

Bernard Diény

List of Publications by Year in descending order

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138
papers

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66343

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138
all docs

138
docs citations

138
times ranked

6778
citing authors

#	ARTICLE	IF	CITATIONS
1	Giant magnetoresistive in soft ferromagnetic multilayers. Physical Review B, 1991, 43, 1297-1300.	3.2	1,718
2	Review on spintronics: Principles and device applications. Journal of Magnetism and Magnetic Materials, 2020, 509, 166711.	2.3	711
3	Magnetotransport properties of magnetically soft spin valve structures (invited). Journal of Applied Physics, 1991, 69, 4774-4779.	2.5	553
4	First-principles investigation of the very large perpendicular magnetic anisotropy at Fe/MgO and Co/MgO interfaces. Physical Review B, 2011, 84, .	3.2	545
5	Spin-torque oscillator using a perpendicular polarizer and a planar free layer. Nature Materials, 2007, 6, 447-453.	27.5	521
6	Creep and Flow Regimes of Magnetic Domain-Wall Motion in Ultrathin Pt/Co with Perpendicular Anisotropy. Physical Review Letters, 2007, 99, 217208.	7.8	510
7	Perpendicular magnetic anisotropy at transition metal/oxide interfaces and applications. Reviews of Modern Physics, 2017, 89, .	45.6	503
8	Opportunities and challenges for spintronics in the microelectronics industry. Nature Electronics, 2020, 3, 446-459.	26.0	471
9	Magnetoresistive Random Access Memory. Proceedings of the IEEE, 2016, 104, 1796-1830.	21.3	392
10	Origin of the Asymmetric Magnetization Reversal Behavior in Exchange-Biased Systems: Competing Anisotropies. Physical Review Letters, 2005, 95, 057204.	7.8	255
11	Thermally assisted MRAM. Journal of Physics Condensed Matter, 2007, 19, 165218.	1.8	231
12	Analysis of oxygen induced anisotropy crossover in Pt/Co/MOx trilayers. Journal of Applied Physics, 2008, 104, .	2.5	200
13	Bias-voltage dependence of perpendicular spin-transfer torque in asymmetric MgO-based magnetic tunnel junctions. Nature Physics, 2009, 5, 898-902.	16.7	193
14	Spin-Torque Influence on the High-Frequency Magnetization Fluctuations in Magnetic Tunnel Junctions. Physical Review Letters, 2007, 98, 077203.	7.8	176
15	Analytical investigation of spin-transfer dynamics using a perpendicular-to-plane polarizer. Applied Physics Letters, 2005, 86, 022505.	3.3	175
16	Crossover from in-plane to perpendicular anisotropy in Pt/CoFe/AlOx sandwiches as a function of Al oxidation: A very accurate control of the oxidation of tunnel barriers. Applied Physics Letters, 2002, 80, 4157-4159.	3.3	166
17	Influence of thermal annealing on the perpendicular magnetic anisotropy of Pt/Co/AlOx trilayers. Physical Review B, 2009, 79, .	3.2	136
18	Pt/Co/oxide and oxide/Co/Pt electrodes for perpendicular magnetic tunnel junctions. Applied Physics Letters, 2009, 94, .	3.3	120

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19	Anatomy of perpendicular magnetic anisotropy in Fe/MgO magnetic tunnel junctions: First-principles insight. <i>Physical Review B</i> , 2013, 88, .	3.2	117
20	Two-dimensional materials prospects for non-volatile spintronic memories. <i>Nature</i> , 2022, 606, 663-673.	27.8	116
21	Spin-dependent tunneling in HfO ₂ tunnel junctions. <i>Applied Physics Letters</i> , 1996, 69, 2291-2293.	3.3	109
22	Thermally Assisted Switching in Exchange-Biased Storage Layer Magnetic Tunnel Junctions. <i>IEEE Transactions on Magnetics</i> , 2004, 40, 2625-2627.	2.1	104
23	A highly thermally stable sub-20 nm magnetic random-access memory based on perpendicular shape anisotropy. <i>Nanoscale</i> , 2018, 10, 12187-12195.	5.6	87
24	Macrospin description of the perpendicular polarizer-planar free-layer spin-torque oscillator. <i>Physical Review B</i> , 2008, 78, .	3.2	83
25	Sizable room-temperature magnetoresistance in cobalt based magnetic tunnel junctions with out-of-plane anisotropy. <i>Applied Physics Letters</i> , 2008, 92, .	3.3	82
26	Spin-dependent tunneling in discontinuous metal/insulator multilayers. <i>Journal of Magnetism and Magnetic Materials</i> , 1998, 185, 283-292.	2.3	78
27	Enhancement of perpendicular magnetic anisotropy through reduction of Co-Pt interdiffusion in (Co/Pt) multilayers. <i>Applied Physics Letters</i> , 2012, 100, .	3.3	77
28	Triggering the apoptosis of targeted human renal cancer cells by the vibration of anisotropic magnetic particles attached to the cell membrane. <i>Nanoscale</i> , 2015, 7, 15904-15914.	5.6	76
29	Comparison of Synthetic Antiferromagnets and Hard Ferromagnets as Reference Layer in Magnetic Tunnel Junctions With Perpendicular Magnetic Anisotropy. <i>IEEE Magnetics Letters</i> , 2010, 1, 3000204-3000204.	1.1	73
30	Perpendicular Interlayer Coupling in Ni ₈₀ Fe ₂₀ /NiO/Co Trilayers. <i>Physical Review Letters</i> , 2003, 91, 027201.	7.8	70
31	Single-shot all-optical switching of magnetization in Tb/Co multilayer-based electrodes. <i>Scientific Reports</i> , 2020, 10, 5211.	3.3	68
32	Spin-polarized tunneling in discontinuous CoFe/HfO ₂ multilayers. <i>Journal of Applied Physics</i> , 1997, 81, 5512-5514.	2.5	66
33	Cancer treatment by magneto-mechanical effect of particles, a review. <i>Nanoscale Advances</i> , 2020, 2, 3632-3655.	4.6	63
34	SPICE modelling of magnetic tunnel junctions written by spin-transfer torque. <i>Journal Physics D: Applied Physics</i> , 2010, 43, 215001.	2.8	62
35	Crossovers from in-plane to perpendicular anisotropy in magnetic tunnel junctions as a function of the barrier degree of oxidation. <i>Journal of Applied Physics</i> , 2003, 93, 7513-7515.	2.5	61
36	Spin-transfer effect and its use in spintronic components. <i>International Journal of Nanotechnology</i> , 2010, 7, 591.	0.2	61

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37	Anatomy of electric field control of perpendicular magnetic anisotropy at Fe/MgO interfaces. <i>Physical Review B</i> , 2016, 93, .	3.2	59
38	Second order anisotropy contribution in perpendicular magnetic tunnel junctions. <i>Scientific Reports</i> , 2016, 6, 26877.	3.3	57
39	100 ps precessional spin-transfer switching of a planar magnetic random access memory cell with perpendicular spin polarizer. <i>Applied Physics Letters</i> , 2009, 95, 072506.	3.3	53
40	Exchange-bias properties in permalloy deposited onto a Pt/Co multilayer. <i>Physical Review B</i> , 2004, 70, .	3.2	51
41	Crossover from Easy-Plane to Perpendicular Anisotropy in Magnetic Thin Films: Canted Anisotropy Due to Partial Coverage or Interfacial Roughness. <i>Europhysics Letters</i> , 1994, 25, 723-728.	2.0	47
42	Oscillatory interlayer exchange coupling in MgO tunnel junctions with perpendicular magnetic anisotropy. <i>Physical Review B</i> , 2010, 81, .	3.2	46
43	Perpendicular magnetic tunnel junctions with a synthetic storage or reference layer: A new route towards Pt- and Pd-free junctions. <i>Scientific Reports</i> , 2016, 6, 21246.	3.3	43
44	Description of current-driven torques in magnetic tunnel junctions. <i>Journal of Physics Condensed Matter</i> , 2008, 20, 145208.	1.8	40
45	Spin transfer torque switching assisted by thermally induced anisotropy reorientation in perpendicular magnetic tunnel junctions. <i>Applied Physics Letters</i> , 2011, 99, .	3.3	40
46	Correlation Between Perpendicular Anisotropy and Magnetoresistance in Magnetic Tunnel Junctions. <i>IEEE Transactions on Magnetics</i> , 2010, 46, 1412-1415.	2.1	37
47	Integration of Tb/Co multilayers within optically switchable perpendicular magnetic tunnel junctions. <i>AIP Advances</i> , 2019, 9, .	1.3	36
48	Magnetic behavior of systems composed of coupled ferromagnetic bilayers with distinct anisotropy directions. <i>Physical Review B</i> , 2006, 73, .	3.2	35
49	Enhanced annealing stability and perpendicular magnetic anisotropy in perpendicular magnetic tunnel junctions using W layer. <i>Applied Physics Letters</i> , 2017, 110, .	3.3	35
50	Ultrafast Sweep-Tuned Spectrum Analyzer with Temporal Resolution Based on a Spin-Torque Nano-Oscillator. <i>Nano Letters</i> , 2020, 20, 6104-6111.	9.1	34
51	Charge trapping-detrapping mechanism of barrier breakdown in MgO magnetic tunnel junctions. <i>Applied Physics Letters</i> , 2011, 99, .	3.3	33
52	Spontaneous Anomalous and Spin Hall Effects Due to Spin-Orbit Scattering of Evanescent Wave Functions in Magnetic Tunnel Junctions. <i>Physical Review Letters</i> , 2013, 110, 247204.	7.8	33
53	Comparison of dispersion and actuation properties of vortex and synthetic antiferromagnetic particles for biotechnological applications. <i>Applied Physics Letters</i> , 2013, 103, 132412.	3.3	32
54	Respective influence of in-plane and out-of-plane spin-transfer torques in magnetization switching of perpendicular magnetic tunnel junctions. <i>Physical Review B</i> , 2015, 92, .	3.2	31

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55	Anisotropy and angular variation of the giant magnetoresistance in magnetic multilayers (invited). <i>Journal of Applied Physics</i> , 1996, 79, 6370.	2.5	30
56	Microwave amplification in a magnetic tunnel junction induced by heat-to-spin conversion at the nanoscale. <i>Nature Nanotechnology</i> , 2019, 14, 40-43.	31.5	26
57	Crossover in heating regimes of thermally assisted magnetic memories. <i>Journal of Applied Physics</i> , 2006, 99, 08N904.	2.5	25
58	Analytical description of ballistic spin currents and torques in magnetic tunnel junctions. <i>Physical Review B</i> , 2015, 92, .	3.2	25
59	Impurity-induced enhancement of perpendicular magnetic anisotropy in Fe/MgO tunnel junctions. <i>Physical Review B</i> , 2014, 90, .	3.2	24
60	Self-polarization phenomenon and control of dispersion of synthetic antiferromagnetic nanoparticles for biological applications. <i>Applied Physics Letters</i> , 2010, 97, .	3.3	23
61	Perpendicular shape anisotropy spin transfer torque magnetic random-access memory: towards sub-10nm devices. <i>Journal Physics D: Applied Physics</i> , 2019, 52, 234001.	2.8	23
62	Origin and control of exchange-bias-like phenomenon in coupled ferromagnetic [Pt/Co]/NiFe bilayers. <i>Physical Review B</i> , 2011, 84, .	3.2	22
63	Advanced memory Materials for a new era of information technology. <i>MRS Bulletin</i> , 2018, 43, 330-333.	3.5	22
64	Comparison of Verilog compact modelling strategies for spintronic devices. <i>Electronics Letters</i> , 2014, 50, 1353-1355.	1.0	20
65	Observation of Magnetic Helicoidal Dichroism with Extreme Ultraviolet Light Vortices. <i>Physical Review Letters</i> , 2022, 128, 077401.	7.8	20
66	Influence of magnetic electrodes thicknesses on the transport properties of magnetic tunnel junctions with perpendicular anisotropy. <i>Applied Physics Letters</i> , 2014, 105, .	3.3	19
67	Perpendicular magnetic tunnel junctions with double barrier and single or synthetic antiferromagnetic storage layer. <i>Journal of Applied Physics</i> , 2015, 117, .	2.5	19
68	Novel multifunctional RKKY coupling layer for ultrathin perpendicular synthetic antiferromagnet. <i>Scientific Reports</i> , 2018, 8, 11724.	3.3	19
69	Impact of Joule heating on the stability phase diagrams of perpendicular magnetic tunnel junctions. <i>Physical Review B</i> , 2018, 98, .	3.2	18
70	Thermal robustness of magnetic tunnel junctions with perpendicular shape anisotropy. <i>Nanoscale</i> , 2020, 12, 6378-6384.	5.6	18
71	Reduced thermal dependence of the sensitivity of a planar Hall sensor. <i>Applied Physics Letters</i> , 2019, 115, .	3.3	17
72	Establishing characteristic behavior of voltage control of magnetic anisotropy by ionic migration. <i>Physical Review B</i> , 2018, 98, .	3.2	16

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73	Enhanced exchange bias effects in a nanopatterned system consisting of two perpendicularly coupled ferromagnets. Applied Physics Letters, 2008, 92, .	3.3	15
74	Spin-current vortices in current-perpendicular-to-plane nanoconstricted spin valves. Physical Review B, 2011, 84, .	3.2	15
75	Heating asymmetry induced by tunneling current flow in magnetic tunnel junctions. Applied Physics Letters, 2012, 100, .	3.3	15
76	Out-of-plane precession of an in-plane magnetized free layer submitted to the spin-transfer torque of a perpendicular polarizer: An analytical perturbative approach. Physical Review B, 2013, 88, .	3.2	15
77	Inhomogeneous free layer in perpendicular magnetic tunnel junctions and its impact on the effective anisotropies and spin transfer torque switching efficiency. Physical Review B, 2017, 96, .	3.2	15
78	Stability phase diagram of a perpendicular magnetic tunnel junction in noncollinear geometry. Physical Review B, 2017, 95, .	3.2	14
79	Ion irradiation-induced easy-cone anisotropy in double-MgO free layers for perpendicular magnetic tunnel junctions. Applied Physics Letters, 2018, 112, .	3.3	14
80	Physicochemical origin of improvement of magnetic and transport properties of STT-MRAM cells using tungsten on FeCoB storage layer. Applied Physics Letters, 2019, 114, .	3.3	14
81	One-Step Soft Chemical Synthesis of Magnetite Nanoparticles under Inert Gas Atmosphere. Magnetic Properties and In Vitro Study. Nanomaterials, 2020, 10, 1500.	4.1	13
82	Giant Perpendicular Magnetic Anisotropy Enhancement in MgO -Based Magnetic Tunnel Junction by Using Co/Fe Composite Layer. Physical Review Applied, 2021, 15, .	3.8	13
83	Extended scalability and functionalities of MRAM based on thermally assisted writing. , 2011, , .		12
84	Tumbling motion yielding fast displacements of synthetic antiferromagnetic nanoparticles for biological applications. Applied Physics Letters, 2011, 99, 093107.	3.3	12
85	Modulating spin transfer torque switching dynamics with two orthogonal spin-polarizers by varying the cell aspect ratio. Physical Review B, 2014, 90, .	3.2	11
86	Impact of Intergrain Spin-Transfer Torques Due to Huge Thermal Gradients in Heat-Assisted Magnetic Recording. IEEE Transactions on Magnetics, 2018, 54, 1-11.	2.1	11
87	Stabilization of the easy-cone magnetic state in free layers of magnetic tunnel junctions. Physical Review B, 2019, 100, .	3.2	11
88	Exchange Bias in Annealed [Pt/Co]/NiFe Systems. IEEE Transactions on Magnetics, 2006, 42, 2990-2992.	2.1	10
89	Spintronic Devices for Memory and Logic Applications. Handbook of Magnetic Materials, 2011, 19, 107-127.	0.6	10
90	Self-referenced multi-bit thermally assisted magnetic random access memories. Applied Physics Letters, 2014, 105, .	3.3	10

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91	Steady State and Dynamics of Joule Heating in Magnetic Tunnel Junctions Observed via the Temperature Dependence of RKKY Coupling. <i>Physical Review Applied</i> , 2016, 6, .	3.8	10
92	Perpendicular shape anisotropy spin transfer torque-MRAM: determination of pillar tilt angle from 3D Stonerâ€Wohlfarth astroid analysis. <i>Journal Physics D: Applied Physics</i> , 2019, 52, 505005.	2.8	10
93	Spintronic memristors for neuromorphic circuits based on the angular variation of tunnel magnetoresistance. <i>Nanoscale</i> , 2021, 13, 11488-11496.	5.6	10
94	A multifunctional standardized magnetic tunnel junction stack embedding sensor, memory and oscillator functionality. <i>Journal of Magnetism and Magnetic Materials</i> , 2020, 505, 166647.	2.3	9
95	All-optical spin switching probability in [Tb/Co] multilayers. <i>Scientific Reports</i> , 2021, 11, 6576.	3.3	9
96	Correlation between write endurance and electrical low frequency noise in MgO based magnetic tunnel junctions. <i>Applied Physics Letters</i> , 2013, 102, 052404.	3.3	8
97	Macrospin model of precessional spin-transfer-torque switching in planar magnetic tunnel junctions with perpendicular polarizer. <i>Applied Physics Letters</i> , 2013, 102, .	3.3	8
98	Fabrication of nanotweezers and their remote actuation by magnetic fields. <i>Scientific Reports</i> , 2017, 7, 451.	3.3	7
99	Realizing an Isotropically Coercive Magnetic Layer for Memristive Applications by Analogy to Dry Friction. <i>Physical Review Applied</i> , 2019, 12, .	3.8	7
100	An extraordinary chiral exchange-bias phenomenon: engineering the sign of the bias field in orthogonal bilayers by a magnetically switchable response mechanism. <i>Nanoscale</i> , 2020, 12, 1155-1163.	5.6	7
101	Magneto-mechanical treatment of human glioblastoma cells with engineered iron oxide powder microparticles for triggering apoptosis. <i>Nanoscale Advances</i> , 2021, 3, 6213-6222.	4.6	7
102	Oscillatory behavior of perpendicular magnetic anisotropy in Pt/Co/Al(Ox) films as a function of Al thickness. <i>Applied Physics Letters</i> , 2009, 95, .	3.3	6
103	Novel approach for nano-patterning magnetic tunnel junctions stacks at narrow pitch: A route towards high density STT-MRAM applications. , 2017, , .		6
104	Nonlocal Signal and Noise in $\langle \mathbf{T} \rangle$ -Shaped Lateral Spin-Valve Structures. <i>Physical Review Applied</i> , 2018, 10, .	3.8	6
105	Reduced Thermal Variation of Perpendicular Magnetic Anisotropy in Magnetically Stiffened Dual-W Composite Storage Layer for Spin-Transfer-Torque Magnetic Random-Access Memory. <i>Physical Review Applied</i> , 2019, 12, .	3.8	6
106	Impact of Dzyaloshinskii-Moriya interactions on the thermal stability factor of heavy metal/magnetic metal/oxide based nano-pillars. <i>Journal of Applied Physics</i> , 2019, 126, 103905.	2.5	6
107	Double magnetic tunnel junctions with a switchable assistance layer for improved spin transfer torque magnetic memory performance. <i>Nanoscale</i> , 2021, 13, 14096-14109.	5.6	6
108	Spin-polarized electronic reflections at metalâ€Woxide interfaces. <i>Journal of Magnetism and Magnetic Materials</i> , 2002, 240, 140-142.	2.3	5

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109	Optical response of magnetically actuated biocompatible membranes. <i>Nanoscale</i> , 2019, 11, 10667-10683.	5.6	5
110	Route towards efficient magnetization reversal driven by voltage control of magnetic anisotropy. <i>Scientific Reports</i> , 2021, 11, 8801.	3.3	5
111	Spin Torque Efficiency Modulation in a Double-Barrier Magnetic Tunnel Junction with a Read/Write Mode Control Layer. <i>ACS Applied Electronic Materials</i> , 2021, 3, 2607-2613.	4.3	5
112	Spin-Torque-Triggered Magnetization Reversal in Magnetic Tunnel Junctions with Perpendicular Shape Anisotropy. <i>Physical Review Applied</i> , 2021, 16, .	3.8	5
113	Unveiling Temperature-Dependence Mechanisms of Perpendicular Magnetic Anisotropy at $\text{Fe}/\text{MgO}/\text{Fe}$ Interfaces. <i>Physical Review Applied</i> , 2022,	3.8	5
114	Magneto-optical micromechanical systems for magnetic field mapping. <i>Scientific Reports</i> , 2016, 6, 31634.	3.3	4
115	Spin accumulation dynamics in spin valves in the terahertz regime. <i>Physical Review B</i> , 2020, 101, .	3.2	4
116	An electron holography study of perpendicular magnetic tunnel junctions nanostructured by deposition on pre-patterned conducting pillars. <i>Nanoscale</i> , 2020, 12, 17312-17318.	5.6	4
117	Title is missing!. <i>European Physical Journal B</i> , 2002, 25, 177-189.	1.5	4
118	Off-axis electron holography for the direct visualization of perpendicular shape anisotropy in nanoscale 3D magnetic random-access-memory devices. <i>APL Materials</i> , 2022, 10, .	5.1	4
119	Field Dependence of Spin-Transfer Torque Switching Current in Perpendicular Magnetic Tunnel Junctions. <i>IEEE Transactions on Magnetics</i> , 2014, 50, 1-4.	2.1	3
120	Fabrication of monodisperse magnetic nanoparticles released in solution using a block copolymer template. <i>Journal Physics D: Applied Physics</i> , 2017, 50, 295001.	2.8	3
121	Towards high density STT-MRAM at sub-20nm nodes. , 2018, , .		3
122	Magneto-mechanically actuated microstructures to efficiently prevent bacterial biofilm formation. <i>Scientific Reports</i> , 2020, 10, 15470.	3.3	3
123	Indium Tin Oxide optical access for magnetic tunnel junctions in hybrid spintronic-photonic circuits. <i>Nanotechnology</i> , 2020, 31, 425302.	2.6	3
124	Evaluating critical metals contained in spintronic memory with a particular focus on Pt substitution for improved sustainability. <i>Sustainable Materials and Technologies</i> , 2021, 28, e00270.	3.3	3
125	Size-dependent enhancement of passive microwave rectification in magnetic tunnel junctions with perpendicular magnetic anisotropy. <i>Applied Physics Letters</i> , 2022, 120, 012406.	3.3	3
126	Real time investigation of double magnetic tunnel junction with a switchable assistance layer for high efficiency STT-MRAM. <i>APL Materials</i> , 2022, 10, .	5.1	3

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127	Quantitative Visualization of Thermally Enhanced Perpendicular Shape Anisotropy STT-MRAM Nanopillars. Nano Letters, 2022, 22, 4000-4005.	9.1	3
128	Influence of spin-orbit interaction within the insulating barrier on the electron transport in magnetic tunnel junctions. Physical Review B, 2017, 95, .	3.2	2
129	Magnetic Random‐Access Memory. , 0, , 101-164.		1
130	Magnetic modulation of inverse spin Hall effect in lateral spin-valves. Journal Physics D: Applied Physics, 2018, 51, 205003.	2.8	1
131	The influence of spin-orbit coupling of electrons with radiation field on Faraday and Kerr magneto-optical effects in ferromagnets. Journal of Magnetism and Magnetic Materials, 2020, 503, 166610.	2.3	1
132	Direct observation of the perpendicular shape anisotropy and thermal stability of STT-MRAM nano-pillars examined by off-axis electron holography. Microscopy and Microanalysis, 2021, 27, 2170-2172.	0.4	1
133	SEU Mechanisms in Spintronic Devices: Critical Parameters and Basic Effects. IEEE Transactions on Nuclear Science, 2021, 68, 1533-1541.	2.0	1
134	Target domains in nanometric Permalloy disks with columnar structure. Journal Physics D: Applied Physics, 2021, 54, 305001.	2.8	0
135	PSA-STT-MRAM solution for extended temperature stability. , 2021, , .		0
136	Unconventional Seedless Multilayers with Large Perpendicular Anisotropy for Back-End-of-Line Compatible Spintronic Devices. ACS Applied Electronic Materials, 0, , .	4.3	0
137	Quasi-Equilibrium Stoner–Wohlfarth Versus Strongly Out-of-Equilibrium Dynamics in HAMR. IEEE Transactions on Magnetism, 2022, 58, 1-9.	2.1	0
138	Depth-resolved magnetization profile of MgO/CoFeB/W perpendicular half magnetic tunnel junctions. AIP Advances, 2022, 12, 035129.	1.3	0