Frank Freimuth

List of Publications by Year
in descending order

81 papers	7,689 citations	94381 37 h-index	64755 79 g-index
86 all docs	86 docs citations	86 times ranked	6866 citing authors

#	Article	IF	Citations
1	Theory of unidirectional magnetoresistance and nonlinear Hall effect. Journal of Physics Condensed Matter, 2022, 34, 055301.	0.7	2
2	Driving spin chirality by electron dynamics in laser-excited antiferromagnets. Communications Physics, 2022, 5, .	2.0	8
3	Evidence of Magnon-Mediated Orbital Magnetism in a Quasi-2D Topological Magnon Insulator. Nano Letters, 2022, 22, 5114-5119.	4.5	2
4	Laser-induced torques in spin spirals. Physical Review B, 2021, 103, .	1.1	2
5	Charge and spin photocurrents in the Rashba model. Physical Review B, 2021, 103, .	1.1	8
6	The chiral Hall effect in canted ferromagnets and antiferromagnets. Communications Physics, 2021, 4, .	2.0	15
7	Interface-enhanced helicity dependent photocurrent in metal/semimetal bilayers. Physical Review B, 2021, 103, .	1.1	4
8	Laser-induced torques in metallic antiferromagnets. Physical Review B, 2021, 103, .	1.1	5
9	Spin-orbit torques in strained PtMnSb from first principles. Physical Review B, 2021, 103, .	1.1	1
10	Roadmap of Spinâ€“Orbit Torques. IEEE Transactions on Magnetics, 2021, 57, 1-39.	1.2	225
11	Effect of magnons on the temperature dependence and anisotropy of spin-orbit torque. Physical Review B, 2021, 104, .	1.1	2
12	Photocurrents of charge and spin in monolayer <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:msub><mml:mi>Fe</mml:mi><mml:mn>3</mml:mn></mml:msub></mml:mrow></mml:math> Physical Review B, 2021, 104, .	1.1	4
13	Wannier90 as a community code: new features and applications. Journal of Physics Condensed Matter, 2020, 32, 165902.	0.7	807
14	Harnessing Orbital-to-Spin Conversion of Interfacial Orbital Currents for Efficient Spin-Orbit Torques. Physical Review Letters, 2020, 125, 177201.	2.9	92
15	Dynamical and current-induced Dzyaloshinskii-Moriya interaction: Role for damping, gyromagnetism, and current-induced torques in noncollinear magnets. Physical Review B, 2020, 102, .	1.1	8
16	Faster chiral versus collinear magnetic order recovery after optical excitation revealed by femtosecond XUV scattering. Nature Communications, 2020, 11, 6304.	5.8	19
17	Crystal Hall and crystal magneto-optical effect in thin films of SrRuO3. Journal of Applied Physics, 2020, 127, .	1.1	37
18	Chiral Hall Effect in Noncollinear Magnets from a Cyclic Cohomology Approach. Physical Review Letters, 2020, 124, 096602.	2.9	44

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19	Engineering the dynamics of topological spin textures by anisotropic spin-orbit torques. Physical Review B, 2020, 101, .	1.1	13
20	Theory of current-induced angular momentum transfer dynamics in spin-orbit coupled systems. Physical Review Research, 2020, 2, .	1.3	65
21	Spin caloric transport from density-functional theory. Journal Physics D: Applied Physics, 2019, 52, 073001.	1.3	13
22	Higher-dimensional Wannier Interpolation for the Modern Theory of the Dzyaloshinskiiâ€“Moriya Interaction: Application to Co-based Trilayers. Journal of the Physical Society of Japan, 2018, 87, 041010.	0.7	12
23	Engineering chiral and topological orbital magnetism of domain walls and skyrmions. Communications Physics, 2018, 1, .	2.0	29
24	Modification of Dzyaloshinskii-Moriya-Interaction-Stabilized Domain Wall Chirality by Driving Currents. Physical Review Letters, 2018, 121, 147203.	2.9	35
25	Tailor-made currents. Nature Materials, 2018, 17, 478-479.	13.3	2
26	Spin-orbit torques and tunable Dzyaloshinskii-Moriya interaction in Co/Cu/Co trilayers. Physical Review B, 2018, 98, .	1.1	11
27	Helical magnetic structure and the anomalous and topological Hall effects in epitaxial B20 <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:msub><mml:mi>Fe</mml:mi><mml:mrow><mml:mn>1</mml:mn> films. Physical Review B, 2018, 97, .	1.1	50
28	Spin-orbit torques in locally and globally noncentrosymmetric crystals: Antiferromagnets and ferromagnets. Physical Review B, 2017, 95, .	1.1	113
29	Topological spin Hall effect in antiferromagnetic skyrmions. Physica Status Solidi - Rapid Research Letters, 2017, 11, 1700007.	1.2	47
30	Topological spin Hall effect in antiferromagnetic skyrmions (Phys. Status Solidi RRL 4/2017). Physica Status Solidi - Rapid Research Letters, 2017, 11, 1770320.	1.2	0
31	Prototypical topological orbital ferromagnet Î³-FeMn. Scientific Reports, 2017, 7, 41078.	1.6	36
32	Geometrical contributions to the exchange constants: Free electrons with spin-orbit interaction. Physical Review B, 2017, 95, .	1.1	14
33	Chiral damping, chiral gyromagnetism, and current-induced torques in textured one-dimensional Rashba ferromagnets. Physical Review B, 2017, 96, .	1.1	16
34	Relation of the Dzyaloshinskii-Moriya interaction to spin currents and to the spin-orbit field. Physical Review B, 2017, 96, .	1.1	33
35	Mixed Weyl semimetals and low-dissipation magnetization control in insulators by spinâ€“orbit torques. Nature Communications, 2017, 8, 1479.	5.8	42
36	Nonlocal fieldlike spin-orbit torques in Rashba systems: Ab initio study of a <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:msub><mml:mi>Ag</mml:mi><mml:mn>2</mml:mn></mml:m -terminated Ag(111) film grown on a ferromagnetic Fe(110) substrate. Physical Review B, 2017, 95, .	1.1	11

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37	Charge pumping driven by the laser-induced dynamics of the exchange splitting. Physical Review B, 2017, 95, .	1.1	7
38	Toward surface orbitronics: giant orbital magnetism from the orbital Rashba effect at the surface of sp-metals. Scientific Reports, 2017, 7, 46742.	1.6	67
39	The inverse thermal spinâ€“orbit torque and the relation of the Dzyaloshinskiiâ€“Moriya interaction to ground-state energy currents. Journal of Physics Condensed Matter, 2016, 28, 316001.	0.7	14
40	Room-temperature spinâ€“orbit torque in NiMnSb. Nature Physics, 2016, 12, 855-860.	6.5	79
41	Efficient metallic spintronic emitters of ultrabroadband terahertz radiation. Nature Photonics, 2016, 10, 483-488.	15.6	605
42	Role of Berry phase theory for describing orbital magnetism: From magnetic heterostructures to topological orbital ferromagnets. Physical Review B, 2016, 94, .	1.1	71
43	Asymmetric band gaps in a Rashba film system. Physical Review B, 2016, 93, .	1.1	19
44	Spin-orbit torques and spin accumulation in FePt/Pt and Co/Cu thin films from first principles: The role of impurities. Physical Review B, 2016, 93, .	1.1	17
45	Laser-induced torques in metallic ferromagnets. Physical Review B, 2016, 94, .	1.1	36
46	Electrical switching of an antiferromagnet. Science, 2016, 351, 587-590.	6.0	1,049
47	Femtosecond control of electric currents in metallic ferromagnetic heterostructures. Nature Nanotechnology, 2016, 11, 455-458.	15.6	182
48	Direct and inverse spin-orbit torques. Physical Review B, 2015, 92, .	1.1	73
49	All-electrical manipulation of magnetization dynamics in a ferromagnet by antiferromagnets with anisotropic spin Hall effects. Physical Review B, 2015, 92, .	1.1	95
50	Topological orbital magnetization and emergent Hall effect of an atomic-scale spin lattice at a surface. Physical Review B, 2015, 92, .	1.1	41
51	Higher-dimensional Wannier functions of multiparameter Hamiltonians. Physical Review B, 2015, 91, .	1.1	10
52	Reduced spin-Hall effects from magnetic proximity. Physical Review B, 2015, 91, .	1.1	74
53	Spin-orbit torques in<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:mi>L</mml:mi><mml:msub><mml:mn>1</mml:mn></mml:msub></mml:mrow></mml:math> films driven by electrical and thermal currents. Physical Review B, 2015, 91, .	1.1	87
54	Dzyaloshinskii-Moriya Interaction and Hall Effects in the Skyrmion Phase of<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mrow><mml:mi>Mn</mml:mi></mml:mrow><mml:mrow><mml:mn>1</mml:mn></mml:mrow></mml:msub></mml:mrow></mml:math> Physical Review Letters, 2015, 115, 036602.	2.9	91

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55	Ultrafast Spin Precession and Transport Controlled and Probed with Terahertz Radiation. Springer Proceedings in Physics, 2015, , 324-326.	0.1	1
56	Ultrafast spin precession and transport controlled and probed with terahertz radiation. Proceedings of SPIE, 2014, , .	0.8	0
57	Anomalous Hall effect in ferromagnets with Gaussian disorder. Physical Review B, 2014, 89, .	1.1	21
58	Berry phase theory of Dzyaloshinskiiâ€“Moriya interaction and spinâ€“orbit torques. Journal of Physics Condensed Matter, 2014, 26, 104202.	0.7	121
59	Real-Space and Reciprocal-Space Berry Phases in the Hall Effect of<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mrow><mml:mi>Mn</mml:mi></mml:mrow><mml:mrow><mml:mn>1</mml:mn><mml:mn> Physical Review Letters, 2014, 112, 186601.	2.9	105
60	Spin-orbit torques in Co/Pt(111) and Mn/W(001) magnetic bilayers from first principles. Physical Review B, 2014, 90, .	1.1	164
61	Spin Hall Effects in Metallic Antiferromagnets. Physical Review Letters, 2014, 113, 196602.	2.9	313
62	Symmetry and magnitude of spinâ€“orbit torques in ferromagnetic heterostructures. Nature Nanotechnology, 2013, 8, 587-593.	15.6	955
63	Phase-space Berry phases in chiral magnets: Dzyaloshinskii-Moriya interaction and the charge of skyrmions. Physical Review B, 2013, 88, .	1.1	77
64	Scattering-independent anomalous Nernst effect in ferromagnets. Physical Review B, 2013, 87, .	1.1	61
65	Terahertz spin current pulses controlled by magnetic heterostructures. Nature Nanotechnology, 2013, 8, 256-260.	15.6	476
66	Engineering quantum anomalous Hall phases with orbital and spin degrees of freedom. Physical Review B, 2013, 87, .	1.1	22
67	Anisotropy of spin relaxation and transverse transport in metals. Journal of Physics Condensed Matter, 2013, 25, 163201.	0.7	22
68	Disentangling the Physical Contributions to the Electrical Resistance in Magnetic Domain Walls: A Multiscale Study. Physical Review Letters, 2012, 108, 077201.	2.9	15
69	Conductance fingerprints of noncollinear magnetic states in single-atom contacts: A first-principles Wannier-functions study. Physical Review B, 2012, 86, .	1.1	6
70	Spin injection at remanence into III-V spin light-emitting diodes using (Co/Pt) ferromagnetic injectors. Physical Review B, 2012, 86, .	1.1	29
71	Topological phases of Bi(111) bilayer in an external exchange field. Physical Review B, 2012, 86, .	1.1	39
72	One-dimensional ballistic transport with FLAPW Wannier functions. Physical Review B, 2012, 85, .	1.1	9

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73	Role of Spin-Flip Transitions in the Anomalous Hall Effect of FePt Alloy. Physical Review Letters, 2011, 106, 117202.	2.9	25
74	Localized edge states in two-dimensional topological insulators: Ultrathin Bi films. Physical Review B, 2011, 83, .	1.1	305
75	AbÂInitioTheory of the Scattering-Independent Anomalous Hall Effect. Physical Review Letters, 2011, 107, 106601.	2.9	68
76	Origin of the Planar Hall Effect in Nanocrystalline<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mi>Co</mml:mi><mml:mn>60</mml:mn></mml:msub><mml:msub><mml:mi>Fe</mml:mi><mml:m mathvariant="normal">B</mml:mi><mml:mn>20</mml:mn></mml:msub></mml:math>. Physical Review Letters, 2011, 107, 086603.	2.9	61
77	Anisotropic Spin Hall Effect from First Principles. Physical Review Letters, 2010, 105, 246602.	2.9	87
78	Wannier-function approach to spin excitations in solids. Physical Review B, 2010, 81, .	1.1	83
79	Magnetically induced ferroelectricity in orthorhombic manganites: Microscopic origin and chemical trends. Physical Review B, 2008, 78, .	1.1	96
80	Maximally localized Wannier functions within the FLAPW formalism. Physical Review B, 2008, 78, .	1.1	135
81	Publisher's Note: Maximally localized Wannier functions within the FLAPW formalism [Phys. Rev. B78, 035120 (2008)]. Physical Review B, 2008, 78, .	1.1	4