

Shinji Miwa

List of Publications by Year in descending order

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111
papers

3,126
citations

172457

29
h-index

168389

53
g-index

115
all docs

115
docs citations

115
times ranked

3023
citing authors

#	ARTICLE	IF	CITATIONS
1	Highly sensitive nanoscale spin-torque diode. <i>Nature Materials</i> , 2014, 13, 50-56.	27.5	228
2	Electric-field-induced ferromagnetic resonance excitation in an ultrathin ferromagnetic metal layer. <i>Nature Physics</i> , 2012, 8, 491-496.	16.7	223
3	Electrical manipulation of a topological antiferromagnetic state. <i>Nature</i> , 2020, 580, 608-613.	27.8	212
4	Iron-based binary ferromagnets for transverse thermoelectric conversion. <i>Nature</i> , 2020, 581, 53-57.	27.8	162
5	Voltage controlled interfacial magnetism through platinum orbits. <i>Nature Communications</i> , 2017, 8, 15848.	12.8	128
6	Physical reservoir computing based on spin torque oscillator with forced synchronization. <i>Applied Physics Letters</i> , 2019, 114, .	3.3	106
7	Macromagnetic Simulation for Reservoir Computing Utilizing Spin Dynamics in Magnetic Tunnel Junctions. <i>Physical Review Applied</i> , 2018, 10, .	3.8	97
8	Recent Progress in the Voltage-Controlled Magnetic Anisotropy Effect and the Challenges Faced in Developing Voltage-Torque MRAM. <i>Micromachines</i> , 2019, 10, 327.	2.9	96
9	Opposite signs of voltage-induced perpendicular magnetic anisotropy change in CoFeB/MgO junctions with different underlayers. <i>Applied Physics Letters</i> , 2013, 103, .	3.3	89
10	Perfect selective alignment of nitrogen-vacancy centers in diamond. <i>Applied Physics Express</i> , 2014, 7, 055201.	2.4	84
11	Highly efficient voltage control of spin and enhanced interfacial perpendicular magnetic anisotropy in iridium-doped Fe/MgO magnetic tunnel junctions. <i>NPG Asia Materials</i> , 2017, 9, e451-e451.	7.9	84
12	Pulse voltage-induced dynamic magnetization switching in magnetic tunneling junctions with high resistance-area product. <i>Applied Physics Letters</i> , 2012, 101, .	3.3	77
13	Pure negatively charged state of the NV center in n -type diamond. <i>Physical Review B</i> , 2016, 93, .	3.2	77
14	Reversible change in the oxidation state and magnetic circular dichroism of Fe driven by an electric field at the FeCo/MgO interface. <i>Applied Physics Letters</i> , 2013, 102, .	3.3	72
15	Voltage induction of interfacial Dzyaloshinskii-Moriya interaction in Au/Fe/MgO artificial multilayer. <i>Applied Physics Express</i> , 2015, 8, 063004.	2.4	66
16	Room-temperature operation of Si spin MOSFET with high on/off spin signal ratio. <i>Applied Physics Express</i> , 2015, 8, 113004.	2.4	63
17	Spin-orbit torque in a bulk perpendicular magnetic anisotropy Pd/FePd/MgO system. <i>Scientific Reports</i> , 2014, 4, 6548.	3.3	59
18	Tunnel magnetoresistance of C_{60} nanocomposites and spin-dependent transport in organic semiconductors. <i>Physical Review B</i> , 2007, 76, .	3.2	49

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19	Electric-field-induced changes of magnetic moments and magnetocrystalline anisotropy in ultrathin cobalt films. <i>Physical Review B</i> , 2017, 96, .	3.2	48
20	Perpendicular magnetic anisotropy and its electric-field-induced change at metal-dielectric interfaces. <i>Journal Physics D: Applied Physics</i> , 2019, 52, 063001.	2.8	47
21	Voltage-controlled magnetic anisotropy in Fe MgO tunnel junctions studied by x-ray absorption spectroscopy. <i>Applied Physics Letters</i> , 2015, 107, .	3.3	46
22	Control of Spin-Orbit Torques by Interface Engineering in Topological Insulator Heterostructures. <i>Nano Letters</i> , 2020, 20, 5893-5899.	9.1	46
23	Observation of Anomalous Spin Torque Generated by a Ferromagnet. <i>Physical Review Applied</i> , 2018, 9, .	3.8	42
24	Reservoir computing with dipole-coupled nanomagnets. <i>Japanese Journal of Applied Physics</i> , 2019, 58, 070901.	1.5	42
25	Deterministic Electrical Charge-State Initialization of Single Nitrogen-Vacancy Center in Diamond. <i>Physical Review X</i> , 2014, 4, .	8.9	41
26	Evaluation of memory capacity of spin torque oscillator for recurrent neural networks. <i>Japanese Journal of Applied Physics</i> , 2018, 57, 120307.	1.5	35
27	Spin-Dependent Transport in C60-Co Nano-Composites. <i>Japanese Journal of Applied Physics</i> , 2006, 45, L717-L719.	1.5	33
28	Unified understanding of both thermally assisted and precessional spin-transfer switching in perpendicularly magnetized giant magnetoresistive nanopillars. <i>Applied Physics Letters</i> , 2013, 102, .	3.3	31
29	Coherent microwave generation by spintronic feedback oscillator. <i>Scientific Reports</i> , 2016, 6, 30747.	3.3	31
30	Observation of large spin accumulation voltages in nondegenerate Si spin devices due to spin drift effect: Experiments and theory. <i>Physical Review B</i> , 2016, 93, .	3.2	29
31	Spin-dependent transport in nanocomposites of Alq ₃ molecules and cobalt nanoparticles. <i>Applied Physics Letters</i> , 2007, 91, 063123.	3.3	26
32	Microwave amplification in a magnetic tunnel junction induced by heat-to-spin conversion at the nanoscale. <i>Nature Nanotechnology</i> , 2019, 14, 40-43.	31.5	26
33	Large magnetoresistance in rubrene-Co nano-composites. <i>Chemical Physics Letters</i> , 2007, 448, 106-110.	2.6	24
34	Observation of thermally driven field-like spin torque in magnetic tunnel junctions. <i>Applied Physics Letters</i> , 2016, 109, 032406.	3.3	24
35	High-output microwave detector using voltage-induced ferromagnetic resonance. <i>Applied Physics Letters</i> , 2014, 105, 192408.	3.3	23
36	MgO overlayer thickness dependence of perpendicular magnetic anisotropy in CoFeB thin films. <i>Journal of the Korean Physical Society</i> , 2013, 62, 1461-1464.	0.7	21

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37	Giant Effective Damping of Octupole Oscillation in an Antiferromagnetic Weyl Semimetal. <i>Small Science</i> , 2021, 1, 2000062.	9.9	20
38	1×10^{-3} - to 2×10^{-2} -nm perpendicular MTJ Switching at Sub-3-ns Pulses Below $100 \mu\text{A}$ for High-Performance Embedded STT-MRAM for Sub-20-nm CMOS. <i>IEEE Transactions on Electron Devices</i> , 2017, 64, 427-431.	3.0	19
39	Strong Bias Effect on Voltage-Driven Torque at Epitaxial Fe-MgO Interface. <i>Physical Review X</i> , 2017, 7, .	8.9	18
40	Voltage-controlled magnetic anisotropy and voltage-induced Dzyaloshinskii-Moriya interaction change at the epitaxial Fe(001)/MgO(001) interface engineered by Co and Pd atomic-layer insertion. <i>Physical Review B</i> , 2018, 98, .	3.2	18
41	Integer, Fractional, and Sideband Injection Locking of a Spintronic Feedback Nano-Oscillator to a Microwave Signal. <i>Physical Review Applied</i> , 2017, 8, .	3.8	16
42	Magnetic anisotropy of ferromagnetic metals in low-symmetry systems. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 2019, 383, 1203-1206.	2.1	16
43	Large Hall Signal due to Electrical Switching of an Antiferromagnetic Weyl Semimetal State. <i>Small Science</i> , 2021, 1, 2000025.	9.9	16
44	Chirality-Induced Magnetoresistance Due to Thermally Driven Spin Polarization. <i>Journal of the American Chemical Society</i> , 2022, 144, 7302-7307.	13.7	16
45	Large voltage-induced magnetic anisotropy field change in ferrimagnetic FeGd. <i>Applied Physics Express</i> , 2015, 8, 073007.	2.4	15
46	Realization of Spin-dependent Functionality by Covering a Metal Surface with a Single Layer of Molecules. <i>Nano Letters</i> , 2019, 19, 7119-7123.	9.1	14
47	Quantitative and systematic analysis of bias dependence of spin accumulation voltage in a nondegenerate Si-based spin valve. <i>Physical Review B</i> , 2019, 99, .	3.2	14
48	Voltage modulation of propagating spin waves in Fe. <i>Journal of Applied Physics</i> , 2015, 117, 17A905.	2.5	12
49	Study of spin dynamics and damping on the magnetic nanowire arrays with various nanowire widths. <i>Journal of Magnetism and Magnetic Materials</i> , 2016, 409, 99-103.	2.3	12
50	Synthetic Rashba spin-orbit system using a silicon metal-oxide semiconductor. <i>Nature Materials</i> , 2021, 20, 1228-1232.	27.5	11
51	Detailed analysis of spin-dependent quantum interference effects in magnetic tunnel junctions with Fe quantum wells. <i>Applied Physics Letters</i> , 2013, 102, 032406.	3.3	10
52	Spin-dependent tunneling in magnetic tunnel junctions with Fe nanoparticles embedded in an MgO matrix. <i>Solid State Communications</i> , 2014, 183, 18-21.	1.9	10
53	Tunnel anisotropic magnetoresistance in CoFeB MgO Ta junctions. <i>Applied Physics Letters</i> , 2015, 107, 082407.	3.3	10
54	Investigation of spin scattering mechanism in silicon channels of Fe/MgO/Si lateral spin valves. <i>Applied Physics Letters</i> , 2017, 110, 192401.	3.3	10

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55	Voltage-controlled magnetic anisotropy and Dzyaloshinskii-Moriya interactions in CoNi/MgO and CoNi/Pd/MgO. Japanese Journal of Applied Physics, 2019, 58, 060917.	1.5	10
56	Over 1% magnetoresistance ratio at room temperature in non-degenerate silicon-based lateral spin valves. Applied Physics Express, 2020, 13, 083002.	2.4	10
57	Spin-orbit torque switching of the antiferromagnetic state in polycrystalline Mn ₃ Sn/Cu/heavy metal heterostructures. AIP Advances, 2021, 11, .	1.3	10
58	Control of coherence among the spins of a single electron and the three nearest neighbor ¹³ C nuclei of a nitrogen-vacancy center in diamond. Applied Physics Letters, 2015, 106, 153103.	3.3	9
59	Spin-wave eigenmodes in single disk-shaped FeB nanomagnet. Physical Review B, 2016, 94, .	3.2	9
60	Sub-3 ns pulse with sub-100 μ A switching of 1 \times 2 nm perpendicular MTJ for high-performance embedded STT-MRAM towards sub-20 nm CMOS. , 2016, , .		9
61	Effect of Electric Field on the Exchange-Stiffness Constant in a $\text{Co}_{12}\text{Fe}_{16}\text{B}_{16}$ Disk-Shaped Nanomagnet. 65 nm in Diameter. Physical Review Applied, 2018, 10, .		
62	Field angle dependence of voltage-induced ferromagnetic resonance under DC bias voltage. Journal of Magnetism and Magnetic Materials, 2016, 400, 159-162.	2.3	8
63	Characterization of the magnetic moments of ultrathin Fe film in an external electric field via high-precision X-ray magnetic circular dichroism spectroscopy. Japanese Journal of Applied Physics, 2017, 56, 060304.	1.5	8
64	Perpendicular magnetic anisotropy of CoFeB/Ta bilayers on ALD HfO ₂ . AIP Advances, 2017, 7, 055933.	1.3	8
65	Interface resonance in Fe/Pt/MgO multilayer structure with large voltage controlled magnetic anisotropy change. Applied Physics Letters, 2019, 114, .	3.3	8
66	Investigation of gating effect in Si spin MOSFET. Applied Physics Letters, 2020, 116, .	3.3	8
67	Fabrication of polycrystalline Weyl antiferromagnetic Mn_2Sb thin films on various seed layers. Physical Review Materials, 2021, 5, .		
68	Composition Dependence of Perpendicular Magnetic Anisotropy in Ta/Co _x Fe _{80-x} B ₂₀ /MgO/Ta (x=0, 10, 60) Multilayers. Journal of Magnetism, 2013, 18, 5-8.	0.4	8
69	Observation of spontaneous x-ray magnetic circular dichroism in a chiral antiferromagnet. Physical Review B, 2021, 104, .	3.2	8
70	Investigation of Au and Ag segregation on Fe(001) with soft X-ray absorption. Surface Science, 2013, 616, 125-130.	1.9	7
71	Voltage-Controlled Magnetic Anisotropy in Fe _{1-x} Cox/Pd/MgO system. Scientific Reports, 2018, 8, 10362.	3.3	7
72	Gate-Tunable Spin xor Operation in a Silicon-Based Device at Room Temperature. Physical Review Applied, 2020, 13, .	3.8	7

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73	Reservoir Computing Based on Spintronics Technology. Natural Computing Series, 2021, , 331-360.	2.2	7
74	Chirality-induced effective magnetic field in a phthalocyanine molecule. Applied Physics Express, 2020, 13, 113001.	2.4	7
75	Enhancement of Spin Diode Signals from Fe Nanoparticles in MgO-Based Magnetic Tunnel Junctions. Applied Physics Express, 2012, 5, 123001.	2.4	6
76	Radio-frequency amplification property of the MgO-based magnetic tunnel junction using field-induced ferromagnetic resonance. Applied Physics Letters, 2013, 102, 162409.	3.3	6
77	Growth of perpendicularly magnetized thin films on a polymer buffer and voltage-induced change of magnetic anisotropy at the MgO CoFeB interface. AIP Advances, 2015, 5, 067132.	1.3	6
78	Thermally Generated Spin Signals in a Nondegenerate Silicon Spin Valve. Physical Review Applied, 2018, 9, .	3.8	6
79	Electrical Control for Extending the Ramsey Spin Coherence Time of Ion-Implanted Nitrogen-Vacancy Centers in Diamond. Physical Review Applied, 2020, 14, .	3.8	6
80	Control of perpendicular magnetic anisotropy at the Fe/MgO interface by phthalocyanine insertion. Physical Review B, 2022, 105, .	3.2	6
81	Spin-dependent quantum well effect in fully epitaxial Cr/ultrathin Fe/MgO/Fe magnetic tunnel junctions. Solid State Communications, 2012, 152, 273-277.	1.9	5
82	Magnetic tunnel junction with Fe(001)/Co phthalocyanine/MgO(001) single-crystal multilayer. Applied Physics Express, 2018, 11, 013201.	2.4	5
83	Voltage-controlled magnetic anisotropy in an ultrathin nickel film studied by <i>operando</i> x-ray magnetic circular dichroism spectroscopy. Physical Review B, 2020, 102, .	3.2	5
84	Low Gilbert damping in epitaxial thin films of the nodal-line semimetal $D_0\text{Fe}_3\text{Ga}$. Physical Review B, 2021, 103, .	3.2	5
85	Influence of epitaxial strain on the perpendicular magnetic anisotropy of Fe/MgO systems. Physical Review B, 2021, 104, .	3.2	5
86	Electron Correlation Enhances Orbital Polarization at a Ferromagnetic Metal/Insulator Interface: Depth-Resolved X-ray Magnetic Circular Dichroism and First-Principles Study. ACS Applied Electronic Materials, 2022, 4, 1794-1799.	4.3	5
87	Microscopic origin of large perpendicular magnetic anisotropy in an FeIr/MgO system. Physical Review B, 2019, 99, .	3.2	4
88	Sizable spin-transfer torque in the Bi/Ni80Fe20 bilayer film. Applied Physics Letters, 2020, 117, .	3.3	4
89	Enhancement of spin signals by thermal annealing in silicon-based lateral spin valves. AIP Advances, 2020, 10, 095021.	1.3	4
90	Nonlinear thermal effect on sub-gigahertz ferromagnetic resonance in magnetic tunnel junction. Applied Physics Letters, 2013, 103, .	3.3	3

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91	Electric field modulation of tunneling anisotropic magnetoresistance in tunnel junctions with antiferromagnetic electrodes. Japanese Journal of Applied Physics, 2016, 55, 080304.	1.9	3
92	Electric field modulation of tunneling anisotropic magnetoresistance in tunnel junctions with antiferromagnetic electrodes. Japanese Journal of Applied Physics, 2016, 55, 080304.	1.5	3
93	Tunneling Anisotropic Magnetoresistance in Fe Nanoparticles Embedded in MgO Matrix. Journal of Electronic Materials, 2016, 45, 2597-2600.	2.2	3
94	Electron paramagnetic resonance study of MgO thin-film grown on silicon. Journal of Applied Physics, 2017, 121, .	2.5	3
95	Effect of external magnetic field on locking range of spintronic feedback nano oscillator. AIP Advances, 2018, 8, .	1.3	3
96	Stability of spin XOR gate operation in silicon based lateral spin device with large variations in spin transport parameters. AIP Advances, 2019, 9, 125326.	1.3	3
97	Detection of Spin Transfer from Metal to Molecule by Magnetoresistance Measurement. Nano Letters, 2020, 20, 75-80.	9.1	3
98	Physically Unclonable Functions With Voltage-Controlled Magnetic Tunnel Junctions. IEEE Transactions on Magnetics, 2021, 57, 1-6.	2.1	3
99	Fabrication of Fe/MgO/Gd Magnetic Tunnel Junctions. IEEE Transactions on Magnetics, 2013, 49, 4417-4420.	2.1	2
100	Extended X-ray absorption fine structure analysis of voltage-induced effects in the interfacial atomic structure of Fe/Pt/MgO. Applied Physics Express, 2017, 10, 063006.	2.4	2
101	Spin Relaxation Enhanced by Decorating Cu Surfaces With Lead (II) Phthalocyanine Molecules. IEEE Transactions on Magnetics, 2018, 54, 1-4.	2.1	2
102	Quasi-maser operation using magnetic tunnel junctions. Applied Physics Letters, 2021, 118, 192402.	3.3	2
103	Characterization of MgO Thin Films Grown on Carbon Materials by Molecular Beam Epitaxy. Japanese Journal of Applied Physics, 2013, 52, 070208.	1.5	1
104	Magnetostatic spin wave in a very thin CoFeB film grown on an amorphous FeZr buffer layer. Journal of the Korean Physical Society, 2015, 67, 906-910.	0.7	1
105	Periodic Fluctuations of Switching Probability in Spin-Transfer Magnetization Switching in Magnetic Tunnel Junctions. IEEE Transactions on Magnetics, 2018, 54, 1-5.	2.1	1
106	Investigation of the thermal tolerance of silicon-based lateral spin valves. Scientific Reports, 2021, 11, 10583.	3.3	1
107	Spin-torque magnetic resonance of Fe nanoparticles in Fe/MgO/Fe magnetic tunnel junctions. Journal of the Korean Physical Society, 2013, 62, 2206-2209.	0.7	0
108	Single photon, spin, and charge in diamond semiconductor at room temperature. , 2013, , .		0

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109	Three-Terminal Device for Realizing a Voltage-Driven Spin Transistor. IEEE Transactions on Magnetics, 2015, 51, 1-4.	2.1	0
110	1Å- to 2Å-nm MTJ switching at sub-3 ns pulses with compatible current in sub-20 nm CMOS for high performance embedded STT-MRAM. , 2017, , .		0
111	Novel Materials for Quantum Spintronics Phenomena. Journal of the Institute of Electrical Engineers of Japan, 2019, 139, 601-606.	0.0	0