 103, .	3.2	110
18	Deterministic creation and deletion of a single magnetic skyrmion observed by direct time-resolved X-ray microscopy. Nature Electronics, 2018, 1, 288-296.	26.0	108

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19	Spin torque nano-oscillators based on antiferromagnetic skyrmions. Applied Physics Letters, 2019, 114, .	3.3	106
20	Electric Field-Induced Creation and Directional Motion of Domain Walls and Skyrmion Bubbles. Nano Letters, 2019, 19, 353-361.	9.1	97
21	A compact skyrmionic leakyâ€“integrateâ€“fire spiking neuron device. Nanoscale, 2018, 10, 6139-6146.	5.6	96
22	An Improved Racetrack Structure for Transporting a Skyrmion. Scientific Reports, 2017, 7, 45330.	3.3	92
23	All-magnetic control of skyrmions in nanowires by a spin wave. Nanotechnology, 2015, 26, 225701.	2.6	86
24	Dynamics of the antiferromagnetic skyrmion induced by a magnetic anisotropy gradient. Physical Review B, 2018, 98, .	3.2	84
25	Current-Induced Dynamics and Chaos of Antiferromagnetic Bimerons. Physical Review Letters, 2020, 124, 037202.	7.8	82
26	Magnetic skyrmions for unconventional computing. Materials Horizons, 2021, 8, 854-868.	12.2	74
27	Thermally stable magnetic skyrmions in multilayer synthetic antiferromagnetic racetracks. Physical Review B, 2016, 94, .	3.2	70
28	Complementary Skyrmion Racetrack Memory With Voltage Manipulation. IEEE Electron Device Letters, 2016, 37, 924-927.	3.9	70
29	Skyrmions in Magnetic Tunnel Junctions. ACS Applied Materials & Interfaces, 2018, 10, 16887-16892.	8.0	68
30	Topology-Dependent Brownian Gyromotion of a Single Skyrmion. Physical Review Letters, 2020, 125, 027206.	7.8	50
31	Currentâ€Induced Helicity Reversal of a Single Skyrmionic Bubble Chain in a Nanostructured Frustrated Magnet. Advanced Materials, 2020, 32, e1904815.	21.0	47
32	Motion of skyrmions in nanowires driven by magnonic momentum-transfer forces. New Journal of Physics, 2017, 19, 065001.	2.9	46
33	Dynamics of a magnetic skyrmionium driven by spin waves. Applied Physics Letters, 2018, 112, .	3.3	43
34	Realization of Isolated and High-Density Skyrmions at Room Temperature in Uncompensated Synthetic Antiferromagnets. Nano Letters, 2020, 20, 3299-3305.	9.1	42
35	Skyrmion Racetrack Memory With Random Information Update/Deletion/Insertion. IEEE Transactions on Electron Devices, 2018, 65, 87-95.	3.0	41
36	Voltage-Driven High-Speed Skyrmion Motion in a Skyrmion-Shift Device. Physical Review Applied, 2019, 11, .	3.8	41

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37	Static and dynamic properties of bimerons in a frustrated ferromagnetic monolayer. Physical Review B, 2020, 101, .	3.2	40
38	Antiferromagnetic skyrmion-based logic gates controlled by electric currents and fields. Applied Physics Letters, 2021, 119, .	3.3	40
39	High-topological-number magnetic skyrmions and topologically protected dissipative structure. Physical Review B, 2016, 93, .	3.2	37
40	Dynamics of an antiferromagnetic skyrmion in a racetrack with a defect. Physical Review B, 2019, 100, .	3.2	37
41	Strain-controlled skyrmion creation and propagation in ferroelectric/ferromagnetic hybrid wires. Journal of Magnetism and Magnetic Materials, 2018, 455, 19-24.	2.3	36
42	A skyrmion-based spin-torque nano-oscillator with enhanced edge. Journal of Magnetism and Magnetic Materials, 2019, 491, 165610.	2.3	36
43	A spiking neuron constructed by the skyrmion-based spin torque nano-oscillator. Applied Physics Letters, 2020, 116, .	3.3	36
44	Tunable NÃ©elâ€“Bloch Magnetic Twists in Fe₃GeTe₂ with van der Waals Structure. Advanced Functional Materials, 2021, 31, 2103583.	14.9	35
45	Bimeron clusters in chiral antiferromagnets. Npj Computational Materials, 2020, 6, .	8.7	34
46	Confinement and Protection of Skyrmions by Patterns of Modified Magnetic Properties. Nano Letters, 2021, 21, 4320-4326.	9.1	32
47	Current-Driven Dynamics of Frustrated Skyrmions in a Synthetic Antiferromagnetic Bilayer. Physical Review Applied, 2019, 11, .	3.8	31
48	Magnetic skyrmionium diode with a magnetic anisotropy voltage gating. Applied Physics Letters, 2020, 117, .	3.3	30
49	Skyrmion dynamics in width-varying nanotracks and implications for skyrmionic applications. Applied Physics Letters, 2017, 111, .	3.3	29
50	3D and 1D calculation of hysteresis loops and energy products for anisotropic nanocomposite films with perpendicular anisotropy. Journal of Magnetism and Magnetic Materials, 2013, 343, 245-250.	2.3	27
51	A ferromagnetic skyrmion-based nano-oscillator with modified profile of Dzyaloshinskii-Moriya interaction. Journal of Magnetism and Magnetic Materials, 2020, 496, 165912.	2.3	27
52	Dynamics of an elliptical ferromagnetic skyrmion driven by the spinâ€“orbit torque. Applied Physics Letters, 2020, 116, .	3.3	27
53	Compact Modeling and Evaluation of Magnetic Skyrmion-Based Racetrack Memory. IEEE Transactions on Electron Devices, 2017, 64, 1060-1068.	3.0	26
54	A microwave field-driven transistor-like skyrmionic device with the microwave current-assisted skyrmion creation. Journal of Applied Physics, 2017, 122, .	2.5	24

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55	Current-driven skyrmionium in a frustrated magnetic system. Applied Physics Letters, 2020, 117, .	3.3	22
56	The impact of withinâ€day work breaks on daily recovery processes: An eventâ€based preâ€/postâ€experience sampling study. Journal of Occupational and Organizational Psychology, 2019, 92, 191-211.	4.5	21
57	Direct imaging of an inhomogeneous electric current distribution using the trajectory of magnetic half-skyrmions. Science Advances, 2020, 6, eaay1876.	10.3	20
58	Creation, transport and detection of imprinted magnetic solitons stabilized by spin-polarized current. Journal of Magnetism and Magnetic Materials, 2018, 455, 25-31.	2.3	19
59	Logic Gates Based on Synthetic Antiferromagnetic Bilayer Skyrmions. Physical Review Applied, 2021, 16, .	3.8	19
60	Dynamics of ferromagnetic bimerons driven by spin currents and magnetic fields. Physical Review B, 2020, 102, .	3.2	19
61	Controlled Switching of the Number of Skyrmions in a Magnetic Nanodot by Electric Fields. Advanced Materials, 2022, 34, e2107908.	21.0	19
62	Controllable transport of a skyrmion in a ferromagnetic narrow channel with voltage-controlled magnetic anisotropy. Journal Physics D: Applied Physics, 2018, 51, 205002.	2.8	17
63	Magnetic domain wall engineering in a nanoscale permalloy junction. Applied Physics Letters, 2017, 111, .	3.3	16
64	Current-induced dynamics of skyrmion tubes in synthetic antiferromagnetic multilayers. Physical Review B, 2021, 103, .	3.2	16
65	The influence of the edge effect on the skyrmion generation in a magnetic nanotrack. AIP Advances, 2017, 7, .	1.3	14
66	Generation and Hall effect of skyrmions enabled using nonmagnetic point contacts. Physical Review B, 2019, 100, .	3.2	14
67	Dynamics of antiskyrmions induced by the voltage-controlled magnetic anisotropy gradient. Journal of Magnetism and Magnetic Materials, 2020, 496, 165922.	2.3	14
68	A Comparative Cross-layer Study on Racetrack Memories. ACM Journal on Emerging Technologies in Computing Systems, 2020, 16, 1-17.	2.3	14
69	Configurable pixelated skyrmions on nanoscale magnetic grids. Communications Physics, 2021, 4, .	5.3	14
70	Bifurcation of a topological skyrmion string. Physical Review B, 2022, 105, .	3.2	14
71	A frustrated bimeronium: Static structure and dynamics. Applied Physics Letters, 2021, 118, .	3.3	13
72	A ferromagnetic skyrmion-based nano-oscillator with modified perpendicular magnetic anisotropy. Physics Letters, Section A: General, Atomic and Solid State Physics, 2021, 392, 127157.	2.1	12

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73	Dynamics of ferrimagnetic skyrmionium driven by spin-orbit torque. Physical Review B, 2021, 104, .	3.2	12
74	Spin-Cherenkov effect in a magnetic nanostrip with interfacial Dzyaloshinskii-Moriya interaction. Scientific Reports, 2016, 6, 25189.	3.3	11
75	Manipulation of magnetic skyrmions in a locally modified synthetic antiferromagnetic racetrack. Journal of Magnetism and Magnetic Materials, 2019, 482, 155-159.	2.3	11
76	Tailoring interfacial effect in multilayers with Dzyaloshinskiiâ€“Moriya interaction by helium ion irradiation. Scientific Reports, 2021, 11, 23626.	3.3	11
77	A Comparative Study on Racetrack Memories: Domain Wall vs. Skyrmion. , 2018, , .		10
78	An achiral ferromagnetic/chiral antiferromagnetic bilayer system leading to controllable size and density of skyrmions. Scientific Reports, 2019, 9, 2970.	3.3	8
79	Controlled Switching of the Number of Skyrmions in a Magnetic Nanodot by Electric Fields (Adv.) Tj ETQq1 1 0.784314 rgBT /Overloc	21.0	8
80	Micromagnetic simulation of Smâ€”Co/Î±-Fe/Smâ€”Co trilayers with various angles between easy axes and the film plane. Chinese Physics B, 2014, 23, 097504.	1.4	7
81	Magnetic Skyrmion Transport in a Nanotrack With Spatially Varying Damping and Non-adiabatic Torque. IEEE Transactions on Magnetics, 2016, , 1-1.	2.1	7
82	Complementary Skyrmion Racetrack Memory Enables Voltage-Controlled Local Data Update Functionality. IEEE Transactions on Electron Devices, 2018, 65, 4667-4673.	3.0	7
83	Interlayer coupling effect on skyrmion dynamics in synthetic antiferromagnets. Applied Physics Letters, 2021, 118, .	3.3	7
84	Skyrmion Dynamics in the Presence of Deformation. Physical Review Applied, 2022, 17, .	3.8	7
85	Nonreciprocal dynamics of ferrimagnetic bimerons. Physical Review B, 2022, 105, .	3.2	7
86	Dynamic transformation between a skyrmion string and a bimeron string in a layered frustrated system. Physical Review B, 2021, 104, .	3.2	7
87	Mutual conversion between a magnetic NÃ©el hopfion and a NÃ©el toron. Physical Review B, 2022, 105, .	3.2	7
88	Vortical structures for nanomagnetic memory induced by dipole-dipole interaction in monolayer disks. Superlattices and Microstructures, 2018, 117, 495-502.	3.1	6
89	Dynamics of Magnetic Skyrmion Clusters Driven by Spin-Polarized Current With a Spatially Varied Polarization. IEEE Magnetics Letters, 2018, 9, 1-5.	1.1	6
90	Exchange-Torque-Triggered Fast Switching of Antiferromagnetic Domains. Physical Review Letters, 2022, 128, 137201.	7.8	6

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91	Single-bit full adder and logic gate based on synthetic antiferromagnetic bilayer skyrmions. Rare Metals, 2022, 41, 2249-2258.	7.1	6
92	Nd-Fe-B films with perpendicular magnetic anisotropy and extremely large room temperature coercivity. Journal of Magnetism and Magnetic Materials, 2019, 474, 406-410.	2.3	5
93	Domain wall dynamics in ferromagnet/Ru/ferromagnet stacks with a wedged spacer. Applied Physics Letters, 2021, 119, .	3.3	5
94	Micromagnetic analysis of the effect of the easy axis orientation on demagnetization process in Nd2Fe14B/Î±-Fe bilayers. Wuli Xuebao/Acta Physica Sinica, 2013, 62, 227502.	0.5	5
95	Structural transition of skyrmion quasiparticles under compression. Physical Review B, 2022, 105, .	3.2	5
96	Dynamics of magnetic skyrmions driven by a temperature gradient in a chiral magnet FeGe. Physical Review B, 2022, 106, .	3.2	5
97	Effect of exchange coupling on magnetic property in Smâ€“Co/ Î± -Fe layered system. Chinese Physics B, 2016, 25, 037501.	1.4	4
98	Hysteresis of misaligned hardâ€“soft grains. Journal of Magnetism and Magnetic Materials, 2016, 397, 181-187.	2.3	4
99	Magnetic Skyrmion Spectrum Under Voltage Excitation and its Linear Modulation. Physical Review Applied, 2019, 12, .	3.8	4
100	Transcription and logic operations of magnetic skyrmions in bilayer cross structures. Journal of Physics Condensed Matter, 2021, 33, 404001.	1.8	3
101	Topological Spin Textures and Their Applications. Magnetism, 2021, 1, 58-59.	1.5	2
102	Controlling domain wall and field-free spinâ€“orbit torque switching in synthetic antiferromagnets. Applied Physics Letters, 2022, 120, .	3.3	2
103	All-magnetic control of skyrmions in nanowire by spin wave. , 2015, , .		1
104	Simulation of spin-torque diode microwave detectors. EPJ Applied Physics, 2015, 69, 10603.	0.7	1
105	Skyrmion Spin Structure of Exchange-Coupled Magnetic Coreâ€“Shell Nanodisk. IEEE Transactions on Magnetics, 2015, 51, 1-3.	2.1	1
106	Hysteresis Loops, Critical Fields and Energy Products for Exchange-spring Hard/soft/hard Trilayers. Journal of Magnetics, 2015, 20, 31-39.	0.4	1
107	Micromagnetic analysis of the maghemite platelet chains in the iron-mineral-based magnetoreceptor of birds. Wuli Xuebao/Acta Physica Sinica, 2013, 62, 218702.	0.5	1
108	Dynamic properties of a ferromagnetic skyrmion in an in-plane magnetic field. Journal of Applied Physics, 2022, 131, .	2.5	1

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109	Antiferromagnetic Skyrmions and Bimerons. Topics in Applied Physics, 2021, , 441-457.	0.8	0
110	Skyrmions in ferrimagnets. , 2021, , 315-332.		0
111	Conventional applications of skyrmions. , 2021, , 367-391.		0
112	10.1063/5.0012706.3. , 2020, , .		0