

Yuriy Mokrousov

List of Publications by Year in descending order

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145
papers

10,120
citations

46984

47
h-index

34964

98
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152
all docs

152
docs citations

152
times ranked

8164
citing authors

#	ARTICLE	IF	CITATIONS
1	Electrical switching of an antiferromagnet. <i>Science</i> , 2016, 351, 587-590.	6.0	1,049
2	Symmetry and magnitude of spin-orbit torques in ferromagnetic heterostructures. <i>Nature Nanotechnology</i> , 2013, 8, 587-593.	15.6	955
3	Wannier90 as a community code: new features and applications. <i>Journal of Physics Condensed Matter</i> , 2020, 32, 165902.	0.7	807
4	Efficient metallic spintronic emitters of ultrabroadband terahertz radiation. <i>Nature Photonics</i> , 2016, 10, 483-488.	15.6	605
5	Terahertz spin current pulses controlled by magnetic heterostructures. <i>Nature Nanotechnology</i> , 2013, 8, 256-260.	15.6	476
6	Topological antiferromagnetic spintronics. <i>Nature Physics</i> , 2018, 14, 242-251.	6.5	427
7	Spin Hall Effects in Metallic Antiferromagnets. <i>Physical Review Letters</i> , 2014, 113, 196602.	2.9	313
8	Electrically Tunable Quantum Anomalous Hall Effect in Graphene Decorated by $5d$ Transition-Metal Adatoms. <i>Physical Review Letters</i> , 2012, 108, 056802.	2.9	286
9	Roadmap of Spin-Orbit Torques. <i>IEEE Transactions on Magnetics</i> , 2021, 57, 1-39.	1.2	225
10	Femtosecond control of electric currents in metallic ferromagnetic heterostructures. <i>Nature Nanotechnology</i> , 2016, 11, 455-458.	15.6	182
11	Spin-orbit torques in Co/Pt(111) and Mn/W(001) magnetic bilayers from first principles. <i>Physical Review B</i> , 2014, 90, .	1.1	164
12	Information Transfer by Vector Spin Chirality in Finite Magnetic Chains. <i>Physical Review Letters</i> , 2012, 108, 197204.	2.9	151
13	Maximally localized Wannier functions within the FLAPW formalism. <i>Physical Review B</i> , 2008, 78, .	1.1	135
14	Berry phase theory of Dzyaloshinskii-Moriya interaction and spin-orbit torques. <i>Journal of Physics Condensed Matter</i> , 2014, 26, 104202.	0.7	121
15	Spin-orbit torques in locally and globally noncentrosymmetric crystals: Antiferromagnets and ferromagnets. <i>Physical Review B</i> , 2017, 95, .	1.1	113
16	Real-Space and Reciprocal-Space Berry Phases in the Hall Effect of Mn . <i>Physical Review Letters</i> , 2014, 112, 186601.	2.9	105
17	Topological chiral magnetic interactions driven by emergent orbital magnetism. <i>Nature Communications</i> , 2020, 11, 511.	5.8	104
18	Giant Magnetocrystalline Anisotropies of 4d Transition-Metal Monowires. <i>Physical Review Letters</i> , 2006, 96, 147201.	2.9	99

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19	All-electrical manipulation of magnetization dynamics in a ferromagnet by antiferromagnets with anisotropic spin Hall effects. <i>Physical Review B</i> , 2015, 92, .	1.1	95
20	Harnessing Orbital-to-Spin Conversion of Interfacial Orbital Currents for Efficient Spin-Orbit Torques. <i>Physical Review Letters</i> , 2020, 125, 177201.	2.9	92
21	Dzyaloshinskii-Moriya Interaction and Hall Effects in the Skyrmion Phase of $Mn</math>$	2.9	91
22	Anisotropic Spin Hall Effect from First Principles. <i>Physical Review Letters</i> , 2010, 105, 246602.	2.9	87
23	Spin-Orbit Strength Driven Crossover between Intrinsic and Extrinsic Mechanisms of the Anomalous Hall Effect in the Epitaxial $L</math>$	2.9	86
24	Long-range chiral exchange interaction in synthetic antiferromagnets. <i>Nature Materials</i> , 2019, 18, 703-708.	13.3	83
25	Phase-space Berry phases in chiral magnets: Dzyaloshinskii-Moriya interaction and the charge of skyrmions. <i>Physical Review B</i> , 2013, 88, .	1.1	77
26	Orbitronics: Orbital currents in solids. <i>Europhysics Letters</i> , 2021, 135, 37001.	0.7	77
27	Reduced spin-Hall effects from magnetic proximity. <i>Physical Review B</i> , 2015, 91, .	1.1	74
28	Direct and inverse spin-orbit torques. <i>Physical Review B</i> , 2015, 92, .	1.1	73
29	Functionalized bismuth films: Giant gap quantum spin Hall and valley-polarized quantum anomalous Hall states. <i>Physical Review B</i> , 2015, 91, .	1.1	73
30	Dzyaloshinskii-Moriya interaction and chiral magnetism in $d</math>$	1.1	72
31	Role of Berry phase theory for describing orbital magnetism: From magnetic heterostructures to topological orbital ferromagnets. <i>Physical Review B</i> , 2016, 94, .	1.1	71
32	Ab Initio Theory of the Scattering-Independent Anomalous Hall Effect. <i>Physical Review Letters</i> , 2011, 107, 106601.	2.9	68
33	Toward surface orbitronics: giant orbital magnetism from the orbital Rashba effect at the surface of sp-metals. <i>Scientific Reports</i> , 2017, 7, 46742.	1.6	67
34	Orientation Dependence of the Intrinsic Anomalous Hall Effect in hcp Cobalt. <i>Physical Review Letters</i> , 2009, 103, 097203.	2.9	65
35	Theory of current-induced angular momentum transfer dynamics in spin-orbit coupled systems. <i>Physical Review Research</i> , 2020, 2, .	1.3	65
36	Efficient conversion of orbital Hall current to spin current for spin-orbit torque switching. <i>Communications Physics</i> , 2021, 4, .	2.0	65

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37	Origin of the Planar Hall Effect in Nanocrystalline $\text{Co}_{60}\text{Fe}_{40}$ alloys. Physical Review Letters, 2011, 107, 086603.	1.1	61
38	Magnetic order and exchange interactions in monoatomic 3d transition-metal chains. Physical Review B, 2007, 75, .	1.1	61
39	Scattering-independent anomalous Nernst effect in ferromagnets. Physical Review B, 2013, 87, .	1.1	61
40	Full-potential linearized augmented plane-wave method for one-dimensional systems: Gold nanowire and iron monowires in a gold tube. Physical Review B, 2005, 72, .	1.1	57
41	Antiferromagnetic Topological Insulator with Nonsymmorphic Protection in Two Dimensions. Physical Review Letters, 2020, 124, 066401.	2.9	57
42	Topological magnon insulators in two-dimensional van der Waals ferromagnets CrSiTe_3 and CrGeTe_3 : Toward intrinsic gap-tunability. Science Advances, 2021, 7, eabi7532.	4.7	56
43	Sign-reversible valley-dependent Berry phase effects in 2D valley-half-semiconductors. Npj Computational Materials, 2021, 7, .	3.5	56
44	Spin-order dependent anomalous Hall effect and magneto-optical effect in the noncollinear antiferromagnets Mn_3N with X , Zn, Ag, or Ni. Physical Review B, 2019, 99, .	1.1	55
45	Topological magneto-optical effects and their quantization in noncoplanar antiferromagnets. Nature Communications, 2020, 11, 118.	5.8	51
46	Helical magnetic structure and the anomalous and topological Hall effects in epitaxial B_2O_3 films. Physical Review B, 2018, 97, .	1.1	50
47	The interplay of structure and spin-orbit strength in the magnetism of metal-benzene sandwiches: from single molecules to infinite wires. Nanotechnology, 2007, 18, 495402.	1.3	49
48	Topological spin Hall effect in antiferromagnetic skyrmions. Physica Status Solidi - Rapid Research Letters, 2017, 11, 1700007.	1.2	47
49	Orbital Rashba effect in a surface-oxidized Cu film. Physical Review B, 2021, 103, .	1.1	47
50	Observation of the Orbital Rashba-Edelstein Magnetoresistance. Physical Review Letters, 2022, 128, 067201.	2.9	46
51	Electric-Field Control of Spin-Orbit Torques in Perpendicularly Magnetized $\text{W}/\text{CoFeB}/\text{MgO}$ Films. Physical Review Letters, 2020, 124, 217701.	2.9	45
52	Skew scattering in dilute ferromagnetic alloys. Physical Review B, 2014, 90, .	1.1	44
53	Two-Dimensional Topological Crystalline Insulator and Topological Phase Transition in TlSe and TlS Monolayers. Nano Letters, 2015, 15, 6071-6075.	4.5	44
54	Chiral Hall Effect in Noncollinear Magnets from a Cyclic Cohomology Approach. Physical Review Letters, 2020, 124, 096602.	2.9	44

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55	Mixed topological semimetals driven by orbital complexity in two-dimensional ferromagnets. Nature Communications, 2019, 10, 3179.	5.8	43
56	Controlling the Magnetization Direction in Molecules via Their Oxidation State. Physical Review Letters, 2008, 100, 117207.	2.9	42
57	Mixed Weyl semimetals and low-dissipation magnetization control in insulators by spin-orbit torques. Nature Communications, 2017, 8, 1479.	5.8	42
58	Topological orbital magnetization and emergent Hall effect of an atomic-scale spin lattice at a surface. Physical Review B, 2015, 92, .	1.1	41
59	Topological phases of Bi(111) bilayer in an external exchange field. Physical Review B, 2012, 86, .	1.1	39
60	Spin-orbit torques in topological films driven by electrical and thermal currents. Physical Review B, 2015, 91, .	1.1	37
61	Topological crystalline insulator and quantum anomalous Hall states in IV-VI-based monolayers and their quantum wells. Physical Review B, 2015, 91, .	1.1	37
62	Two-dimensional topological nodal line semimetal in layered X ₂ Y (X=Ca , Sr, and Ba; Y=As , Sb, and Bi). Physical Review B, 2017, 95, .	1.1	37
63	Crystal Hall and crystal magneto-optical effect in thin films of SrRuO ₃ . Journal of Applied Physics, 2020, 127, .	1.1	37
64	Laser-induced torques in metallic ferromagnets. Physical Review B, 2016, 94, .	1.1	36
65	Prototypical topological orbital ferromagnet FeMn . Scientific Reports, 2017, 7, 41078.	1.6	36
66	Modification of Dzyaloshinskii-Moriya-Interaction-Stabilized Domain Wall Chirality by Driving Currents. Physical Review Letters, 2018, 121, 147203.	2.9	35
67	Robust dual topological character with spin-valley polarization in a monolayer of the Dirac semimetal Na_3Bi . Physical Review B, 2017, 95, .	1.1	34
68	Temperature and Co thickness dependent sign change of the anomalous Hall effect in Co/Pd multilayers: An experimental and theoretical study. Applied Physics Letters, 2013, 102, .	1.5	33
69	Relation of the Dzyaloshinskii-Moriya interaction to spin currents and to the spin-orbit field. Physical Review B, 2017, 96, .	1.1	33
70	Anisotropy of Spin Relaxation in Metals. Physical Review Letters, 2012, 109, 236603.	2.9	29
71	Engineering chiral and topological orbital magnetism of domain walls and skyrmions. Communications Physics, 2018, 1, .	2.0	29
72	Fully Spin-Polarized Nodal Loop Semimetals in Alkaline Metal Monochalcogenide Monolayers. Journal of Physical Chemistry Letters, 2019, 10, 3101-3108.	2.1	29

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73	Magnetic anisotropy energies of metal-benzene sandwiches. International Journal of Quantum Chemistry, 2006, 106, 3208-3213.	1.0	26
74	Role of Spin-Flip Transitions in the Anomalous Hall Effect of FePt Alloy. Physical Review Letters, 2011, 106, 117202.	2.9	25
75	Giant anomalous Nernst effect in noncollinear antiferromagnetic Mn-based antiperovskite nitrides. Physical Review Materials, 2020, 4, .	0.9	24
76	Theory and Application of Chain Formation in Break Junctions. Nano Letters, 2008, 8, 2144-2149.	4.5	23
77	Noncollinear magnetism in freestanding and supported monatomic Mn chains. Physical Review B, 2011, 83, .	1.1	23
78	Engineering quantum anomalous Hall phases with orbital and spin degrees of freedom. Physical Review B, 2013, 87, .	1.1	22
79	Anisotropy of spin relaxation and transverse transport in metals. Journal of Physics Condensed Matter, 2013, 25, 163201.	0.7	22
80	Spin relaxation and spin Hall transport in d -transition-metal ultrathin films. Physical Review B, 2014, 90, .	1.1	22
81	Distinct magnetotransport and orbital fingerprints of chiral bobbers. Physical Review B, 2019, 99, .	1.1	22
82	Anomalous Hall effect in ferromagnets with Gaussian disorder. Physical Review B, 2014, 89, .	1.1	21
83	Fermi surfaces, spin-mixing parameter, and colossal anisotropy of spin relaxation in transition metals from <i>ab initio</i> theory. Physical Review B, 2016, 93, .	1.1	21
84	Magnonic Weyl states in $Cu_{1-x}Mn_x$. Physical Review Research, 2020, 2, .	1.2	21
85	Anisotropic intrinsic anomalous Hall effect in ordered 3d Pt alloys. Physical Review B, 2011, 84, .	1.1	19
86	Giant magnetization canting due to symmetry breaking in zigzag Co chains on Ir(001). New Journal of Physics, 2015, 17, 023014.	1.2	19
87	Asymmetric band gaps in a Rashba film system. Physical Review B, 2016, 93, .	1.1	19
88	Faster chiral versus collinear magnetic order recovery after optical excitation revealed by femtosecond XUV scattering. Nature Communications, 2020, 11, 6304.	5.8	19
89	Magnetically Hindered Chain Formation in Transition-Metal Break Junctions. Physical Review Letters, 2009, 103, 217201.	2.9	18
90	<i>Ab initio</i> analysis of magnetic properties of the prototype B20 chiral magnet FeGe. Physical Review B, 2019, 100, .	1.1	18

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91	Competing magnetic anisotropies in atomic-scale junctions. <i>Physical Review B</i> , 2010, 81, .	1.1	17
92	Spin-orbit torques and spin accumulation in FePt/Pt and Co/Cu thin films from first principles: The role of impurities. <i>Physical Review B</i> , 2016, 93, .	1.1	17
93	Non-Fermi-Liquid Behavior in Transport Through Co-Doped Au Chains. <i>Physical Review Letters</i> , 2013, 110, 196402.	2.9	16
94	Chiral damping, chiral gyromagnetism, and current-induced torques in textured one-dimensional Rashba ferromagnets. <i>Physical Review B</i> , 2017, 96, .	1.1	16
95	Disentangling the Physical Contributions to the Electrical Resistance in Magnetic Domain Walls: A Multiscale Study. <i>Physical Review Letters</i> , 2012, 108, 077201.	2.9	15
96	The chiral Hall effect in canted ferromagnets and antiferromagnets. <i>Communications Physics</i> , 2021, 4, .	2.0	15
97	Magnetism-mediated transition between crystalline and higher-order topological phases in NpSb. <i>Physical Review B</i> , 2021, 103, .	1.1	15
98	Topological response of the anomalous Hall effect in MnBi ₂ Te ₄ due to magnetic canting. <i>Npj Quantum Materials</i> , 2022, 7, .	1.8	15
99	Structurally driven magnetic state transition of biatomic Fe chains on Ir(001). <i>Physical Review B</i> , 2009, 80, .	1.1	14
100	The inverse thermal spin-orbit torque and the relation of the Dzyaloshinskii-Moriya interaction to ground-state energy currents. <i>Journal of Physics Condensed Matter</i> , 2016, 28, 316001.	0.7	14
101	Strong spin-orbit fields and Dyakonov-Perel spin dephasing in supported metallic films. <i>Physical Review B</i> , 2016, 94, .	1.1	14
102	Geometrical contributions to the exchange constants: Free electrons with spin-orbit interaction. <i>Physical Review B</i> , 2017, 95, .	1.1	14
103	Interplay of Dzyaloshinskii-Moriya and Kitaev interactions for magnonic properties of Heisenberg-Kitaev honeycomb ferromagnets. <i>Physical Review B</i> , 2021, 103, .	1.1	14
104	Spin caloric transport from density-functional theory. <i>Journal Physics D: Applied Physics</i> , 2019, 52, 073001.	1.3	13
105	Engineering the dynamics of topological spin textures by anisotropic spin-orbit torques. <i>Physical Review B</i> , 2020, 101, .	1.1	13
106	Higher-dimensional Wannier Interpolation for the Modern Theory of the Dzyaloshinskii-Moriya Interaction: Application to Co-based Trilayers. <i>Journal of the Physical Society of Japan</i> , 2018, 87, 041010.	0.7	12
107	Spin-flip hot spots in ultrathin films of monovalent metals: Enhancement and anisotropy of the Elliott-Yafet parameter. <i>Physical Review B</i> , 2013, 88, .	1.1	11
108	Spin-orbit torques and tunable Dzyaloshinskii-Moriya interaction in Co/Cu/Co trilayers. <i>Physical Review B</i> , 2018, 98, .	1.1	11

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109	Imprinting and driving electronic orbital magnetism using magnons. Communications Physics, 2020, 3, .	2.0	11
110	Higher-dimensional Wannier functions of multiparameter Hamiltonians. Physical Review B, 2015, 91, .	1.1	10
111	Ballistic Anisotropic Magnetoresistance of Single-Atom Contacts. Nano Letters, 2016, 16, 1450-1454.	4.5	10
112	Hybrid quantum anomalous Hall effect at graphene-oxide interfaces. Physical Review B, 2018, 98, .	1.1	10
113	One-dimensional ballistic transport with FLAPW Wannier functions. Physical Review B, 2012, 85, .	1.1	9
114	Magnetic domain walls of the van der Waals material Fe ₃ GeTe ₂ . 2D Materials, 2022, 9, 025022.	2.0	9
115	Spin relaxation and the Elliott-Yafet parameter in W(001) ultrathin films: Surface states, anisotropy, and oscillation effects. Physical Review B, 2013, 87, .	1.1	8
116	Influence of complex disorder on skew-scattering Hall effects in L FePt alloy. Physical Review B, 2016, 94, .	1.1	8
117	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
118	Charge and spin photocurrents in the Rashba model. Physical Review B, 2021, 103, .	1.1	8
119	Driving spin chirality by electron dynamics in laser-excited antiferromagnets. Communications Physics, 2022, 5, .	2.0	8
120	Charge pumping driven by the laser-induced dynamics of the exchange splitting. Physical Review B, 2017, 95, .	1.1	7
121	Conductance fingerprints of noncollinear magnetic states in single-atom contacts: A first-principles Wannier-functions study. Physical Review B, 2012, 86, .	1.1	6
122	Modeling impurity-assisted chain creation in noble-metal break junctions. Journal of Physics Condensed Matter, 2012, 24, 135501.	0.7	6
123	Unusual Kondo Physics in a Co Impurity Atom Embedded in Noble-Metal Chains. IEEE Transactions on Magnetics, 2013, 49, 4683-4686.	1.2	6
124	Giant spin Nernst effect induced by resonant scattering at surfaces of metallic films. Physical Review B, 2016, 93, .	1.1	6
125	Tuning Spin-Orbit Torques Across the Phase Transition in VO ₂ /NiFe Heterostructure. Advanced Functional Materials, 2022, 32, .	7.8	6
126	Two-dimensional topological crystalline insulator phase in quantum wells of trivial insulators. 2D Materials, 2016, 3, 025037.	2.0	5

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127	Tailoring the anomalous Hall effect of SrRuO ₃ thin films by strain: A first principles study. Journal of Applied Physics, 2021, 129, 093904.	1.1	5
128	Laser-induced torques in metallic antiferromagnets. Physical Review B, 2021, 103, .	1.1	5
129	Fe(001) angle-resolved photoemission and intrinsic anomalous Hall conductivity in Fe seen by different <i>ab initio</i> approaches: LDA and GGA versus $\langle \text{mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML">\langle \text{mml:mrow}>\langle \text{mml:mi mathvariant="italic">GW}\langle \text{mml:mi}>\langle \text{mml:mrow}>\langle \text{mml:math}>$	1.1	5
130	Spin and orbital transport in rare-earth dichalcogenides: The case of $\langle \text{mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML">\langle \text{mml:mrow}>\langle \text{mml:mi}>EuS\langle \text{mml:mi}>\langle \text{mml:mrow}>\langle \text{mml:mi}>2\langle \text{mml:mn}>2\langle \text{mml:math}>$	1.1	5
131	Conditions for Subspaces of Analytic Vectors of a Closed Operator in a Banach Space to Be Dense. Functional Analysis and Its Applications, 2001, 35, 64-66.	0.1	4
132	Nonlocal fieldlike spin-orbit torques in Rashba systems: <i>ab initio</i> study of a $\langle \text{mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML">\langle \text{mml:mrow}>\langle \text{mml:msub}>\langle \text{mml:mi}>Ag\langle \text{mml:mi}>\langle \text{mml:mn}>12\langle \text{mml:mn}>1\langle \text{mml:math}>$ -terminated Ag(111) film grown on a ferromagnetic Fe(110) substrate. Physical Review B, 2017, 95, .	1.1	4
133	Mixed topology ring states for Hall effect and orbital magnetism in skyrmions of Weyl semimetals. Physical Review B, 2020, 102, .	1.1	4
134	Photocurrents of charge and spin in monolayer $\langle \text{mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML">\langle \text{mml:mrow}>\langle \text{mml:msub}>\langle \text{mml:mi}>Fe\langle \text{mml:mi}>\langle \text{mml:mn}>13\langle \text{mml:mn}>1\langle \text{mml:math}>$	1.1	4
135	Molecular anisotropic magnetoresistance. Physical Review B, 2015, 92, .	1.1	3
136	Magnetoelastic resonance as a probe for exchange springs at antiferromagnet-ferromagnet interfaces. Physical Review B, 2022, 105, .	1.1	3
137	Magnetism in Molecular Vanadium-Benzene Sandwiches. AIP Conference Proceedings, 2005, , .	0.3	2
138	Laser-induced torques in spin spirals. Physical Review B, 2021, 103, .	1.1	2
139	Effect of magnons on the temperature dependence and anisotropy of spin-orbit torque. Physical Review B, 2021, 104, .	1.1	2
140	Theory of unidirectional magnetoresistance and nonlinear Hall effect. Journal of Physics Condensed Matter, 2022, 34, 055301.	0.7	2
141	Evidence of Magnon-Mediated Orbital Magnetism in a Quasi-2D Topological Magnon Insulator. Nano Letters, 2022, 22, 5114-5119.	4.5	2
142	Magnetic properties of 2D nickel nanostrips: structure dependent magnetism and Stoner criterion. Journal of Physics Condensed Matter, 2015, 27, 316002.	0.7	1
143	Spin-orbit torques in strained PtMnSb from first principles. Physical Review B, 2021, 103, .	1.1	1
144	Effect of magnetism and light sp-dopants on chain creation in Ir and Pt break junctions. Journal of Physics Condensed Matter, 2014, 26, 295302.	0.7	0

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145	Anomalous Hall Effect. Springer Series in Solid-state Sciences, 2018, , 177-207.	0.3	0