Gyorgy Csaba

List of Publications by Citations

168 papers	4,038 citations	31 h-index	58 g-index
186 ext. papers	4,673 ext. citations	3.1 avg, IF	5.49 L-index

#	Paper	IF	Citations
168	Majority logic gate for magnetic quantum-dot cellular automata. *Science*, **2006**, 311, 205-8	33.3	748
167	Nanocomputing by field-coupled nanomagnets. *IEEE Nanotechnology Magazine*, **2002**, 1, 209-213	2.6	159
166	Nanomagnet logic: progress toward system-level integration. *Journal of Physics Condensed Matter*, **2011**, 23, 493202	1.8	128
165	The Bistable Ring PUF: A new architecture for strong Physical Unclonable Functions **2011**,		119
164	Perspectives of using spin waves for computing and signal processing. *Physics Letters, Section A: General, Atomic and Solid State Physics*, **2017**, 381, 1471-1476	2.3	104
163	Nanopatterning reconfigurable magnetic landscapes via thermally assisted scanning probe lithography. *Nature Nanotechnology*, **2016**, 11, 545-551	28.7	97
162	Magnetic Quantum-Dot Cellular Automata: Recent Developments and Prospects. *Journal of Nanoelectronics and Optoelectronics*, **2008**, 3, 55-68	1.3	90
161	Coupled-Oscillator Associative Memory Array Operation for Pattern Recognition. *IEEE Journal on Exploratory Solid-State Computational Devices and Circuits*, **2015**, 1, 85-93	2.4	88
160	Magnetic QCA systems. *Microelectronics Journal*, **2005**, 36, 619-624	1.8	77
159	Spin-orbit torque-assisted switching in magnetic insulator thin films with perpendicular magnetic anisotropy. *Nature Communications*, **2016**, 7, 12688	17.4	71
158	Majority Gate for Nanomagnetic Logic With Perpendicular Magnetic Anisotropy. *IEEE Transactions on Magnetics*, **2012**, 48, 4336-4339	2	71
157	The 2021 Magnonics Roadmap. *Journal of Physics Condensed Matter*, **2021**, 33,	1.8	69
156	Roadmap on all-optical processing. *Journal of Optics (United Kingdom)*, **2019**, 21, 063001	1.7	63
155	Coupled oscillators for computing: A review and perspective. *Applied Physics Reviews*, **2020**, 7, 011302	17.3	63
154	Behavior of Nanomagnet Logic in the presence of thermal noise **2010**,		61
153	Simulation of Power Gain and Dissipation in Field-Coupled Nanomagnets. *Journal of Computational Electronics*, **2005**, 4, 105-110	1.8	56
152	Experimental Demonstration of a 1-Bit Full Adder in Perpendicular Nanomagnetic Logic. *IEEE Transactions on Magnetics*, **2013**, 49, 4464-4467	2	54

151	Investigation of shape-dependent switching of coupled nanomagnets. *Superlattices and Microstructures*, **2003**, 34, 513-518	2.8	54
150	A computing architecture composed of field-coupled single domain nanomagnets clocked by magnetic field. *International Journal of Circuit Theory and Applications*, **2003**, 31, 67-82	2	54
149	Spin-wave based realization of optical computing primitives. *Journal of Applied Physics*, **2014**, 115, 17C741	2.5	53
148	Majority logic gate for 3D magnetic computing. *Nanotechnology*, **2014**, 25, 335202	3.4	51
147	Simulation of Field Coupled Computing Architectures Based on Magnetic Dot Arrays. *Journal of Computational Electronics*, **2002**, 1, 87-91	1.8	49
146	Applications of High-Capacity Crossbar Memories in Cryptography. *IEEE Nanotechnology Magazine*, **2011**, 10, 489-498	2.6	48
145	Activity in field-coupled nanomagnet arrays. *International Journal of Circuit Theory and Applications*, **2007**, 35, 281-293	2	47
144	Computational Study of Spin-Torque Oscillator Interactions for Non-Boolean Computing Applications. *IEEE Transactions on Magnetics*, **2013**, 49, 4447-4451	2	40
143	Nanomagnetic Logic: Error-Free, Directed Signal Transmission by an Inverter Chain. *IEEE Transactions on Magnetics*, **2012**, 48, 4332-4335	2	40
142	Controlled reversal of Co/Pt Dots for nanomagnetic logic applications. *Journal of Applied Physics*, **2012**, 111, 07A715	2.5	39
141	Magnetic Ordering of Focused-Ion-Beam Structured Cobalt-Platinum Dots for Field-Coupled Computing. *IEEE Nanotechnology Magazine*, **2008**, 7, 316-320	2.6	38
140	Experimental Realization of a Nanomagnet Full Adder Using Slanted-Edge Magnets. *IEEE Transactions on Magnetics*, **2013**, 49, 4452-4455	2	37
139	Magnetization switching using topological surface states. *Science Advances*, **2019**, 5, eaaw3415	14.3	33
138	Read-Out Design Rules for Molecular Crossbar Architectures. *IEEE Nanotechnology Magazine*, **2009**, 8, 369-374	2.6	32
137	Nanoscale spectrum analyzer based on spin-wave interference. *Scientific Reports*, **2017**, 7, 9245	4.9	31
136	Physical Implementation of Coherently Coupled Oscillator Networks. *IEEE Journal on Exploratory Solid-State Computational Devices and Circuits*, **2015**, 1, 76-84	2.4	30
135	Systolic Pattern Matching Hardware With Out-of-Plane Nanomagnet Logic Devices. *IEEE Nanotechnology Magazine*, **2013**, 12, 399-407	2.6	30
134	. *Proceedings of the IEEE*, **2019**, 107, 73-89	14.3	30

133	Towards a Signal Crossing in Double-Layer Nanomagnetic Logic. *IEEE Transactions on Magnetics*, **2013**, 49, 4468-4471	2	29
132	Field-coupled nanomagnets for interconnect-free nonvolatile computing **2009**,		29
131	Implementation of a nanomagnetic full adder circuit **2011**,		28
130	Signal crossing in perpendicular nanomagnetic logic. *Journal of Applied Physics*, **2014**, 115, 17E510	2.5	27
129	Nanomagnetic Logic: Demonstration of directed signal flow for field-coupled computing devices **2011**,		27
128	Spin torque oscillator models for applications in associative memories **2012**,		26
127	Information transport in field-coupled nanomagnetic logic devices. *Journal of Applied Physics*, **2013**, 113, 17B902	2.5	25
126	Conjugated 12 nm long oligomers as molecular wires in nanoelectronics. *Journal of Materials Chemistry*, **2009**, 19, 3899		25
125	1-Bit Full Adder in Perpendicular Nanomagnetic Logic using a Novel 5-Input Majority Gate. *EPJ Web of Conferences*, **2014**, 75, 05001	0.3	24
124	On-chip Extraordinary Hall-effect sensors for characterization of nanomagnetic logic devices. *Solid-State Electronics*, **2010**, 54, 1027-1032	1.7	24
123	Field-coupled computing in magnetic multilayers. *Journal of Computational Electronics*, **2008**, 7, 454-457	1.8	22
122	Simulation of ZnO diodes for application in non-volatile crossbar memories. *Journal of Computational Electronics*, **2008**, 7, 146-150	1.8	22
121	Towards on-chip clocking of perpendicular Nanomagnetic Logic. *Solid-State Electronics*, **2014**, 102, 46-51	1.7	21
120	Nanomagnet Logic from Partially Irradiated Co/Pt Nanomagnets. *IEEE Nanotechnology Magazine*, **2012**, 11, 97-104	2.6	21
119	Low Temperature Rectifying Junctions for Crossbar Non-Volatile Memory Devices **2009**,		19
118	Security Applications of Diodes with Unique Current-Voltage Characteristics. *Lecture Notes in Computer Science*, **2010**, 328-335	0.9	19
117	Nanomagnetic logic clocked in the MHz regime **2013**,		18
116	Controlled domain wall motion in micron-scale permalloy square rings. *Physica E: Low-Dimensional Systems and Nanostructures*, **2003**, 19, 240-245	3	18

115	Nanoscale neural network using non-linear spin-wave interference. *Nature Communications*, **2021**, 12, 6422	17.4	18
114	Nanomagnetic logic: compact modeling of field-coupled computing devices for system investigations. *Journal of Computational Electronics*, **2011**, 10, 352-359	1.8	17
113	Random pn-junctions for physical cryptography. *Applied Physics Letters*, **2010**, 96, 172103	3.4	17
112	Switching behavior of lithographically fabricated nanomagnets for logic applications. *Journal of Applied Physics*, **2012**, 111, 07B911	2.5	17
111	A monolithic 3D integrated nanomagnetic co-processing unit. *Solid-State Electronics*, **2016**, 115, 74-80	1.7	16
110	Power dissipation in nanomagnetic logic devices		16
109	Development of CAD tools for nanomagnetic logic devices. *International Journal of Circuit Theory and Applications*, **2013**, 41, 634-645	2	15
108	Physical unclonable functions based on crossbar arrays for cryptographic applications. *International Journal of Circuit Theory and Applications*, **2013**, 41, 619-633	2	15
107	Clocking Schemes for Field Coupled Devices from Magnetic Multilayers **2009**,		15
106	Electrical input structures for nanomagnetic logic devices. *Journal of Applied Physics*, **2012**, 111, 07E341	2.5	15
105	. *IEEE Transactions on Magnetics*, **2012**, 48, 3292-3295	2	15
104	Flux-Closure Magnetic States in Triangular Cobalt Ring Elements. *IEEE Transactions on Magnetics*, **2006**, 42, 3641-3644	2	15
103	Towards Electrical, Integrated Implementations of SIMPL Systems. *Lecture Notes in Computer Science*, **2010**, 277-292	0.9	15
102	Simulation of Magnetization Reversal and Domain-Wall Trapping in Submicron Permalloy Wires With Different Wire Geometries. *IEEE Nanotechnology Magazine*, **2012**, 11, 682-686	2.6	14
101	An Associative Memory with oscillatory CNN arrays using spin torque oscillator cells and spin-wave interactions architecture and End-to-end Simulator **2012**,		14
100	Modeling of coupled spin torque oscillators for applications in associative memories **2012**,		14
99	Speeding up nanomagnetic logic by DMI enhanced Pt/Co/Ir films. *AIP Advances*, **2018**, 8, 056310	1.5	13
98	Computing architecture composed of next-neighbour-coupled optically pumped nanodevices. *International Journal of Circuit Theory and Applications*, **2001**, 29, 73-91	2	13

97	Switching Behavior of Sharply Pointed Nanomagnets for Logic Applications. *IEEE Transactions on Magnetics*, **2013**, 49, 3549-3552	2	12
96	Hybrid yttrium iron garnet-ferromagnet structures for spin-wave devices. *Journal of Applied Physics*, **2015**, 117, 17E101	2.5	12
95	Controlled domain wall pinning in nanowires with perpendicular magnetic anisotropy by localized fringing fields. *Journal of Applied Physics*, **2014**, 115, 17D506	2.5	12
94	Synchronization in cellular spin torque oscillator arrays **2012**,		12
93	Domain-Wall Assisted Switching of Single-Domain Nanomagnets. *IEEE Transactions on Magnetics*, **2012**, 48, 3563-3566	2	12
92	Compensation of orange-peel coupling effect in magnetic tunnel junction free layer via shape engineering for nanomagnet logic applications. *Journal of Applied Physics*, **2014**, 115, 17B902	2.5	11
91	Threshold Gate-Based Circuits From Nanomagnetic Logic. *IEEE Nanotechnology Magazine*, **2014**, 13, 990-996	2.6	11
90	Compact modeling of perpendicular nanomagnetic logic based on threshold gates. *Journal of Applied Physics*, **2014**, 115, 17D104	2.5	11
89	Direct Measurement of Magnetic Coupling Between Nanomagnets for Nanomagnetic Logic Applications. *IEEE Transactions on Magnetics*, **2012**, 48, 4402-4405	2	11
88	Linear Circuit Models for On-Chip Quantum Electrodynamics. *IEEE Transactions on Microwave Theory and Techniques*, **2011**, 59, 65-71	4.1	10
87	Clocking magnetic field-coupled devices by domain walls. *Journal of Applied Physics*, **2012**, 111, 07E337	2.5	10
86	Computing with Coupled Oscillators: Theory, Devices, and Applications **2018**,		9
85	Edge-Mode Resonance-Assisted Switching of Nanomagnet Logic Elements. *IEEE Transactions on Magnetics*, **2015**, 51, 1-4	2	9
84	Field-coupled computing: Investigating the properties of ferromagnetic nanodots. *Solid-State Electronics*, **2011**, 65-66, 240-245	1.7	9
83	Nanomagnet Logic (NML). *Lecture Notes in Computer Science*, **2014**, 21-32	0.9	9
82	Spin wave eigenmodes in single and coupled sub-150 nm rectangular permalloy dots. *Journal of Applied Physics*, **2015**, 117, 17A316	2.5	8
81	Error analysis for ultra dense nanomagnet logic circuits. *Journal of Applied Physics*, **2015**, 117, 17A906	2.5	8
80	Design of On-Chip Readout Circuitry for Spin-Wave Devices. *IEEE Magnetics Letters*, **2017**, 8, 1-4	1.6	8

79	Non-boolean computing based on linear waves and oscillators **2015**,		8
78	Boolean and non-boolean nearest neighbor architectures for out-of-plane nanomagnet logic **2012**,		8
77	Exploring the Design of the Magnetic□lectrical Interface for Nanomagnet Logic. *IEEE Nanotechnology Magazine*, **2013**, 12, 203-214	2.6	8
76	Programmable Input for Nanomagnetic Logic Devices. *EPJ Web of Conferences*, **2013**, 40, 16007	0.3	8
75	Analysis of the hysteretic behavior of silicon nanowire transistors. *Physica Status Solidi C: Current Topics in Solid State Physics*, **2008**, 5, 27-30		8
74	Design of a CMOS integrated on-chip oscilloscope for spin wave characterization. *AIP Advances*, **2017**, 7, 056016	1.5	7
73	Waveguides as sources of short-wavelength spin waves for low-energy ICT applications. *European Physical Journal B*, **2018**, 91, 1	1.2	7
72	Coherent precession in arrays of dipolar-coupled soft magnetic nanodots. *Journal of Applied Physics* , **2015**, 117, 243905	2.5	7
71	Ultra-low volume ferromagnetic nanodots for field-coupled computing devices **2010**,		7
70	CIRCUIT-BASED APPROACHES TO SIMPL SYSTEMS. *Journal of Circuits, Systems and Computers*, **2011** , 20, 107-123	0.9	7
69	Characterizing magnetic field-coupled computing devices by the Extraordinary Hall-effect **2009**,		7
68	Circuit modelling of coupling between nanosystems and microwave coplanar waveguides. *International Journal of Circuit Theory and Applications*, **2007**, 35, 315-324	2	7
67	Magnetic Quantum-Dot Cellular Automata (MQCA) **2006**, 269-276		7
66	Neural network based on parametrically-pumped oscillators **2016**,		7
65	. *IEEE Magnetics Letters*, **2018**, 9, 1-5	1.6	7
64	Simulation of coupled spin torque oscillators for pattern recognition. *Journal of Applied Physics*, **2018**, 124, 152128	2.5	7
63	Exchange coupling between laterally adjacent nanomagnets. *Nanotechnology*, **2016**, 27, 395202	3.4	6
62	Nanomagnet Fabrication Using Nanoimprint Lithography and Electrodeposition. *IEEE Nanotechnology Magazine*, **2013**, 12, 547-552	2.6	6

61	Power reduction in nanomagnet logic using high-permeability dielectrics. *Journal of Applied Physics*, **2013**, 113, 17B906	2.5	6
60	Making non-volatile nanomagnet logic non-volatile **2012**,		6
59	Extraordinary Hall-effect sensor in split-current design for readout of magnetic field-coupled logic devices **2008**,		6
58	The simulation of molecular and organic devices: a critical review and look at future developments. *Applied Physics A: Materials Science and Processing*, **2007**, 87, 593-598	2.6	6
57	Focused ion beam structured Co/Pt multilayers for field-coupled magnetic computing. *Materials Research Society Symposia Proceedings*, **2007**, 998, 1		6
56	Application of mesoscopic magnetic rings for logic devices		6
55	Experimental demonstration of a concave grating for spin waves in the Rowland arrangement. *Scientific Reports*, **2021**, 11, 14239	4.9	6
54	Characterization of nonlinear spin-wave interference by reservoir-computing metrics. *Applied Physics Letters*, **2021**, 119, 112403	3.4	6
53	Towards nonvolatile magnetic crossbar arrays: A three-dimensional-integrated field-coupled domain wall gate with perpendicular anisotropy. *Journal of Applied Physics*, **2015**, 117, 17D507	2.5	5
52	Robustness of majority gates based on nanomagnet logic. *Journal of Magnetism and Magnetic Materials*, **2018**, 460, 432-437	2.8	5
51	A Nanomagnet Logic Field-Coupled Electrical Input. *IEEE Nanotechnology Magazine*, **2013**, 12, 734-742	2.6	5
50	Nanomagnetic logic: from magnetic ordering to magnetic computing301-334		5
49	Domain wall gate for magnetic logic and memory applications with perpendicular anisotropy **2013**,		5
48	Investigation of antiferromagnetic ordering along chains of coupled nanomagnets		5
47	Efficient electromagnetic transducers for spin-wave devices. *Scientific Reports*, **2021**, 11, 18378	4.9	5
46	Low-power 3D integrated ferromagnetic computing **2015**,		4
45	Closely spaced nanomagnets by dual e-beam exposure for low-energy nanomagnet logic. *Journal of Applied Physics*, **2013**, 113, 17B904	2.5	4
44	Distance Computation Based on Coupled Spin-Torque Oscillators: Application to Image Processing. *Physical Review Applied*, **2020**, 14,	4.3	4

43	Study of switching behavior of exchange-coupled nanomagnets by transverse magnetization metrology. *AIP Advances*, **2017**, 7, 056321	1.5	3
42	Design of a 40-nm CMOS integrated on-chip oscilloscope for 5-50 GHz spin wave characterization. *AIP Advances*, **2018**, 8, 056001	1.5	3
41	On the discrimination between nucleation and propagation in nanomagnetic logic devices. *AIP Advances*, **2018**, 8, 056003	1.5	3
40	Demonstration of Field-Coupled Input Scheme on Line of Nanomagnets. *IEEE Transactions on Magnetics*, **2013**, 49, 4460-4463	2	3
39	Minimum-energy state guided physical design for nanomagnet logic **2013**,		3
38	Device-level compact modeling of perpendicular Nanomagnetic Logic for benchmarking purposes **2015**,		3
37	Spin-wave-based computing devices **2014**,		3
36	Nanomagnet Logic Gate With Programmable-Electrical Input. *IEEE Transactions on Magnetics*, **2014**, 50, 1-4	2	3
35	Design of a systolic pattern matcher for Nanomagnet Logic **2012**,		3
34	Development of a highly parallelized micromagnetic simulator on graphics processors **2010**,		3
33	Computational model of partially irradiated nanodots for field-coupled computing devices **2010**,		3
32	Characterization of the bistable ring PUF **2012**,		3
31	Restoration of Magnetization Distributions from Joint Magnetic Force Microscopy Measurements and Micromagnetic Simulations. *Journal of Computational Electronics*, **2003**, 2, 225-229	1.8	3
30	Field-coupled nanomagnets for logic applications **2005**, 5838, 162		3
29	Experiment-based thermal micromagnetic simulations of the magnetization reversal for ns-range clocked nanomagnetic logic. *AIP Advances*, **2017**, 7, 056625	1.5	2
28	Nanomagnet Logic: Computing by magnetic ordering. *IEEE Nanotechnology Magazine*, **2020**, 14, 6-13	1.7	2
27	Shape-Dependent Switching Behavior of Exchange-Coupled Nanomagnet Stacks. *IEEE Transactions on Magnetics*, **2016**, 52, 1-5	2	2
26	Domain-Wall-Assisted Switching of Chains of Coupled Nanomagnets. *IEEE Transactions on Magnetics*, **2014**, 50, 1-4	2	2

25	Error analysis of Co/Pt multilayer based Nanomagnetic Logic **2011**,		2
24	Modeling of circuits and architectures for molecular electronics. *Journal of Computational Electronics*, **2009**, 8, 410-426	1.8	2
23	Micromagnetic simulation of current-driven domain wall propagation. *Journal of Computational Electronics*, **2007**, 6, 121-124	1.8	2
22	The role of field coupling in nano-scale cellular nonlinear networks. *International Journal of Neural Systems*, **2003**, 13, 387-95	6.2	2
21	Nanomagnet Logic (NML). *Lecture Notes in Computer Science*, **2014**, 21-32	0.9	2
20	Fabrication of pseudo-spin-valve giant magnetoresistance arrays for nanomagnet logic by liftoff and the snow-jet process. *Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics*, **2015**, 33, 022801	1.3	1
19	Cellular Automata designs for out of plane Nanomagnet Logic **2014**,		1
18	Holographic algorithms for on-chip, non-boolean computing **2014**,		1
17	Contiguous clock lines for pipelined nanomagnet logic. *Journal of Computational Electronics*, **2014**, 13, 763-768	1.8	1
16	Dynamic coupling of spin torque oscillators for associative memories **2014**,		1
15	Towards nanomagnetic logic systems: A programmable arithmetic logic unit for systolic array-based computing (Invited) **2015**,		1
14	Analog circuits based on the synchronization of field-line coupled spin-torque oscillators **2015**,		1
13	Domain wall assisted ordering of coupled nanomagnets. *Journal of Applied Physics*, **2014**, 115, 17D510	2.5	1
12	Nanomagnetic logic: Investigations on field-coupled computing devices by experiment-based compact modeling **2011**,		1
11	Power reduction in nanomagnetic logic clocking through high permeability dielectrics **2012**,		1
10	Circuit modeling of flux qubits interacting with superconducting waveguides. *Journal of Computational Electronics*, **2007**, 6, 105-108	1.8	1
9	Design and Simulation of Novel Architectures for Nanodevices **2007**,		1
8	Noise Immunity of Oscillatory Computing Devices. *IEEE Journal on Exploratory Solid-State Computational Devices and Circuits*, **2020**, 6, 164-169	2.4	1

List of Publications

7	Molecular Electronics: Challenges and Perspectives. *Nanostructure Science and Technology*, **2010**, 1-40	0.9	1
6	Design of an ultra-wideband low-noise amplifier for spin wave readout circuitry in 65 nm CMOS technology **2016**,		1
5	Nanomagnet Logic: A Magnetic Implementation of Quantum-dot Cellular Automata **2014**, 417-442		0
4	Simulation of Coplanar Devices Accessing Nano Systems. *Springer Proceedings in Physics*, **2008**, 361-374	0.2	
3	Implementation of a Nanomagnet Full Adder Circuit **2017**, 765-777		
2	Nanosession: Logic Devices and Circuit Design185-195		
1	Nanomagnetic Logic: From Devices to Systems. *Computer Architecture and Design Methodologies*, **2023**, 107-143	0.2	