

# Robert A Buhrman

## List of Publications by Year in descending order

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113  
papers

15,279  
citations

57681

46  
h-index

28425

109  
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115  
all docs

115  
docs citations

115  
times ranked

7255  
citing authors

#	ARTICLE	IF	CITATIONS
1	Origin of transverse voltages generated by thermal gradients and electric fields in ferrimagnetic-insulator/heavy-metal bilayers. <i>Physical Review B</i> , 2022, 105, .	1.1	3
2	Nanosecond Reversal of Three-Terminal Spin-Hall-Effect Memories Sustained at Cryogenic Temperatures. <i>Physical Review Applied</i> , 2021, 15, .	1.5	4
3	Fully Spin-Transparent Magnetic Interfaces Enabled by the Insertion of a Thin Paramagnetic NiO Layer. <i>Physical Review Letters</i> , 2021, 126, 107204.	2.9	47
4	Absence of Significant Spin-Current Generation in $\text{Ti/Fe/B/Co}$ Bilayers with Strong Interfacial Spin-Orbit Coupling. <i>Physical Review Applied</i> , 2021, 15, .	1.5	13
5	Interfacial and bulk spin Hall contributions to fieldlike spin-orbit torque generated by iridium. <i>Physical Review B</i> , 2021, 103, .	1.1	11
6	Unveiling the Mechanism of Bulk Spin-Orbit Torques within Chemically Disordered $\text{FePt}$ Single Layers. <i>Advanced Functional Materials</i> , 2021, 31, 2103898.	7.8	22
7	Maximizing spin-orbit torque generated by the spin Hall effect of Pt. <i>Applied Physics Reviews</i> , 2021, 8, .	5.5	67
8	Observation of Strong Bulk Damping-Like Spin-Orbit Torque in Chemically Disordered Ferromagnetic Single Layers. <i>Advanced Functional Materials</i> , 2020, 30, 2005201.	7.8	34
9	Effects of Anisotropic Strain on Spin-Orbit Torque Produced by the Dirac Nodal Line Semimetal $\text{IrO}_2$ . <i>ACS Applied Materials &amp; Interfaces</i> , 2020, 12, 55411-55416.	4.0	29
10	Transverse and Longitudinal Spin-Torque Ferromagnetic Resonance for Improved Measurement of Spin-Orbit Torque. <i>Physical Review Applied</i> , 2020, 14, .	1.5	40
11	Cryogenic Memory Architecture Integrating Spin Hall Effect based Magnetic Memory and Superconductive Cryotron Devices. <i>Scientific Reports</i> , 2020, 10, 248.	1.6	25
12	Energy-Efficient Ultrafast SOT-MRAMs Based on Low-Resistivity Spin Hall Metal $\text{Au}_{0.25}\text{Pt}_{0.75}$ . <i>Advanced Electronic Materials</i> , 2020, 6, 1901131.	2.6	35
13	Effective Spin-Mixing Conductance of Heavy-Metal-Ferromagnet Interfaces. <i>Physical Review Letters</i> , 2019, 123, 057203.	2.9	124
14	Layer-dependent spin-orbit torques generated by the centrosymmetric transition metal dichalcogenide $\text{PtS}_2$ . <i>Physical Review B</i> , 2019, 100, .	1.1	61
15	Variation of the giant intrinsic spin Hall conductivity of Pt with carrier lifetime. <i>Science Advances</i> , 2019, 5, eaav8025.	4.7	73
16	Enhancement of spin transparency by interfacial alloying. <i>Physical Review B</i> , 2019, 99, .	1.1	43
17	Exceptionally High, Strongly Temperature Dependent, Spin Hall Conductivity of $\text{SrRuO}_3$ . <i>Nano Letters</i> , 2019, 19, 3663-3670.	4.5	40
18	Strong Damping-Like Spin-Orbit Torque and Tunable Dzyaloshinskii-Moriya Interaction Generated by Low-Resistivity $\text{PdPt}$ Alloys. <i>Advanced Functional Materials</i> , 2019, 29, 1805822.	7.8	116

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19	Spin-Orbit Torques in Heavy-Metal/Ferromagnet Bilayers with Varying Strengths of Interfacial Spin-Orbit Coupling. Physical Review Letters, 2019, 122, 077201.	2.9	130
20	Current-Induced Torques with Dresselhaus Symmetry Due to Resistance Anisotropy in 2D Materials. ACS Nano, 2019, 13, 2599-2605.	7.3	32
21	Strong Enhancement of the Spin Hall Effect by Spin Fluctuations near the Curie Point of $\text{Fe}_x\text{Pt}_{1-x}$ Alloys. Physical Review Letters, 2018, 120, 097203.	2.9	45
22	Efficient switching of 3-terminal magnetic tunnel junctions by the giant spin Hall effect of Pt85Hf15 alloy. Applied Physics Letters, 2018, 112, .	1.5	22
23	Irrelevance of magnetic proximity effect to spin-orbit torques in heavy-metal/ferromagnet bilayers. Physical Review B, 2018, 98, .	1.1	46
24	Highly Efficient Spin-Current Generation by the Spin Hall Effect in $\text{Au}_x\text{Pt}_{1-x}$ . Physical Review Applied, 2018, 10, .	1.5	158
25	Reorientable Spin Direction for Spin Current Produced by the Anomalous Hall Effect. Physical Review Applied, 2018, 9, .	1.5	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/HfO <sub>2</sub> interfaces. Applied Physics Letters, 2017, 110, 192403.	1.5	15
28	Nanosecond magnetization dynamics during spin Hall switching of in-plane magnetic tunnel junctions. Applied Physics Letters, 2017, 110, .	1.5	27
29	Thickness dependence of spin-orbit torques generated by $\text{WTe}_2$ . Physical Review B, 2017, 96, .	1.1	104
30	Increased low-temperature damping in yttrium iron garnet thin films. Physical Review B, 2017, 95, .	1.1	72
31	Control of spin-orbit torques through crystal symmetry in $\text{WTe}_2$ /ferromagnet bilayers. Nature Physics, 2017, 13, 300-305.	6.5	489
32	Low-damping sub-10-nm thin films of lutetium iron garnet grown by molecular-beam epitaxy. Applied Physics Letters, 2016, 109, .	1.5	29
33	Enhanced spin Hall torque efficiency in $\text{Pt}_{100-x}\text{Al}_x$ and $\text{Pt}_{100-x}\text{Hf}_x$ alloys arising from the intrinsic spin Hall effect. Applied Physics Letters, 2016, 108, .	1.5	78
34	All-Spin-Orbit Switching of Perpendicular Magnetization. IEEE Transactions on Electron Devices, 2016, 63, 4499-4505.	1.6	15
35	Strong spin Hall effect in the antiferromagnet PtMn. Physical Review B, 2016, 93, .	1.1	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.	2.9	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, .	1.1	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.	4.5	119
39	Dependence of the efficiency of spin Hall torque on the transparency of Pt/ferromagnetic layer interfaces. Physical Review B, 2015, 92, .	1.1	380
40	Enhancement of the anti-damping spin torque efficacy of platinum by interface modification. Applied Physics Letters, 2015, 106, .	1.5	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, .	1.5	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, .	1.1	221
43	Interface and oxide quality of CoFeB/MgO/Si tunnel junctions. Journal of Applied Physics, 2012, 111, 093908.	1.1	2
44	Spin transfer torque devices utilizing the giant spin Hall effect of tungsten. Applied Physics Letters, 2012, 101, 122404.	1.5	1,173
45	Magnetic Oscillations Driven by the Spin Hall Effect in 3-Terminal Magnetic Tunnel Junction Devices. Physical Review Letters, 2012, 109, 186602.	2.9	306
46	Current-Induced Switching of Perpendicularly Magnetized Magnetic Layers Using Spin Torque from the Spin Hall Effect. Physical Review Letters, 2012, 109, 096602.	2.9	1,354
47	Spin-Torque Switching with the Giant Spin Hall Effect of Tantalum. Science, 2012, 336, 555-558.	6.0	3,176
48	Spin-Torque Ferromagnetic Resonance Induced by the Spin Hall Effect. Physical Review Letters, 2011, 106, 036601.	2.9	1,323
49	Interface and oxide quality of CoFeB/MgO/Si tunnel junctions. , 2010, , .		0
50	High magnetoresistance tunnel junctions with MgO barriers and NiFe free electrodes. Applied Physics Letters, 2009, 94, 112504.	1.5	22
51	Atomic-scale spectroscopic imaging of CoFeB/MgO/CoFeB magnetic tunnel junctions. Applied Physics Letters, 2009, 95, 032506.	1.5	45
52	A Three-Terminal Approach to Developing Spin-Torque Written Magnetic Random Access Memory Cells. IEEE Nanotechnology Magazine, 2009, 8, 190-195.	1.1	63
53	Spatially resolved electron energy-loss spectroscopy of electron-beam grown and sputtered CoFeB/MgO/CoFeB magnetic tunnel junctions. Applied Physics Letters, 2007, 91, 062516.	1.5	61
54	X-ray photoemission study of CoFe/MgO thin film bilayers. Applied Physics Letters, 2007, 90, 132503.	1.5	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.	1.5	2
56	Loss of polarization in a hot-electron current through electron-electron scattering. Journal of Applied Physics, 2005, 98, 093713.	1.1	3
57	Tunneling spectroscopy studies of treated aluminum oxide tunnel barrier layers. Applied Physics Letters, 2005, 86, 242504.	1.5	18
58	Time-Domain Measurements of Nanomagnet Dynamics Driven by Spin-Transfer Torques. Science, 2005, 307, 228-231.	6.0	495
59	Magnetoresistance and magnetostriction effects in ballistic ferromagnetic nanoconstrictions. Journal of Applied Physics, 2004, 95, 7315-7317.	1.1	25
60	Thermally Activated Magnetic Reversal Induced by a Spin-Polarized Current. Physical Review Letters, 2002, 89, 196801.	2.9	210
61	Ballistic electron microscopy study of ultrathin oxidized aluminum barriers for magnetic tunnel junctions. Applied Physics Letters, 2001, 78, 1601-1603.	1.5	27
62	Ballistic current transport studies of ferromagnetic multilayer films and tunnel junctions (invited). Journal of Applied Physics, 2001, 89, 6642-6646.	1.1	3
63	Atomic-scale characterization of a Co/AlO <sub>x</sub> /Co magnetic tunnel junction by scanning transmission electron microscopy. Applied Physics Letters, 2001, 79, 391-393.	1.5	24
64	Ballistic electron magnetic microscopy studies of magnetization reversal in Co/Cu/Co trilayer films. Journal of Applied Physics, 2000, 87, 6490-6492.	1.1	13
65	Current-induced realignment of magnetic domains in nanostructured Cu/Co multilayer pillars. Applied Physics Letters, 2000, 76, 354-356.	1.5	57
66	Observation of magnetization reversal of thin-film permalloy nanostructures using ballistic electron magnetic microscopy. Applied Physics Letters, 2000, 77, 1357-1359.	1.5	19
67	Point-contact studies of current-controlled domain switching in magnetic multilayers. Journal of Applied Physics, 2000, 87, 5502-5504.	1.1	9
68	Spin filtering by ultrathin ferromagnetic films. Applied Physics Letters, 1999, 74, 3881-3883.	1.5	51
69	Ballistic electron magnetic microscopy: Imaging magnetic domains with nanometer resolution. Applied Physics Letters, 1999, 75, 1001-1003.	1.5	61
70	Width dependence of giant magnetoresistance in Cu/Co multilayer nanowires. Applied Physics Letters, 1999, 74, 1883-1885.	1.5	17
71	Current-Induced Switching of Domains in Magnetic Multilayer Devices. Science, 1999, 285, 867-870.	6.0	1,232
72	Time-dependent diffusivity of boron in silicon oxide and oxynitride. Applied Physics Letters, 1999, 74, 967-969.	1.5	27

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73	Nitrous oxide ( $N_2O$ ) processing for silicon oxynitride gate dielectrics. IBM Journal of Research and Development, 1999, 43, 287-300.	3.2	42
74	Boron Diffusion in Silicon Oxides and Oxynitrides. Journal of the Electrochemical Society, 1998, 145, 2068-2074.	1.3	40
75	Structure and Growth of $N_2O$ Gate Oxynitrides. Materials Research Society Symposia Proceedings, 1996, 428, 393.	0.1	1
76	Furnace gas-phase chemistry of silicon oxynitridation in $N_2O$ . Applied Physics Letters, 1996, 68, 1696-1698.	1.5	58
77	The removal of nitrogen during boron indiffusion in silicon gate oxynitrides. Applied Physics Letters, 1996, 69, 535-537.	1.5	14
78	N depth profiles in thin $SiO_2$ grown or processed in $N_2O$ : The role of atomic oxygen. Applied Physics Letters, 1995, 66, 1492-1494.	1.5	114
79	Josephson properties of basal-plane-faced tilt boundaries in $YBa_2Cu_3O_7$ thin films. Applied Physics Letters, 1994, 65, 3126-3128.	1.5	21
80	Role of interfacial nitrogen in improving thin silicon oxides grown in $N_2O$ . Applied Physics Letters, 1993, 63, 54-56.	1.5	163
81	Transport properties of high-angle grain boundary weak links in $YBa_2Cu_3O_7$ thin films. Applied Physics Letters, 1991, 58, 1095-1097.	1.5	64
82	Optimizing Process Parameters for the Growth of $YBa_2Cu_3O_7$ thin-films. Materials Research Society Symposia Proceedings, 1990, 191, 141.	0.1	0
83	Scaling behavior of $YBa_2Cu_3O_7$ thin-film weak links. Applied Physics Letters, 1990, 57, 1155-1157.	1.5	134
84	Ballistic electron studies and modification of the Au/Si interface. Applied Physics Letters, 1990, 57, 2826-2828.	1.5	32
85	Clean grain boundaries and weak links in high $T_c$ superconducting $YBa_2Cu_3O_7$ thin films. Applied Physics Letters, 1990, 57, 508-510.	1.5	64
86	Crystallography of $YBa_2Cu_3O_{6+x}$ thin film-substrate interfaces. Journal of Materials Research, 1989, 4, 1072-1081.	1.2	147
87	Epitaxial $YBaCuO$ thin films on MgO deposited by high-pressure reactive magnetron sputtering. Journal of Applied Physics, 1989, 66, 3148-3153.	1.1	38
88	Transport Measurements on Superconducting $YBa_2Cu_3O_7$ 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 $YBa_2Cu_3O_7$ 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 wear-out in metal-oxide-semiconductor tunnel diodes. Applied Physics Letters, 1988, 52, 1749-1751.	1.5	75
93	A structural and electrical comparison of thin SiO2 films grown on silicon by plasma anodization and rapid thermal processing to furnace oxidation. Journal of Applied Physics, 1988, 63, 5027-5035.	1.1	20
94	High-frequency characterization of thin Y-Ba-Cu oxide superconducting transmission lines. Applied Physics Letters, 1988, 52, 1444-1446.	1.5	65
95	NbN Josephson tunnel junctions for terahertz local oscillators. Applied Physics Letters, 1988, 53, 2441-2443.	1.5	15
96	High Temperature Superconductivity Update. Materials and Processing Report, 1988, 2, 4-7.	0.0	2
97	Production of YBa2Cu3O7-y superconducting thin films in situ by high-pressure reactive evaporation and rapid thermal annealing. Applied Physics Letters, 1987, 51, 1554-1556.	1.5	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 YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-x</sub> Thin Films Grown on Ceramic Substrates. Materials Research Society Symposia Proceedings, 1987, 99, 719.	0.1	3
100	Thin silicon oxides grown by low-temperature rf plasma anodization and deposition. Applied Physics Letters, 1987, 50, 1095-1097.	1.5	16
101	Millimeter wave mixing with submicron area Nb tunnel junctions. Journal of Applied Physics, 1982, 53, 823-827.	1.1	7
102	Graded-index Pt-Al2O3 composite solar absorbers. Applied Physics Letters, 1981, 39, 29-31.	1.5	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, ion bombardment-tolerant electron resist system. Journal of Vacuum Science and Technology, 1981, 19, 1308-1312.	1.9	9
105	High-quality submicron niobium tunnel junctions with reactive-ion-beam oxidation. Applied Physics Letters, 1980, 37, 841-843.	1.5	70
106	Response times and low-voltage behavior of SNS microbridges. Applied Physics Letters, 1979, 34, 415-418.	1.5	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 variable-thickness microbridges. Journal of Applied Physics, 1977, 48, 5360-5361.	1.1	4

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109	Capacitively shunted variable thickness microbridges. Applied Physics Letters, 1977, 31, 362-365.	1.5	5
110	Current-phase relations as determinants of superconducting thin film weak link characteristics. Applied Physics Letters, 1976, 29, 214-216.	1.5	26
111	Statistical model for coalescence of islands in discontinuous films. Applied Physics Letters, 1975, 27, 693-694.	1.5	79
112	SQUID techniques.I. Obtaining reliability in point contact SQUID's. Journal of Applied Physics, 1974, 45, 4045-4048.	1.1	24
113	Weak Link Point Contact Devices. Journal of Applied Physics, 1971, 42, 45-45.	1.1	14