Robert A Buhrman

List of Publications by Year
in descending order

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113 papers	15,279 citations	50276 46 h-index	24982 109 g-index
115 all docs	115 docs citations	115 times ranked	6455 citing authors

#	Article	IF	Citations
1	Origin of transverse voltages generated by thermal gradients and electric fields in ferrimagnetic-insulator/heavy-metal bilayers. Physical Review B, 2022, 105, .	3.2	3
2	Nanosecond Reversal of Three-Terminal Spin-Hall-Effect Memories Sustained at Cryogenic Temperatures. Physical Review Applied, 2021, 15, .	3.8	4
3	Fully Spin-Transparent Magnetic Interfaces Enabled by the Insertion of a Thin Paramagnetic NiO Layer. Physical Review Letters, 2021, 126, 107204.	7.8	47
4	Absence of Significant Spin-Current Generation in <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline" overflow="scroll"><mml:mi>Ti</mml:mi><mml:mo>/</mml:mo><mml:mi>Fe</mml:mi><mml:mtext>â^'</mml:mtext><mml:mi>Co</mml:mi><mml:mo>/</mml:mo><mml:mi>Pt</mml:mi></mml:math> Bilayers with Strong Interfacial Spin-Orbit Coupling. Physical Review Applied, 2021, 15, .	3.8	13
5	Interfacial and bulk spin Hall contributions to fieldlike spin-orbit torque generated by iridium. Physical Review B, 2021, 103, .	3.2	11
6	Unveiling the Mechanism of Bulk Spinâ€Orbit Torques within Chemically Disordered Fe_xPt<sub>1â€_x Single Layers. Advanced Functional Materials, 2021, 31, 2103898.	14.9	22
7	Maximizing spin-orbit torque generated by the spin Hall effect of Pt. Applied Physics Reviews, 2021, 8, .	11.3	67
8	Observation of Strong Bulk Dampingâ€Like Spinâ€Orbit Torque in Chemically Disordered Ferromagnetic Single Layers. Advanced Functional Materials, 2020, 30, 2005201.	14.9	34
9	Effects of Anisotropic Strain on Spinâ€“Orbit Torque Produced by the Dirac Nodal Line Semimetal IrO₂. ACS Applied Materials & Interfaces, 2020, 12, 55411-55416.	8.0	29
10	Transverse and Longitudinal Spin-Torque Ferromagnetic Resonance for Improved Measurement of Spin-Orbit Torque. Physical Review Applied, 2020, 14, .	3.8	40
11	Cryogenic Memory Architecture Integrating Spin Hall Effect based Magnetic Memory and Superconductive Cryotron Devices. Scientific Reports, 2020, 10, 248.	3.3	25
12	Energyâ€Efficient Ultrafast SOTâ€MRAMs Based on Lowâ€Resistivity Spin Hall Metal Au_{0.25}Pt_{0.75}. Advanced Electronic Materials, 2020, 6, 1901131.	5.1	35
13	Effective Spin-Mixing Conductance of Heavy-Metalâ€“Ferromagnet Interfaces. Physical Review Letters, 2019, 123, 057203.	7.8	124
14	Layer-dependent spin-orbit torques generated by the centrosymmetric transition metal dichalcogenide <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:mi>Î²</mml:mi><mml:mo>â^'</mml:mo><mml:msub><mml:mi>Ta</mml:mi><mml:mn>2</mml:mn></mml:msub><mml:msub><mml:mi>Pd</mml:mi><mml:mi>x</mml:mi></mml:msub><mml:msub><mml:mi>Se</mml:mi><mml:mn>2</mml:mn></mml:msub></mml:mrow></mml:math>. Physical Review B, 2019, 100, .	3.2	61
15	Variation of the giant intrinsic spin Hall conductivity of Pt with carrier lifetime. Science Advances, 2019, 5, eaav8025.	10.3	73
16	Enhancement of spin transparency by interfacial alloying. Physical Review B, 2019, 99, .	3.2	43
17	Exceptionally High, Strongly Temperature Dependent, Spin Hall Conductivity of SrRuO₃. Nano Letters, 2019, 19, 3663-3670.	9.1	40
18	Strong Dampingâ€Like Spinâ€Orbit Torque and Tunable Dzyaloshinskiiâ€“Moriya Interaction Generated by Lowâ€Resistivity Pd_{1â^'}_xPt_x Alloys. Advanced Functional Materials, 2019, 29, 1805822.	14.9	116

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19	Spin-Orbit Torques in Heavy-Metalâ€“Ferromagnet Bilayers with Varying Strengths of Interfacial Spin-Orbit Coupling. Physical Review Letters, 2019, 122, 077201.	7.8	130
20	Current-Induced Torques with Dresselhaus Symmetry Due to Resistance Anisotropy in 2D Materials. ACS Nano, 2019, 13, 2599-2605.	14.6	32
21	Strong Enhancement of the Spin Hall Effect by Spin Fluctuations near the Curie Point of <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mrow><mml:mi>Fe</mml:mi></mml:mrow><mml:mi>x</mml:mi></mml:msub><mml Alloys. Physical Review Letters, 2018, 120, 097203.	7.8	45
22	Efficient switching of 3-terminal magnetic tunnel junctions by the giant spin Hall effect of Pt85Hf15 alloy. Applied Physics Letters, 2018, 112, .	3.3	22
23	Irrelevance of magnetic proximity effect to spin-orbit torques in heavy-metal/ferromagnet bilayers. Physical Review B, 2018, 98, .	3.2	46
24	Highly Efficient Spin-Current Generation by the Spin Hall Effect in <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline" overflow="scroll"><mml:msub><mml:mi>Au</mml:mi><mml:mrow><mml:mn>1</mml:mn><mml:mo>â^’</mml:mo><mml:mi>x</mml:mi></mml:m Physical Review Applied, 2018, 10, .	3.8	158
25	Reorientable Spin Direction for Spin Current Produced by the Anomalous Hall Effect. Physical Review Applied, 2018, 9, .	3.8	67
26	Fast, reliable spin-orbit-torque switching in three terminal magnetic tunnel junctions with Hf dusting layer. , 2018, , .		0
27	Strong perpendicular magnetic anisotropy energy density at Fe alloy/HfO2 interfaces. Applied Physics Letters, 2017, 110, 192403.	3.3	15
28	Nanosecond magnetization dynamics during spin Hall switching of in-plane magnetic tunnel junctions. Applied Physics Letters, 2017, 110, .	3.3	27
29	Thickness dependence of spin-orbit torques generated by <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:msub><mml:mrow><mml:mtext>WTe</mml:mtext></mml:mrow><mml:mrow><mml:mn Physical Review B, 2017, 96, .	3.2	104
30	Increased low-temperature damping in yttrium iron garnet thin films. Physical Review B, 2017, 95, .	3.2	72
31	Control of spinâ€“orbit torques through crystal symmetry in WTe2/ferromagnet bilayers. Nature Physics, 2017, 13, 300-305.	16.7	489
32	Low-damping sub-10-nm thin films of lutetium iron garnet grown by molecular-beam epitaxy. Applied Physics Letters, 2016, 109, .	3.3	29
33	Enhanced spin Hall torque efficiency in Pt100â^’xAlx and Pt100â^’xHfx alloys arising from the intrinsic spin Hall effect. Applied Physics Letters, 2016, 108, .	3.3	78
34	All-Spin-Orbit Switching of Perpendicular Magnetization. IEEE Transactions on Electron Devices, 2016, 63, 4499-4505.	3.0	15
35	Strong spin Hall effect in the antiferromagnet PtMn. Physical Review B, 2016, 93, .	3.2	74
36	Spin Torque Study of the Spin Hall Conductivity and Spin Diffusion Length in Platinum Thin Films with Varying Resistivity. Physical Review Letters, 2016, 116, 126601.	7.8	353

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37	Origin of fieldlike spin-orbit torques in heavy metal/ferromagnet/oxide thin film heterostructures. Physical Review B, 2016, 94, .	3.2	95
38	Nanosecond-Timescale Low Energy Switching of In-Plane Magnetic Tunnel Junctions through Dynamic Oersted-Field-Assisted Spin Hall Effect. Nano Letters, 2016, 16, 5987-5992.	9.1	119
39	Dependence of the efficiency of spin Hall torque on the transparency of Pt/ferromagnetic layer interfaces. Physical Review B, 2015, 92, .	3.2	380
40	Enhancement of the anti-damping spin torque efficacy of platinum by interface modification. Applied Physics Letters, 2015, 106, .	3.3	105
41	Enhancement of perpendicular magnetic anisotropy and transmission of spin-Hall-effect-induced spin currents by a Hf spacer layer in W/Hf/CoFeB/MgO layer structures. Applied Physics Letters, 2014, 104, .	3.3	206
42	Central role of domain wall depinning for perpendicular magnetization switching driven by spin torque from the spin Hall effect. Physical Review B, 2014, 89, .	3.2	221
43	Interface and oxide quality of CoFeB/MgO/Si tunnel junctions. Journal of Applied Physics, 2012, 111, 093908.	2.5	2
44	Spin transfer torque devices utilizing the giant spin Hall effect of tungsten. Applied Physics Letters, 2012, 101, 122404.	3.3	1,173
45	Magnetic Oscillations Driven by the Spin Hall Effect in 3-Terminal Magnetic Tunnel Junction Devices. Physical Review Letters, 2012, 109, 186602.	7.8	306
46	Current-Induced Switching of Perpendicularly Magnetized Magnetic Layers Using Spin Torque from the Spin Hall Effect. Physical Review Letters, 2012, 109, 096602.	7.8	1,354
47	Spin-Torque Switching with the Giant Spin Hall Effect of Tantalum. Science, 2012, 336, 555-558.	12.6	3,176
48	Spin-Torque Ferromagnetic Resonance Induced by the Spin Hall Effect. Physical Review Letters, 2011, 106, 036601.	7.8	1,323
49	Interface and oxide quality of CoFeB/MgO/Si tunnel junctions. , 2010, , .		0
50	High magnetoresistance tunnel junctions with Mgâ€“Bâ€“O barriers and Niâ€“Feâ€“B free electrodes. Applied Physics Letters, 2009, 94, 112504.	3.3	22
51	Atomic-scale spectroscopic imaging of CoFeB/Mgâ€“Bâ€“O/CoFeB magnetic tunnel junctions. Applied Physics Letters, 2009, 95, 032506.	3.3	45
52	A Three-Terminal Approach to Developing Spin-Torque Written Magnetic Random Access Memory Cells. IEEE Nanotechnology Magazine, 2009, 8, 190-195.	2.0	63
53	Spatially resolved electron energy-loss spectroscopy of electron-beam grown and sputtered CoFeBâˆ•MgOâˆ•CoFeB magnetic tunnel junctions. Applied Physics Letters, 2007, 91, 062516.	3.3	61
54	X-ray photoemission study of CoFeBâˆ•MgO thin film bilayers. Applied Physics Letters, 2007, 90, 132503.	3.3	87

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55	Analytical electron microscopy study of growth mechanism for smoothing of metallic multilayer thin films. Applied Physics Letters, 2006, 89, 162509.	3.3	2
56	Loss of polarization in a hot-electron current through electron-electron scattering. Journal of Applied Physics, 2005, 98, 093713.	2.5	3
57	Tunneling spectroscopy studies of treated aluminum oxide tunnel barrier layers. Applied Physics Letters, 2005, 86, 242504.	3.3	18
58	Time-Domain Measurements of Nanomagnet Dynamics Driven by Spin-Transfer Torques. Science, 2005, 307, 228-231.	12.6	495
59	Magnetoresistance and magnetostriction effects in ballistic ferromagnetic nanoconstrictions. Journal of Applied Physics, 2004, 95, 7315-7317.	2.5	25
60	Thermally Activated Magnetic Reversal Induced by a Spin-Polarized Current. Physical Review Letters, 2002, 89, 196801.	7.8	210
61	Ballistic electron microscopy study of ultrathin oxidized aluminum barriers for magnetic tunnel junctions. Applied Physics Letters, 2001, 78, 1601-1603.	3.3	27
62	Ballistic current transport studies of ferromagnetic multilayer films and tunnel junctions (invited). Journal of Applied Physics, 2001, 89, 6642-6646.	2.5	3
63	Atomic-scale characterization of a Co/AlOx/Co magnetic tunnel junction by scanning transmission electron microscopy. Applied Physics Letters, 2001, 79, 391-393.	3.3	24
64	Ballistic electron magnetic microscopy studies of magnetization reversal in Co/Cu/Co trilayer films. Journal of Applied Physics, 2000, 87, 6490-6492.	2.5	13
65	Current-induced realignment of magnetic domains in nanostructured Cu/Co multilayer pillars. Applied Physics Letters, 2000, 76, 354-356.	3.3	57
66	Observation of magnetization reversal of thin-film permalloy nanostructures using ballistic electron magnetic microscopy. Applied Physics Letters, 2000, 77, 1357-1359.	3.3	19
67	Point-contact studies of current-controlled domain switching in magnetic multilayers. Journal of Applied Physics, 2000, 87, 5502-5504.	2.5	9
68	Spin filtering by ultrathin ferromagnetic films. Applied Physics Letters, 1999, 74, 3881-3883.	3.3	51
69	Ballistic electron magnetic microscopy: Imaging magnetic domains with nanometer resolution. Applied Physics Letters, 1999, 75, 1001-1003.	3.3	61
70	Width dependence of giant magnetoresistance in Cu/Co multilayer nanowires. Applied Physics Letters, 1999, 74, 1883-1885.	3.3	17
71	Current-Induced Switching of Domains in Magnetic Multilayer Devices. Science, 1999, 285, 867-870.	12.6	1,232
72	Time-dependent diffusivity of boron in silicon oxide and oxynitride. Applied Physics Letters, 1999, 74, 967-969.	3.3	27

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73	Nitrous oxide (N₂O) processing for silicon oxynitride gate dielectrics. IBM Journal of Research and Development, 1999, 43, 287-300.	3.1	42
74	Boron Diffusion in Silicon Oxides and Oxynitrides. Journal of the Electrochemical Society, 1998, 145, 2068-2074.	2.9	40
75	Structure and Growth of N2O Gate Oxynitrides. Materials Research Society Symposia Proceedings, 1996, 428, 393.	0.1	1
76	Furnace gasâ€phase chemistry of silicon oxynitridation in N2O. Applied Physics Letters, 1996, 68, 1696-1698.	3.3	58
77	The removal of nitrogen during boron indiffusion in silicon gate oxynitrides. Applied Physics Letters, 1996, 69, 535-537.	3.3	14
78	N depth profiles in thin SiO2 grown or processed in N2O: The role of atomic oxygen. Applied Physics Letters, 1995, 66, 1492-1494.	3.3	114
79	Josephson properties of basalâ€planeâ€faced tilt boundaries in YBa2Cu3O7âˆ'Î´thin films. Applied Physics Letters, 1994, 65, 3126-3128.	3.3	21
80	Role of interfacial nitrogen in improving thin silicon oxides grown in N2O. Applied Physics Letters, 1993, 63, 54-56.	3.3	163
81	Transport properties of highâ€angle grain boundary weak links in YBa2Cu3O7thin films. Applied Physics Letters, 1991, 58, 1095-1097.	3.3	64
82	Optimizing Process Parameters for the Growth of YBa2Cu3O7âˆ'Î´ thin-films. Materials Research Society Symposia Proceedings, 1990, 191, 141.	0.1	0
83	Scaling behavior of YBa2Cu3O7âˆ'Î´thinâ€film weak links. Applied Physics Letters, 1990, 57, 1155-1157.	3.3	134
84	Ballistic electron studies and modification of the Au/Si interface. Applied Physics Letters, 1990, 57, 2826-2828.	3.3	32
85	Clean grain boundaries and weak links in highTcsuperconducting YBa2Cu3O7âˆ'xthin films. Applied Physics Letters, 1990, 57, 508-510.	3.3	64
86	Crystallography of YBa₂Cu₃O_{6+x} thin film-substrate interfaces. Journal of Materials Research, 1989, 4, 1072-1081.	2.6	147
87	Epitaxial Yâ€Baâ€Cuâ€O thin films on MgO deposited by highâ€pressure reactive magnetron sputtering. Journal of Applied Physics, 1989, 66, 3148-3153.	2.5	38
88	Transport Measurements on Superconducting YBa2Cu3O7-Î´ Thin Film Lines. Materials Research Society Symposia Proceedings, 1989, 169, 1193.	0.1	4
89	Pulsed Laser Deposition of High T_C Superconducting Thin Films. Materials Research Society Symposia Proceedings, 1989, 169, 455.	0.1	12
90	Grain Boundaries in Yba2 Cu3O7-Î´ Thin Films. Materials Research Society Symposia Proceedings, 1989, 169, 513.	0.1	2

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91	A Study of Grain Boundaries in High TC Superconducting Yba2Cu3O7-x Thin Films Using High Resolution Analytical Stem. Materials Research Society Symposia Proceedings, 1989, 169, 773.	0.1	0
92	Current fluctuations and silicon oxide wearâ€out in metalâ€oxideâ€semiconductor tunnel diodes. Applied Physics Letters, 1988, 52, 1749-1751.	3.3	75
93	A structural and electrical comparison of thin SiO2films grown on silicon by plasma anodization and rapid thermal processing to furnace oxidation. Journal of Applied Physics, 1988, 63, 5027-5035.	2.5	20
94	Highâ€frequency characterization of thinâ€film Yâ€Baâ€Cu oxide superconducting transmission lines. Applied Physics Letters, 1988, 52, 1444-1446.	3.3	65
95	NbN Josephson tunnel junctions for terahertz local oscillators. Applied Physics Letters, 1988, 53, 2441-2443.	3.3	15
96	High Temperature Superconductivity Update. Materials and Processing Report, 1988, 2, 4-7.	0.0	2
97	Production of YBa2Cu3O7â^'y superconducting thin films in situ by highâ€pressure reactive evaporation and rapid thermal annealing. Applied Physics Letters, 1987, 51, 1554-1556.	3.3	203
98	In-Situ Production of Superconducting YBa2Cu3O7-y Thin Films by High Pressure Reactive Evaporation with Rapid Thermal Annealing. Materials Research Society Symposia Proceedings, 1987, 99, 113.	0.1	1
99	The Morphology of YBa₂Cu₃O_{7â^'x} Thin Films Grown on Ceramic Substrates. Materials Research Society Symposia Proceedings, 1987, 99, 719.	0.1	3
100	Thin silicon oxides grown by lowâ€temperature rf plasma anodization and deposition. Applied Physics Letters, 1987, 50, 1095-1097.	3.3	16
101	Millimeter wave mixing with submicron area Nb tunnel junctions. Journal of Applied Physics, 1982, 53, 823-827.	2.5	7
102	Gradedâ€index Ptâ€Al2O3composite solar absorbers. Applied Physics Letters, 1981, 39, 29-31.	3.3	42
103	Reactive ion etching of niobium. Journal of Vacuum Science and Technology, 1981, 19, 1394-1397.	1.9	15
104	A multilayer, high resolution, ionâ€bombardmentâ€tolerant electron resist system. Journal of Vacuum Science and Technology, 1981, 19, 1308-1312.	1.9	9
105	Highâ€quality submicron niobium tunnel junctions with reactiveâ€ionâ€beam oxidation. Applied Physics Letters, 1980, 37, 841-843.	3.3	70
106	Response times and lowâ€voltage behavior of SNS microbridges. Applied Physics Letters, 1979, 34, 415-418.	3.3	18
107	Optical properties of selectively absorbing metal insulator composite films. Journal of Vacuum Science and Technology, 1978, 15, 269-271.	1.9	41
108	Superconducting lead variableâ€thickness microbridges. Journal of Applied Physics, 1977, 48, 5360-5361.	2.5	4

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109	Capacitively shunted variableâ€thickness microbridges. Applied Physics Letters, 1977, 31, 362-365.	3.3	5
110	Currentâ€phase relations as determinants of superconducting thinâ€film weakâ€linkIâ€Vcharacteristics. Applied Physics Letters, 1976, 29, 214-216.	3.3	26
111	Statistical model for coalescence of islands in discontinuous films. Applied Physics Letters, 1975, 27, 693-694.	3.3	79
112	SQUID techniques.I. Obtaining reliability in pointâ€contact SQUID's. Journal of Applied Physics, 1974, 45, 4045-4048.	2.5	24
113	Weak Link Point Contact Devices. Journal of Applied Physics, 1971, 42, 45-45.	2.5	14