Forschungsfabrik Mikroelektronik Deutschland

Technolgieplattform "Leistungselektronik"

Publikationen aus der Technologieplattform "Leistungselektronik" der Forschungsfabrik Mikroelektronik Deutschland (2024)

- Hellinger C.; Rommel M.; Bauer A.J. (2024): Empirical Model of Low-Ohmic Nickel-Based Contact Formation on N-Type 4H-SiC Depending on Thermal Budget. In: Book chapter (Solid State Phenomena). DOI:10.4028/p-AmY2bK. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85204696402&doi=10.4028%2fp-AmY2bK&partnerID=40&md5=43572360609eaf2db048062ff0d37976

- Hellinger C.; Rommel M.; Bauer A.J. (2024): Low-Ohmic Nickel Contacts on N-Type 4H-SiC by Surface Roughness Dependent Laser Annealing Energy Density Optimization. In: Book chapter (Solid State Phenomena). DOI:10.4028/p-Fm2zFp. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85204740154&doi=10.4028%2fp-Fm2zFp&partnerID=40&md5=a918d4f67d4336b4cdd7c57a1fd83259

- Petzold T.; Eisele R.; Bast M.; Hindel A.; Lorbeer B.; Gripp K.; Panahandeh S.; Grosse-Kockert C.; May D.; Ras M.A.; Mathew A.; Richter-Trummer S.; Eichhorn R.; Rzepka S. (2024): Corrosion-Compatible Drive Electronics for Electric Vehicles and Industrial Power Modules. In: Conference paper (PCIM Europe Conference Proceedings). DOI:10.30420/566262153. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85202036635&doi=10.30420%2f566262153&partnerID=40&md5=d814e7e1566f88ebdd86b4acab00d971

- Mathew A.; Rzepka S.; Heimler P.; Xie D.; Alaluss M.; Basler T. (2024): Digital Twin-Based Lifetime Estimation of SiC Power Modules. In: Conference paper (Proceedings of the International Symposium on Power Semiconductor Devices and ICs). DOI:10.1109/ISPSD59661.2024.10579562. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85199136880&doi=10.1109%2fISPSD59661.2024.10579562&partnerID=40&md5=c94967d2cec32b77355ea771b24bddc7

- Lu Z.; Otto A. (2024): Health Condition Estimation for Discrete Power Electronic Devices under Package Failure. In: Conference paper (2024 IEEE International Conference on Prognostics and Health Management, ICPHM 2024). DOI:10.1109/ICPHM61352.2024.10626431. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85202352678&doi=10.1109%2fICPHM61352.2024.10626431&partnerID=40&md5=30d050f1cf51d7c1f4f226c114a3d7fc

- Rudzki J.; Ströbel-Maier H.; Becker M.; Heimler P.; Xie D.; Alaluss M.; Basler T.; Mathew A.; Rzepka S. (2024): Influence of Transfer Molding on the Reliability of DCM SiC Power Modules. In: Conference paper (PCIM Europe Conference Proceedings). DOI:10.30420/566262272. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85202035934&doi=10.30420%2f566262272&partnerID=40&md5=cfdfc4465995899d54e58dfcc8106a0e

- Chacko J.; Moeller H.; Kolas K.A.; Albrecht J.; Rzepka S. (2024): Investigation of an approach for the determination of the current State-of-Health and improvement of service life in power modules. In: Conference paper (2024 25th International Conference on Thermal, Mechanical and Multi-Physics Simulation and Experiments in Microelectronics and Microsystems, EuroSimE

2024). DOI:10.1109/EuroSimE60745.2024.10491510. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85191146115&doi=10.1109%2fEuroSimE60745.2024.10491510&partnerID=40&md5=41a7031f0251cab3b1b13c1528640bc8

- Kolas K.A.; Otto A.; Eichhorn R.; Albrecht J.; Rzepka S.; Hepp M. (2024): Reliability Testing and Virtual Prototyping for Embedded GaN Power Modules in Automotive Applications. In: Conference paper (2024 IEEE 10th Electronics System-Integration Technology Conference, ESTC 2024 - Proceedings). DOI:10.1109/ESTC60143.2024.10712035. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85208112646&doi=10.1109%2fESTC60143.2024.10712035&partnerID=40&md5=804014cf88cd923a16fbb2a08c41afca

- Wolf M.; Brunner F.; Last C.; Halhoul H.; Rentner D.; Treidel E.B.; Wurfl J.; Hilt O. (2024): 1.17 GW/cm2AlN-Based GaN-Channel HEMTs on Mono-Crystalline AlN Substrate. In: Article (IEEE Electron Device Letters). DOI:10.1109/LED.2024.3391397. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85190772192&doi=10.1109%2fLED.2024.3391397&partnerID=40&md5=799d4e906e7936b00016b012a7c7a315

- Zervos C.; Beleniotis P.; Rudolph M. (2024): A computational analysis of the impact of thin undoped channels in surface-related current collapse of AlGaN/GaN HEMTs. In: Article (Semiconductor Science and Technology). DOI:10.1088/1361-6641/ad689c. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85201715066&doi=10.1088%2f1361-6641%2fad689c&partnerID=40&md5=795bc6fc926095f1803386c42a4d1774

- Zagni N.; Fregolent M.; Verzellesi G.; Marcuzzi A.; De Santi C.; Meneghesso G.; Zanoni E.; Treidel E.B.; Brusaterra E.; Brunner F.; Hilt O.; Meneghini M.; Pavan P. (2024): Correlating Interface and Border Traps with Distinctive Features of C-V Curves in Vertical Al2O3/GaN MOS Capacitors. In: Article (IEEE Transactions on Electron Devices). DOI:10.1109/TED.2023.3335032. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85179065012&doi=10.1109%2fTED.2023.3335032&partnerID=40&md5=8872d3f07dee5ff0da4178e4a26a27b9

- Geng X.; Wieczorek N.; Wolf M.; Kuring C.; Brunner F.; Würfl J.; Hilt O.; Dieckerhoff S. (2024): Experimental Investigation of GaN-on-AlN/SiC Transistors With Regard to Monolithic Integration. In: Article (IEEE Transactions on Power Electronics). DOI:10.1109/TPEL.2024.3432327. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85199553306&doi=10.1109%2fTPEL.2024.3432327&partnerID=40&md5=636c94f975b17cacb3757cf5db596db9

- Brunner F.; Brusaterra E.; Bahat-Treidel E.; Hilt O.; Weyers M. (2024): GaN Drift Layers on Sapphire and GaN Substrates for 1.2 kV Class Vertical Power Devices. In: Article (Physica Status Solidi - Rapid Research Letters). DOI:10.1002/pssr.202400013. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85187100607&doi=10.1002%2fpssr.202400013&partnerID=40&md5=321a8edf096497c8c038267c0e35a05b

- Yazdani H.; Zervos C.; Beleniotis P.; Brusaterra E.; Hilt O.; Rudolph M.; Würfl J. (2024): Importance of Scaling in RF GaN HEMTs for Reduction of Surface Traps-Induced Drain Lag. In: Article (Physica Status Solidi (A) Applications and Materials Science). DOI:10.1002/pssa.202300885. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85191254503&doi=10.1002%2fpssa.202300885&partnerID=40&md5=24417abf0bd38cce1975af9a056952d9

- Tadmor L.; Vandenbroucke S.S.T.; Bahat Treidel E.; Brusaterra E.; Plate P.; Volkmer N.; Brunner F.; Detavernier C.; Würfl J.; Hilt O. (2024): Investigation of atomic layer deposition methods of Al2O3 on n-GaN. In: Article (Journal of Applied Physics). DOI:10.1063/5.0189543. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-

85186401437&doi=10.1063%2f5.0189543&partnerID=40&md5=c2430bb45e597acb401023e7a3b2aead

- Beleniotis P.; Zervos C.; Krause S.; Chevtchenko S.; Ritter D.; Rudolph M. (2024): Investigation of Traps Impact on PAE and Linearity of AlGaN/GaN HEMTs Relying on a Combined TCAD-Compact Model Approach. In: Article (IEEE Transactions on Electron Devices). DOI:10.1109/TED.2024.3388386. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85191289825&doi=10.1109%2fTED.2024.3388386&partnerID=40&md5=cf8af1414075c56bda28a02ca2606eb7

- Yazdani H.; Thies A.; Stützle P.; Bengtsson O.; Hilt O.; Heinrich W.; Würfl J. (2024): Low-resistive gate module for RF GaN-HFETs by electroplating. In: Article (Semiconductor Science and Technology). DOI:10.1088/1361-6641/ad1b16. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85182524931&doi=10.1088%2f1361-6641%2fad1b16&partnerID=40&md5=769817f733e576f105db3ee9c5b9472c

- De Santi C.; Fregolent M.; Brusaterra E.; Tetzner K.; Würfl J.; Buffolo M.; Meneghesso G.; Zanoni E.; Meneghini M. (2024): Modeling of the gate leakage in MOSFETs with Al2O3/β-Ga2O3 gate stack. In: Conference paper (Proceedings of SPIE - The International Society for Optical Engineering). DOI:10.1117/12.3013497. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85197224467&doi=10.1117%2f12.3013497&partnerID=40&md5=7749f0942834403c8a62a9143e635f9d

- Yazdani H.; Brunner F.; Thies A.; Würfl H.J.; Hilt O. (2024): Si-implantation for low ohmic contact resistances in RF GaN HEMTs. In: Article (Semiconductor Science and Technology). DOI:10.1088/1361-6641/ad70d5. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85202747765&doi=10.1088%2f1361-6641%2fad70d5&partnerID=40&md5=9fc96b4cbfbbc8565af102a70aee4041

- Wurfl J.; Palacios T.; Xing H.G.; Hao Y.; Schubert M. (2024): Special topic on Wide- and ultrawide-bandgap electronic semiconductor devices. In: Editorial (Applied Physics Letters). DOI:10.1063/5.0221783. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85201964842&doi=10.1063%2f5.0221783&partnerID=40&md5=c4de61301c8bcc3ea755e2aef76c031c

- Grieshaber D.; Reiner R.; Basler M.; Quay R.; Mönch S. (2024): A three-level GaN-based gate driver with reduced loss by stepwise charging. In: Conference paper (PELSS 2024 - Power Electronics Student Summit 2024). DOI:. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85216218618&partnerID=40&md5=8e155b3d1c804e2663d6ed667937c75f

- Neininger P.; Thome F.; Gebauer D.; Brückner P.; Quay R. (2024): Broadband G-Band GaN Digital Step Attenuators. In: Conference paper (IEEE MTT-S International Microwave Symposium Digest). DOI:10.1109/IMS40175.2024.10600435. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85200903673&doi=10.1109%2fIMS40175.2024.10600435&partnerID=40&md5=5de49897f9973f383c7a47b8d4666535

- Thome F.; Neininger P.; Krause S.; Brückner P.; Quay R. (2024): Broadband Low-Noise Ka-Band Front-End MMIC in a 0.15-µm GaN-on-SiC HEMT Technology. In: Conference paper (IEEE MTT-S International Microwave Symposium Digest). DOI:10.1109/IMS40175.2024.10600384. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85200924299&doi=10.1109%2fIMS40175.2024.10600384&partnerID=40&md5=4a72eb18b8580bb8d4a6e49d7c3579ba

- Sundarapandian B.; Tran D.Q.; Kirste L.; Straňák P.; Graff A.; Prescher M.; Nair A.; Raghuwanshi M.; Darakchieva V.; Paskov P.P.; Ambacher O. (2024): Comparison of aluminum nitride thin films prepared by magnetron sputter epitaxy in nitrogen and ammonia atmosphere.

In: Article (Applied Physics Letters). DOI:10.1063/5.0202161. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85192238024&doi=10.1063%2f5.0202161&partnerID=40&md5=06e2c56b9164887aac0dfaa78c5b904f

- Wolff, Niklas; Schönweger, Georg; Streicher, Isabel; Islam, Md. Redwanul; Braun, Nils; Stranak, Patrik; Kirste, Lutz; Prescher, Mario; Kohlstedt, Hermann; Kienle, Lorenz; Leone, Stefano; Lotnyk, Andriy; Fichtner, Simon (2024): Demonstration and STEM Analysis of Ferroelectric Switching in MOCVD-Grown Single Crystalline Al0.85Sc0.15N. In: Article (Advanced physics research). DOI:10.1002/apxr.202300113; 10.24406/h-462911. Link: https://publica.fraunhofer.de/entities/publication/aea0246b-f8ac-46f9-8bcf-8f24e41aa788

- Reiner R.; Nambiar A.G.; Basler M.; Monch S.; Waltereit P.; Quay R. (2024): Extraction of the Thermal Resistance and the Thermal Capacitance of GaN Power HEMTs by Using Pulsed I-V Measurements. In: Article (IEEE Transactions on Electron Devices). DOI:10.1109/TED.2024.3429462. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85202043729&doi=10.1109%2fTED.2024.3429462&partnerID=40&md5=74f65348f076e50ecaae103b09df9f27

- Monch S.; Basler M.; Grieshaber D.; Reiner R.; Sollner A.; Nour I.B.; Quay R.; Bartholome K. (2024): From Two to Seven Level GaN π-Type Converter Operation for Increased Efficiency of Capacitive-Load Charging. In: Conference paper (2024 IEEE 11th Workshop on Wide Bandgap Power Devices and Applications, WiPDA 2024). DOI:10.1109/WiPDA62103.2024.10773264. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85215130981&doi=10.1109%2fWiPDA62103.2024.10773264&partnerID=40&md5=97cb92d93d88eb58a2dc5d09179f8d6d

- Sivverini G.; Meazza A.; Traversa A.; Colzani A.; Fonte A.; Moscato S.; Oldoni M.; Friesicke C. (2024): GaN/SiC V-band 10 W high-power amplifier for inter-satellite communications. In: Article (International Journal of Microwave and Wireless Technologies). DOI:10.1017/S1759078724000655. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85209752900&doi=10.1017%2fS1759078724000655&partnerID=40&md5=451b8dbd25d9e54e762218105f2a20d4

- Sochacki T.; Kirste L.; Kucharski R.; Iwinska M.; Kumagai Y.; Bockowski M. (2024): Growth of bulk GaN crystals for the production of substrates. In: Book chapter (Comprehensive Semiconductor Science and Technology, Second Edition: Volumes 1-3). DOI:10.1016/B978-0-323-96027-4.00030-9. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85217072805&doi=10.1016%2fB978-0-323-96027-4.00030-9&partnerID=40&md5=a2f3783f8ddf57c12f3a48923daeba39

- Döring P.; Tschirky T. (2024): Low-field transport properties and scattering mechanisms of degenerate n-GaN by sputtering from a liquid Ga target. In: Article (Applied Physics Express). DOI:10.35848/1882-0786/ad3367. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85188922673&doi=10.35848%2f1882-0786%2fad3367&partnerID=40&md5=94b0daccb81534f9ccc1e380cd83c862

- Basler M.; Mönch S.; Reiner R.; Benkhelifa F.; Quay R. (2024): Monolithically Integrated GaN Power Stage for More Sustainable 48 V DC–DC Converters. In: Article (Electronics (Switzerland)). DOI:10.3390/electronics13071351. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85190261030&doi=10.3390%2felectronics13071351&partnerID=40&md5=8483053b507ba17c77b29cf9c283f2ae

- Basler M.; Reiner R.; Monch S.; Grieshaber D.; Benkhelifa F.; Quay R. (2024): Monolithically Integrated Two-Stage GaN Gate Drivers. In: Conference paper (2024 IEEE Workshop on Wide Bandgap Power Devices and Applications in Europe, WiPDA Europe 2024). DOI:10.1109/WiPDAEurope62087.2024.10797450. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-

85215688730&doi=10.1109%2fWiPDAEurope62087.2024.10797450&partnerID=40&md5=ba2a3c9214be16781b42aef2a923ad45

- Reiner R.; Mönch S.; Müller S.; Waltereit P.; Benkhelifa F.; Basler M.; Mikulla M.; Quay R. (2024): More than 1200 V Breakdown and Low Area-Specific On-State Resistances by Progress in Lateral GaN-on-Si and GaN-on-Insulator Technologies. In: Conference paper (PCIM Europe Conference Proceedings). DOI:10.30420/566262069. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85202079477&doi=10.30420%2f566262069&partnerID=40&md5=505ac3e8857dd6fc525b6144d3edc717

- Mönch S.; Reiner R.; Basler M.; Bartholomé K.; Waltereit P.; Quay R. (2024): Over 99.7% Efficient GaN-based 6-Level Capacitive-Load Power Converter. In: Conference paper (PCIM Europe Conference Proceedings). DOI:10.30420/566262020. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85202066012&doi=10.30420%2f566262020&partnerID=40&md5=415860d3a343296d35aaa241232bb080

- Mönch, Stefan; Reiner, Richard; Basler, Michael; Mansour, Kareem; Grieshaber, Daniel; Waltereit, Patrick; Quay, Rüdiger; Bartholome, Kilian (2024): Progress on power electronics for electrocaloric heat pump systems. In: Conference paper (10th IIR Conference on Caloric Cooling and Applications of Caloric Materials, Thermag 2024). DOI:10.18462/iir.thermag.2024.0023. Link: https://publica.fraunhofer.de/entities/publication/a5964c9c-601e-48ec-a260-3dfe30cb67a6

- Basler, Michael; Reiner, Richard; Mönch, Stefan; Döring, Philipp (2024): Towards Vertical GaN Power ICs. In: Article (Bodo's power systems). DOI:. Link: https://publica.fraunhofer.de/entities/publication/0e0bebe4-271d-46f0-9654-84fb7dc121bb

- Doring P.; Basler M.; Reiner R.; Monch S.; Driad R.; Dammann M.; Mikulla M.; Quay R. (2024): Towards Vertical GaN-Power ICs: Co-integration of Lateral HEMTs and Vertical Power CAVETs. In: Conference paper (Proceedings of the International Symposium on Power Semiconductor Devices and ICs). DOI:10.1109/ISPSD59661.2024.10579561. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85199190548&doi=10.1109%2fISPSD59661.2024.10579561&partnerID=40&md5=989f3b48196dcd6cf618f03fd848d9f3

- Basler M.; Döring P.; Mönch S.; Reiner R.; Driad R.; Mikulla M.; Quay R. (2024): Vertical GaN Transistor with Quasi-Monolithically Integrated HEMT Gate Driver and Sense-CAVET for Current Monitoring. In: Conference paper (Conference Proceedings - IEEE Applied Power Electronics Conference and Exposition - APEC). DOI:10.1109/APEC48139.2024.10509173. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85192713431&doi=10.1109%2fAPEC48139.2024.10509173&partnerID=40&md5=6b68ffd829bc26e640c44cce069c10f2

- Monch S.; Reiner R.; Basler M.; Waltereit P.; Quay R.; Bartholome K. (2024): Voltage-Sensorless Control and GaN Multilevel Converter for Charging Non-Linear and Lossy Electrocaloric Capacitors. In: Conference paper (ETG-Fachbericht). DOI:. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85202035837&partnerID=40&md5=64218e96cbf81dc9bb5cf8f24d27ed94

- Picun G.; Guiot E.; Allibert F.; Leib J.; Becker T.; Rusch O.; Drouin A.; Schwarzenbach W. (): A 150 & 200mm engineered substrate increasing SiC power device current density up to 30%. In: Conference paper (PCIM Asia-International Conference for Power Electronics, Intelligent Motion, Renewable Energy and Energy Management). DOI:10.30420/566414048. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85216082232&doi=10.30420%2f566414048&partnerID=40&md5=2e6bb71757919fa789f75ace075a4a80

Publikationen aus der Technologieplattform "Leistungselektronik" der Forschungsfabrik Mikroelektronik Deutschland (2024)

- Rinaldi N.; May A.; Rommel M.; Liguori R.; Rubino A.; Domenico Licciardo G.; Di Benedetto L. (): A 4H-SiC CMOS SPICE Level 3 Model for Circuit Simulations. In: Article (IEEE Electron Device Letters). DOI:10.1109/LED.2024.3412729. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85196100704&doi=10.1109%2fLED.2024.3412729&partnerID=40&md5=537e3a38df9415fe780f2d7fe4386afa

- May A.; Rommel M.; Baier L.; Schraml M.; Dick J.F.; Jank M.P.M.; Schulze J. (): A 4H-SiC CMOS Technology enabling Smart Sensor Integration and Circuit Operation above 500 °C. In: Conference paper (2024 Smart Systems Integration Conference and Exhibition, SSI 2024). DOI:10.1109/SSI63222.2024.10740550. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85211629521&doi=10.1109%2fSSI63222.2024.10740550&partnerID=40&md5=c97d395ce6ffb149c282a8da306513af

- Rinaldi N.; May A.; Rommel M.; Liguori R.; Rubino A.; Domenico Licciardo G.; Di Benedetto L. (): A 4H-SiC NMOSFET-Based Temperature Sensor Operating Between 14K and 481 K. In: Article (IEEE Electron Device Letters). DOI:10.1109/LED.2024.3459049. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85204228735&doi=10.1109%2fLED.2024.3459049&partnerID=40&md5=eb0c5fbf5312639b3af89030ac009e42

- Zhao D.; Letz S.; Jank M.; März M. (): Adhesion strength of ductile thin film determined by cross-sectional nanoindentation. In: Article (International Journal of Mechanical Sciences). DOI:10.1016/j.ijmecsci.2024.109103. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85185531707&doi=10.1016%2fj.ijmecsci.2024.109103&partnerID=40&md5=ed94653bd01845d5946f37a373a27fca

- Roeder G.; Schwanninger R.; Wienzek P.; Kerscher M.; Wunder B.; Schellenberger M. (): AI for Stability Optimization in Low Voltage Direct Current Microgrids. In: Book chapter (Unlocking Artificial Intelligence: From Theory to Applications). DOI:10.1007/978-3-031-64832-8_14. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85211853811&doi=10.1007%2f978-3-031-64832-8_14&partnerID=40&md5=1c82832fb1b073fd3abb36860b6aacf5

- Mo J.; Niu Y.; May A.; Rommel M.; Rossi C.; Romijn J.; Zhang G.; Vollebregt S. (): An analog to digital converter in a SiC CMOS technology for high-temperature applications. In: Article (Applied Physics Letters). DOI:10.1063/5.0195013. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85190069142&doi=10.1063%2f5.0195013&partnerID=40&md5=1875791665363d2ab90a46cf4d880986

- Martinez A.; Torres F.; Marin J.; Rojas C.A.; Gak J.; Rommel M.; May A.; Wilson-Veas A.H.; Miguez M.; Rossi C.; Schraml M.; Calarco N. (): Analysis and Design of an SiC CMOS Three-Channel DC-DC Synchronous Buck Converter for High-Temperature Applications. In: Article (Applied Sciences (Switzerland)). DOI:10.3390/app14219789. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85208552592&doi=10.3390%2fapp14219789&partnerID=40&md5=95a6d10f477e97980bbbc4c0b8427c97

- Boettcher N.; Rommel M.; Erlbacher T. (): Analytical Modelling of the Quasi-Static Operation of a Monolithically Integrated 4H-SiC Circuit Breaker Device. In: Book chapter (Solid State Phenomena). DOI:10.4028/p-EkvC4B. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85205310554&doi=10.4028%2fp-EkvC4B&partnerID=40&md5=ce382eb9c7f5ffbae2d2b2e311d340e8

- Yoshikawa M.; Murakami M.; Ushida T.; Samejima J.; Mitsuzawa K.; Matoba N.; Lim M.; Rusch O.; Rommel M. (): Anisotropic stress observation of 4H-SiC trench metal-oxide semiconductor field-effect transistor test structures by scanning near-field optical Raman microscope. In: Arti-

cle (Journal of Raman Spectroscopy). DOI:10.1002/jrs.6685. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85194242282&doi=10.1002%2fjrs.6685&partnerID=40&md5=aac90fb974129b06182050a1181dd02d

- Breuer J.; Dresel F.; Schletz A.; Klier J.; Leib J.; März M.; Eckardt B. (): Challenges of Junction Temperature Calibration of SiC MOSFETs for Power Cycling – a Dynamic Approach. In: Conference paper (ETG-Fachbericht). DOI:. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85202478719&partnerID=40&md5=6a648ccd9f28cd802908328bd0c7bb75

- Kranert C.; Wimmer P.; Drouin A.; Reimann C.; Friedrich J. (): Comparative study of methods for counting of dislocations in 4H-SiC. In: Article (Materials Science in Semiconductor Processing). DOI:10.1016/j.mssp.2023.107948. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85176328307&doi=10.1016%2fj.mssp.2023.107948&partnerID=40&md5=8b3db6fcfa712fb7b0c7118bbd41ec28

- Schellenberger M.; Hofmann M.; Blechinger C.; Mensing M.; Gensch M.; Westerhoff D.; Barylla P.; Kapels H.; Stanitzki A.; Krupp L.; Lüdecke A. (): Concept for a GaN-Based Intelligent Motor Controller with Integrated Failure Prediction for the Inverter and the Drive. In: Conference paper (PCIM Europe Conference Proceedings). DOI:10.30420/566262234. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85202037310&doi=10.30420%2f566262234&partnerID=40&md5=06f77f9da6227ff4f8d9fe0f7e9f03f2

- Song Y.; Xu Z.; Rommel M.; Astakhov G.V.; Hlawacek G.; Fang F. (): Defects distribution and evolution in selected-area helium ion implanted 4H–SiC. In: Article (Ceramics International). DOI:10.1016/j.ceramint.2023.12.096. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180462164&doi=10.1016%2fj.ceramint.2023.12.096&partnerID=40&md5=a6fa31aa2e8e9e09b9236d27347d5b6a

- Fuhrländer-Völker D.; Ranzau H.; Köhler L.; Weigold M. (): Demand response for cleaning machines: A comparative study of deep reinforcement learning and model predictive control in application. In: Conference paper (Procedia CIRP). DOI:10.1016/j.procir.2024.10.076. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85215012357&doi=10.1016%2fj.procir.2024.10.076&partnerID=40&md5=6997264f4814214931d2f7b442c8bbd7

- Schmied N.; Matlok S.; März M. (): Design of Zero Overvoltage Switching tailored power electronics. In: Conference paper (Conference Proceedings - IEEE Applied Power Electronics Conference and Exposition - APEC). DOI:10.1109/APEC48139.2024.10509117. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85192785943&doi=10.1109%2fAPEC48139.2024.10509117&partnerID=40&md5=47783bfd3245200d2c458d3a78bedbb9

- Walch D.; Blechinger C.; Schellenberger M.; Hofmann M.; Eckardt B.; Lorentz V.R.H. (): Detection of Demagnetization Faults in Electric Motors by Analyzing Inverter Based Current Data Using Machine Learning Techniques. In: Article (Machines). DOI:10.3390/machines12070468. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85199910568&doi=10.3390%2fmachines12070468&partnerID=40&md5=69d8e02ed6df18f9b1881cf3217f2c2b

- Zimmermann V.; Farnbacher L.; Reck T.; Zhao D.; Leib J.; Eckardt B. (): Development of Humidity-Temperature-Cycle (HTC) Tests on Module Basis. In: Conference paper (2024 IEEE 10th Electronics System-Integration Technology Conference, ESTC 2024 - Proceedings). DOI:10.1109/ESTC60143.2024.10712137. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85208140342&doi=10.1109%2fESTC60143.2024.10712137&partnerID=40&md5=e4f23ef9d78406bc6b4be11066923f71

Research Fab Microelectronics Germany – Power Electronics

Publikationen aus der Technologieplattform "Leistungselektronik" der Forschungsfabrik Mikroelektronik Deutschland (2024)

- Breuer J.; Dresel F.; Schletz A.; Leib J.; Eckardt B.; März M. (): Dynamic Calibration of Junction Temeperature of SiC MOSFETs for Power Cycling. In: Conference paper (2024 IEEE 10th Electronics System-Integration Technology Conference, ESTC 2024 - Proceedings). DOI:10.1109/ESTC60143.2024.10712017. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85208124386&doi=10.1109%2fESTC60143.2024.10712017&partnerID=40&md5=fca444a3f31a7c46104dff01a7d71852

- Hellinger C.; Rommel M.; Bauer A.J. (): Empirical Model of Low-Ohmic Nickel-Based Contact Formation on N-Type 4H-SiC Depending on Thermal Budget. In: Book chapter (Solid State Phenomena). DOI:10.4028/p-AmY2bK. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85204696402&doi=10.4028%2fp-AmY2bK&partnerID=40&md5=43572360609eaf2db048062ff0d37976

- Amler A.; Heckel T.; Ruppert D.; Rettner C.; März M. (): Evaluation of Current, Delay, and Temperature Influence and Diode Selection on the Switching Behavior of a SiC/Si Hybrid Switch. In: Conference paper (Conference Proceedings - IEEE Applied Power Electronics Conference and Exposition - APEC). DOI:10.1109/APEC48139.2024.10509069. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85192687925&doi=10.1109%2fAPEC48139.2024.10509069&partnerID=40&md5=71554b7a4f98bdcdcc072fd91ae0d596

- Drexler K.; Gehring J.; Wunder B.; Zhou Y.; Marz M.; Lorentz V. (): Evaluation of Semiconductor-Based Isolation for Electric Vehicle Chargers in DC Microgrids. In: Conference paper (2024 IEEE 6th International Conference on Direct Current Microgrids, ICDCM 2024). DOI:10.1109/ICDCM60322.2024.10664861. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85205439868&doi=10.1109%2fICDCM60322.2024.10664861&partnerID=40&md5=6447d4b58ed1e135fcbbe6cbcac6f7c0

- Steuer O.; Liedke M.O.; Butterling M.; Schwarz D.; Schulze J.; Li Z.; Wagner A.; Fischer I.A.; Hübner R.; Zhou S.; Helm M.; Cuniberti G.; Georgiev Y.M.; Prucnal S. (): Evolution of point defects in pulsed-laser-melted Ge1-xSnx probed by positron annihilation lifetime spectroscopy. In: Article (Journal of Physics Condensed Matter). DOI:10.1088/1361-648X/ad0a10. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85177485070&doi=10.1088%2f1361-648X%2fad0a10&partnerID=40&md5=df7d84fd8c4c11b23580d4b7a93c6fd6

- Sakai K.; Boettcher N.; Szabo M.; Beuer S.; Rommel M. (): Fast Estimation of the Lateral Fidelity of Ion Implantation in 4H-SiC through Calibration to JFET Transfer Characteristics in TCAD. In: Book chapter (Solid State Phenomena). DOI:10.4028/p-4Rj3jY. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85204878834&doi=10.4028%2fp-4Rj3jY&partnerID=40&md5=85f4d2e3ce84274053564a7e70f1e0ea

- Yang X.; Wunder B.; Yin S.; Schwanninger R.; Maerz M.; Lorentz V. (): Hybrid Modulation Scheme for CLLC Resonant Converter with Ultra-Wide Voltage Range for V2G Applications. In: Conference paper (2024 IEEE 6th International Conference on Direct Current Microgrids, ICDCM 2024). DOI:10.1109/ICDCM60322.2024.10664699. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85205537936&doi=10.1109%2fICDCM60322.2024.10664699&partnerID=40&md5=6c9cd14e24a29802cde5571696faad0b

- Pingen K.; Wolff N.; Mohammadian Z.; Sandström P.; Beuer S.; von Hauff E.; Kienle L.; Hultman L.; Birch J.; Hsiao C.-L.; Hinz A.M. (): III-Nitride Magnetron Sputter Epitaxy on Si: Controlling Morphology, Crystal Quality, and Polarity Using Al Seed Layers. In: Article (ACS Applied Materials and Interfaces). DOI:10.1021/acsami.4c03112. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85196663217&doi=10.1021%2facsami.4c03112&partnerID=40&md5=d6831cbfe0f2d9163d0ea748dbb9f5d3

Research Fab Microelectronics Germany – Power Electronics

Publikationen aus der Technologieplattform "Leistungselektronik" der Forschungsfabrik Mikroelektronik Deutschland (2024)

- Rusch O.; Brueckner K.; Erlbacher T. (): Increasing 4H-SiC Trench Depth by Improving the Dry Etch Selectivity towards the Oxide Hard Mask. In: Book chapter (Solid State Phenomena). DOI:10.4028/p-1PoMgV. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85204718562&doi=10.4028%2fp-1PoMgV&partnerID=40&md5=e1cb7f6e845f6b6f65bfa1e24af27dff

- Gehring, Johannes; Böttcher, Norman; Wunder, Bernd (): Innovative neue Konzepte bei Halbleiterschaltgeräten und Aktuelles aus der DC-Standardisierung. In: Conference Paper (1. DC-Verteilnetztagung 2024). DOI:. Link: https://publica.fraunhofer.de/entities/publication/175c1d30-3d99-49cb-8dcd-bd2647993778

- Walch D.; Geiger A.; Sultrop C. (): Inter-Turn Short Circuit Faults and Mitigation Measures for Dual-Three Phase Machines. In: Conference paper (2024 International Conference on Electrical Machines, ICEM 2024). DOI:10.1109/ICEM60801.2024.10700240. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85207479177&doi=10.1109%2fICEM60801.2024.10700240&partnerID=40&md5=641f920ac64e972071780bff97c4f5ab

- Fuchs A.; Brueckner K.; Ehrensberger K.; Rusch O. (): Lift-Off Process for Patterning of a Sputter-Deposited Thick Metal Stack for High Temperature Applications on 4H-SiC. In: Book chapter (Solid State Phenomena). DOI:10.4028/p-i1Arj1. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85204672661&doi=10.4028%2fp-i1Arj1&partnerID=40&md5=7050e69b95895ddd6b748e73456aed2c

- Brueckner K.; Rusch O. (): Long Term Reliability and Deterioration Mechanisms of High-Temperature Metal Stacks on 4H-SiC. In: Book chapter (Solid State Phenomena). DOI:10.4028/p-K2pVqU. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85204677121&doi=10.4028%2fp-K2pVqU&partnerID=40&md5=d8ecb63afeba5fc24aadc445122a8faf

- Hellinger C.; Rommel M.; Bauer A.J. (): Low-Ohmic Nickel Contacts on N-Type 4H-SiC by Surface Roughness Dependent Laser Annealing Energy Density Optimization. In: Book chapter (Solid State Phenomena). DOI:10.4028/p-Fm2zFp. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85204740154&doi=10.4028%2fp-Fm2zFp&partnerID=40&md5=a918d4f67d4336b4cdd7c57a1fd83259

- Friedrich J. (): Methods for bulk growth of inorganic crystals. In: Book chapter (Encyclopedia of Condensed Matter Physics). DOI:10.1016/B978-0-323-90800-9.00087-1. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85212805441&doi=10.1016%2fB978-0-323-90800-9.00087-1&partnerID=40&md5=4c8cb4cc1699bfb29def8c0857711c50

- Laha S.; Leib J.; Schletz A.; März M.; Liguda C.; Faisal F.; Momeni D. (): Milliseconds Power Cycling (PCmsec) driving bipolar degradation in Silicon Carbide Power Devices. In: Conference paper (ETG-Fachbericht). DOI:. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85202461174&partnerID=40&md5=8b56a1eed71f62a1bb29a32951496be2

- Cornigli D.; Schlichting H.; Becker T.; Larcher L.; Erlbacher T.; Pešić M. (): Modelling-Augmented Failure Diagnostics in Planar SiC MOS Devices Using TDDB Measurements. In: Book chapter (Solid State Phenomena). DOI:10.4028/p-jbV5Vq. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85204902641&doi=10.4028%2fp-jbV5Vq&partnerID=40&md5=265a3f0b54c07de15af5a697659a55e9

- Letz S.A.; Zhao D.; Leib J.; Eckardt B.; März M. (): Modified Approach for the Rainflow Counting Analysis of Temperature Load Signals in Power Electronics Modules. In: Conference paper (ETG-Fachbericht). DOI:. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85202460335&partnerID=40&md5=c905b9609fdbc3583c758ce97f3333b4

Research Fab Microelectronics Germany – Power Electronics

Publikationen aus der Technologieplattform "Leistungselektronik" der Forschungsfabrik Mikroelektronik Deutschland (2024)

- Miersch C.; Seidel S.; Schmid A.; Fuhs T.; Heitmann J.; Beyer F.C. (): Morphological and electrical characterization of gate recessed AlGaN/GaN high electron mobility transistor device by purge-free atomic layer etching. In: Article (Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films). DOI:10.1116/6.0003350. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85185005140&doi=10.1116%2f6.0003350&partnerID=40&md5=7740567a708310585e55ae74a15a1b55

- Gehring J.; Wunder B.; Schwanninger R.; Marz M.; Lorentz V. (): Novel Device for Fast Detection and Limitation of Short-Circuit Currents in LVDC Grids. In: Conference paper (2024 IEEE 6th International Conference on Direct Current Microgrids, ICDCM 2024). DOI:10.1109/ICDCM60322.2024.10664879. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85205564601&doi=10.1109%2fICDCM60322.2024.10664879&partnerID=40&md5=973d1a7c7e1181d9e02508888b063c39

- Di Benedetto L.; Rinaldi N.; Licciardo G.D.; Liguori R.; Rubino A.; May A.; Rommel M. (): Performance and Understanding of 4H-SiC Electron Devices at Low Temperature Range. In: Conference paper (Proceedings of the International Semiconductor Conference, CAS). DOI:10.1109/CAS62834.2024.10736847. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85210826338&doi=10.1109%2fCAS62834.2024.10736847&partnerID=40&md5=2c8fe420c816075819a15922614d1c4b

- Brendel, Philipp; Medvedev, Vlad; Roßkopf, Andreas (): Physics-Informed Neural Networks for Magnetostatic Problems on Axisymmetric Transformer Geometries. In: Journal Article (IEEE Journal of Emerging and Selected Topics in Industrial Electronics). DOI:10.1109/JESTIE.2023.3346798. Link: https://publica.fraunhofer.de/entities/publication/484d49d5-ea23-4e8a-90e1-5576a3a18aaa

- Becker T.; Hellinger C.; Fuchs A.; Koerfer J.; Rusch O. (): Plasma Treatment after NiSi-Based Ohmic Contact Formation on 4H-SiC to Enhance Adhesion of Subsequent Backside Metallization. In: Book chapter (Solid State Phenomena). DOI:10.4028/p-t2sWXi. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85204679401&doi=10.4028%2fp-t2sWXi&partnerID=40&md5=02d87a506639d6df803ad72a5742a69e

- Hammerl M.; Abouie M.; Rugen S.; Sami A.; Allirand L.; Dresel F.; Leib J. (): Reliability of GaN power chip embedding in different stack up. In: Conference paper (ETG-Fachbericht). DOI:. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85202459671&partnerID=40&md5=bf4795a9cf05154765b43e666dd0cb18

- Barth H.; Letz S.; Rebenklau L. (): Reliability Tests of Copper Thick-Film Substrates for Power Electronic Applications. In: Conference paper (PCIM Europe Conference Proceedings). DOI:10.30420/566262403. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85202079737&doi=10.30420%2f566262403&partnerID=40&md5=386ac45a384eaaf8c388a66cda2f0e4e

- Torres F.; Martínez A.; Marín J.; Rojas C.A.; Gak J.; Rommel M.; Wilson-Veas A.H.; May A.; Schraml M.; Calarco N.; Miguez M. (): SiC CMOS Gate Driver for High-Temperature Aerospace Applications. In: Conference paper (Proceedings of the 2024 Argentine Conference on Electronics, CAE 2024 - Congreso Argentino de Electronica 2024, CAE 2024). DOI:10.1109/CAE59785.2024.10487149. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85190614196&doi=10.1109%2fCAE59785.2024.10487149&partnerID=40&md5=5fb37353810758fb0a12ee7607e55378

- Guiot E.; Allibert F.; Leib J.; Becker T.; Drouin A.; Schwarzenbach W. (): SiC engineered substrate: increasing SiC MOSFETs current density from device to module level. In: Conference paper (Conference Proceedings - IEEE Applied Power Electronics Conference and Exposition -

APEC). DOI:10.1109/APEC48139.2024.10509052. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85192740811&doi=10.1109%2fAPEC48139.2024.10509052&partnerID=40&md5=5562762514e1166d7921e537e4968395

- Guiot E.; Allibert F.; Leib J.; Becker T.; Rusch O.; Drouin A.; Schwarzenbach W. (): SmartSiC™ 150 & 200mm engineered substrate: increasing SiC power device current density up to 30%. In: Conference paper (PCIM Europe Conference Proceedings). DOI:10.30420/566262218. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85202078379&doi=10.30420%2f566262218&partnerID=40&md5=5ba377b82a4020440ffc5432a0174156

- May A.; Baier L.; Rommel M. (): Temperature Dependence of 4H-SiC Gate Oxide Breakdown and C-V Properties from Room Temperature to 500 °C. In: Book chapter (Solid State Phenomena). DOI:10.4028/p-6T2LbM. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85204888575&doi=10.4028%2fp-6T2LbM&partnerID=40&md5=b7e0fd6f6dafb8d5adc6a29085ed4993

- Li J.; Vollebregt S.; Zhang Y.; Shekhar A.; May A.; Driel W.D.V.; Zhang G. (): Temperature dependent trap characterisation and modelling of silicon carbide MOS capacitor. In: Conference paper (2024 25th International Conference on Thermal, Mechanical and Multi-Physics Simulation and Experiments in Microelectronics and Microsystems, EuroSimE 2024). DOI:10.1109/EuroSimE60745.2024.10491433. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85191161331&doi=10.1109%2fEuroSimE60745.2024.10491433&partnerID=40&md5=f5f50459d866af01d6c607afe10b732e

- Mo J.; Li J.; May A.; Rommel M.; Vollebregt S.; Zhang G. (): Temperature Sensing Elements for Harsh Environments in a 4H-SiC CMOS Technology. In: Article (IEEE Transactions on Electron Devices). DOI:10.1109/TED.2024.3450828. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85205296666&doi=10.1109%2fTED.2024.3450828&partnerID=40&md5=133d4c079172a5e58b14f4880f1ee12f

- Lehmeier T.; Amler A.; Zhou Y.; Marz M. (): Three-Phase ARCP Inverter Using Soft-Switching With a Single Shared Inductor. In: Article (IEEE Transactions on Power Electronics). DOI:10.1109/TPEL.2023.3325162. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85174803832&doi=10.1109%2fTPEL.2023.3325162&partnerID=40&md5=4e54472617984d94f8cd7b9377d8c692

- Mletschnig K.L.; Michałowski P.P.; Pichler P. (): Transient-Enhanced Diffusion of Implanted Aluminum in 4H-SiC. In: Book chapter (Solid State Phenomena). DOI:10.4028/p-Xwcxf0. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85204722157&doi=10.4028%2fp-Xwcxf0&partnerID=40&md5=10cdc6992ec8a1eb99e6c844bb6c781c

- Michler S.; Thapa S.; Besendörfer S.; Albrecht M.; Weingärtner R.; Meissner E. (): Utilizing Island Growth in Superlattice Buffers for the Realization of Thick GaN-on-Si(111) PIN-Structures for Power Electronics. In: Article (Physica Status Solidi (B) Basic Research). DOI:10.1002/pssb.202400019. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85187935277&doi=10.1002%2fpssb.202400019&partnerID=40&md5=73923957d3308e3f06e0d4ff341e58ac

- Schellenberger M.; Hofmann M.; Blechinger C.; Mensing M.; Gensch M.; Westerhoff D.; Barylla P.; Kapels H.; Stanitzki A.; Krupp L.; Lüdecke A. (2024): Concept for a GaN-Based Intelligent Motor Controller with Integrated Failure Prediction for the Inverter and the Drive. In: Conference paper (PCIM Europe Conference Proceedings). DOI:10.30420/566262234. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85202037310&doi=10.30420%2f566262234&partnerID=40&md5=06f77f9da6227ff4f8d9fe0f7e9f03f2

Publikationen aus der Technologieplattform "Leistungselektronik" der Forschungsfabrik Mikroelektronik Deutschland (2024)

- Essingholt F.; Cousin L.; Bögel G.V.; Grenter T.; Grabmaier A. (2024): Development of a sensor system for load monitoring in the electrical grid to support e-mobility charging. In: Conference paper (2024 IEEE International Workshop on Metrology for Automotive, MetroAutomotive 2024 - Proceedings). DOI:10.1109/METROAUTOMOTIVE61329.2024.10615544. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85202615763&doi=10.1109%2fMETROAUTOMOTIVE61329.2024.10615544&partnerID=40&md5=deaa59dd20bdd8d09d70a3e616dc83ad

- Ou S.; Hassanifar M.; Votava M.; Langwasser M.; Liserre M.; Sangwongwanich A.; Sahoo S.; Blaabjerg F. (2024): A Data-Driven Condition Monitoring Method for Capacitor in Modular Multilevel Converter (MMC). In: Conference paper (2024 IEEE 10th International Power Electronics and Motion Control Conference, IPEMC 2024 ECCE Asia). DOI:10.1109/IPEMC-ECCEAsia60879.2024.10567101. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85199017480&doi=10.1109%2fIPEMC-ECCEAsia60879.2024.10567101&partnerID=40&md5=7bd50d3eb5cd016dc21ca26c41831560

- Kwon, Yongdae; Freijedo, Francisco Daniel; Wijekoon, Thiwanka; Liserre, Marco (2024): A Multiport Partial Power Converter for Smart Home Applications. In: Article (IEEE transactions on power electronics). DOI:10.1109/TPEL.2024.3388322. Link: https://publica.fraunhofer.de/entities/publication/03748aff-4314-49c0-8723-465e53bd00af

- Martano E.; Pascal Y.; Liserre M.; Busatto G.; Sanseverino A. (2024): A Simple and Low Cost Overcurrent Protection System Based on Commercial Shunt for Wide-Bandgap Devices. In: Conference paper (PCIM Europe Conference Proceedings). DOI:10.30420/566262408. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85202075923&doi=10.30420%2f566262408&partnerID=40&md5=ccfb98f7a05618ef63f43c56e4d51bc2

- Buticchi G.; Pereira T.; Yang J.; Carne G.D.; Gao X.; Ko Y.; Zou Z.; Wang K.; Liserre M. (2024): A Smart Transformer for the Electrical Power System of Green Airports: Smart Power Management. In: Article (IEEE Industrial Electronics Magazine). DOI:10.1109/MIE.2023.3304065. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171764898&doi=10.1109%2fMIE.2023.3304065&partnerID=40&md5=92863ef79bbba04f6fdacbd04b8294fd

- Mutarraf M.U.; Xun Q.; Langwasser M.; Liserre M. (2024): A Systematic Review of Solid-State Transformer for Large Ships and Their Shore Power Supply. In: Conference paper (2024 IEEE 15th International Symposium on Power Electronics for Distributed Generation Systems, PEDG 2024). DOI:10.1109/PEDG61800.2024.10667444. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85205664546&doi=10.1109%2fPEDG61800.2024.10667444&partnerID=40&md5=4ce7b6497d88cb16d609946e305d692a

- Sancio R.; Jung J.-H.; Pugliese S.; Langwasser M.; Liserre M. (2024): Advanced Zero-Sequence Current Suppression in P-HIL Testbed With Integration of Feed-Forward Compensation and LADRC. In: Article (IEEE Access). DOI:10.1109/ACCESS.2024.3416041. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85196530190&doi=10.1109%2fACCESS.2024.3416041&partnerID=40&md5=22917eb9ca4061249bb2112fc03694f5

- Groon F.; Beiranvand H.; Can G.; Liserre M. (2024): Circular Economy Oriented and Reconfigurable Planar Transformer Design for Isolated DC/DC Converters. In: Conference paper (PCIM Europe Conference Proceedings). DOI:10.30420/566262476. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85202018118&doi=10.30420%2f566262476&partnerID=40&md5=a312579d4c666f0400e5c01dc393284d

- Schellenberger M.; Hofmann M.; Blechinger C.; Mensing M.; Gensch M.; Westerhoff D.; Barylla P.; Kapels H.; Stanitzki A.; Krupp L.; Lüdecke A. (2024): Concept for a GaN-Based Intelli-

gent Motor Controller with Integrated Failure Prediction for the Inverter and the Drive. In: Conference paper (PCIM Europe Conference Proceedings). DOI:10.30420/566262234. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85202037310&doi=10.30420%2f566262234&partnerID=40&md5=06f77f9da6227ff4f8d9fe0f7e9f03f2

- Sengupta A.; Pereira T.; Liserre M. (2024): Design Optimization of Dual Active Bridge Converter for Supercapacitor Application. In: Article (IEEE Transactions on Power Electronics). DOI:10.1109/TPEL.2024.3401083. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85193238395&doi=10.1109%2fTPEL.2024.3401083&partnerID=40&md5=886fec96e7a405064f92f028b282083b

- Jung J.-H.; Pugliese S.; Liserre M. (2024): Efficiency Enhanced Zero CM Voltage Space Vector Modulation for Parallel Three-Level Converters. In: Article (IEEE Transactions on Power Electronics). DOI:10.1109/TPEL.2023.3333204. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85177031989&doi=10.1109%2fTPEL.2023.3333204&partnerID=40&md5=a8cfaaef7fdbd5333131e8986eee98cf

- Hassanifar M.; Ventura S.; Langwasser M.; Amato D.D.; Monopoli V.G.; Liserre M. (2024): Fault Tolerant Control for Medium Voltage Hybrid MMC With Cold Reserve Submodules. In: Conference paper (2024 IEEE 15th International Symposium on Power Electronics for Distributed Generation Systems, PEDG 2024). DOI:10.1109/PEDG61800.2024.10667457. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85205716642&doi=10.1109%2fPEDG61800.2024.10667457&partnerID=40&md5=45e2cfadabc2a2f6458dc058048ca7e3

- Placzek, Julius Maximilian; Beiranvand, Hamzeh; Liserre, Marco (2024): Frequency Shift Keyed Dual Side Control of Inductive Power Transfer: An Application of Talkative Power Conversion. In: Conference paper (PCIM Europe 2024, International Exhibition and Conference for Power Electronics, Intelligent Motion, Renewable Energy and Energy Management). DOI:. Link: https://publica.fraunhofer.de/entities/publication/024f0ce1-d258-4b11-ab87-7d103330820e

- Zhang J.; Xun Q.; Liserre M.; Yang H. (2024): Health-Aware Bi-Level Optimization of Component Sizing and Real-Time Energy Management in Fuel Cell Hybrid Electric Trucks. In: Article (IEEE Transactions on Industry Applications). DOI:10.1109/TIA.2024.3425584. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85198285818&doi=10.1109%2fTIA.2024.3425584&partnerID=40&md5=fce5c8924da525ecaf7b531b65c705d1

- Konda V.Y.; Jung J.-H.; Liserre M. (2024): Intelligent Junction Temperature Estimation of an IGBT Using Machine Learning and Vce Measurement. In: Conference paper (2024 IEEE 15th International Symposium on Power Electronics for Distributed Generation Systems, PEDG 2024). DOI:10.1109/PEDG61800.2024.10667399. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85205690192&doi=10.1109%2fPEDG61800.2024.10667399&partnerID=40&md5=1b82c02ba789c62f62f0a4449a1d13a9

- Hassanifar M.; Ventura S.; Langwasser M.; D'amato D.; Monopoli V.G.; Liserre M. (2024): Modified Sorting Algorithm for Fault- Tolerant Operation of Hybrid MMC With Hot Reserve Submodules. In: Conference paper (2024 IEEE 15th International Symposium on Power Electronics for Distributed Generation Systems, PEDG 2024). DOI:10.1109/PEDG61800.2024.10667398. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85205683517&doi=10.1109%2fPEDG61800.2024.10667398&partnerID=40&md5=10999227a8a8954d321be32a9c823fe2

- Votava M.; Debbadi K.; Pascal Y.; Liserre M. (2024): Multi-step Least Squares Algorithm for Thermal Characterization Based on Mission Profile. In: Conference paper (Conference Proceedings - IEEE Applied Power Electronics Conference and Exposition - APEC).

DOI:10.1109/APEC48139.2024.10509492. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85192752411&doi=10.1109%2fAPEC48139.2024.10509492&partnerID=40&md5=98a52356cb6062fb6760259d9ef7a7aa

- Oehler F.F.; Deuschl X.; Nürnberger K.; Graule A.; Kücher S.; Roth T.; Adam A.; Li J.; Mörtel R.; Jossen A. (2024): Online adaptive anode potential-controlled fast charging of lithium-ion cells using a validated electrochemical model-based virtual reference electrode. In: Article (Journal of Power Sources). DOI:10.1016/j.jpowsour.2024.234620. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85192239401&doi=10.1016%2fj.jpowsour.2024.234620&partnerID=40&md5=32d0c32879ca0ca36ef7096451eca9fa

- Sengupta A.; Pereira T.; Liserre M. (2024): Optimal Design of Supercapacitor Stacks for Size-critical Applications. In: Conference paper (Conference Proceedings - IEEE Applied Power Electronics Conference and Exposition - APEC). DOI:10.1109/APEC48139.2024.10509412. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85192686542&doi=10.1109%2fAPEC48139.2024.10509412&partnerID=40&md5=df0bda43a7a674dd6fa27cac25345582

- Debbadi K.; Votava M.; Pascal Y.; Mondal G.; Nielebock S.; Liserre M. (2024): Statistics-based Lifetime Simulation Methodology for Power Modules incorporating Degradation Models. In: Conference paper (PCIM Europe Conference Proceedings). DOI:10.30420/566262421. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85202079242&doi=10.30420%2f566262421&partnerID=40&md5=942f7602d5adb01366f51cac6e0bdf1c

- Zhou Z.; Pugliese S.; Langwasser M.; Liserre M. (2024): Subsynchronous Damping by Battery Storage System in Grid-Forming Control. In: Article (IEEE Transactions on Power Electronics). DOI:10.1109/TPEL.2024.3354409. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85182953033&doi=10.1109%2fTPEL.2024.3354409&partnerID=40&md5=c015e540167fedd6fe7add7f3b391944

- Kuprat J.; Debbadi K.; Schaumburg J.; Liserre M.; Langwasser M. (2024): Thermal Digital Twin of Power Electronics Modules for Online Thermal Parameter Identification. In: Article (IEEE Journal of Emerging and Selected Topics in Power Electronics). DOI:10.1109/JESTPE.2023.3328219. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85181820995&doi=10.1109%2fJESTPE.2023.3328219&partnerID=40&md5=4b06dcb7c3a3fc5ea8e33796e2bbb79d

- Xue P.; Hoene E.; Davari P. (2024): An RC snubber design method to achieve optimized switching noise-loss trade-off of cascode GaN HEMTs. In: Article (IET Power Electronics). DOI:10.1049/pel2.12741. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85197449684&doi=10.1049%2fpel2.12741&partnerID=40&md5=b47fe4856ef9a5443ef36ab320a37d3a

- Kilian B.; Gleichauf J.; Maniar Y.; Wittler O.; Schneider-Ramelow M. (2024): Assessing thermal resistance as a degradation metric for solder bump arrays in discrete SiC MOSFET packages. In: Article (Microelectronics Reliability). DOI:10.1016/j.microrel.2024.115388. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85189502449&doi=10.1016%2fj.microrel.2024.115388&partnerID=40&md5=1c7616bcef2a4acc7bbaa8afa123911b

- Sankari R.; Keßler U.; Rittner M.; Reinold M.; Kaden T.; Schwindt E.; Schneider-Ramelow M. (2024): Degradation Mode Analysis of Different Bonding Technologies of SiC Power Semiconductors Stressed by Active Power Cycling. In: Conference paper (PCIM Europe Conference Proceedings). DOI:10.30420/566262024. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85202068097&doi=10.30420%2f566262024&partnerID=40&md5=788329e15453a18d7fa09a0cfb6c4c5e

Research Fab Microelectronics Germany – Power Electronics

Publikationen aus der Technologieplattform "Leistungselektronik" der Forschungsfabrik Mikroelektronik Deutschland (2024)

- Chen T.; Bezerra P.A.M.; He Z.; Wang J.; Hoene E. (2024): Highly Efficient Inductor Design Using X-Winding Concept with Distributed Air Gaps. In: Conference paper (ECCE Europe 2024 - Energy Conversion Congress and Expo Europe, Proceedings). DOI:10.1109/ECCEEurope62508.2024.10751956. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85211800069&doi=10.1109%2fECCEEurope62508.2024.10751956&partnerID=40&md5=b7350855e8b62c7fbb29d3a68aba43b6

- Jiang Q.; Otáhalová V.; Burré V.; Leese H.S.; Shaffer M.S.P.; Hahn R.; Menner A.; Bismarck A. (2024): Variable capacity polymer based energy harvesters with integrated macroporous elastomer springs. In: Article (Nano Energy). DOI:10.1016/j.nanoen.2024.109460. Link: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85187791483&doi=10.1016%2fj.nanoen.2024.109460&partnerID=40&md5=22eea6f6b976f340ab1581cf333c019e