

Supriyo Bandyopadhyay

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138
papers

2,219
citations

26
h-index

42
g-index

150
ext. papers

2,423
ext. citations

3.6
avg, IF

5.58
L-index

#	Paper	IF	Citations
138	Hybrid spintronics and straintronics: A magnetic technology for ultra low energy computing and signal processing. <i>Applied Physics Letters</i> , 2011 , 99, 063108	3.4	174
137	Introduction to Spintronics		104
136	Energy dissipation and switching delay in stress-induced switching of multiferroic nanomagnets in the presence of thermal fluctuations. <i>Journal of Applied Physics</i> , 2012 , 112, 023914	2.5	103
135	Experimental Clocking of Nanomagnets with Strain for Ultralow Power Boolean Logic. <i>Nano Letters</i> , 2016 , 16, 1069-75	11.5	94
134	Electron spin for classical information processing: a brief survey of spin-based logic devices, gates and circuits. <i>Nanotechnology</i> , 2009 , 20, 412001	3.4	79
133	Magnetization dynamics, Bennett clocking and associated energy dissipation in multiferroic logic. <i>Nanotechnology</i> , 2011 , 22, 155201	3.4	78
132	Experimental Demonstration of Complete 180° Reversal of Magnetization in Isolated Co Nanomagnets on a PMN-PT Substrate with Voltage Generated Strain. <i>Nano Letters</i> , 2017 , 17, 3478-3484	11.5	68
131	Switching dynamics of a magnetostrictive single-domain nanomagnet subjected to stress. <i>Physical Review B</i> , 2011 , 83,	3.3	67
130	Binary switching in a 'symmetric' potential landscape. <i>Scientific Reports</i> , 2013 , 3, 3038	4.9	63
129	Giant voltage manipulation of MgO-based magnetic tunnel junctions via localized anisotropic strain: A potential pathway to ultra-energy-efficient memory technology. <i>Applied Physics Letters</i> , 2016 , 109, 092403	3.4	61
128	Complete magnetization reversal in a magnetostrictive nanomagnet with voltage-generated stress: A reliable energy-efficient non-volatile magneto-elastic memory. <i>Applied Physics Letters</i> , 2014 , 105, 072408	3.4	56
127	Acoustic-Wave-Induced Magnetization Switching of Magnetostrictive Nanomagnets from Single-Domain to Nonvolatile Vortex States. <i>Nano Letters</i> , 2016 , 16, 5681-7	11.5	55
126	Magnetization dynamics, throughput and energy dissipation in a universal multiferroic nanomagnetic logic gate with fan-in and fan-out. <i>Nanotechnology</i> , 2012 , 23, 105201	3.4	54
125	Reversible strain-induced magnetization switching in FeGa nanomagnets: Pathway to a rewritable, non-volatile, non-toggle, extremely low energy straintronic memory. <i>Scientific Reports</i> , 2015 , 5, 18264	4.9	50
124	Energy-efficient magnetoelastic non-volatile memory. <i>Applied Physics Letters</i> , 2014 , 104, 232403	3.4	43
123	Computational Paradigms in Nanoelectronics: Quantum Coupled Single Electron Logic and Neuromorphic Networks. <i>Japanese Journal of Applied Physics</i> , 1996 , 35, 3350-3362	1.4	41
122	Four-state nanomagnetic logic using multiferroics. <i>Journal Physics D: Applied Physics</i> , 2011 , 44, 265001	3	36

121	Acoustically assisted spin-transfer-torque switching of nanomagnets: An energy-efficient hybrid writing scheme for non-volatile memory. <i>Applied Physics Letters</i> , 2013 , 103, 232401	3-4	34
120	Wetting behavior of polymer coated nanoporous anodic alumina films: transition from super-hydrophilicity to super-hydrophobicity. <i>Nanotechnology</i> , 2011 , 22, 035703	3-4	33
119	Normal and inverse spin-valve effect in organic semiconductor nanowires and the background monotonic magnetoresistance. <i>Physical Review B</i> , 2006 , 74,	3-3	33
118	Switching of Dipole Coupled Multiferroic Nanomagnets in the Presence of Thermal Noise: Reliability of Nanomagnetic Logic. <i>IEEE Nanotechnology Magazine</i> , 2013 , 12, 1206-1212	2.6	32
117	Self-Similar Magneto-Electric Nanocircuit Technology for Probabilistic Inference Engines. <i>IEEE Nanotechnology Magazine</i> , 2015 , 14, 980-991	2.6	27
116	Electric field control of magnetic states in isolated and dipole-coupled FeGa nanomagnets delineated on a PMN-PT substrate. <i>Nanotechnology</i> , 2015 , 26, 401001	3-4	27
115	Fluorescence and infrared spectroscopy of electrochemically self assembled ZnO nanowires: evidence of the quantum confined Stark effect. <i>Journal of Materials Science: Materials in Electronics</i> , 2006 , 17, 651-655	2.1	27
114	Hybrid Magnetodynamical Modes in a Single Magnetostrictive Nanomagnet on a Piezoelectric Substrate Arising from Magnetoelastic Modulation of Precessional Dynamics. <i>ACS Applied Materials & Interfaces</i> , 2018 , 10, 43970-43977	9.5	27
113	The straintronic spin-neuron. <i>Nanotechnology</i> , 2015 , 26, 285201	3-4	26
112	Low Power Restricted Boltzmann Machine Using Mixed-Mode Magneto-Tunneling Junctions. <i>IEEE Electron Device Letters</i> , 2019 , 40, 345-348	4.4	25
111	Static and dynamic magnetic properties of sputtered Fe-Ga thin films. <i>IEEE Transactions on Magnetics</i> , 2017 , 53,	2	24
110	An error-resilient non-volatile magneto-elastic universal logic gate with ultralow energy-delay product. <i>Scientific Reports</i> , 2014 , 4, 7553	4.9	24
109	Dominant spin relaxation mechanism in compound organic semiconductors. <i>Physical Review B</i> , 2010 , 81,	3-3	23
108	Reducing error rates in straintronic multiferroic nanomagnetic logic by pulse shaping. <i>Nanotechnology</i> , 2015 , 26, 245202	3-4	22
107	Architecting for Causal Intelligence at Nanoscale. <i>Computer</i> , 2015 , 48, 54-64	1.6	22
106	Analysis of the two-dimensional DattaDas spin field effect transistor. <i>Physica E: Low-Dimensional Systems and Nanostructures</i> , 2010 , 42, 1736-1740	3	22
105	Introduction to Spintronics		21
104	Image Processing With Dipole-Coupled Nanomagnets: Noise Suppression and Edge Enhancement Detection. <i>IEEE Transactions on Electron Devices</i> , 2017 , 64, 2417-2424	2.9	20

103	Dynamic Error in Strain-Induced Magnetization Reversal of Nanomagnets Due to Incoherent Switching and Formation of Metastable States: A Size-Dependent Study. <i>IEEE Transactions on Electron Devices</i> , 2016 , 63, 3307-3313	2.9	20
102	Experimental demonstration of acoustic wave induced magnetization switching in dipole coupled magnetostrictive nanomagnets for ultralow power computing. <i>Applied Physics Letters</i> , 2016 , 109, 102403-4	3.4	20
101	Low Energy Barrier Nanomagnet Design for Binary Stochastic Neurons: Design Challenges for Real Nanomagnets With Fabrication Defects. <i>IEEE Magnetism Letters</i> , 2019 , 10, 1-5	1.6	18
100	Energy dispersion relations of spin-split subbands in a quantum wire and electrostatic modulation of carrier spin polarization. <i>Physical Review B</i> , 2007 , 76,	3.3	17
99	Reliability of Magnetoelastic Switching of Nonideal Nanomagnets with Defects: A Case Study for the Viability of Straintronic Logic and Memory. <i>Physical Review Applied</i> , 2019 , 12,	4.3	16
98	Energy-efficient switching of nanomagnets for computing: straintronics and other methodologies. <i>Nanotechnology</i> , 2018 , 29, 442001	3.4	15
97	An Ultrafast Image Recovery and Recognition System Implemented With Nanomagnets Possessing Biaxial Magnetocrystalline Anisotropy. <i>IEEE Nanotechnology Magazine</i> , 2012 , 11, 896-901	2.6	15
96	Energy dissipation and error probability in fault-tolerant binary switching. <i>Scientific Reports</i> , 2013 , 3, 3204	4.9	15
95	. <i>IEEE Transactions on Electron Devices</i> , 2015 , 62, 2978-2986	2.9	14
94	Energy-Efficient Bennett Clocking Scheme for Four-State Multiferroic Logic. <i>IEEE Nanotechnology Magazine</i> , 2012 , 11, 418-425	2.6	14
93	Metastable state in a shape-anisotropic single-domain nanomagnet subjected to spin-transfer-torque. <i>Applied Physics Letters</i> , 2012 , 101, 162405	3.4	14
92	Fluorescence spectroscopy of electrochemically self-assembled ZnSe and Mn:ZnSe nanowires. <i>Nanotechnology</i> , 2008 , 19, 195601	3.4	14
91	Power Dissipation in Spintronic Devices: A General Perspective. <i>Journal of Nanoscience and Nanotechnology</i> , 2007 , 7, 3689-3689	1.3	13
90	Skewed Straintronic Magnetotunneling-Junction-Based Ternary Content-Addressable Memory Part I. <i>IEEE Transactions on Electron Devices</i> , 2017 , 64, 2835-2841	2.9	12
89	Extreme Subwavelength Magnetoelastic Electromagnetic Antenna Implemented with Multiferroic Nanomagnets. <i>Advanced Materials Technologies</i> , 2020 , 5, 2000316	6.8	11
88	Reliability and Scalability of p-Bits Implemented With Low Energy Barrier Nanomagnets. <i>IEEE Magnetism Letters</i> , 2019 , 10, 1-4	1.6	11
87	Magneto-elastic switching of magnetostrictive nanomagnets with in-plane anisotropy: the effect of material defects. <i>Journal of Physics Condensed Matter</i> , 2018 , 30, 394001	1.8	11
86	Microwave Oscillator Based on a Single Straintronic Magnetotunneling Junction. <i>Physical Review Applied</i> , 2019 , 11,	4.3	10

85	Coherent spin transport and suppression of spin relaxation in InSb nanowires with single subband occupancy at room temperature. <i>Small</i> , 2014 , 10, 4379-85	11	10
84	Precessional switching of a perpendicular anisotropy magneto-tunneling junction without a magnetic field. <i>Japanese Journal of Applied Physics</i> , 2017 , 56, 100309	1.4	10
83	Magnetization dynamics, Bennett clocking and associated energy dissipation in multiferroic logic. <i>Nanotechnology</i> , 2011 , 22, 309501	3.4	10
82	Straintronics: Digital and Analog Electronics With Strain-Switched Nanomagnets. <i>IEEE Open Journal of Nanotechnology</i> , 2020 , 1, 57-64	2.1	9
81	Strain Mediated Magnetoelectric Memory 2016 , 221-257		9
80	Incoherent magnetization dynamics in strain mediated switching of magnetostrictive nanomagnets. <i>Nanotechnology</i> , 2017 , 28, 015202	3.4	8
79	Antimicrobial properties of nanorods: killing bacteria via impalement. <i>IET Nanobiotechnology</i> , 2017 , 11, 501-505	2	8
78	Rashba effect in an asymmetric quantum dot in a magnetic field. <i>Superlattices and Microstructures</i> , 2002 , 32, 171-177	2.8	8
77	Electrically programmable probabilistic bit anti-correlator on a nanomagnetic platform. <i>Scientific Reports</i> , 2020 , 10, 12361	4.9	8
76	Experimental Demonstration of an Extreme Subwavelength Nanomagnetic Acoustic Antenna Actuated by Spin-Orbit Torque from a Heavy Metal Nanostrip. <i>Advanced Materials Technologies</i> , 2020 , 5, 1901076	6.8	7
75	The effect of material defects on resonant spin wave modes in a nanomagnet. <i>Scientific Reports</i> , 2019 , 9, 16635	4.9	7
74	Semiconductor Quantum Devices. <i>Advances in Electronics and Electron Physics</i> , 1994 , 93-253		7
73	Bayesian reasoning machine on a magneto-tunneling junction network. <i>Nanotechnology</i> , 2020 , 31, 4840014	5.4	7
72	Resonant amplification of intrinsic magnon modes and generation of new extrinsic modes in a two-dimensional array of interacting multiferroic nanomagnets by surface acoustic waves. <i>Nanoscale</i> , 2021 , 13, 10016-10023	7.7	7
71	Skewed Straintronic Magnetotunneling-Junction-Based Ternary Content-Addressable Memory Part II. <i>IEEE Transactions on Electron Devices</i> , 2017 , 64, 2842-2848	2.9	6
70	A self-assembled room temperature nanowire infrared photodetector based on quantum mechanical wavefunction engineering. <i>Physica E: Low-Dimensional Systems and Nanostructures</i> , 2012 , 44, 1478-1485	3	6
69	The inequality of charge and spin diffusion coefficients. <i>Journal of Applied Physics</i> , 2008 , 104, 014304	2.5	6
68	Single-spin measurement in the solid state: A reader for a spin qubit. <i>Physical Review B</i> , 2003 , 67,	3.3	6

67	Sensitivity of the Power Spectra of Thermal Magnetization Fluctuations in Low Barrier Nanomagnets Proposed for Stochastic Computing to In-Plane Barrier Height Variations and Structural Defects. <i>Spin</i> , 2020 , 10, 2050001	1.3	6
66	Physically equivalent magneto-electric nanoarchitecture for probabilistic reasoning 2015 ,		5
65	Hybrid spintronic/straintronics: A super energy efficient computing scheme based on interacting multiferroic nanomagnets 2012 ,		5
64	An electron's spin---Part I. <i>IEEE Potentials</i> , 2009 , 28, 31-35	1	5
63	Gate control of the spin-splitting energy in a quantum dot: Application in single qubit rotation. <i>Physica E: Low-Dimensional Systems and Nanostructures</i> , 2009 , 41, 587-592	3	5
62	Signature of quasi one-dimensionality in the absorption spectra of electrochemically self-assembled nanowires. <i>Physica E: Low-Dimensional Systems and Nanostructures</i> , 2011 , 43, 1255-1261	3	5
61	Spin relaxation of \uparrow pstream electrons in quantum wires: Failure of the drift diffusion model. <i>Physical Review B</i> , 2006 , 73,	3.3	5
60	Spin Wave Electromagnetic Nano-Antenna Enabled by Tripartite Phonon-Magnon-Photon Coupling.. <i>Advanced Science</i> , 2022 , e2104644	13.6	5
59	An observable effect of spin inertia in slow magneto-dynamics: increase of the switching error rates in nanoscale ferromagnets. <i>Journal of Physics Condensed Matter</i> , 2021 , 33,	1.8	5
58	Nanomagnetic Boolean Logic---The Tempered (and Realistic) Vision. <i>IEEE Access</i> , 2021 , 9, 7743-7750	3.5	5
57	Magnetic straintronics: Manipulating the magnetization of magnetostrictive nanomagnets with strain for energy-efficient applications. <i>Applied Physics Reviews</i> , 2021 , 8, 041323	17.3	5
56	Electrochemically self-assembled nanostructure arrays. <i>Journal of Crystal Growth</i> , 2004 , 268, 342-345	1.6	4
55	Fluctuations in the optical spectra of disordered microstructures due to quantum-interference effects. <i>Physical Review B</i> , 1988 , 38, 7466-7473	3.3	4
54	The Cost of Energy-Efficiency in Digital Hardware: The Trade-Off between Energy Dissipation, Energy-Delay Product and Reliability in Electronic, Magnetic and Optical Binary Switches. <i>Applied Sciences (Switzerland)</i> , 2021 , 11, 5590	2.6	4
53	Spin Transfer Torque: A Multiscale Picture 2016 , 91-132		4
52	Energy-Efficient Hybrid Spintronic-Straintronic Nonvolatile Reconfigurable Equality Bit Comparator. <i>Spin</i> , 2017 , 07, 1750004	1.3	3
51	Review: Voltage induced strain control of magnetization: computing and other applications. <i>Multifunctional Materials</i> , 2019 , 2, 032001	5.2	3
50	Spin dynamics and spin noise in the presence of randomly varying spin-orbit interaction in a semiconductor quantum wire. <i>Journal of Physics Condensed Matter</i> , 2012 , 24, 215302	1.8	3

49	An electron's spin--Part II. <i>IEEE Potentials</i> , 2009 , 28, 36-39	1	3
48	Spin Injection Efficiency at the Source/Channel Interface of Spin Transistors. <i>IEEE Nanotechnology Magazine</i> , 2008 , 7, 34-39	2.6	3
47	Simulated annealing with surface acoustic wave in a dipole-coupled array of magnetostrictive nanomagnets for collective ground state computing. <i>Journal Physics D: Applied Physics</i> , 2020 , 53, 445002 ³		3
46	Mixed-mode Magnetic Tunnel Junction-based Deep Belief Network 2019 ,		3
45	Modulating spin relaxation in nanowires with infrared light at room temperature. <i>Nanotechnology</i> , 2015 , 26, 281001	3-4	2
44	Comment on [Ultra-low-energy non-volatile straintronic computing using single multiferroic composites[Appl. Phys. Lett. 103, 173110 (2013)]. <i>Applied Physics Letters</i> , 2014 , 105, 176101	3-4	2
43	Hybrid straintronics and spintronics: An ultra energy-efficient paradigm for logic and memory 2012 ,		2
42	Spin transport in self assembled all-metal nanowire spin valves: a study of the pure Elliott-Yafet mechanism. <i>Journal of Nanoscience and Nanotechnology</i> , 2006 , 6, 1973-8	1-3	2
41	Modulated interfacial disorder scattering in quantum wells and its device applications. <i>Surface and Interface Analysis</i> , 1989 , 14, 590-594	1-5	2
40	Applications of nanomagnets as dynamical systems: II. <i>Nanotechnology</i> , 2021 , 33,	3-4	2
39	Applications of nanomagnets as dynamical systems: I. <i>Nanotechnology</i> , 2021 , 33,	3-4	2
38	Effect of CoFe dusting layer and annealing on the magnetic properties of sputtered Ta/W/CoFeB/CoFe/MgO layer structures. <i>Journal Physics D: Applied Physics</i> , 2020 , 53, 105001	3	2
37	Charge and Current in Solids: The Classical Drift-Diffusion Model 2012 , 1-33		1
36	Spin Relaxation Mechanisms in the Organic Semiconductor Alq3. <i>International Journal of Nanotechnology and Molecular Computation</i> , 2009 , 1, 20-38		1
35	Motional modes in bulk powder and few-molecule clusters of tris(8-hydroxyquinoline aluminum) and their relation to spin dephasing. <i>Applied Physics Letters</i> , 2011 , 98, 063109	3-4	1
34	Nearly Universal $\hbar\omega_c/f^2$ Spectrum of Mobility Fluctuation Noise in a Quantum Wire at Radio and Microwave Frequencies. <i>IEEE Transactions on Electron Devices</i> , 2010 , 57, 3101-3105	2-9	1
33	Hybrid Spintronics/Straintronics:A Super Energy-Efficient ComputingParadigm Based on InteractingMultiferroic Nanomagnets 2013 ,		1
32	Spin Transport in Nanowires Synthesized Using Anodic Nanoporous Alumina Films 2020 ,		1

31	Reflection and refraction of an electron spin at the junction between two quasi-two-dimensional regions with and without spin-orbit interaction. <i>Physica Scripta</i> , 2021 , 96, 065806	2.6	1
30	Low Temperature Growth of Germanium Oxide Nanowires by Template Based Self Assembly and their Raman Characterization 2021 , 93-100		1
29	Introduction to Spintronic and Nanomagnetic Computing Devices 2016 , 1-8		1
28	Magnonic Logic Devices 2016 , 189-219		1
27	Hybrid Spintronics-Straintronics 2016 , 259-289		1
26	Surface acoustic wave induced modulation of tunneling magnetoresistance in magnetic tunnel junctions. <i>Journal of Applied Physics</i> , 2021 , 130, 033901	2.5	1
25	Power dissipation in spintronic devices: a general perspective. <i>Journal of Nanoscience and Nanotechnology</i> , 2007 , 7, 168-80	1.3	1
24	Information Processing with Electron Spins. <i>ISRN Materials Science</i> , 2012 , 2012, 1-20		0
23	A 3-D NanoMagnetoElectrokinetic model for ultra-high precision assembly of ferromagnetic NWs using magnetic-field assisted dielectrophoresis.. <i>RSC Advances</i> , 2020 , 10, 39763-39770	3.7	0
22	Reflection and Refraction of a Spin at the Edge of a Quasi-Two-Dimensional Semiconductor Layer (Quantum Well) and a Topological Insulator. <i>Magnetism</i> , 2022 , 2, 117-129		0
21	. <i>IEEE Nanotechnology Magazine</i> , 2015 , 14, 196-197	2.6	
20	General Principles of Spin Transistors and Spin Logic Devices 2013 , 1-57		
19	Magnetotunneling Junction Logic and Memory: Low-energy logic paradigms for the next decade and beyond.. <i>IEEE Nanotechnology Magazine</i> , 2015 , 9, 6-12	1.7	
18	Reply to Comment on Metastable state in a shape-anisotropic single-domain nanomagnet subjected to spin-transfer torque[Appl. Phys. Lett. 105, 116101 (2014)]. <i>Applied Physics Letters</i> , 2014 , 105, 116103	3.4	
17	Quantum Devices and Mesoscopic Phenomena 2012 , 491-546		
16	Quantum Transport Formalisms 2012 , 395-490		
15	Boltzmann Transport: Beyond the DriftDiffusion Model 2012 , 35-90		
14	Some Essential Elements of Quantum Mechanics 2012 , 91-145		

13 Band Structures of Crystalline Solids **2012**, 147-207

12 Carrier Scattering in Solids **2012**, 209-255

11 Optical Properties of Solids **2012**, 257-340

10 Magnetic Field Effects in a Nanostructured Device **2012**, 341-394

9 Emerging Devices **2013**, 59-68

8 Phonon Bottleneck Effect in Organic Molecules. *Materials Research Society Symposia Proceedings*, **2009**, 1172, 19

7 Self-Assembled Nanowire Arrays of Metal/Insulator/Semiconductor Diodes Exhibiting S-Type Nonlinearity. *IEEE Nanotechnology Magazine*, **2008**, 7, 800-805 2.6

6 Oscillatory magnetoresistance in a quantum wire spin valve: A means to estimate the saturated drift velocity or mobility of carriers. *Physica E: Low-Dimensional Systems and Nanostructures*, **2008**, 40, 2814-2816 3

5 Dominant Spin Relaxation Mechanisms in Organic Semiconductor Alq3 259-278

4 General Principles of Spin Transistors and Spin Logic Devices **2016**, 1175-1242

3 Monolithic and Hybrid Spintronics 93

2 The Many Facets of Nanotechnology [Highlights]. *IEEE Nanotechnology Magazine*, **2020**, 14, 8-11 1.7

1 Spin-Based Devices for Logic, Memory, and Non-Boolean Architectures **2018**, 201-236