

Tobias Erlbacher

List of Publications by Year in descending order

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119
papers

853
citations

623188

14
h-index

676716

22
g-index

120
all docs

120
docs citations

120
times ranked

897
citing authors

#	ARTICLE	IF	CITATIONS
1	Tunneling atomic-force microscopy as a highly sensitive mapping tool for the characterization of film morphology in thin high-k dielectrics. Applied Physics Letters, 2008, 92, .	1.5	76
2	Reduced On Resistance in LDMOS Devices by Integrating Trench Gates Into Planar Technology. IEEE Electron Device Letters, 2010, 31, 464-466.	2.2	40
3	Analytical Model and Design of 4H-SiC Planar and Trenched JBS Diodes. IEEE Transactions on Electron Devices, 2016, 63, 2474-2481.	1.6	30
4	Methodology for the investigation of threading dislocations as a source of vertical leakage in AlGaIn/GaN-HEMT heterostructures for power devices. Journal of Applied Physics, 2019, 125, .	1.1	30
5	The impact of dislocations on AlGaIn/GaN Schottky diodes and on gate failure of high electron mobility transistors. Scientific Reports, 2020, 10, 17252.	1.6	29
6	Lateral Power Transistors in Integrated Circuits. Power Systems, 2014, , .	0.3	28
7	A Model of Electric Field Distribution in Gate Oxide and JFET-Region of 4H-SiC DMOSFETs. IEEE Transactions on Electron Devices, 2016, 63, 3795-3799.	1.6	28
8	Vertical breakdown of GaN on Si due to V-pits. Journal of Applied Physics, 2020, 127, .	1.1	24
9	Optimized Design for 4H-SiC Power DMOSFET. IEEE Electron Device Letters, 2016, 37, 1454-1457.	2.2	20
10	Integrated Digital and Analog Circuit Blocks in a Scalable Silicon Carbide CMOS Technology. IEEE Transactions on Electron Devices, 2022, 69, 4-10.	1.6	20
11	Optimization of 4H-SiC UV Photodiode Performance Using Numerical Process and Device Simulation. IEEE Sensors Journal, 2016, 16, 4246-4252.	2.4	18
12	RESURF n-LDMOS Transistor for Advanced Integrated Circuits in 4H-SiC. IEEE Transactions on Electron Devices, 2020, 67, 3278-3284.	1.6	18
13	Advanced 4H-SiC p-i-n Diode as Highly Sensitive High-Temperature Sensor Up To 460 Â°C. IEEE Transactions on Electron Devices, 2017, 64, 3399-3404.	1.6	16
14	Analysis of Compensation Effects in Aluminum-Implanted 4H-SiC Devices. Materials Science Forum, 0, 924, 184-187.	0.3	15
15	Feasibility of 4H-SiC p-i-n Diode for Sensitive Temperature Measurements Between 20.5 K and 802 K. IEEE Sensors Journal, 2019, 19, 2871-2878.	2.4	15
16	Interplay between C-doping, threading dislocations, breakdown, and leakage in GaN on Si HEMT structures. AIP Advances, 2020, 10, .	0.6	15
17	A trade-off between nominal forward current density and surge current capability for 4.5kV SiC MPS diodes. , 2016, , .		14
18	Improving 5V Digital 4H-SiC CMOS ICs for Operating at 400Â°C Using PMOS Channel Implantation. Materials Science Forum, 0, 963, 827-831.	0.3	14

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19	A 4H-SiC UV Phototransistor With Excellent Optical Gain Based on Controlled Potential Barrier. IEEE Transactions on Electron Devices, 2020, 67, 154-159.	1.6	14
20	Comparative study between conventional macroscopic IV techniques and advanced AFM based methods for electrical characterization of dielectrics at the nanoscale. Microelectronic Engineering, 2009, 86, 1911-1914.	1.1	12
21	A highly sensitive evaluation method for the determination of different current conduction mechanisms through dielectric layers. Journal of Applied Physics, 2011, 110, .	1.1	12
22	Silicon nitride, a high potential dielectric for 600V integrated RC-snubber applications. Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics, 2015, 33, 01A112.	0.6	12
23	4.5 kV SiC Junction Barrier Schottky Diodes with Low Leakage Current and High Forward Current Density. Materials Science Forum, 0, 897, 427-430.	0.3	12
24	Impact of temperature increments on tunneling barrier height and effective electron mass for plasma nitrified thin SiO ₂ layer on a large wafer area. Journal of Applied Physics, 2010, 108, 073304.	1.1	11
25	Comparative Study of Electrical and Microstructural Properties of 4H-SiC MOSFETs. Materials Science Forum, 0, 717-720, 437-440.	0.3	11
26	Analytical Model for the Influence of the Gate-Voltage on the Forward Conduction Properties of the Body-Diode in SiC-MOSFETs. Materials Science Forum, 0, 924, 901-904.	0.3	11
27	Bimodal CAFM TDDDB distributions in polycrystalline HfO ₂ gate stacks: The role of the interfacial layer and grain boundaries. Microelectronic Engineering, 2013, 109, 129-132.	1.1	10
28	Post-trench processing of silicon deep trench capacitors for power electronic applications. , 2016, , .		10
29	Characterization of a Silicon Carbide BCD Process for 300°C Circuits. , 2019, , .		10
30	Wavelength-selective 4H-SiC UV-sensor array. Materials Science in Semiconductor Processing, 2019, 90, 205-211.	1.9	10
31	Deeper insight into lifetime-engineering in 4H-SiC by ion implantation. Journal of Applied Physics, 2019, 126, .	1.1	9
32	Dielectric layers suitable for high voltage integrated trench capacitors. Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics, 2011, 29, .	0.6	8
33	Significant On-Resistance Reduction of LDMOS Devices by Intermittent Trench Gates Integration. IEEE Transactions on Electron Devices, 2012, 59, 3470-3476.	1.6	8
34	Influence of Ion Implantation in SiC on the Channel Mobility in Lateral N-Channel MOSFETs. ECS Transactions, 2013, 58, 71-80.	0.3	8
35	Potential of 4H-SiC CMOS for High Temperature Applications Using Advanced Lateral p-MOSFETs. Materials Science Forum, 2016, 858, 821-824.	0.3	8
36	Ion Implanted 4H-SiC UV Pin-Diodes for Solar Radiation Detection – Simulation and Characterization. Materials Science Forum, 0, 858, 1032-1035.	0.3	8

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37	Aluminum acceptor activation and charge compensation in implanted p-type 4H-SiC. AIP Advances, 2019, 9, .	0.6	8
38	Reducing On-Resistance for SiC Diodes by Thin Wafer and Laser Anneal Technology. Materials Science Forum, 0, 1004, 155-160.	0.3	8
39	Self-Aligned Growth of Organometallic Layers for Nonvolatile Memories: Comparison of Liquid-Phase and Vapor-Phase Deposition. Journal of the Electrochemical Society, 2008, 155, H693.	1.3	7
40	Ohmic and rectifying contacts on bulk AlN for radiation detector applications. Physica Status Solidi C: Current Topics in Solid State Physics, 2012, 9, 968-971.	0.8	7
41	Implementation of 4H-SiC Pin-Diodes as Nearly Linear Temperature Sensors up to 800 K towards SiC Multi-Sensor Integration. Materials Science Forum, 2017, 897, 618-621.	0.3	7
42	Optimization of 4H-SiC Photodiodes as Selective UV Sensors. Materials Science Forum, 0, 897, 622-625.	0.3	7
43	Influence of Triangular Defects on the Electrical Characteristics of 4H-SiC Devices. Materials Science Forum, 0, 924, 164-167.	0.3	7
44	Influence of Al Doping Concentration and Annealing Parameters on TiAl Based Ohmic Contacts on 4H-SiC. Materials Science Forum, 2018, 924, 393-396.	0.3	7
45	ATHENIS_3D: Automotive Tested High-voltage and Embedded Non-volatile Integrated SoC Platform with 3D Technology. , 2016, , .		7
46	Monolithic RC-snubber for power electronic applications. , 2011, , .		6
47	Gate oxide reliability at the nanoscale evaluated by combining conductive atomic force microscopy and constant voltage stress. Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics, 2011, 29, 01AB08.	0.6	6
48	Channeling in 4H-SiC from an Application Point of View. Materials Science Forum, 0, 963, 386-389.	0.3	6
49	Low-Resistance Ohmic Contact Formation by Laser Annealing of N-Implanted 4H-SiC. Materials Science Forum, 0, 1004, 718-724.	0.3	6
50	A Monolithically Integrated SiC Circuit Breaker. IEEE Electron Device Letters, 2021, 42, 1516-1519.	2.2	6
51	HfSiO/SiO ₂ - and SiO ₂ /HfSiO/SiO ₂ -gate stacks for non-volatile memories. Thin Solid Films, 2008, 516, 7727-7731.	0.8	5
52	High-K: Latest Developments and Perspectives. Materials Science Forum, 2008, 573-574, 165-180.	0.3	5
53	Improving module performance and reliability in power electronic applications by monolithic integration of RC-snubbers. , 2012, , .		5
54	The GaN trench gate MOSFET with floating islands: High breakdown voltage and improved BFOM. Superlattices and Microstructures, 2018, 114, 200-206.	1.4	5

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55	Design of a 4H-SiC RESURF n-LDMOS Transistor for High Voltage Integrated Circuits. Materials Science Forum, 0, 963, 629-632.	0.3	5
56	Visible Blind Quadrant Sun Position Sensor in a Silicon Carbide Technology. , 2022, , .		5
57	Via Size-Dependent Properties of TiAl Ohmic Contacts on 4H-SiC. Materials Science Forum, 0, 1062, 185-189.	0.3	5
58	Hafnium silicate as control oxide in non-volatile memories. Microelectronic Engineering, 2007, 84, 2239-2242.	1.1	4
59	Suppression of parasitic electron injection in silicon-oxide-nitride-oxide-silicon-type memory cells using high-k capping layers. Journal of Vacuum Science & Technology B, 2009, 27, 482.	1.3	4
60	(Invited) Electrical Scanning Probe Microscopy Techniques for the Detailed Characterization of High-k Dielectric Layers. ECS Transactions, 2010, 28, 139-156.	0.3	4
61	Experimental analysis of bipolar SiC-devices for future energy distribution systems. , 2014, , .		4
62	Systematic Analysis of the High- and Low-Field Channel Mobility in Lateral 4H-SiC MOSFETs. Materials Science Forum, 0, 778-780, 583-586.	0.3	4
63	Resistive and CTAT Temperature Sensors in a Silicon Carbide CMOS Technology. , 2021, , .		4
64	A generic approach for comparing input filter efforts of voltage- and current source converters. , 2012, , .		3
65	Monolithic 3D TSV-based high-voltage, high-temperature capacitors. Microelectronic Engineering, 2016, 156, 19-23.	1.1	3
66	Future technology trends. , 2018, , 3-53.		3
67	1700V 34m ² 4H-SiC MOSFET With Retrograde Doping in Junction Field-Effect Transistor Region. , 2019, , .		3
68	Ohmic Contact Mechanism for Ni/C-Faced 4H-n-SiC Substrate. Journal of Nanomaterials, 2019, 2019, 1-5.	1.5	3
69	An Iterative Surface Potential Algorithm Including Interface Traps for Compact Modeling of SiC-MOSFETs. IEEE Transactions on Electron Devices, 2020, 67, 855-862.	1.6	3
70	Lifetime limiting defects in 4H-SiC epitaxial layers: The influence of substrate originated defects. Journal of Crystal Growth, 2021, 560-561, 126033.	0.7	3
71	Conduction Loss Reduction for Bipolar Injection Field-Effect-Transistors (BIFET). Materials Science Forum, 2016, 858, 917-920.	0.3	2
72	Silicon integrated RC snubbers for applications up to 900V with reduced mechanical stress and high manufacturability. , 2016, , .		2

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73	Simulating wafer bow for integrated capacitors using a multiscale approach. , 2016, , .		2
74	Experimental Verification of a Self-Triggered Solid-State Circuit Breaker Based on a SiC BIFET. Materials Science Forum, 2017, 897, 665-668.	0.3	2
75	Monolithically Integrated Solid-State-Circuit-Breaker for High Power Applications. Materials Science Forum, 2017, 897, 661-664.	0.3	2
76	Evidence of low injection efficiency for implanted p-emitters in bipolar 4H-SiC high-voltage diodes. Solid-State Electronics, 2018, 144, 101-105.	0.8	2
77	Comparative Study of 4H-SiC UV-Sensors with Ion Implanted and Epitaxially Grown p-Emitter. , 2018, , .		2
78	Electrical Properties of Schottky-Diodes Based on B Doped Diamond. Materials Science Forum, 0, 924, 931-934.	0.3	2
79	On the Origin of Charge Compensation in Aluminum-Implanted n-Type 4H-SiC by Analysis of Hall Effect Measurements. Materials Science Forum, 0, 963, 433-436.	0.3	2
80	Design and Fabrication of 3300V 100m ² 4H-SiC MOSFET with Stepped p-body Structure. , 2019, , .		2
81	Determination of Compensation Ratios of Al-Implanted 4H-SiC by TCAD Modelling of TLM Measurements. Materials Science Forum, 0, 963, 445-448.	0.3	2
82	Impact of Channel Implantation on a 4H-SiC CMOS Operational Amplifier for High Temperature Applications. Materials Science Forum, 0, 1004, 1123-1128.	0.3	2
83	Design and Fabrication of 4H-SiC Mosfets with Optimized JFET and p-Body Design. Materials Science Forum, 0, 1014, 93-101.	0.3	2
84	Comparative investigation on installation space requirements for input filters of DC-link- and matrix converters based on amplitude pseudo-spectra. , 2012, , .		1
85	Reliability of monolithic RC-snubbers in MOS-based power modules. , 2014, , .		1
86	Robust Double-Ring Junction Termination Extension Design for High Voltage Power Semiconductor Devices Based on 4H-SiC. Materials Science Forum, 2015, 821-823, 656-659.	0.3	1
87	Novel Advanced Analytical Design Tool for 4H-SiC VDMOSFET Devices. Materials Science Forum, 0, 897, 529-532.	0.3	1
88	Switching SiC Devices Faster and More Efficient Using a DBC Mounted Terminal Decoupling Si-RC Element. Materials Science Forum, 2017, 897, 689-692.	0.3	1
89	Stress reduction in high voltage MIS capacitor fabrication. , 2017, , .		1
90	Silicon RC-Snubber for 900 V Applications Utilising non-Stoichiometric Silicon Nitride. , 2019, , .		1

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91	Influence of Trench Design on the Electrical Properties of 650V 4H-SiC JBS Diodes. Materials Science Forum, 0, 963, 549-552.	0.3	1
92	Surface Characterization of Ion Implanted 4H-SiC Epitaxial Layers with Ion Energy and Concentration Variations. Materials Science Forum, 0, 963, 429-432.	0.3	1
93	Comparison between Ni-SALICIDE and Self-Aligned Lift-Off Used in Fabrication of Ohmic Contacts for SiC Power MOSFET. Materials Science Forum, 2019, 963, 490-493.	0.3	1
94	Design Considerations for Robust Manufacturing and High Yield of 1.2 kV 4H-SiC VDMOS Transistors. Materials Science Forum, 0, 963, 763-767.	0.3	1
95	Influence of Shallow Pits and Device Design of 4H-SiC VDMOS Transistors on In-Line Defect Analysis by Photoluminescence and Differential Interference Contrast Mapping. Materials Science Forum, 0, 1004, 299-305.	0.3	1
96	Lateral Power Transistors on Wide Bandgap Semiconductors. Power Systems, 2014, , 177-208.	0.3	1
97	Integrated Passive Devices and Switching Circuit Design for a 3D DC/DC Converter up to 60ÂV. Journal of Circuits, Systems and Computers, 2020, 29, 2050039.	1.0	1
98	Mechanisms of Ohmic Contact Formation of Ti/Al-Based Metal Stacks on p-Doped 4H-SiC. Materials, 2022, 15, 50.	1.3	1
99	Fabrication Aspects and Switching Performance of a Self-Sensing 800 V SiC Circuit Breaker Device. , 2022, , .		1
100	Feasibility and limitations of anti-fuses based on bistable non-volatile switches for power electronic applications. Solid-State Electronics, 2012, 75, 33-36.	0.8	0
101	Temperature and Electrical Field Dependence of the Ambipolar Mobility in N-Doped 4H-SiC. Materials Science Forum, 2014, 778-780, 487-490.	0.3	0
102	Modelling of the electrochemical etch stop with high reverse bias across pn-junctions. , 2015, , .		0
103	Modeling of ion drift in 4H-SiC-based chemical MOSFET sensors. Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics, 2015, 33, 01A103.	0.6	0
104	Temperature Dependent Characterization of Bipolar Injection Field-Effect-Transistors (BiFET) for Determining the Short-Circuit-Capability. Materials Science Forum, 2015, 821-823, 806-809.	0.3	0
105	Impact of Al-Ion Implantation on the Formation of Deep Defects in n-Type 4H-SiC. , 2018, , .		0
106	Heterogeneous Integration of Vertical GaN Power Transistor on Si Capacitor for DC-DC Converters. , 2018, , .		0
107	First Experimental Test on Bipolar Mode Field Effect Transistor Prototype in 4H-SiC: A Proof of Concept. Materials Science Forum, 0, 963, 697-700.	0.3	0
108	Technological Advances Towards 4H-SiC JBS Diodes for Wind Power Applications. Lecture Notes in Electrical Engineering, 2019, , 83-89.	0.3	0

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109	Performance of 4H-SiC Bipolar Diodes as Temperature Sensor at Low Temperatures. Materials Science Forum, 2019, 963, 572-575.	0.3	0
110	Decoration of Al Implantation Profiles in 4H-SiC by Bevel Grinding and Dry Oxidation. Materials Science Forum, 0, 963, 441-444.	0.3	0
111	On a Novel Source Technology for Deep Aluminum Diffusion for Silicon Power Electronics. Physica Status Solidi (A) Applications and Materials Science, 2019, 216, 1900167.	0.8	0
112	SiC MOSFET with a Self-Aligned Channel Defined by Shallow Source-JFET Implantation: A Simulation Study. Materials Science Forum, 0, 1004, 850-855.	0.3	0
113	Influence of Aluminum Compensation Effects in 4H-SiC on the Performance of VDMOS Transistors. Materials Science Forum, 0, 1004, 843-849.	0.3	0
114	Pre-Deposition Interfacial Oxidation and Post-Deposition Interface Nitridation of LPCVD TEOS Used as Gate Dielectric on 4H-SiC. Materials Science Forum, 0, 1004, 535-540.	0.3	0
115	Lateral Power Transistors with Trench Patterns. Power Systems, 2014, , 133-151.	0.3	0
116	Modern MOS-Based Power Device Technologies in Integrated Circuits. Power Systems, 2014, , 75-103.	0.3	0
117	Lateral Power Transistors Combining Planar and Trench Gate Topologies. Power Systems, 2014, , 153-175.	0.3	0
118	Fabrication of Broadband Antireflective Sub-Micro Structures on 4H-SiC by Mesh Patterning Etching. DEStech Transactions on Environment Energy and Earth Science, 2018, , .	0.0	0
119	Defect Reduction in Epilayers for SiC Trench MOSFETs by Enhanced Epitaxial Growth. Materials Science Forum, 0, 1062, 13-17.	0.3	0