H J Barnaby

List of Publications by Year
in descending order

		236925	214800
100 papers	2,451 citations	25 h-index	47 g-index
102 all docs	102 docs citations	102 times ranked	1946 citing authors

#	Article	IF	Citations
1	Total-Ionizing-Dose Effects in Modern CMOS Technologies. IEEE Transactions on Nuclear Science, 2006, 53, 3103-3121.	2.0	511
2	Compact Modeling of Total Ionizing Dose and Aging Effects in MOS Technologies. IEEE Transactions on Nuclear Science, 2015, 62, 1501-1515.	2.0	94
3	Conductive bridging random access memory—materials, devices and applications. Semiconductor Science and Technology, 2016, 31, 113001.	2.0	90
4	Modeling of Ionizing Radiation-Induced Degradation in Multiple Gate Field Effect Transistors. IEEE Transactions on Nuclear Science, 2011, 58, 499-505.	2.0	88
5	Volatile and Non-Volatile Switching in Cu-SiO$_2$ Programmable Metallization Cells. IEEE Electron Device Letters, 2016, 37, 580-583.	3.9	87
6	Modeling Inter-Device Leakage in 90 nm Bulk CMOS Devices. IEEE Transactions on Nuclear Science, 2011, 58, 793-799.	2.0	83
7	Modeling the Non-Uniform Distribution of Radiation-Induced Interface Traps. IEEE Transactions on Nuclear Science, 2012, 59, 723-727.	2.0	76
8	Mechanisms of Enhanced Radiation-Induced Degradation Due to Excess Molecular Hydrogen in Bipolar Oxides. IEEE Transactions on Nuclear Science, 2007, 54, 1913-1919.	2.0	75
9	The Effects of Hydrogen on the Enhanced Low Dose Rate Sensitivity (ELDRS) of Bipolar Linear Circuits. IEEE Transactions on Nuclear Science, 2008, 55, 3169-3173.	2.0	72
10	Reconfigurable Memristive Device Technologies. Proceedings of the IEEE, 2015, 103, 1004-1033.	21.3	69
11	A CMOS-compatible electronic synapse device based on Cu/SiO$_2$/W programmable metallization cells. Nanotechnology, 2016, 27, 255202.	2.6	66
12	Monolithically Integrated RRAM- and CMOS-Based In-Memory Computing Optimizations for Efficient Deep Learning. IEEE Micro, 2019, 39, 54-63.	1.8	65
13	Total ionizing dose effect of γ-ray radiation on the switching characteristics and filament stability of HfOx resistive random access memory. Applied Physics Letters, 2014, 104, .	3.3	57
14	Impact of Alpha Particles on the Electrical Characteristics of TiO$_{2}$ Memristors. IEEE Transactions on Nuclear Science, 2011, 58, 2838-2844.	2.0	45
15	Review of radiation effects on ReRAM devices and technology. Semiconductor Science and Technology, 2017, 32, 083002.	2.0	39
16	Investigation of Single-Bit and Multiple-Bit Upsets in Oxide RRAM-Based 1T1R and Crossbar Memory Arrays. IEEE Transactions on Nuclear Science, 2015, 62, 2294-2301.	2.0	37
17	Total-Ionizing-Dose Effects on the Resistance Switching Characteristics of Chalcogenide Programmable Metallization Cells. IEEE Transactions on Nuclear Science, 2013, 60, 4563-4569.	2.0	34
18	Total Ionizing Dose Retention Capability of Conductive Bridging Random Access Memory. IEEE Electron Device Letters, 2014, 35, 205-207.	3.9	33

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19	SiO2 based conductive bridging random access memory. Journal of Electroceramics, 2017, 39, 109-131.	2.0	32
20	Modeling the Dose Rate Response and the Effects of Hydrogen in Bipolar Technologies. IEEE Transactions on Nuclear Science, 2009, 56, 3196-3202.	2.0	29
21	Irradiation With Molecular Hydrogen as an Accelerated Total Dose Hardness Assurance Test Method for Bipolar Linear Circuits. IEEE Transactions on Nuclear Science, 2009, 56, 3326-3333.	2.0	29
22	Ionizing Radiation Effects on Nonvolatile Memory Properties of Programmable Metallization Cells. IEEE Transactions on Nuclear Science, 2014, 61, 2985-2990.	2.0	29
23	Improved Model for Increased Surface Recombination Current in Irradiated Bipolar Junction Transistors. IEEE Transactions on Nuclear Science, 2015, 62, 1658-1664.	2.0	28
24	The sensitivity of radiation-induced leakage to STI topology and sidewall doping. Microelectronics Reliability, 2011, 51, 889-894.	1.7	27
25	Displacement Damage in Bipolar Junction Transistors: Beyond Messenger-Spratt. IEEE Transactions on Nuclear Science, 2017, 64, 149-155.	2.0	26
26	Modeling the Effects of Hydrogen on the Mechanisms of Dose Rate Sensitivity. IEEE Transactions on Nuclear Science, 2012, 59, 701-706.	2.0	24
27	A Study of Gamma-Ray Exposure of Cuâ€"SiO$_2$ Programmable Metallization Cells. IEEE Transactions on Nuclear Science, 2015, 62, 2404-2411.	2.0	24
28	Total dose effects on gate controlled lateral PNP bipolar junction transistors. IEEE Transactions on Nuclear Science, 1998, 45, 2577-2583.	2.0	23
29	Modeling Low Dose Rate Effects in Shallow Trench Isolation Oxides. IEEE Transactions on Nuclear Science, 2011, 58, 2945-2952.	2.0	23
30	Array-Level Programming of 3-Bit per Cell Resistive Memory and Its Application for Deep Neural Network Inference. IEEE Transactions on Electron Devices, 2020, 67, 4621-4625.	3.0	22
31	Physically Based Predictive Model for Single Event Transients in CMOS Gates. IEEE Transactions on Electron Devices, 2016, 63, 2248-2254.	3.0	20
32	Effects of Cobalt-60 Gamma-Rays on Ge-Se Chalcogenide Glasses and Ag/Ge-Se Test Structures. IEEE Transactions on Nuclear Science, 2012, 59, 3093-3100.	2.0	19
33	Sensors Based on Radiation-Induced Diffusion of Silver in Germanium Selenide Glasses. IEEE Transactions on Nuclear Science, 2013, 60, 4257-4264.	2.0	19
34	Reliability of high performance standard two-edge and radiation hardened by design enclosed geometry transistors. Reliability Physics Symposium, 2009 IEEE International, 2009, , .	0.0	17
35	Analysis of SEGR in Silicon Planar Gate Super-Junction Power MOSFETs. IEEE Transactions on Nuclear Science, 2021, 68, 611-616.	2.0	17
36	Gamma radiation induced effects in floppy and rigid Ge-containing chalcogenide thin films. Journal of Applied Physics, 2014, 115, 043502.	2.5	16

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37	The viability of analog-based accelerators for neuromorphic computing: a survey. Neuromorphic Computing and Engineering, 2021, 1, 012001.	5.9	16
38	Investigation of Single Event Induced Soft Errors in Programmable Metallization Cell Memory. IEEE Transactions on Nuclear Science, 2014, 61, 3557-3563.	2.0	15
39	New functionality of chalcogenide glasses for radiation sensing of nuclear wastes. Journal of Hazardous Materials, 2014, 269, 68-73.	12.4	15
40	Radiation Hardening by Process of CBRAM Resistance Switching Cells. IEEE Transactions on Nuclear Science, 2016, 63, 2145-2151.	2.0	15
41	Low-Temperature Characterization of Cu–Cu:Silica-Based Programmable Metallization Cell. IEEE Electron Device Letters, 2017, 38, 1244-1247.	3.9	15
42	Hydrogen Limits for Total Dose and Dose Rate Response in Linear Bipolar Circuits. IEEE Transactions on Nuclear Science, 2015, 62, 2476-2481.	2.0	14
43	Effects of Channel Implant Variation on Radiation-Induced Edge Leakage Currents in n-Channel MOSFETs. IEEE Transactions on Nuclear Science, 2017, , 1-1.	2.0	14
44	Improved Model for Excess Base Current in Irradiated Lateral p-n-p Bipolar Junction Transistors. IEEE Transactions on Nuclear Science, 2018, 65, 1488-1495.	2.0	14
45	Evaluation of Radiation Effects in RRAM-Based Neuromorphic Computing System for Inference. IEEE Transactions on Nuclear Science, 2019, 66, 97-103.	2.0	14
46	Impact of hydrogen contamination on the total dose response of linear bipolar microcircuits. , 2007, , .		12
47	Impedance Measurement and Characterization of Ag-Ge$_{30}$Se$_{70}$-Based Programmable Metallization Cells. IEEE Transactions on Electron Devices, 2014, 61, 3723-3730.	3.0	12
48	Demonstration of spike timing dependent plasticity in CBRAM devices with silicon neurons. , 2016, , .		12
49	Dependence of Ideality Factor in Lateral PNP Transistors on Surface Carrier Concentration. IEEE Transactions on Nuclear Science, 2017, , 1-1.	2.0	12
50	Hydrogen Soaking, Displacement Damage Effects, and Charge Yield in Gated Lateral Bipolar Junction Transistors. IEEE Transactions on Nuclear Science, 2018, 65, 1271-1276.	2.0	12
51	Flexible Sensors Based on Radiation-Induced Diffusion of Ag in Chalcogenide Glass. IEEE Transactions on Nuclear Science, 2014, 61, 3432-3437.	2.0	11
52	Total-Ionizing-Dose Effects on Resistance Stability of Programmable Metallization Cell Based Memory and Selectors. IEEE Transactions on Nuclear Science, 2017, 64, 269-276.	2.0	11
53	A Nonvolatile Sense Amplifier Flip-Flop Using Programmable Metallization Cells. IEEE Journal on Emerging and Selected Topics in Circuits and Systems, 2015, 5, 205-213.	3.6	10
54	Single Event Susceptibility Analysis in CBRAM Resistive Memory Arrays. IEEE Transactions on Nuclear Science, 2015, 62, 2606-2612.	2.0	10

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55	Impedance Spectroscopy of Programmable Metallization Cells With a Thin SiO$_2$ Switching Layer. IEEE Electron Device Letters, 2016, 37, 576-579.	3.9	9
56	Multiscale Modeling of Total Ionizing Dose Effects in Commercial-off-the-Shelf Parts in Bipolar Technologies. IEEE Transactions on Nuclear Science, 2019, 66, 190-198.	2.0	9
57	Training a Neural Network on Analog TaO$_{<italic>x</italic>}$ ReRAM Devices Irradiated With Heavy Ions: Effects on Classification Accuracy Demonstrated With CrossSim. IEEE Transactions on Nuclear Science, 2019, 66, 54-60.	2.0	8
58	Investigating Heavy-Ion Effects on 14-nm Process FinFETs: Displacement Damage Versus Total Ionizing Dose. IEEE Transactions on Nuclear Science, 2021, 68, 724-732.	2.0	8
59	Single-Event Gate Rupture Hardened Structure for High-Voltage Super-Junction Power MOSFETs. IEEE Transactions on Electron Devices, 2021, 68, 4004-4009.	3.0	8
60	Flexible Ag-ChG Radiation Sensors: Limit of Detection and Dynamic Range Optimization Through Physical Design Tuning. IEEE Transactions on Nuclear Science, 2016, 63, 2137-2144.	2.0	7
61	Modeling the effects of hydrogen on the mechanisms of dose rate sensitivity. , 2011, , .		6
62	Simulation of TID Effects in a High Voltage Ring Oscillator. IEEE Transactions on Nuclear Science, 2013, 60, 4547-4554.	2.0	6
63	Total Dose Effects on Negative and Positive Low-Dropout Linear Regulators. IEEE Transactions on Nuclear Science, 2020, 67, 1332-1338.	2.0	6
64	Total Ionizing Dose Effects on Multistate HfOâ€œ-Based RRAM Synaptic Array. IEEE Transactions on Nuclear Science, 2021, 68, 756-761.	2.0	6
65	Characterization and Modeling of Parasitic Field-Oxide Transistors for Use in Radiation Hardening by Design. IEEE Transactions on Nuclear Science, 2011, 58, 2863-2870.	2.0	5
66	Total ionizing dose tolerance of the resistance switching of Ag-Ge4oSeo based Programmable Metallization Cells. , 2013, , .		5
67	Thin Ge-Se films as a sensing material for radiation doses. Physica Status Solidi (B): Basic Research, 2014, 251, 1347-1353.	1.5	5
68	Effects of 14 MeV neutron irradiation on the DC characteristics of CBRAM cells. , 2016, , .		5
69	Xâ€ray radiation induced effects in selected chalcogenide glasses and CBRAM devices based on them. Physica Status Solidi (B): Basic Research, 2016, 253, 1060-1068.	1.5	5
70	Resistance State Locking in CBRAM Cells Due to Displacement Damage Effects. IEEE Transactions on Nuclear Science, 2017, , 1-1.	2.0	5
71	<italic>In Situ</italic> Synaptic Programming of CBRAM in an Ionizing Radiation Environment. IEEE Transactions on Nuclear Science, 2018, 65, 192-199.	2.0	5
72	Simulation of Transistor-Level Radiation Effects on System-Level Performance Parameters. IEEE Transactions on Nuclear Science, 2019, 66, 1634-1641.	2.0	5

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73	Measuring and Modeling Single Event Transients in 12-nm Inverters. IEEE Transactions on Nuclear Science, 2022, 69, 414-421.	2.0	5
74	Failure Analysis and Radiation-Enabled Circuit Simulation of a Dual Charge Pump Circuit. IEEE Transactions on Nuclear Science, 2010, , .	2.0	4
75	Structural study of Ag-Ge-S solid electrolyte glass system for resistive radiation sensing. , 2011, , .		4
76	Structural and Material Changes in Thin Film Chalcogenide Glasses Under Ar-Ion Irradiation. IEEE Transactions on Nuclear Science, 2014, 61, 2855-2861.	2.0	4
77	Proton Beam Effects on Ge–Se/Ag Thin Films. Physica Status Solidi (B): Basic Research, 2018, 255, 1700453.	1.5	4
78	Evidence of Interface Trap Build-Up in Irradiated 14-nm Bulk FinFET Technologies. IEEE Transactions on Nuclear Science, 2021, 68, 671-676.	2.0	4
79	Modeling of ionizing radiation-induced degradation in multiple gate field effect transistors. , 2009, , .		3
80	Multiscale System Modeling of Single-Event-Induced Faults in Advanced Node Processors. IEEE Transactions on Nuclear Science, 2021, 68, 980-990.	2.0	3
81	Single-Event Effects Induced by Heavy Ions in SONOS Charge Trapping Memory Arrays. IEEE Transactions on Nuclear Science, 2022, 69, 406-413.	2.0	3
82	BJTs in Space: ELDRS Experiment on NASA Space Environment Testbed. , 2021, , .		3
83	Film Bulk Acoustic-Wave Resonator based radiation sensor. , 2010, , .		2
84	Wide-temperature high-resolution integrated data acquisition for spectroscopy in space. , 2011, , .		2
85	Evaluation of Single Event Effects in SRAM and RRAM Based Neuromorphic Computing System for Inference. , 2019, , .		2
86	Failure Thresholds in CBRAM Due to Total Ionizing Dose and Displacement Damage Effects. IEEE Transactions on Nuclear Science, 2019, 66, 69-76.	2.0	2
87	Ionizing Radiation Effects in SONOS-Based Neuromorphic Inference Accelerators. IEEE Transactions on Nuclear Science, 2021, 68, 762-769.	2.0	2
88	Radiation Hardened Millimeter-Wave Receiver Implemented in 90-nm, SiGe HBT Technology. IEEE Transactions on Nuclear Science, 2022, 69, 2154-2161.	2.0	2
89	Modeling the non-uniform distribution of interface traps. , 2011, , .		1
90	A 12-b, 650-MSps time-interleaved pipeline analog to digital converter with 1.5 GHz analog bandwidth for digital beam-forming systems. Analog Integrated Circuits and Signal Processing, 2016, 89, 213-222.	1.4	1

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91	Surface-potential-based compact modeling of BTI. , 2016, , .		1
92	Impact Ionization and Interface Trap Generation in 28-nm MOSFETs at Cryogenic Temperatures. IEEE Transactions on Device and Materials Reliability, 2018, 18, 456-462.	2.0	1
93	Bias temperature instability model using dynamic defect potential for predicting CMOS aging. Journal of Applied Physics, 2018, 123, .	2.5	1
94	Editorial Conference Comments by the General Chair. IEEE Transactions on Nuclear Science, 2021, 68, 489-491.	2.0	1
95	Temperature Response on NPN and PNP Bipolar Junction Transistors after Total Ionizing Dose Irradiation Exposure. , 2019, , .		1
96	A Soft-Error Hardened by Design Microprocessor Implemented on Bulk 12-nm FinFET CMOS. IEEE Transactions on Nuclear Science, 2022, 69, 1602-1609.	2.0	1
97	Transient response exploration of SRAM cell metastable states caused by ionizing radiation with 3D mixed mode simulation. , 2014, , .		0
98	A Comparative Study on TID Influenced Lateral Diffusion of Group 11 Metals into Ge_xS_{1-x} and Ge_xSe_{1-x} Systems: A Flexible Radiation Sensor Development Perspective. IEEE Transactions on Nuclear Science, 2017, , 1-1.	2.0	0
99	TCAD Model for Ag-GeSe3-Ni CBRAM Devices. , 2019, , .		0
100	The Sensitive Region of Displacement Damage in LPNP Induced by Various Charged Particles. , 2019, , .		0