Supriyo Datta

List of Publications by Year in descending order

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65 papers	2,809 citations	257357 24 h-index	182361 51 g-index
65 all docs	65 docs citations	65 times ranked	2349 citing authors

#	Article	IF	Citations
1	Integer factorization using stochastic magnetic tunnel junctions. Nature, 2019, 573, 390-393.	13.7	298
2	Silicon-based Molecular Electronics. Nano Letters, 2004, 4, 1803-1807.	4.5	196
3	Intrinsic optimization using stochastic nanomagnets. Scientific Reports, 2017, 7, 44370.	1.6	166
4	Stochastic <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:mi>p</mml:mi></mml:mrow></mml:math> -Bits for Invertible Logic. Physical Review X, 2017, 7, .	2.8	163
5	Theoretical investigation of surface roughness scattering in silicon nanowire transistors. Applied Physics Letters, 2005, 87, 043101.	1.5	134
6	Gating of a Molecular Transistor:Â Electrostatic and Conformational. Nano Letters, 2004, 4, 565-568.	4.5	131
7	All-Spin Logic Device With Inbuilt Nonreciprocity. IEEE Transactions on Magnetics, 2011, 47, 4026-4032.	1.2	126
8	Implementing p-bits With Embedded MTJ. IEEE Electron Device Letters, 2017, 38, 1767-1770.	2.2	118
9	Conductance Asymmetry of Graphene p-n Junction. IEEE Transactions on Electron Devices, 2009, 56, 1292-1299.	1.6	114
10	p-bits for probabilistic spin logic. Applied Physics Reviews, 2019, 6, .	5.5	110
11	Can the subthreshold swing in a classical FET be lowered below 60 mV/decade?. , 2008, , .		88
12	Interacting systems for self-correcting low power switching. Applied Physics Letters, 2007, 90, 093503.	1.5	83
13	Modular Approach to Spintronics. Scientific Reports, 2015, 5, 10571.	1.6	75
14	Low-Barrier Nanomagnets as p-Bits for Spin Logic. IEEE Magnetics Letters, 2017, 8, 1-5.	0.6	62
15	Switching Energy of Ferromagnetic Logic Bits. IEEE Nanotechnology Magazine, 2009, 8, 505-514.	1.1	57
16	Hardware emulation of stochastic p-bits for invertible logic. Scientific Reports, 2017, 7, 10994.	1.6	57
17	Quantum interference in polyenes. Journal of Chemical Physics, 2014, 141, 224311.	1.2	55
18	Low-Barrier Magnet Design for Efficient Hardware Binary Stochastic Neurons. IEEE Magnetics Letters, 2019, 10, 1-5.	0.6	47

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19	Exponential Attenuation of Through-Bond Transmission in a Polyene: Theory and Potential Realizations. ACS Nano, 2015, 9, 11109-11120.	7.3	45
20	Implementing Bayesian networks with embedded stochastic MRAM. AIP Advances, 2018, 8, .	0.6	41
21	Tunable charge to spin conversion in strontium iridate thin films. Physical Review Materials, 2019, 3, .	0.9	37
22	Hardware-Aware In Situ Learning Based on Stochastic Magnetic Tunnel Junctions. Physical Review Applied, 2022, 17, .	1.5	36
23	Probabilistic computing with p-bits. Applied Physics Letters, 2021, 119, .	1.5	31
24	Autonomous Probabilistic Coprocessing With Petaflips per Second. IEEE Access, 2020, 8, 157238-157252.	2.6	27
25	Self-consistent simulation of quantum transport and magnetization dynamics in spin-torque based devices. Applied Physics Letters, 2006, 89, 153504.	1.5	26
26	Atomistic Simulation of Carbon Nanotube Field-Effect Transistors Using Non-Equilibrium Greenâ€™s Function Formalism. Journal of Computational Electronics, 2004, 3, 373-377.	1.3	24
27	Theory of High Bias Coulomb Blockade in Ultrashort Molecules. IEEE Nanotechnology Magazine, 2007, 6, 536-544.	1.1	24
28	Spin Circuit Representation for the Spin Hall Effect. IEEE Nanotechnology Magazine, 2016, 15, 225-236.	1.1	24
29	How we proposed the spin transistor. Nature Electronics, 2018, 1, 604-604.	13.1	23
30	Correlated fluctuations in spin orbit torque coupled perpendicular nanomagnets. Physical Review B, 2020, 101, .	1.1	22
31	Quantitative model for TMR and spin-transfer torque in MTJ devices. , 2010, , .		21
32	Multi-Terminal Spin Valve on Channels with Spin-Momentum Locking. Scientific Reports, 2016, 6, 35658.	1.6	21
33	Spin switches for compact implementation of neuron and synapse. Applied Physics Letters, 2014, 104, .	1.5	19
34	Hardware implementation of Bayesian network building blocks with stochastic spintronic devices. Scientific Reports, 2020, 10, 16002.	1.6	19
35	From Charge to Spin and Spin to Charge: Stochastic Magnets for Probabilistic Switching. Proceedings of the IEEE, 2020, 108, 1322-1337.	16.4	19
36	Quantitative Evaluation of Hardware Binary Stochastic Neurons. Physical Review Applied, 2021, 15, .	1.5	18

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37	Emissionâ€“Diffusion Theory of the MOSFET. IEEE Transactions on Electron Devices, 2015, 62, 4174-4178.	1.6	17
38	Hardware Design for Autonomous Bayesian Networks. Frontiers in Computational Neuroscience, 2021, 15, 584797.	1.2	16
39	Atomistic non-equilibrium Greenâ€™s function simulations ofÂGraphene nano-ribbons in the quantum hall regime. Journal of Computational Electronics, 2008, 7, 407-410.	1.3	15
40	Manipulating quantum information with spin torque. Scientific Reports, 2016, 5, 17912.	1.6	15
41	Spin Funneling for Enhanced Spin Injection into Ferromagnets. Scientific Reports, 2016, 6, 28868.	1.6	15
42	Voltage-Driven Building Block for Hardware Belief Networks. IEEE Design and Test, 2019, 36, 15-21.	1.1	15
43	Quantum Transport Simulation of Tunneling Based Spin Torque Transfer (STT) Devices: Design Trade offs and Torque Efficiency. , 2007, , .		13
44	Evaluating Spintronic Devices Using the Modular Approach. IEEE Journal on Exploratory Solid-State Computational Devices and Circuits, 2016, 2, 51-60.	1.1	13
45	Proposal of a Single Nano-Magnet Memory Device. IEEE Electron Device Letters, 2017, 38, 1665-1668.	2.2	13
46	Transmission-Line Model for Materials with Spin-Momentum Locking. Physical Review Applied, 2018, 10, .	1.5	13
47	Probabilistic Circuits for Autonomous Learning: A Simulation Study. Frontiers in Computational Neuroscience, 2020, 14, 14.	1.2	13
48	Spin Circuit Model for 2D Channels with Spin-Orbit Coupling. Scientific Reports, 2016, 6, 20325.	1.6	12
49	Multi-terminal spin valve in a strong Rashba channel exhibiting three resistance states. Scientific Reports, 2018, 8, 3397.	1.6	12
50	Self-Consistent Simulation of Hybrid Spintronic Devices. , 2006, , .		11
51	Physics-based factorization of Magnetic Tunnel Junctions for modeling and circuit simulation. , 2014, , .		11
52	Modeling all spin logic: Multi-magnet networks interacting via spin currents. , 2011, , .		10
53	Charge-Resistance Approach to Benchmarking Performance of Beyond-CMOS Information Processing Devices. IEEE Nanotechnology Magazine, 2014, 13, 143-150.	1.1	8
54	Unified Framework for Charge-Spin Interconversion in Spin-Orbit Materials. Physical Review Applied, 2021, 15, .	1.5	8

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55	A Quantum Mechanical Approach for the Simulation of Si/SiO2 Interface Roughness Scattering in Silicon Nanowire Transistors. Journal of Computational Electronics, 2004, 3, 453-457.	1.3	4
56	The spin switch oscillator: A new approach based on gain and feedback. , 2014, , .		4
57	Impact of Scaling on the Dipolar Coupling in Magnetâ€“Insulatorâ€“Magnet Structures. IEEE Transactions on Magnetics, 2016, 52, 1-7.	1.2	4
58	Unidirectional information transfer with cascaded All Spin Logic devices: A Ring Oscillator. , 2011, , .		2
59	Rectification in Spin-Orbit Materials Using Low-Energy-Barrier Magnets. Physical Review Applied, 2019, 11, .	1.5	2
60	Probabilistic Computing with Binary Stochastic Neurons. , 2019, , .		2
61	Non-Equilibrium Green's Function Based Circuit Models for Coherent Spin Devices. IEEE Nanotechnology Magazine, 2019, 18, 858-865.	1.1	2
62	Integrating Spintronics with Conventional Semiconductor Devices through Exchange Interaction. , 2006, , .		1
63	All Spin Logic device as a compact artificial neuron. , 2012, , .		1
64	Simulation of Spin Torque Devices with Inelastic Spin flip Scattering. Device Research Conference, IEEE Annual, 2007, , .	0.0	0
65	Key Role of Non Equilibrium Spin Density in Determining Spin Torque. , 2008, , .		0