

Hiroaki Honjo

List of Publications by Year in descending order

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#	ARTICLE	IF	CITATIONS
1	Perpendicular Magnetic Tunnel Junctions With Four Anti-Ferromagnetically Coupled Co/Pt Pinning Layers. IEEE Transactions on Magnetics, 2022, 58, 1-5.	2.1	3
2	Effect of Magnetic Coupling Between Two CoFeB Layers on Thermal Stability in Perpendicular Magnetic Tunnel Junctions With MgO/CoFeB/Insertion Layer/CoFeB/MgO Free Layer. IEEE Transactions on Magnetics, 2022, 58, 1-6.	2.1	2
3	Influence of Iridium Sputtering Conditions on the Magnetic Properties of Co/Pt-Based Iridium-Synthetic Antiferromagnetic Coupling Reference Layer. IEEE Transactions on Magnetics, 2022, 58, 1-5.	2.1	1
4	Structural Analysis of CoFeB/MgO-Based Perpendicular MTJs With Junction Size of 20 nm by STEM Tomography. IEEE Transactions on Magnetics, 2021, 57, 1-7.	2.1	0
5	40 nm 1T1MTJ 128 Mb STT-MRAM With Novel Averaged Reference Voltage Generator Based on Detailed Analysis of Scaled-Down Memory Cell Array Design. IEEE Transactions on Magnetics, 2021, 57, 1-9.	2.1	3
6	Dual-Port SOT-MRAM Achieving 90-MHz Read and 60-MHz Write Operations Under Field-Assistance-Free Condition. IEEE Journal of Solid-State Circuits, 2021, 56, 1116-1128.	5.4	24
7	Enhancement of magnetic coupling and magnetic anisotropy in MTJs with multiple CoFeB/MgO interfaces for high thermal stability. AIP Advances, 2021, 11, .	1.3	6
8	Effect of surface modification treatment on top-pinned MTJ with perpendicular easy axis. AIP Advances, 2021, 11, .	1.3	3
9	First Demonstration of 25-nm Quad Interface p-MTJ Device With Low Resistance-Area Product MgO and Ten Years Retention for High Reliable STT-MRAM. IEEE Transactions on Electron Devices, 2021, 68, 2680-2685.	3.0	8
10	Scalability of Quad Interface p-MTJ for 1X nm STT-MRAM With 10-ns Low Power Write Operation, 10 Years Retention and Endurance > 10 ¹¹ . IEEE Transactions on Electron Devices, 2020, 67, 5368-5373.	3.0	26
11	Recent Progresses in STT-MRAM and SOT-MRAM for Next Generation MRAM. , 2020, , .		18
12	Effect of metallic Mg insertion in CoFeB/MgO interface perpendicular magnetic tunnel junction on tunnel magnetoresistance ratio observed by Synchrotron x-ray diffraction. Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics, 2020, 38, 033801.	1.2	1
13	Influence of Hard Mask Materials on the Magnetic Properties of Perpendicular MTJs With Double CoFeB/MgO Interface. IEEE Transactions on Magnetics, 2020, 56, 1-4.	2.1	6
14	A free-extendible and ultralow-power nonvolatile multi-core associative coprocessor based on MRAM with inter-core pipeline scheme for large-scale full-adaptive nearest pattern searching. Japanese Journal of Applied Physics, 2020, 59, SGG18.	1.5	1
15	Novel Quad-Interface MTJ Technology and its First Demonstration With High Thermal Stability Factor and Switching Efficiency for STT-MRAM Beyond 2X nm. IEEE Transactions on Electron Devices, 2020, 67, 995-1000.	3.0	19
16	Scalability of Quad Interface p-MTJ for 1Å– nm STT-MRAM with 10 ns Low Power Write Operation, 10 Years Retention and Endurance > 10 ¹¹ . , 2020, , .		2
17	Review of STT-MRAM circuit design strategies, and a 40-nm 1T-1MTJ 128Mb STT-MRAM design practice. , 2020, , .		2
18	A 47.14- μ W 200-MHz MOS/MTJ-Hybrid Nonvolatile Microcontroller Unit Embedding STT-MRAM and FPGA for IoT Applications. IEEE Journal of Solid-State Circuits, 2019, 54, 2991-3004.	5.4	39

#	ARTICLE	IF	CITATIONS
19	Novel Quad interface MTJ technology and its first demonstration with high thermal stability and switching efficiency for STT-MRAM beyond 2Xnm. , 2019, , .		22
20	Effect of surface modification treatment of buffer layer on thermal tolerance of synthetic ferrimagnetic reference layer in perpendicular-anisotropy magnetic tunnel junctions. Journal of Applied Physics, 2019, 126, .	2.5	7
21	Change in chemical bonding state by thermal treatment in MgO-based magnetic tunnel junction observed by angle-resolved hard X-ray photoelectron spectroscopy. Journal of Applied Physics, 2019, 125, .	2.5	6
22	12.1 An FPGA-Accelerated Fully Nonvolatile Microcontroller Unit for Sensor-Node Applications in 40nm CMOS/MTJ-Hybrid Technology Achieving 47.14 μ W Operation at 200MHz. , 2019, , .		9
23	Critical Role of W Insertion Layer Sputtering Condition for Reference Layer on Magnetic and Transport Properties of Perpendicular-Anisotropy Magnetic Tunnel Junction. IEEE Transactions on Magnetics, 2019, , 1-4.	2.1	2
24	Insertion Layer Thickness Dependence of Magnetic and Electrical Properties for Double-CoFeB/MgO-Interface Magnetic Tunnel Junctions. IEEE Transactions on Magnetics, 2019, 55, 1-4.	2.1	12
25	First demonstration of field-free SOT-MRAM with 0.35 ns write speed and 70 thermal stability under 400 \AA thermal tolerance by canted SOT structure and its advanced patterning/SOT channel technology. , 2019, , .		41
26	Effect of capping layer material on thermal tolerance of magnetic tunnel junctions with MgO/CoFeB-based free layer/MgO/capping layers. AIP Advances, 2019, 9, .	1.3	3
27	Novel Method of Evaluating Accurate Thermal Stability for MTJs Using Thermal Disturbance and its Demonstration for Single-/Double-Interface p-MTJ. IEEE Transactions on Magnetics, 2018, 54, 1-5.	2.1	7
28	A Recent Progress of Spintronics Devices for Integrated Circuit Applications. Journal of Low Power Electronics and Applications, 2018, 8, 44.	2.0	48
29	14ns write speed 128Mb density Embedded STT-MRAM with endurance $\gt;10^{10}$ and 10yrs retention@85 \AA using novel low damage MTJ integration process. , 2018, , .		33
30	STEM tomography study on structural features induced by MTJ processing. Applied Physics A: Materials Science and Processing, 2018, 124, 1.	2.3	4
31	1T-1MTJ Type Embedded STT-MRAM with Advanced Low-Damage and Short-Failure-Free RIE Technology down to 32 nm \dagger MTJ Patterning. , 2018, , .		2
32	Origin of variation of shift field via annealing at 400 \AA in a perpendicular-anisotropy magnetic tunnel junction with [Co/Pt]-multilayers based synthetic ferrimagnetic reference layer. AIP Advances, 2017, 7, .	1.3	9
33	Impact of Tungsten Sputtering Condition on Magnetic and Transport Properties of Double-MgO Magnetic Tunneling Junction With CoFeB/W/CoFeB Free Layer. IEEE Transactions on Magnetics, 2017, 53, 1-4.	2.1	17
34	A spin transfer torque magnetoresistance random access memory-based high-density and ultralow-power associative memory for fully data-adaptive nearest neighbor search with current-mode similarity evaluation and time-domain minimum searching. Japanese Journal of Applied Physics, 2017, 56, 04CF08.	1.5	2
35	Study on initial current leakage spots in CoFeB-capped MgO tunnel barrier by conductive atomic force microscopy. Japanese Journal of Applied Physics, 2016, 55, 04EE05.	1.5	5
36	A 600- μ W ultra-low-power associative processor for image pattern recognition employing magnetic tunnel junction-based nonvolatile memories with autonomic intelligent power-gating scheme. Japanese Journal of Applied Physics, 2016, 55, 04EF15.	1.5	14

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37	Demonstration of Yield Improvement for On-Via MTJ Using a 2-Mbit 1T-1MTJ STT-MRAM Test Chip. , 2016, , .		9
38	Improvement of Thermal Tolerance of CoFeB/MgO Perpendicular-Anisotropy Magnetic Tunnel Junctions by Controlling Boron Composition. IEEE Transactions on Magnetics, 2016, 52, 1-4.	2.1	17
39	Properties of perpendicular-anisotropy magnetic tunnel junctions fabricated over the bottom electrode contact. Japanese Journal of Applied Physics, 2015, 54, 04DM06.	1.5	5
40	Power-gated 32 bit microprocessor with a power controller circuit activated by deep-sleep-mode instruction achieving ultra-low power operation. Japanese Journal of Applied Physics, 2015, 54, 04DE08.	1.5	8
41	1T1MTJ STT-MRAM Cell Array Design with an Adaptive Reference Voltage Generator for Improving Device Variation Tolerance. , 2015, , .		13
42	10 nmphi perpendicular-anisotropy CoFeB-MgO magnetic tunnel junction with over 400°C high thermal tolerance by boron diffusion control. , 2015, , .		17
43	Evidence of a reduction reaction of oxidized iron/cobalt by boron atoms diffused toward naturally oxidized surface of CoFeB layer during annealing. Applied Physics Letters, 2015, 106, 142407.	3.3	11
44	Nonvolatile Logic-in-Memory LSI Using Cycle-Based Power Gating and its Application to Motion-Vector Prediction. IEEE Journal of Solid-State Circuits, 2015, 50, 476-489.	5.4	53
45	Process-induced damage and its recovery for a CoFeB/MgO magnetic tunnel junction with perpendicular magnetic easy axis. Japanese Journal of Applied Physics, 2014, 53, 103001.	1.5	17
46	Wide operational margin capability of 1 kbit spin-transfer-torque memory array chip with 1-PMOS and 1-bottom-pin-magnetic-tunnel-junction type cell. Japanese Journal of Applied Physics, 2014, 53, 04ED13.	1.5	7
47	Material Stack Design With High Tolerance to Process-Induced Damage in Domain Wall Motion Device. IEEE Transactions on Magnetics, 2014, 50, 1-4.	2.1	3
48	A delay circuit with 4-terminal magnetic-random-access-memory device for power-efficient time-domain signal processing. , 2014, , .		1
49	Co/Pt multilayer based reference layers in magnetic tunnel junctions for nonvolatile spintronics VLSIs. Japanese Journal of Applied Physics, 2014, 53, 04EM02.	1.5	33
50	Plasma process induced physical damages on multilayered magnetic films for magnetic domain wall motion. Japanese Journal of Applied Physics, 2014, 53, 03DF03.	1.5	7
51	Design and fabrication of a perpendicular magnetic tunnel junction based nonvolatile programmable switch achieving 40% less area using shared-control transistor structure. Journal of Applied Physics, 2014, 115, 17B742.	2.5	11
52	10.5 A 90nm 20MHz fully nonvolatile microcontroller for standby-power-critical applications. , 2014, , .		63
53	Three-terminal magnetic tunneling junction device with perpendicular anisotropy CoFeB sensing layer. Journal of Applied Physics, 2014, 115, 17B750.	2.5	6
54	Nonvolatile logic-in-memory array processor in 90nm MTJ/MOS achieving 75% leakage reduction using cycle-based power gating. , 2013, , .		41

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55	A 1 Mb Nonvolatile Embedded Memory Using 4T2MTJ Cell With 32 b Fine-Grained Power Gating Scheme. IEEE Journal of Solid-State Circuits, 2013, 48, 1511-1520.	5.4	70
56	A power-gated MPU with 3-microsecond entry/exit delay using MTJ-based nonvolatile flip-flop. , 2013, , .		17
57	Electrical endurance of Co/Ni wire for magnetic domain wall motion device. Applied Physics Letters, 2013, 102, 222410.	3.3	7
58	Fabrication of a magnetic tunnel junction-based 240-tile nonvolatile field-programmable gate array chip skipping wasted write operations for greedy power-reduced logic applications. IEICE Electronics Express, 2013, 10, 20130772-20130772.	0.8	22
59	Magnetic tunneling junction with Fe/NiFeB free layer for magnetic logic circuits. Journal of Applied Physics, 2012, 111, 07C709.	2.5	2
60	Domain-wall-motion cell with perpendicular anisotropy wire and in-plane magnetic tunneling junctions. Journal of Applied Physics, 2012, 111, 07C903.	2.5	10
61	Damage Recovery by Reductive Chemistry after Methanol-Based Plasma Etch to Fabricate Magnetic Tunnel Junctions. Japanese Journal of Applied Physics, 2012, 51, 08HA01.	1.5	7
62	High-speed and reliable domain wall motion device: Material design for embedded memory and logic application. , 2012, , .		23
63	High-speed simulator including accurate MTJ models for spintronics integrated circuit design. , 2012, , .		50
64	Damage Recovery by Reductive Chemistry after Methanol-Based Plasma Etch to Fabricate Magnetic Tunnel Junctions. Japanese Journal of Applied Physics, 2012, 51, 08HA01.	1.5	16
65	A 90nm 12ns 32Mb 2T1MTJ MRAM. , 2009, , .		26
66	Analysis of MTJ Edge Deformation Influence on Switching Current Distribution for Next-Generation High-Speed MRAMs. IEEE Transactions on Magnetics, 2009, 45, 3804-3807.	2.1	5
67	A 500-MHz MRAM macro for high-performance SoCs. , 2008, , .		7
68	Improvement of Thermal Stability of Magnetoresistive Random Access Memory Device with SiN Protective Film Deposited by High-Density Plasma Chemical Vapor Deposition. Japanese Journal of Applied Physics, 2008, 47, 2714.	1.5	25
69	Performance of write-line inserted magnetic tunneling junction for low-write-current magnetic random access memory cell. Journal of Applied Physics, 2008, 103, 07A711.	2.5	11
70	A 250-MHz 1-Mbit embedded MRAM macro using 2T1MTJ cell with bitline separation and half-pitch shift architecture. , 2007, , .		8
71	MRAM Cell Technology for Over 500-MHz SoC. IEEE Journal of Solid-State Circuits, 2007, 42, 830-838.	5.4	48
72	A 16-Mb Toggle MRAM With Burst Modes. IEEE Journal of Solid-State Circuits, 2007, 42, 2378-2385.	5.4	12

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73	Reduction of Writing Field Distribution in a Magnetic Random Access Memory With Toggle Switching. IEEE Transactions on Magnetics, 2007, 43, 3512-3516.	2.1	1
74	Improvement of Thermal Stability of MRAM Device with SiN Protective Film Deposited by HDP CVD. , 2007, , .		0
75	Large Exchange Coupling in Synthetic Antiferromagnet With Ultrathin Seed Layer. IEEE Transactions on Magnetics, 2006, 42, 2636-2638.	2.1	4
76	A 16Mb toggle MRAM with burst modes. , 2006, , .		0
77	Determination of the proton tunneling splitting of tropolone in the ground state by microwave spectroscopy. Journal of Chemical Physics, 1999, 110, 1969-1978.	3.0	76
78	Toggling cell with four antiferromagnetically coupled ferromagnetic layers for high density MRAM with low switching current. , 0, , .		7