Claas Abert

List of Publications by Year
in descending order

75 papers	1,583 citations	361413 20 h-index	330143 37 g-index
77 all docs	77 docs citations	77 times ranked	1382 citing authors

#	Article	IF	Citations
1	Advances in Magnetics Roadmap on Spin-Wave Computing. IEEE Transactions on Magnetics, 2022, 58, 1-72.	2.1	179
2	3D print of polymer bonded rare-earth magnets, and 3D magnetic field scanning with an end-user 3D printer. Applied Physics Letters, 2016, 109, .	3.3	168
3	3D Printing of Polymer-Bonded Rare-Earth Magnets With a Variable Magnetic Compound Fraction for a Predefined Stray Field. Scientific Reports, 2017, 7, 9419.	3.3	80
4	Micromagnetics and spintronics: models and numerical methods. European Physical Journal B, 2019, 92, 1.	1.5	67
5	magnum.fe: A micromagnetic finite-element simulation code based on FEniCS. Journal of Magnetism and Magnetic Materials, 2013, 345, 29-35.	2.3	61
6	Topologically protected vortex structures for low-noise magnetic sensors with high linear range. Nature Electronics, 2018, 1, 362-370.	26.0	60
7	Numerical methods for the stray-field calculation: A comparison of recently developed algorithms. Journal of Magnetism and Magnetic Materials, 2013, 326, 176-185.	2.3	57
8	Heat-assisted magnetic recording of bit-patterned media beyond 10â€‰Tb/in2. Applied Physics Letters, 2016, 108, .	3.3	53
9	A three-dimensional spin-diffusion model for micromagnetics. Scientific Reports, 2015, 5, 14855.	3.3	51
10	Topology optimized and 3D printed polymer-bonded permanent magnets for a predefined external field. Journal of Applied Physics, 2017, 122, .	2.5	51
11	A self-consistent spin-diffusion model for micromagnetics. Scientific Reports, 2016, 6, 16.	3.3	40
12	Complex free-space magnetic field textures induced by three-dimensional magnetic nanostructures. Nature Nanotechnology, 2022, 17, 136-142.	31.5	39
13	Landau-Lifshitz-Bloch equation for exchange-coupled grains. Physical Review B, 2014, 90, .	3.2	35
14	A Fast Finite-Difference Method for Micromagnetics Using the Magnetic Scalar Potential. IEEE Transactions on Magnetics, 2012, 48, 1105-1109.	2.1	31
15	Dipolar-stabilized first and second-order antiskyrmions in ferrimagnetic multilayers. Nature Communications, 2021, 12, 2611.	12.8	29
16	Fundamental limits in heat-assisted magnetic recording and methods to overcome it with exchange spring structures. Journal of Applied Physics, 2015, 117, 163913.	2.5	28
17	Spin-polarized transport in ferromagnetic multilayers: An unconditionally convergent FEM integrator. Computers and Mathematics With Applications, 2014, 68, 639-654.	2.7	26
18	Solving Large-Scale Inverse Magnetostatic Problems using the Adjoint Method. Scientific Reports, 2017, 7, 40816.	3.3	24

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19	Additive Manufactured and Topology Optimized Passive Shimming Elements for Permanent Magnetic Systems. Scientific Reports, 2018, 8, 14651.	3.3	24
20	Reduction of critical current density for out-of-plane mode oscillation in a mag-flip spin torque oscillator using highly spin-polarized Co2Fe(Ga0.5Ge0.5) spin injection layer. Applied Physics Letters, 2016, 108, .	3.3	23
21	Areal density optimizations for heat-assisted magnetic recording of high-density media. Journal of Applied Physics, 2016, 119, .	2.5	20
22	Fieldlike and Dampinglike Spin-Transfer Torque in Magnetic Multilayers. Physical Review Applied, 2017, 7, .	3.8	20
23	Domain Wall Automotion in Three-Dimensional Magnetic Helical Interconnectors. ACS Nano, 2022, 16, 8860-8868.	14.6	20
24	Comparison of Sensitivity and Low-Frequency Noise Contributions in Giant-Magnetoresistive and Tunneling-Magnetoresistive Spin-Valve Sensors with a Vortex-State Free Layer. Physical Review Applied, 2018, 10, .	3.8	19
25	Back-Hopping in Spin-Transfer-Torque Devices: Possible Origin and Countermeasures. Physical Review Applied, 2018, 9, .	3.8	18
26	Control of the noncollinear interlayer exchange coupling. Science Advances, 2020, 6, .	10.3	17
27	Intrinsic DMI-free skyrmion formation and robust dynamic behaviors in magnetic hemispherical shells. Scientific Reports, 2021, 11, 3886.	3.3	17
28	A repulsive skyrmion chain as a guiding track for a racetrack memory. AIP Advances, 2018, 8, .	1.3	16
29	Large scale finite-element simulation of micromagnetic thermal noise. Journal of Magnetism and Magnetic Materials, 2019, 475, 408-414.	2.3	16
30	Non-Planar Geometrical Effects on the Magnetoelectrical Signal in a Three-Dimensional Nanomagnetic Circuit. ACS Nano, 2021, 15, 6765-6773.	14.6	16
31	A fast finite-difference algorithm for topology optimization of permanent magnets. Journal of Applied Physics, 2017, 122, .	2.5	15
32	Thermally superactive artificial kagome spin ice structures obtained with the interfacial Dzyaloshinskii-Moriya interaction. Physical Review B, 2020, 102, .	3.2	15
33	Basic noise mechanisms of heat-assisted-magnetic recording. Journal of Applied Physics, 2016, 120, .	2.5	13
34	Dependence of energy barrier reduction on collective excitations in square artificial spin ice: A comprehensive comparison of simulation techniques. Physical Review B, 2020, 102, .	3.2	11
35	A full-fledged micromagnetic code in fewer than 70 lines of NumPy. Journal of Magnetism and Magnetic Materials, 2015, 387, 13-18.	2.3	10
36	Stochastic ferrimagnetic Landau-Lifshitz-Bloch equation for finite magnetic structures. Physical Review B, 2019, 100, .	3.2	10

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37	Stability of skyrmion formation and its abnormal dynamic modes in magnetic nanotubes. Physical Review B, 2020, 102, .	3.2	10
38	Micromagnetic modeling of magnetic domain walls in curved cylindrical nanotubes and nanowires. Applied Physics Letters, 2021, 118, .	3.3	10
39	Coupling of dynamical micromagnetism and a stationary spin drift-diffusion equation: A step towards a fully self-consistent spintronics framework. Physica B: Condensed Matter, 2016, 486, 88-91.	2.7	9
40	Noise Reduction Based on an Feâˆ'Rh Interlayer in Exchange-Coupled Heat-Assisted Recording Media. Physical Review Applied, 2017, 8, .	3.8	9
41	Chiral switching and dynamic barrier reductions in artificial square ice. New Journal of Physics, 2021, 23, 033024.	2.9	9
42	Highly parallel demagnetization field calculation using the fast multipole method on tetrahedral meshes with continuous sources. Journal of Magnetism and Magnetic Materials, 2017, 442, 409-416.	2.3	8
43	Design of spin-injection-layer in all-in-plane spin-torque-oscillator for microwave assisted magnetic recording. Journal of Magnetism and Magnetic Materials, 2019, 476, 361-370.	2.3	8
44	Control of damping in perpendicularly magnetized thin films using spin-orbit torques. Physical Review B, 2020, 101, .	3.2	8
45	Hybrid FFT algorithm for fast demagnetization field calculations on non-equidistant magnetic layers. Journal of Magnetism and Magnetic Materials, 2020, 503, 166592.	2.3	8
46	Efficient energy minimization in finite-difference micromagnetics: Speeding up hysteresis computations. Journal of Applied Physics, 2014, 116, 123908.	2.5	7
47	FFT-based Kronecker product approximation to micromagnetic long-range interactions. Mathematical Models and Methods in Applied Sciences, 2014, 24, 1877-1901.	3.3	7
48	Passive wireless strain measurement based upon the Villari effect and giant magnetoresistance. Applied Physics Letters, 2016, 109, .	3.3	7
49	Contactless and absolute linear displacement detection based upon 3D printed magnets combined with passive radio-frequency identification. AIP Advances, 2017, 7, .	1.3	7
50	Efficient micromagnetic modelling of spin-transfer torque and spin-orbit torque. AIP Advances, 2018, 8, .	1.3	7
51	GPU-Accelerated Atomistic Energy Barrier Calculations of Skyrmion Annihilations. IEEE Transactions on Magnetics, 2018, 54, 1-5.	2.1	7
52	Magnetic Position System Design Method Applied to Three-Axis Joystick Motion Tracking. Sensors, 2020, 20, 6873.	3.8	7
53	Tension-free Dirac strings and steered magnetic charges in 3D artificial spin ice. Npj Computational Materials, 2021, 7, .	8.7	7
54	Macroscopic simulation of isotropic permanent magnets. Journal of Magnetism and Magnetic Materials, 2016, 401, 875-879.	2.3	6

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55	ODES: a high level interface to ODE and DAE solvers. Journal of Open Source Software, 2018, 3, 165.	4.6	6
56	Full analytical solution for the magnetic field of uniformly magnetized cylinder tiles. Journal of Magnetism and Magnetic Materials, 2022, 559, 169482.	2.3	6
57	Influence of grain size and exchange interaction on the LLB modeling procedure. Journal of Applied Physics, 2016, 120, 223903.	2.5	5
58	Significant reduction of critical currents in MRAM designs using dual free layer with perpendicular and in-plane anisotropy. Applied Physics Letters, 2017, 110, .	3.3	5
59	Domain-Wall Damping in Ultrathin Nanostripes with Dzyaloshinskii-Moriya Interaction. Physical Review Applied, 2021, 15, .	3.8	5
60	Strayfield calculation for micromagnetic simulations using true periodic boundary conditions. Scientific Reports, 2021, 11, 9202.	3.3	5
61	Reactivable passive radio-frequency identification temperature indicator. Journal of Applied Physics, 2015, 117, .	2.5	4
62	Efficiently reducing transition curvature in heat-assisted magnetic recording with state-of-the-art write heads. Applied Physics Letters, 2017, 110, 182406.	3.3	4
63	Unexpected Width of Minor Magnetic Hysteresis Loops in Nanostructures. IEEE Transactions on Magnetics, 2016, 52, 1-4.	2.1	3
64	An Experiment–Based Numerical Treatment of Spin Wave Modes in Periodically Porous Materials. Physica Status Solidi (B): Basic Research, 2020, 257, 1900296.	1.5	3
65	Robust formation of skyrmion and skyrmionium in magnetic hemispherical shells and their dynamic switching. Physical Review B, 2021, 104, .	3.2	3
66	Proposal for a micromagnetic standard problem: Domain wall pinning at phase boundaries. Journal of Magnetism and Magnetic Materials, 2022, 548, 168875.	2.3	3
67	A topology optimization algorithm for magnetic structures based on a hybrid FEM–BEM method utilizing the adjoint approach. Scientific Reports, 2022, 12, 1119.	3.3	3
68	Superior bit error rate and jitter due to improved switching field distribution in exchange spring magnetic recording media. Scientific Reports, 2016, 6, 27048.	3.3	2
69	Extended micromagnetic model for the detection of superparamagnetic labels using a GMR vortex sensor. Journal of Physics Communications, 2021, 5, 075017.	1.2	2
70	Efficient solution strategy to couple micromagnetic simulations with ballistic transport in magnetic tunnel junctions. Physical Review B, 2022, 105, .	3.2	2
71	Solving the inverse magnetostatic problem using fictitious magnetic charges. AIP Advances, 2018, 8, 056005.	1.3	1
72	Micromagnetic Simulations of Submicron Vortex Structures for the Detection of Superparamagnetic Labels. Sensors, 2020, 20, 5819.	3.8	1

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73	The influence of spin-diffusion effects on current driven domain-wall motion. , 2015, , .		0
74	Convergence of highly parallel stray field calculation using the fast multipole method on irregular meshes. AIP Advances, 2018, 8, 056019.	1.3	0
75	Spintronics in Micromagnetics. , 2020, , 985-1008.		0