

# Ilya Krivorotov

## List of Publications by Year in descending order

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141  
papers

9,500  
citations

41258

49  
h-index

37111

96  
g-index

143  
all docs

143  
docs citations

143  
times ranked

5989  
citing authors

#	ARTICLE	IF	CITATIONS
1	Microwave oscillations of a nanomagnet driven by a spin-polarized current. <i>Nature</i> , 2003, 425, 380-383.	13.7	1,837
2	Interface-induced phenomena in magnetism. <i>Reviews of Modern Physics</i> , 2017, 89, .	16.4	672
3	Magnetic vortex oscillator driven by d.c. spin-polarized current. <i>Nature Physics</i> , 2007, 3, 498-503.	6.5	565
4	Time-Domain Measurements of Nanomagnet Dynamics Driven by Spin-Transfer Torques. <i>Science</i> , 2005, 307, 228-231.	6.0	495
5	Spin-Transfer-Driven Ferromagnetic Resonance of Individual Nanomagnets. <i>Physical Review Letters</i> , 2006, 96, 227601.	2.9	346
6	Spin-transfer effects in nanoscale magnetic tunnel junctions. <i>Applied Physics Letters</i> , 2004, 85, 1205-1207.	1.5	257
7	Voltage-Induced Ferromagnetic Resonance in Magnetic Tunnel Junctions. <i>Physical Review Letters</i> , 2012, 108, 197203.	2.9	231
8	Nanowire spin torque oscillator driven by spin orbit torques. <i>Nature Communications</i> , 2014, 5, 5616.	5.8	177
9	Switching current reduction using perpendicular anisotropy in CoFeB/MgO magnetic tunnel junctions. <i>Applied Physics Letters</i> , 2011, 98, .	1.5	169
10	Ultralow-current-density and bias-field-free spin-transfer nano-oscillator. <i>Scientific Reports</i> , 2013, 3, 1426.	1.6	162
11	Nanospintronics Based on Magnetologic Gates. <i>IEEE Transactions on Electron Devices</i> , 2012, 59, 259-262.	1.6	141
12	Adjustable spin torque in magnetic tunnel junctions with two fixed layers. <i>Applied Physics Letters</i> , 2005, 86, 152509.	1.5	133
13	Current-Induced Nanomagnet Dynamics for Magnetic Fields Perpendicular to the Sample Plane. <i>Physical Review Letters</i> , 2004, 93, 036601.	2.9	132
14	High-Power Coherent Microwave Emission from Magnetic Tunnel Junction Nano-oscillators with Perpendicular Anisotropy. <i>ACS Nano</i> , 2012, 6, 6115-6121.	7.3	125
15	Giant spin-torque diode sensitivity in the absence of bias magnetic field. <i>Nature Communications</i> , 2016, 7, 11259.	5.8	123
16	Temperature Dependence of Spin-Transfer-Induced Switching of Nanomagnets. <i>Physical Review Letters</i> , 2004, 93, 166603.	2.9	120
17	Temperature dependence of the voltage-controlled perpendicular anisotropy in nanoscale MgO CoFeB Ta magnetic tunnel junctions. <i>Applied Physics Letters</i> , 2014, 104, .	1.5	119
18	Mechanisms limiting the coherence time of spontaneous magnetic oscillations driven by dc spin-polarized currents. <i>Physical Review B</i> , 2005, 72, .	1.1	99

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19	Low writing energy and sub nanosecond spin torque transfer switching of in-plane magnetic tunnel junction for spin torque transfer random access memory. <i>Journal of Applied Physics</i> , 2011, 109, .	1.1	99
20	Spin caloritronic nano-oscillator. <i>Nature Communications</i> , 2017, 8, 117.	5.8	96
21	Large-amplitude coherent spin waves excited by spin-polarized current in nanoscale spin valves. <i>Physical Review B</i> , 2007, 76, .	1.1	95
22	Spin-orbit torque driven by a planar Hall current. <i>Nature Nanotechnology</i> , 2019, 14, 27-30.	15.6	95
23	Deep subnanosecond spin torque switching in magnetic tunnel junctions with combined in-plane and perpendicular polarizers. <i>Applied Physics Letters</i> , 2011, 98, .	1.5	82
24	Unidirectional coercivity enhancement in exchange-biased Co/CoO. <i>Applied Physics Letters</i> , 2002, 81, 1270-1272.	1.5	79
25	Angular Dependence of the Superconducting Transition Temperature in Ferromagnet-Superconductor-Ferromagnet Trilayers. <i>Physical Review Letters</i> , 2010, 105, 207002.	2.9	75
26	Nonreciprocal Surface Acoustic Waves in Multilayers with Magnetoelastic and Interfacial Dzyaloshinskii-Moriya Interactions. <i>Physical Review Applied</i> , 2018, 9, .	1.5	74
27	Reducing the critical current for short-pulse spin-transfer switching of nanomagnets. <i>Applied Physics Letters</i> , 2005, 87, 112507.	1.5	72
28	Oscillatory Exchange Coupling and Positive Magnetoresistance in Epitaxial Oxide Heterostructures. <i>Physical Review Letters</i> , 2000, 85, 3728-3731.	2.9	71
29	Parametric Resonance of Magnetization Excited by Electric Field. <i>Nano Letters</i> , 2017, 17, 572-577.	4.5	71
30	Relation between exchange anisotropy and magnetization reversal asymmetry in Fe/MnF <sub>2</sub> bilayers. <i>Physical Review B</i> , 2002, 65, .	1.1	70
31	Origin of the Inverse Spin Switch Effect in Superconducting Spin Valves. <i>Physical Review Letters</i> , 2009, 103, 027004.	2.9	68
32	Nonadiabatic Stochastic Resonance of a Nanomagnet Excited by Spin Torque. <i>Physical Review Letters</i> , 2010, 105, 047202.	2.9	67
33	Magnetization reversal in exchange biased Co/CoO probed with anisotropic magnetoresistance. <i>Journal of Applied Physics</i> , 2002, 91, 7760.	1.1	64
34	Rapid Domain Wall Motion in Permalloy Nanowires Excited by a Spin-Polarized Current Applied Perpendicular to the Nanowire. <i>Physical Review Letters</i> , 2010, 104, 097203.	2.9	64
35	Parametric Excitation of Spin Waves by Voltage-Controlled Magnetic Anisotropy. <i>Physical Review Applied</i> , 2014, 1, .	1.5	64
36	Electronic and crystal structure of fully strained LaNiO <sub>3</sub> films. <i>Physical Review B</i> , 2003, 68, .	1.1	63

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37	Spin-transfer excitations of permalloy nanopillars for large applied currents. Physical Review B, 2005, 72, .	1.1	63
38	Strong linewidth variation for spin-torque nano-oscillators as a function of in-plane magnetic field angle. Physical Review B, 2008, 78, .	1.1	61
39	Resonant Nonlinear Damping of Quantized Spin Waves in Ferromagnetic Nanowires: A Spin Torque Ferromagnetic Resonance Study. Physical Review Letters, 2009, 103, 167601.	2.9	61
40	Temperature dependence of magnetization reversal and angular torque in Co $\hat{c}$ •CoO. Physical Review B, 2006, 74, .	1.1	60
41	Angular dependence of superconductivity in superconductor/spin-valve heterostructures. Physical Review B, 2014, 89, .	1.1	59
42	Experimental Demonstration of xor Operation in Graphene Magnetologic Gates at Room Temperature. Physical Review Applied, 2016, 5, .	1.5	58
43	Time-Resolved Spin-Torque Switching and Enhanced Damping in Permalloy/Cu/Permalloy Spin-Valve Nanopillars. Physical Review Letters, 2006, 96, 247204.	2.9	52
44	Time-domain studies of very-large-angle magnetization dynamics excited by spin transfer torques. Physical Review B, 2008, 77, .	1.1	51
45	Low Write-Energy Magnetic Tunnel Junctions for High-Speed Spin-Transfer-Torque MRAM. IEEE Electron Device Letters, 2011, 32, 57-59.	2.2	51
46	Nonlinear ferromagnetic resonance induced by spin torque in nanoscale magnetic tunnel junctions. Applied Physics Letters, 2013, 103, 082402.	1.5	51
47	Magnetization dynamics in a dual free-layer spin-torque nano-oscillator. Physical Review B, 2012, 86, .	1.1	50
48	Experimental test of an analytical theory of spin-torque-oscillator dynamics. Physical Review B, 2009, 79, .	1.1	49
49	Effect of resistance-area product on spin-transfer switching in MgO-based magnetic tunnel junction memory cells. Applied Physics Letters, 2011, 98, .	1.5	49
50	Experimental Demonstration of Spintronic Broadband Microwave Detectors and Their Capability for Powering Nanodevices. Physical Review Applied, 2019, 11, .	1.5	49
51	Strategies and tolerances of spin transfer torque switching. Journal of Applied Physics, 2010, 107, .	1.1	47
52	Spin torque ferromagnetic resonance with magnetic field modulation. Applied Physics Letters, 2013, 103, .	1.5	47
53	Sub-200Åps spin transfer torque switching in in-plane magnetic tunnel junctions with interface perpendicular anisotropy. Journal Physics D: Applied Physics, 2012, 45, 025001.	1.3	46
54	Spin-torque microwave detector with out-of-plane precessing magnetic moment. Journal of Applied Physics, 2012, 111, .	1.1	45

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55	Micromagnetic understanding of stochastic resonance driven by spin-transfer-torque. <i>Physical Review B</i> , 2011, 83, .	1.1	43
56	Diode-MTJ Crossbar Memory Cell Using Voltage-Induced Unipolar Switching for High-Density MRAM. <i>IEEE Electron Device Letters</i> , 2013, 34, 753-755.	2.2	39
57	Reduction of phase noise in nanowire spin orbit torque oscillators. <i>Scientific Reports</i> , 2015, 5, 16942.	1.6	38
58	Magnetization reversal driven by spin-polarized current in exchange-biased nanoscale spin valves. <i>Physical Review B</i> , 2007, 76, .	1.1	37
59	Origin of complex exchange anisotropy in Fe/MnF <sub>2</sub> bilayers. <i>Physical Review B</i> , 2003, 68, .	1.1	36
60	Spin Hall-induced auto-oscillations in ultrathin YIG grown on Pt. <i>Scientific Reports</i> , 2018, 8, 1269.	1.6	36
61	Structural and magnetic properties of triode-sputtered epitaxial $\hat{\text{I}}^3\hat{\text{a}}\text{E}^2\text{-Fe4N}$ films deposited on SrTiO <sub>3</sub> (001) substrates. <i>Applied Physics Letters</i> , 2003, 82, 4534-4536.	1.5	35
62	Magnetic anisotropy, damping, and interfacial spin transport in Pt/LSMO bilayers. <i>AIP Advances</i> , 2016, 6, .	0.6	35
63	Evolution of spin-wave modes in magnetic tunnel junction nanopillars. <i>Physical Review B</i> , 2010, 82, .	1.1	34
64	Spin transfer by nonuniform current injection into a nanomagnet. <i>Applied Physics Letters</i> , 2006, 88, 202502.	1.5	33
65	Spin-wave modes in permalloy/platinum wires and tuning of the mode damping by spin Hall current. <i>Physical Review B</i> , 2014, 90, .	1.1	31
66	Temperature dependence of perpendicular magnetic anisotropy in CoFeB thin films. <i>Applied Physics Letters</i> , 2016, 108, .	1.5	31
67	Giant nonlinear damping in nanoscale ferromagnets. <i>Science Advances</i> , 2019, 5, eaav6943.	4.7	31
68	Rotation of exchange anisotropy in biased Co/CoO bilayers. <i>Journal of Applied Physics</i> , 2000, 87, 6418-6420.	1.1	30
69	Control of Spin-Wave Damping in YIG Using Spin Currents from Topological Insulators. <i>Physical Review Applied</i> , 2019, 11, .	1.5	30
70	Reduction of spin transfer by synthetic antiferromagnets. <i>Applied Physics Letters</i> , 2004, 84, 4257-4259.	1.5	29
71	Micromagnetic simulations of magnetization dynamics in a nanowire induced by a spin-polarized current injected via a point contact. <i>Physical Review B</i> , 2011, 83, .	1.1	29
72	Reduction of switching current density in perpendicular magnetic tunnel junctions by tuning the anisotropy of the CoFeB free layer. <i>Journal of Applied Physics</i> , 2012, 111, 07C907.	1.1	28

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73	Magnetization reversal driven by low dimensional chaos in a nanoscale ferromagnet. Nature Communications, 2019, 10, 543.	5.8	27
74	Field-dependent perpendicular magnetic anisotropy in CoFeB thin films. Applied Physics Letters, 2014, 105, .	1.5	26
75	Magnetoresistance and magnetostriction effects in ballistic ferromagnetic nanoconstrictions. Journal of Applied Physics, 2004, 95, 7315-7317.	1.1	25
76	Spin-Torque Driven Switching Probability Density Function Asymmetry. IEEE Transactions on Magnetics, 2012, 48, 3818-3820.	1.2	24
77	Exchange Field Induced Magnetoresistance in Colossal Magnetoresistance Manganites. Physical Review Letters, 2001, 86, 5779-5782.	2.9	23
78	Material parameters of perpendicularly magnetized tunnel junctions from spin torque ferromagnetic resonance techniques. Applied Physics Letters, 2016, 109, .	1.5	23
79	Ultra-fast wide band spectrum analyzer based on a rapidly tuned spin-torque nano-oscillator. Applied Physics Letters, 2018, 113, .	1.5	23
80	Time-domain study of frequency-power correlation in spin-torque oscillators. Physical Review B, 2010, 81, .	1.1	22
81	Exciton transport and nonradiative decay in semiconductor nanostructures. Physical Review B, 1998, 58, 10687-10691.	1.1	21
82	Polaronic excitons in Zn <sub>x</sub> Cd <sub>1-x</sub> Se/ZnSe quantum wells. Physical Review B, 2000, 61, 1700-1703.	1.1	19
83	Exchange bias in macroporous Co/CoO. Journal of Magnetism and Magnetic Materials, 2001, 226-230, 1800-1802.	1.0	19
84	Magnetic Domain Wall Pumping by Spin Transfer Torque. Physical Review Letters, 2010, 104, 167205.	2.9	19
85	Immunity of nanoscale magnetic tunnel junctions with perpendicular magnetic anisotropy to ionizing radiation. Scientific Reports, 2020, 10, 10220.	1.6	19
86	Quantifying angular dependence of spin-orbit torques in Ta/CoFeB/MgO trilayers with perpendicular magnetic anisotropy. Physical Review B, 2017, 95, .	1.1	18
87	Exchange-biased La <sub>2/3</sub> Ca <sub>1/3</sub> (Sr <sub>1/3</sub> )MnO <sub>3</sub> ultrathin films. Applied Physics Letters, 2000, 76, 478-480.	1.5	17
88	Compensation of nonlinear phase noise in an in-plane-magnetized anisotropic spin-torque oscillator. Journal of Magnetism and Magnetic Materials, 2009, 321, L53-L55.	1.0	17
89	Spin wave eigenmodes in transversely magnetized thin film ferromagnetic wires. Physical Review B, 2015, 92, .	1.1	17
90	Oscillatory interlayer coupling in spin Hall systems. Scientific Reports, 2018, 8, 2318.	1.6	17

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91	Magnetic phase transitions in Ta/CoFeB/MgO multilayers. Applied Physics Letters, 2015, 106, .	1.5	16
92	Role of magnetic aftereffect in coercivity enhancement of Co/CoO bilayers. Physical Review B, 2002, 65, .	1.1	14
93	Micromagnetic simulations of persistent oscillatory modes excited by spin-polarized current in nanoscale exchange-biased spin valves. Journal of Applied Physics, 2009, 105, 07D107.	1.1	13
94	Spin wave nanofabric update. , 2012, , .		13
95	Hysteresis regime in the operation of a dual-free-layer spin-torque nano-oscillator with out-of-plane counter-precessing magnetic moments. Journal of Applied Physics, 2013, 114, .	1.1	13
96	Injection locking of multiple auto-oscillation modes in a tapered nanowire spin Hall oscillator. Scientific Reports, 2018, 8, 16040.	1.6	13
97	Controlling Magnon Interaction by a Nanoscale Switch. ACS Applied Materials & Interfaces, 2021, 13, 20288-20295.	4.0	13
98	Excitation of spin waves by a current-driven magnetic nanocontact in a perpendicularly magnetized waveguide. Physical Review B, 2013, 88, .	1.1	12
99	Low Power Microwave Signal Detection With a Spin-Torque Nano-Oscillator in the Active Self-Oscillating Regime. IEEE Transactions on Magnetics, 2017, 53, 1-4.	1.2	12
100	Spin-orbit torque nano-oscillator with giant magnetoresistance readout. Communications Physics, 2020, 3, .	2.0	12
101	Time Domain Mapping of Spin Torque Oscillator Effective Energy. Physical Review Letters, 2013, 111, 087206.	2.9	11
102	Magnetoluminescence studies in InGaP alloys. Applied Physics Letters, 2000, 77, 4335-4337.	1.5	10
103	Wireless current sensing by near field induction from a spin transfer torque nano-oscillator. Applied Physics Letters, 2016, 108, .	1.5	10
104	Dimensional crossover in spin Hall oscillators. Physical Review B, 2020, 102, .	1.1	10
105	Highly Textured IrMn <sub>3</sub> (111) Thin Films Grown by Magnetron Sputtering. IEEE Magnetics Letters, 2016, 7, 1-5.	0.6	9
106	Self-stabilizing exchange-mediated spin transport. Physical Review B, 2021, 103, .	1.1	9
107	Spin-Transfer Torque Switching Above Ambient Temperature. IEEE Magnetics Letters, 2012, 3, 3000304-3000304.	0.6	8
108	Magnetic relaxation in exchange-coupled Co/CoO bilayers measured with ac-anisotropic magnetoresistance. Journal of Applied Physics, 2003, 93, 8609-8611.	1.1	7

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109	Thermal stability characterization of magnetic tunnel junctions using hard-axis magnetoresistance measurements. Journal of Applied Physics, 2011, 109, 07C708.	1.1	7
110	Effect of magnesium oxide adhesion layer on resonance behavior of plasmonic nanostructures. Applied Physics Letters, 2020, 116, .	1.5	7
111	Temperature dependence of exchange bias in La <sub>1/3</sub> Ca <sub>2/3</sub> MnO <sub>3</sub> /La <sub>2/3</sub> Ca <sub>1/3</sub> MnO <sub>3</sub> epitaxial multilayers. Journal of Applied Physics, 2001, 89, 6964-6966.	1.1	6
112	Reconfigurable nanoelectronics using graphene based spintronic logic gates. Proceedings of SPIE, 2011, , .	0.8	6
113	Quantitative analysis of electric field induced change in anisotropy field in Co <sub>60</sub> Fe <sub>20</sub> B <sub>20</sub> /(011) xPb(Mg <sub>1/3</sub> Nb <sub>2/3</sub> )O <sub>3</sub> -(1- $\alpha$ )PbTiO <sub>3</sub> ( $\alpha$ = 0.68) heterostructures. Applied Physics Letters, 2012, 101, .	1.5	6
114	Temperature dependence of interlayer exchange coupling in manganite-based superlattices. Journal of Applied Physics, 2001, 89, 6820-6821.	1.1	5
115	High rectification sensitivity of radiofrequency signal through adiabatic stochastic resonance in nanoscale magnetic tunnel junctions. Applied Physics Letters, 2019, 115, .	1.5	5
116	Synthetic antiferromagnet-based spin Josephson oscillator. Applied Physics Letters, 2020, 116, 132409.	1.5	5
117	A Material Framework for Beyond-CMOS Devices. IEEE Journal on Exploratory Solid-State Computational Devices and Circuits, 2015, 1, 19-27.	1.1	3
118	Correction of Phase Errors in a Spin-Wave Transmission Line by Nonadiabatic Parametric Pumping. Physical Review Applied, 2019, 11, .	1.5	3
119	Spin- $\pi$ momentum locking induced non-local voltage in topological insulator nanowire. Nanoscale, 2020, 12, 22958-22962.	2.8	3
120	Frequency conversion of microwave signal without direct bias current using nanoscale magnetic tunnel junctions. Scientific Reports, 2019, 9, 828.	1.6	3
121	Array of symmetric nanohole dimers with high sensitivity for detection of changes in an STT-RAM ultrathin dielectric layer. Journal of the Optical Society of America B: Optical Physics, 2019, 36, 3090.	0.9	3
122	Signal propagation in dipole coupled nanomagnets for logic applications. , 2012, , .		2
123	Bias current dependence of superconducting transition temperature in superconducting spin-valve nanowires. Physical Review B, 2019, 100, .	1.1	2
124	Optical Investigation of Radiation Induced Conductivity Changes in STT-RAM Cells. , 2016, , .		2
125	Array of Symmetric Nanohole Dimers for STT-RAM Ultrathin Layer Sensing. , 2019, , .		2
126	New envelope function for describing the electronic properties of semiconductor heterostructures. Russian Physics Journal, 1996, 39, 719-728.	0.2	1



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127	Dynamic excitations of nanomagnet magnetization driven by spin-polarized current. , 2006, , .		1
128	Ultrafast spin torque memory based on magnetic tunnel junctions with combined in-plane and perpendicular polarizers. , 2012, , .		1
129	Activation of Microwave Signals in Nanoscale Magnetic Tunnel Junctions by Neuronal Action Potentials. IEEE Magnetics Letters, 2019, 10, 1-5.	0.6	1
130	Measurement of Microwave Signal Frequency by a Pair of Spin-Torque Microwave Diodes. IEEE Magnetics Letters, 2021, 12, 1-5.	0.6	1
131	Ultralow-current-density and bias-field-free spin-transfer nano-oscillator. , 0, .		1
132	Modulation and detection of single neuron activity using spin transfer nano-oscillators. , 2017, , .		1
133	Plasmonic detection of possible defects in multilayer nanohole array consisting of essential materials in simplified STT-RAM cell. , 2017, , .		1
134	Magneto-excitons in (411)A and (100)-oriented GaAs/AlGaAs multiple quantum well structures. , 1999, 3625, 515.		0
135	Magnetic domain wall motion with current perpendicular to the plane spin transfer torque. , 2010, , .		0
136	Spintronics search engines. , 2011, , .		0
137	Ultrafast all-optical magnetization reversal in GdFeCo films around plasmonic nanostructures. , 2013, , .		0
138	Image-guided Placement of Magnetic Neutroparticles as a Potential High-Resolution Brain-Machine Interface. , 0, , .		0
139	Optoelectronic Readout of STT-RAM Based on Plasmon Drag Effect. IEEE Journal of Quantum Electronics, 2021, 57, 1-7.	1.0	0
140	Optoelectronic Readout of STT-RAM Memory Cells Using Plasmon Drag Effect. , 2021, , .		0
141	Inversion of the Spin-Torque Effect in Mtjs Via Resonant Magnon Scattering. , 2020, , .		0