

Russell Paul Cowburn

List of Publications by Year in descending order

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117
papers

9,935
citations

71102

41
h-index

33894

99
g-index

117
all docs

117
docs citations

117
times ranked

5725
citing authors

#	ARTICLE	IF	CITATIONS
1	Magnetic Domain-Wall Logic. <i>Science</i> , 2005, 309, 1688-1692.	12.6	1,882
2	Single-Domain Circular Nanomagnets. <i>Physical Review Letters</i> , 1999, 83, 1042-1045.	7.8	1,105
3	Room Temperature Magnetic Quantum Cellular Automata. <i>Science</i> , 2000, 287, 1466-1468.	12.6	919
4	Submicrometer Ferromagnetic NOT Gate and Shift Register. <i>Science</i> , 2002, 296, 2003-2006.	12.6	524
5	Property variation with shape in magnetic nanoelements. <i>Journal Physics D: Applied Physics</i> , 2000, 33, R1-R16.	2.8	397
6	Magnetic domain-wall dynamics in a submicrometre ferromagnetic structure. <i>Nature Materials</i> , 2003, 2, 85-87.	27.5	373
7	Strain-controlled magnetic domain wall propagation in hybrid piezoelectric/ferromagnetic structures. <i>Nature Communications</i> , 2013, 4, 1378.	12.8	237
8	Magnetic switching and in-plane uniaxial anisotropy in ultrathin Ag/Fe/Ag(100) epitaxial films. <i>Journal of Applied Physics</i> , 1995, 78, 7210-7219.	2.5	191
9	Magnetic ratchet for three-dimensional spintronic memory and logic. <i>Nature</i> , 2013, 493, 647-650.	27.8	180
10	"Fingerprinting" documents and packaging. <i>Nature</i> , 2005, 436, 475-475.	27.8	178
11	Configurational Anisotropy in Nanomagnets. <i>Physical Review Letters</i> , 1998, 81, 5414-5417.	7.8	177
12	Magneto-optical Kerr effect analysis of magnetic nanostructures. <i>Journal Physics D: Applied Physics</i> , 2003, 36, 2175-2182.	2.8	168
13	Magnetic domain formation in lithographically defined antidot Permalloy arrays. <i>Applied Physics Letters</i> , 1997, 70, 2309-2311.	3.3	162
14	Three dimensional magnetic nanowires grown by focused electron-beam induced deposition. <i>Scientific Reports</i> , 2013, 3, 1492.	3.3	148
15	Magnetic nanodots for device applications. <i>Journal of Magnetism and Magnetic Materials</i> , 2002, 242-245, 505-511.	2.3	122
16	Domain wall pinning and potential landscapes created by constrictions and protrusions in ferromagnetic nanowires. <i>Journal of Applied Physics</i> , 2008, 103, .	2.5	117
17	Fast domain wall motion in magnetic comb structures. <i>Nature Materials</i> , 2010, 9, 980-983.	27.5	105
18	Domain wall diodes in ferromagnetic planar nanowires. <i>Applied Physics Letters</i> , 2004, 85, 2848-2850.	3.3	103

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19	Phase transitions in planar magnetic nanostructures. Applied Physics Letters, 1998, 72, 2041-2043.	3.3	100
20	Domain wall injection and propagation in planar Permalloy nanowires. Journal of Applied Physics, 2002, 91, 6949.	2.5	93
21	Probing antiferromagnetic coupling between nanomagnets. Physical Review B, 2002, 65, .	3.2	90
22	Micromagnetics of the single-domain state of square ferromagnetic nanostructures. Physical Review B, 1998, 58, 9217-9226.	3.2	86
23	Arrays of nanoscale magnetic dots: Fabrication by x-ray interference lithography and characterization. Applied Physics Letters, 2004, 85, 4989-4991.	3.3	83
24	Controlling magnetic ordering in coupled nanomagnet arrays. New Journal of Physics, 1999, 1, 16-16.	2.9	81
25	Change of direction. Nature Materials, 2007, 6, 255-256.	27.5	77
26	Multijump Magnetic Switching in In-Plane Magnetized Ultrathin Epitaxial Ag/Fe/Ag(001) Films. Physical Review Letters, 1997, 79, 4018-4021.	7.8	75
27	Probing submicron nanomagnets by magneto-optics. Applied Physics Letters, 1998, 73, 3947-3949.	3.3	75
28	Magnetic nanoelements for magnetoelectronics made by focused-ion-beam milling. Applied Physics Letters, 2001, 79, 3461-3463.	3.3	74
29	Near-Field Interaction between Domain Walls in Adjacent Permalloy Nanowires. Physical Review Letters, 2009, 103, 077206.	7.8	73
30	Artificial domain wall nanotraps in Ni81Fe19 wires. Journal of Applied Physics, 2004, 95, 6717-6719.	2.5	65
31	Domain wall conduit behavior in cobalt nanowires grown by focused electron beam induced deposition. Applied Physics Letters, 2009, 94, 192509.	3.3	63
32	Tunable Remote Pinning of Domain Walls in Magnetic Nanowires. Physical Review Letters, 2011, 106, 087204.	7.8	61
33	Magnetization reversal in individual cobalt micro- and nanowires grown by focused-electron-beam-induced-deposition. Nanotechnology, 2009, 20, 475704.	2.6	60
34	Mechanism for domain wall pinning and potential landscape modification by artificially patterned traps in ferromagnetic nanowires. Physical Review B, 2009, 79, .	3.2	59
35	Measuring Domain Wall Fidelity Lengths Using a Chirality Filter. Physical Review Letters, 2009, 102, 057209.	7.8	58
36	Experimental study of the influence of edge roughness on magnetization switching in Permalloy nanostructures. Applied Physics Letters, 2004, 85, 3510-3512.	3.3	56

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37	Magnetic domain wall pinning by a curved conduit. Applied Physics Letters, 2009, 95, .	3.3	56
38	Designing nanostructured magnetic materials by symmetry. Europhysics Letters, 1999, 48, 221-227.	2.0	54
39	Tuning the interlayer exchange coupling between single perpendicularly magnetized CoFeB layers. Applied Physics Letters, 2012, 100, .	3.3	51
40	Magnetic switching and uniaxial anisotropy in lithographically defined anti-dot Permalloy arrays. Journal of Magnetism and Magnetic Materials, 1997, 173, 193-201.	2.3	49
41	Superparamagnetism and the future of magnetic random access memory. Journal of Applied Physics, 2003, 93, 9310-9315.	2.5	47
42	Micromagnetics simulation of deep-submicron supermalloy disks. Journal of Applied Physics, 2001, 90, 5235-5237.	2.5	38
43	Micromagnetics of ferromagnetic equilateral triangular prisms. Journal of Applied Physics, 2000, 88, 5315-5317.	2.5	37
44	Lateral interface anisotropy in nanomagnets. Journal of Applied Physics, 2000, 87, 7067-7069.	2.5	37
45	Shifted hysteresis loops from magnetic nanowires. Applied Physics Letters, 2002, 81, 4005-4007.	3.3	37
46	High sensitivity measurement of magnetic fields using microcantilevers. Applied Physics Letters, 1997, 71, 2202-2204.	3.3	36
47	Domain-wall dynamics, pinning, and nucleation in ultrathin epitaxial Fe films. Physical Review B, 1998, 58, 11507-11513.	3.2	35
48	Magnetic domain wall dynamics in a permalloy nanowire. IEEE Transactions on Magnetism, 2003, 39, 2663-2665.	2.1	34
49	Sensing magnetic fields using superparamagnetic nanomagnets. Journal of Applied Physics, 2000, 87, 7082-7084.	2.5	33
50	Bidirectional magnetic nanowire shift register. Applied Physics Letters, 2009, 95, .	3.3	33
51	Controlled switching of ferromagnetic wire junctions by domain wall injection. IEEE Transactions on Magnetism, 2003, 39, 2860-2862.	2.1	29
52	Dynamic Oscillations of Coupled Domain Walls. Physical Review Letters, 2012, 108, 187202.	7.8	29
53	The attractions of magnetism for nanoscale data storage. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2000, 358, 281-301.	3.4	27
54	Nanometer scale patterning using focused ion beam milling. Review of Scientific Instruments, 2005, 76, 026105.	1.3	26

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55	Six-fold configurational anisotropy and magnetic reversal in nanoscale Permalloy triangles. Journal of Applied Physics, 2009, 106, 063902.	2.5	26
56	Spatially resolved observation of domain-wall propagation in a submicron ferromagnetic NOT-gate. Applied Physics Letters, 2005, 87, 062503.	3.3	25
57	APPLIED PHYSICS: Where Have All the Transistors Gone?. Science, 2006, 311, 183-184.	12.6	25
58	A new technique for measuring magnetic anisotropies in thin and ultrathin films by magneto-optics. Journal of Applied Physics, 1997, 81, 6879-6883.	2.5	24
59	Characterization of submicrometer ferromagnetic NOT gates. Journal of Applied Physics, 2004, 95, 8264-8270.	2.5	24
60	Edge roughness and coercivity in magnetic nanostructures. Journal of Physics: Conference Series, 2005, 17, 40-44.	0.4	24
61	Writing and erasing data in magnetic domain wall logic systems. Journal of Applied Physics, 2006, 100, 123908.	2.5	24
62	The influence of wire width on the charge distribution of transverse domain walls and their stray field interactions. Journal of Magnetism and Magnetic Materials, 2010, 322, 2010-2014.	2.3	24
63	Magnetic imaging of the pinning mechanism of asymmetric transverse domain walls in ferromagnetic nanowires. Applied Physics Letters, 2010, 97, 233102.	3.3	23
64	Anisotropic domain evolution in epitaxial Fe/GaAs(001) wires. Physical Review B, 1997, 56, 5443-5451.	3.2	22
65	Tuning of biased domain wall depinning fields at Permalloy nanoconstrictions. Journal of Applied Physics, 2008, 103, 073914.	2.5	22
66	Asymmetric magnetic <scp>NOT</scp> gate and shift registers for high density data storage. Applied Physics Letters, 2010, 96, .	3.3	22
67	Role of remanent domain structure and cubic anisotropy in the reorientation phase transition of ultrathin Ag/Fe/Ag(001) epitaxial films. Physical Review B, 1997, 55, 11593-11603.	3.2	21
68	Magnetic domain wall serial-in parallel-out shift register. Applied Physics Letters, 2006, 89, 102504.	3.3	21
69	Champing at the bit. Nature, 2007, 448, 544-545.	27.8	21
70	High efficiency domain wall gate in ferromagnetic nanowires. Applied Physics Letters, 2008, 93, 163108.	3.3	20
71	Controllable nucleation and propagation of topological magnetic solitons in CoFeB/Ru ferrimagnetic superlattices. Physical Review B, 2012, 86, .	3.2	20
72	Multi-bit operations in vertical spintronic shift registers. Nanotechnology, 2014, 25, 105201.	2.6	20

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73	Cycle-by-cycle observation of single-domain-to-vortex transitions in magnetic nanodisks. Applied Physics Letters, 2006, 88, 052501.	3.3	19
74	Domain wall cloning in magnetic nanowires. Journal of Applied Physics, 2007, 101, 024308.	2.5	19
75	Macrospin limit and configurational anisotropy in nanoscale permalloy triangles. Journal of Magnetism and Magnetic Materials, 2010, 322, 2152-2156.	2.3	19
76	Two-dimensional control of field-driven magnetic bubble movement using Dzyaloshinskii-Moriya interactions. Applied Physics Letters, 2015, 106, .	3.3	18
77	Impact of surface roughness on laser surface authentication signatures under linear and rotational displacements. Optics Letters, 2009, 34, 3175.	3.3	17
78	Rapid fabrication of nanoneedle arrays by ion sputtering. Nanotechnology, 2008, 19, 015303.	2.6	16
79	Kinetic depinning of a magnetic domain wall above the Walker field. Applied Physics Letters, 2011, 98, 042502.	3.3	16
80	Heat-assisted magnetization switching in elongated submicrometer Permalloy structures. Applied Physics Letters, 2004, 85, 1386-1388.	3.3	15
81	Variation of domain-wall structures and magnetization ripple spectra in permalloy films with controlled uniaxial anisotropy. Journal of Applied Physics, 2005, 98, 053905.	2.5	15
82	Modification of domain-wall propagation in Co nanowires via Ga ⁺ irradiation. European Physical Journal B, 2013, 86, 1.	1.5	15
83	Improvement of domain wall conduit properties in cobalt nanowires by global gallium irradiation. Nanotechnology, 2013, 24, 345703.	2.6	14
84	Over 40% transverse Kerr effect from Ni ₈₀ Fe ₂₀ . Applied Physics Letters, 2008, 92, .	3.3	13
85	Resonance in magnetostatically coupled transverse domain walls. Physical Review B, 2014, 90, .	3.2	13
86	Simultaneous magnetoresistance and magneto-optical measurements of domain wall properties in nanodevices. Journal of Applied Physics, 2014, 115, 17C718.	2.5	13
87	Domain wall mobility in ultrathin epitaxial Ag/Fe/Ag(001) films. Applied Physics Letters, 1999, 74, 1018-1020.	3.3	12
88	Combined electrical and magneto-optical measurements of the magnetization reversal process at a domain wall trap.. Applied Physics Letters, 2009, 94, 103113.	3.3	12
89	Magnetic domains in epitaxial Fe/GaAs micro-patterned wires. Journal of Applied Physics, 1997, 81, 4724-4726.	2.5	10
90	Analytical micromagnetics of near single domain particles. Journal of Applied Physics, 1999, 86, 1035-1040.	2.5	10

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91	Magnetoresistance behaviour of magnetostatically coupled Ni80Fe20 wires. Journal of Magnetism and Magnetic Materials, 2000, 213, 1-6.	2.3	10
92	Thin single layer materials for device application. Journal of Magnetism and Magnetic Materials, 2003, 257, 387-396.	2.3	10
93	Room temperature performance of submicron bismuth Hall probes. IET Science, Measurement and Technology, 2004, 151, 127-130.	0.7	10
94	Dynamic selective switching in antiferromagnetically-coupled bilayers close to the spin reorientation transition. Applied Physics Letters, 2014, 105, .	3.3	10
95	Magnetoresistance of constricted ferromagnetic wires. Journal of Applied Physics, 2000, 87, 299-302.	2.5	9
96	Rapid tuning of Ni81Fe19/Au bilayer magnetic properties by focused ion beam intermixing. Journal of Magnetism and Magnetic Materials, 2007, 319, 9-12.	2.3	9
97	Soliton propagation in micron-sized magnetic ratchet elements. Applied Physics Letters, 2014, 104, .	3.3	9
98	Magneto-optical studies of ultrathin MBE grown Fe/Ag(001) wedges. Journal of Magnetism and Magnetic Materials, 1996, 156, 177-178.	2.3	8
99	Nanosecond pulsed field magnetization reversal in thin-film NiFe studied by Kerr effect magnetometry. Journal Physics D: Applied Physics, 2001, 34, 3019-3023.	2.8	8
100	Dynamic propagation and nucleation in domain wall nanowire devices. Journal of Physics Condensed Matter, 2012, 24, 024222.	1.8	7
101	Magnetic domain wall induced, localized nanowire reversal. Applied Physics Letters, 2012, 101, 062415.	3.3	7
102	Coupling and induced depinning of magnetic domain walls in adjacent spin valve nanotracks. Journal of Applied Physics, 2013, 113, 133901.	2.5	7
103	Voltage-driven displacement of magnetic vortex cores. Journal Physics D: Applied Physics, 2020, 53, 434003.	2.8	6
104	VHDL Simulation of Magnetic Domain Wall Logic. IEEE Transactions on Magnetics, 2006, 42, 2754-2756.	2.1	5
105	Magnetisation reversal in permalloy nanowires controlled by near-field charge interactions. Applied Physics Letters, 2011, 99, .	3.3	5
106	Domain wall interactions at a cross-shaped vertex. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2012, 370, 5794-5805.	3.4	5
107	Time-resolved Kerr microscopy of coupled transverse domain walls in a pair of curved nanowires. Journal of Applied Physics, 2014, 115, .	2.5	5
108	Influence of Geometry on Domain Wall Dynamics in Permalloy Nanodevices. IEEE Transactions on Magnetics, 2015, 51, 1-4.	2.1	5

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109	Weakly coupled synthetic antiferromagnetic nanodisks with perpendicular magnetic anisotropy for lab-on-chip devices. Applied Physics Letters, 2021, 119, .	3.3	5
110	Magnetic properties and interlayer coupling of epitaxial Co/Cu films on Si. Journal of Applied Physics, 2014, 116, 063906.	2.5	4
111	Magnetic Nanowires for Domain Wall Logic and Ultrahigh Density Data Storage. , 2009, , 219-236.		4
112	Systematic tuning of magnetization reversal in Permalloy nanowires using sloped ends. Journal of Applied Physics, 2007, 101, 09F510.	2.5	3
113	Stability of magnetization states in submicron Permalloy disks. Journal of Applied Physics, 2006, 99, 08B103.	2.5	2
114	Chirality dependence of nanoscale ferromagnetic NOT gates. Journal of Applied Physics, 2011, 109, 053904.	2.5	2
115	Pulsed-field and heat-assisted magnetization switching behaviour in elongated sub-micrometer Permalloy structures. Journal of Magnetism and Magnetic Materials, 2005, 290-291, 165-167.	2.3	1
116	Comparison of simple low-energy ion sources for direct deposition of submicron structures. Nanotechnology, 2003, 14, 416-422.	2.6	0
117	Digital logic using magnetic nanostructures. , 0, , .		0