Thomas KÃ¤mpfe

List of Publications by Year
in descending order

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103 papers	2,023 citations	361413 20 h-index	315739 38 g-index
106 all docs	106 docs citations	106 times ranked	1281 citing authors

#	Article	IF	Citations
1	FeFET Multi-Bit Content-Addressable Memories for In-Memory Nearest Neighbor Search. IEEE Transactions on Computers, 2022, 71, 2565-2576.	3.4	16
2	Optimizing Ferroelectric and Interface Layers in HZO-Based FTJs for Neuromorphic Applications. IEEE Transactions on Electron Devices, 2022, 69, 808-815.	3.0	19
3	Tuning Hyrbrid Ferroelectric and Antiferroelectric Stacks for Low Power FeFET and FeRAM Applications by Using Laminated HSO and HZO films. Advanced Electronic Materials, 2022, 8, 2100837.	5.1	11
4	Random and Systematic Variation in Nanoscale Hf0.5Zr0.5O2 Ferroelectric FinFETs: Physical Origin and Neuromorphic Circuit Implications. Frontiers in Nanotechnology, 2022, 3, .	4.8	20
5	Seebeck effect and Joule heating in CoFeB/MgO/CoFeB-based perpendicular magnetic tunnel junctions with low resistance area product. Journal Physics D: Applied Physics, 2022, 55, 265302.	2.8	0
6	FELIX: A Ferroelectric FET Based Low Power Mixed-Signal In-Memory Architecture for DNN Acceleration. Transactions on Embedded Computing Systems, 2022, 21, 1-25.	2.9	10
7	Impact of Stack Structure Control and Ferroelectric Material Optimization in Novel Laminate HSO and HZO MFMIS FeFET. , 2022, , .		5
8	Endurance improvements and defect characterization in ferroelectric FETs through interface fluorination. , 2022, , .		8
9	Large-Signal Modeling for Nonlinear Analysis of Experimental Devices in 22nm FDSOI Technology. , 2022, , .		1
10	Analysis of RF Stress Influence on Large-Signal Performance of 22nm FDSOI CMOS Transistors utilizing Waveform Measurement. , 2022, , .		1
11	A highly linear 79 GHz Low-Noise Amplifier for Civil-Automotive Radars in 22 nm FD-SOI CMOS with -6 dBm iP_{1dB} and 5 dB NF. , 2022, , .		2
12	Study of Nanosecond Laser Annealing on Silicon Doped Hafnium Oxide Film Crystallization and Capacitor Reliability. , 2022, , .		7
13	Integration of BEoL Compatible 1T1C FeFET Memory Into an Established CMOS Technology. , 2022, , .		9
14	Bending Resistant Multibit Memristor for Flexible Precision Inference Engine Application. IEEE Transactions on Electron Devices, 2022, 69, 4737-4743.	3.0	9
15	240-GHz Reflectometer-Based Dielectric Sensor With Integrated Transducers in a 130-nm SiGe BiCMOS Technology. IEEE Transactions on Microwave Theory and Techniques, 2021, 69, 1027-1035.	4.6	6
16	Impact of the SiO2 interface layer on the crystallographic texture of ferroelectric hafnium oxide. Applied Physics Letters, 2021, 118, .	3.3	25
17	In-Memory Nearest Neighbor Search with FeFET Multi-Bit Content-Addressable Memories. , 2021, , .		26
18	Empirical Large-Signal Modeling of mm-Wave FDSOI CMOS Based on Angelov Model. IEEE Transactions on Electron Devices, 2021, 68, 1446-1453.	3.0	10

#	Article	IF	Citations
19	Impact of the Nonlinear Dielectric Hysteresis Properties of a Charge Trap Layer in a Novel Hybrid High-Speed and Low-Power Ferroelectric or Antiferroelectric HSO/HZO Boosted Charge Trap Memory. IEEE Transactions on Electron Devices, 2021, 68, 2098-2106.	3.0	3
20	Ferroelectric and Antiferroelectric Hf/Zr oxide films: past, present and future. , 2021, , .		1
21	Enhanced pyroelectric response at morphotropic and field-induced phase transitions in ferroelectric hafnium oxide thin films. APL Materials, 2021, 9, .	5.1	17
22	A Fully Integrated Ferroelectric Thinâ€Filmâ€Transistor â€“ Influence of Device Scaling on Threshold Voltage Compensation in Displays. Advanced Electronic Materials, 2021, 7, 2100082.	5.1	27
23	Process influences on the microstructure of BEoL integrated ferroelectric hafnium zirconium oxide. , 2021, , .		3
24	Ferroelectric Field Effect Transistors as a Synapse for Neuromorphic Application. IEEE Transactions on Electron Devices, 2021, 68, 2295-2300.	3.0	55
25	On the Origin of Wakeâ€Up and Antiferroelectricâ€Like Behavior in Ferroelectric Hafnium Oxide. Physica Status Solidi - Rapid Research Letters, 2021, 15, 2100086.	2.4	54
26	Microstructural implications for neuromorphic synapses based on ferroelectric hafnium oxide. , 2021, , .		2
27	On the Origin of Wakeâ€Up and Antiferroelectricâ€Like Behavior in Ferroelectric Hafnium Oxide. Physica Status Solidi - Rapid Research Letters, 2021, 15, 2170022.	2.4	3
28	The effect of temperature on the ferroelectric properties of Hafnium Zirconium Oxide MFM thin-film varactors. , 2021, , .		2
29	Influence of antiferroelectric-like behavior on tuning properties of ferroelectric HZO-based varactors. MRS Advances, 2021, 6, 530-534.	0.9	4
30	Impact of the interface layer on the cycling behaviour and retention of ferroelectric hafnium oxide. MRS Advances, 2021, 6, 525-529.	0.9	5
31	Enabling Ferroelectric Memories in BEoL - towards advanced neuromorphic computing architectures. , 2021, , .		5
32	A FeFET with a novel MFMFIS gate stack: towards energy-efficient and ultrafast NVMs for neuromorphic computing. Nanotechnology, 2021, 32, 425201.	2.6	13
33	RF-Characterization of HZO Thin Film Varactors. Crystals, 2021, 11, 980.	2.2	5
34	Impact of the Ferroelectric Stack Lamination in Si Doped Hafnium Oxide (HSO) and Hafnium Zirconium Oxide (HZO) Based FeFETs: Toward High-Density Multi-Level Cell and Synaptic Storage. Electronic Materials, 2021, 2, 344-369.	1.9	7
35	Influence of Annealing Temperature on the Structural and Electrical Properties of Si-Doped Ferroelectric Hafnium Oxide. ACS Applied Electronic Materials, 2021, 3, 4115-4120.	4.3	23
36	Tunability of Ferroelectric Hafnium Zirconium Oxide for Varactor Applications. IEEE Transactions on Electron Devices, 2021, 68, 5269-5276.	3.0	10

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37	Exploiting FeFET Switching Stochasticity for Low-Power Reconfigurable Physical Unclonable Function. , 2021, , .		0
38	Multiâ€Level Switching and Reversible Current Driven Domainâ€Wall Motion in Single CoFeB/MgO/CoFeBâ€Based Perpendicular Magnetic Tunnel Junctions. Advanced Electronic Materials, 2021, 7, 2000976.	5.1	6
39	Substrate-dependent differences in ferroelectric behavior and phase diagram of Si-doped hafnium oxide. Journal of Materials Research, 2021, 36, 4370.	2.6	11
40	Electric field-induced crystallization of ferroelectric hafnium zirconium oxide. Scientific Reports, 2021, 11, 22266.	3.3	19
41	Exploiting FeFET Switching Stochasticity for Low-Power Reconfigurable Physical Unclonable Function. , 2021, , .		0
42	W-Band Noise Characterization with Back-Gate Effects for Advanced 22nm FDSOI mm-Wave MOSFETs. , 2020, , .		6
43	Efficient FeFET Crossbar Accelerator for Binary Neural Networks. , 2020, , .		5
44	240-GHz Reflectometer with Integrated Transducer for Dielectric Spectroscopy in a 130-nm SiGe BiCMOS Technology. , 2020, , .		1
45	480-GHz Sensor With Subharmonic Mixer and Integrated Transducer in a 130-nm SiGe BiCMOS Technology. IEEE Microwave and Wireless Components Letters, 2020, 30, 908-911.	3.2	4
46	Tunable Non-Volatile Memory by Conductive Ferroelectric Domain Walls in Lithium Niobate Thin Films. Crystals, 2020, 10, 804.	2.2	19
47	The electrocaloric effect in doped hafnium oxide: Comparison of direct and indirect measurements. Applied Physics Letters, 2020, 117, .	3.3	10
48	Tuning Domain Wall Conductance in Lithium Niobate Thin-Films. , 2020, , .		0
49	Integration of Hafnium Oxide on Epitaxial SiGe for p-type Ferroelectric FET Application. IEEE Electron Device Letters, 2020, 41, 1762-1765.	3.9	18
50	A Study on the Temperature-Dependent Operation of Fluorite-Structure-Based Ferroelectric HfO₂ Memory FeFET: Pyroelectricity and Reliability. IEEE Transactions on Electron Devices, 2020, 67, 2981-2987.	3.0	12
51	FeFET: A versatile CMOS compatible device with game-changing potential. , 2020, , .		72
52	A Study on the Temperature-Dependent Operation of Fluorite-Structure-Based Ferroelectric HfO₂ Memory FeFET: A Temperature-Modulated Operation. IEEE Transactions on Electron Devices, 2020, 67, 2793-2799.	3.0	13
53	Impact of Ferroelectric Wakeup on Reliability of Laminate based Si-doped Hafnium Oxide (HSO) FeFET Memory Cells. , 2020, , .		7
54	Structural and Electrical Comparison of Si and Zr Doped Hafnium Oxide Thin Films and Integrated FeFETs Utilizing Transmission Kikuchi Diffraction. Nanomaterials, 2020, 10, 384.	4.1	50

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55	Backâ€Endâ€ofâ€Line Compatible Lowâ€Temperature Furnace Anneal for Ferroelectric Hafnium Zirconium Oxide Formation. Physica Status Solidi (A) Applications and Materials Science, 2020, 217, 1900840.	1.8	76
56	Piezoelectric Response of Polycrystalline Siliconâ€Doped Hafnium Oxide Thin Films Determined by Rapid Temperature Cycles. Advanced Electronic Materials, 2020, 6, 1901015.	5.1	32
57	Quantifying non-centrosymmetric orthorhombic phase fraction in 10â€‰nm ferroelectric Hf0.5Zr0.5O2 films. Applied Physics Letters, 2020, 117, .	3.3	14
58	Energy Harvesting in the Back-End of Line with CMOS Compatible Ferroelectric Hafnium Oxide. , 2020, , .		13
59	A Novel Hybrid High-Speed and Low Power Antiferroelectric HSO Boosted Charge Trap Memory for High-Density Storage. , 2020, , .		8
60	A Scalable Design of Multi-Bit Ferroelectric Content Addressable Memory for Data-Centric Computing. , 2020, , .		36
61	Furnace annealed HfO₂-Films for the Integration of Ferroelectric Functionalities into the BEoL. , 2020, , .		11
62	Ultra-Low Power Flexible Precision FeFET Based Analog In-Memory Computing. , 2020, , .		44
63	Heavy Ion Irradiation Effects on Structural and Ferroelectric Properties of HfO₂ Films. , 2020, , .		3
64	Impact of Channel Implant Variation on RTN and Flicker Noise. , 2020, , .		2
65	A Ferroelectric FET Based In-memory Architecture for Multi-Precision Neural Networks. , 2020, , .		6
66	Charge Pumping and Flicker Noise-based Defect Characterization in Ferroelectric FETs. , 2020, , .		8
67	Principles and Challenges for Binary Oxide Based Ferroelectric Memory FeFET. , 2019, , .		10
68	Pyroelectric Energy Conversion in Doped Hafnium Oxide (HfO₂) Thin Films on Areaâ€Enhanced Substrates. Energy Technology, 2019, 7, 1900515.	3.8	21
69	Theory and Experiment of Antiferroelectric (AFE) Si-Doped Hafnium Oxide (HSO) Enhanced Floating-Gate Memory. IEEE Transactions on Electron Devices, 2019, 66, 3356-3364.	3.0	22
70	Doping Ferroelectric Hafnium Oxide by in-Situ Precursor Mixing. ACS Applied Electronic Materials, 2019, 1, 2612-2618.	4.3	22
71	A Tunable mmWave Band-Pass Filter Based on Ferroelectric Hafnium Zirconium Oxide Varactors. , 2019, , .		8
72	207-257 GHz Integrated Sensing Readout System with Transducer in a 130-nm SiGe BiCMOS Technology. , 2019, , .		2

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73	The annealing effect on memory state stability and interlayer coupling in perpendicular magnetic tunnel junctions with ultrathin MgO barrier. Journal of Magnetism and Magnetic Materials, 2019, 477, 142-146.	2.3	6
74	Assessment of conduction mechanisms through MgO ultrathin barriers in CoFeB/MgO/CoFeB perpendicular magnetic tunnel junctions. Applied Physics Letters, 2019, 114, .	3.3	11
75	Ferroelectric and pyroelectric properties of polycrystalline La-doped HfO2 thin films. Applied Physics Letters, 2019, 114, .	3.3	52
76	Small-Signal Modeling of mm- Wave MOSFET up to 110 GHz in 22nm FDSOI Technology. , 2019, , .		4
77	DC-110 GHz Characterization of 22FDX^{Â®} FDSOI Transistors for 5G Transmitter Front-End. , 2019, , .		7
78	A Multilevel FeFET Memory Device based on Laminated HSO and HZO Ferroelectric Layers for High-Density Storage. , 2019, , .		65
79	240-GHz Four-Channel Power-Tuning Heterodyne Sensing Readout System With Reflection and Transmission Measurements in a 130-nm SiGe BiCMOS Technology. IEEE Transactions on Microwave Theory and Techniques, 2019, 67, 5296-5306.	4.6	10
80	Local crystallographic phase detection and texture mapping in ferroelectric Zr doped HfO2 films by transmission-EBSD. Applied Physics Letters, 2019, 115, .	3.3	84
81	Assessment of a Thick-Oxide Transistor from the 22FDXÂ® Platform for 5G NR sub-6 GHz FEMs. , 2019, , .		5
82	Layer thickness scaling and wake-up effect of pyroelectric response in Si-doped HfO2. Applied Physics Letters, 2018, 112, .	3.3	59
83	Barrier breakdown mechanism in nano-scale perpendicular magnetic tunnel junctions with ultrathin MgO barrier. AIP Advances, 2018, 8, .	1.3	12
84	Frequency domain analysis of pyroelectric response in silicon-doped hafnium oxide (HfO2) thin films. Applied Physics Letters, 2018, 113, .	3.3	19
85	Dipole-Tunneling Model from Asymmetric Domain-Wall Conductivity in <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline" overflow="scroll"><mml:mi>Li</mml:mi><mml:mi>Nb</mml:mi><mml:msub><mml:mrow><mml:mrow><mml:mi mathvariant="normal">O</mml:mi></mml:mrow></mml:mrow><mml:mn>3</mml:mn></mml:msub></mml:math> Single Crystals. Physical Review Applied, 2018, 10, .	3.8	14
86	High Endurance Ferroelectric Hafnium Oxide-Based FeFET Memory Without Retention Penalty. IEEE Transactions on Electron Devices, 2018, 65, 3769-3774.	3.0	191
87	Polaron-Mediated Luminescence in Lithium Niobate and Lithium Tantalate and Its Domain Contrast. Crystals, 2018, 8, 214.	2.2	12
88	Silicon doped hafnium oxide (HSO) and hafnium zirconium oxide (HZO) based FeFET: A material relation to device physics. Applied Physics Letters, 2018, 112, .	3.3	101
89	Investigation of Switching Characteristics for Silicon Doped Hafnium Oxide FeFET. , 2018, , .		0
90	Enhancing the Domain Wall Conductivity in Lithium Niobate Single Crystals. ACS Nano, 2017, 11, 4816-4824.	14.6	99

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91	Bottom-Up Assembly of Molecular Nanostructures by Means of Ferroelectric Lithography. Langmuir, 2017, 33, 475-484.	3.5	7
92	In Situ 3D Observation of the Domain Wall Dynamics in a Triglycine Sulfate Single Crystal upon Ferroelectric Phase Transition. Physica Status Solidi - Rapid Research Letters, 2017, 11, 1700267.	2.4	25
93	Polarization driven conductance variations at charged ferroelectric domain walls. Nanoscale, 2017, 9, 10933-10939.	5.6	16
94	Measurement of surface acoustic wave resonances in ferroelectric domains by microwave microscopy. Journal of Applied Physics, 2017, 122, 074101.	2.5	7
95	Anti-ferroelectric ZrO<inf>2</inf>, an enabler for low power non-volatile 1T-1C and 1T random access memories. , 2017, , .		12
96	Upconversion photoluminescence of epitaxial Yb3+/Er3+ codoped ferroelectric Pb(Zr,Ti)O3 films on silicon substrates. Thin Solid Films, 2016, 607, 32-35.	1.8	1
97	Time-resolved photoluminescence spectroscopy of<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:msubsup><mml:mi>Nb</mml:mi><mml:mrow><mml:mtext>Nb</mml:mtext></mml:mrow></mml:msubsup></mml:math>te xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:msup><mml:mrow><mml:mi mathvariant="normal">O</mml:mi></mml:mrow><mml:mo>â^'</mml:mo></mml:msup></mml:math>polarons in<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:msub>. Physical Review B, 2016, 93, .	3.2	9
98	A Local Superlens. ACS Photonics, 2016, 3, 20-26.	6.6	7
99	Real-time three-dimensional profiling of ferroelectric domain walls. Applied Physics Letters, 2015, 107, .	3.3	37
100	6. Optical antennae for near-field induced nonlinear photochemical reactions of photolabile azo- and amine groups. , 2015, , 267-282.		0
101	Multiphoton photoluminescence contrast in switched Mg:LiNbO3 and Mg:LiTaO3 single crystals. Applied Physics Letters, 2014, 105, .	3.3	20
102	Multiphoton-induced luminescence contrast between antiparallel ferroelectric domains in Mg-doped LiNbO3. Journal of Applied Physics, 2014, 115, .	2.5	16
103	Optical three-dimensional profiling of charged domain walls in ferroelectrics by Cherenkov second-harmonic generation. Physical Review B, 2014, 89, .	3.2	95