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PCIM Conference 2026 – Conference Program

Tuesday, 9 June 2026

08:15 **Community Coffee**

Stage: Tokio, Level 3
09:00 **Opening / Award Ceremony**

Stage: Tokio, Level 3
09:45 **Keynote**
The GaN Evolution: Lateral, Vertical, and Bidirectional — What's Next?
Michael Basler, Fraunhofer IAF, DE
Chairperson: Johann W. Kolar, ETH Zurich, CH

10:30 **Coffee Break**

Stage: Tokio, Level 3
GaN Devices
Chairperson: Thomas Neyer, Infineon Technologies, DE

11:00 **1.2 kV Integrated Power Switch with PSJ GaN, Si IGBT and SiC Diode**
Alireza Sheikhan, The University of Sheffield, UK

11:20 **SmartGaN: First Smart Cut-Based Engineered Substrate for High-Performance GaN Power Devices**
Youssef Hamdaoui, University of Lille, FR

11:40 **GaN-HEMTs vs. GaN-"Bricks" – A Device Concept Comparison**
Richard Reiner, Fraunhofer IAF, DE

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Stage: St. Petersburg, Level 2
Advanced Cooling
Chairperson: Shiori Idaka, Mitsubishi Electric, DE

11:00	**Multi Layered Mo Effects on the Spacer for Double Sided Cooling Power Module** Byeongchan Kim, Korea Institute of Industrial Technology, KR
11:20	**Validated Electro-Thermal Methodology for Transient Current Capability in IGBT Power Modules** Ludovica Longo, Nexperia, IT
11:40	**Loop Heat Pipe Technology for Enhanced Cooling in Power Electronics** Olivier de Laet, Calyos, BE

Stage: Shanghai, Level 3
Advanced Control Methods for Power Converters
Chairperson: Francisco Javier Azcondo, University of Cantabria, ES

11:00	**Stability of Inner-loop Only Control of Single Stage AC-link Converter For OBC Applications** Rami Troudi, Valeo, FR
11:20	**Hybrid Optimal Trajectory Control for LLC Converters to Achieve Fast Response Under Dynamic Loading** Ayoub Ziraoui, STMicroelectronics, FR
11:40	**A Closed-loop Dead Time Control Method Based on di/dt Peak Detection** Hongming Zhao, Robert Bosch, DE

Stage: Kyjiw, Level 2
Measurement Techniques and Methods I
Chairperson: Sang Won Yoon, Seoul National University, KR

11:00	**Automated Deskew of Double-Pulse Measurements for Precise Switching Loss Calculation** Philipp Rehlaender, onsemi, DE
11:20	**Emulating SiC Modules Using Electrically Representative PCBs to Investigate Die-Level Current Phenomena** Matt Appleby, University of Bristol, UK
11:40	**500 MHz Magnetic-Field-Gradient-Based Sensing of Die Currents in SiC Power Modules** Jiaqi Yan, University of Bristol, UK

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Stage: Seoul, Level 3
Charging Technologies
Chairperson: Jens Schmenger, Siemens, DE

11:00	**Techno-Economic Sizing of a Renewable Hybrid Energy System for an EV Charging Station** Maria Nunez, University of Sheffield, UK
11:20	**Implementation of a Power Gyrator for Electric Vehicle Chargers** Luis Ruiz Chamorro, Polytechnic University of Madrid, ES
11:40	**Multiport Single-Transformer Power Converter Enabling Onboard Charging and DC-DC Conversion in EVs** Oscar Lucia, University of Zaragoza, ES

Stage: Istanbul, Level 2
Advanced Modeling and Design Technologies for Electrical Drives
Chairperson: Manfred Schrödl, Vienna University of Technology, AT

11:00	**Determination of Parasitic Capacitances in a Motor Using Ansys Maxwell** Muhammad Ahmad Masood Gill, University of Southern Denmark, DK
11:20	**Evaluation of PWM Techniques for Reduced Powertrain Losses and NVH** Giorgio Valente, Cadence Design Systems; IT
11:40	**Model Reference Adaptive Control of Permanent Magnet Synchronous Machines using Exact Discretization** Kristof Bandy, Budapest University of Technology and Economics, HU
12:00	**Lunch Break**
12:45	**Poster/Dialogue Session & Coffee Time (Hall 4A)**

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IGBT Devices

Chairperson: Peter Kanschat**,** Infineon Technologies, DE

PP001	**New 2.3 kV IGBT8 and EmCon8 in XHP 2 for Demanding High-Power Applications** Marcel Morisse, Infineon Technologies, DE
PP002	**2.5kV IGBT Module with High Withstand Voltage and High Reliability** Tomokazu Kanna, Mitsubishi Electric, JP
PP003	**Current Mismatch during Turn-On of Parallel IGBTs due to Uneven Mutual Inductances** Tim Scheel, University of Rostock, DE
PP004	**1.2 kV Narrow-Mesa Trench IGBT Platform for Optimized Losses and Ruggedness performance** Indrajeet Bajarang Jadhav, Littelfuse, DE
PP005	**Stability of Paralleled IGBTs Driven by a Common Gate Drive Unit During Turn-off** Lukas Tomforde, University of Rostock, DE
PP006	**New 6.5 kV IGBT7 in IHV module for demanding HVDC systems** Martin Hennig, Infineon Technologies, DE
PP007	**Design and Performance Study of 750V RC-IGBT for High Power EV Application** Liheng Zhu, Zhuzhou CRRC Times Electric, CN
PP008	**Turn-off Delay Time Reduction in Modern IGBTs with a Two-Step Turn-off Method** Vishwas Acharya Nayampalli, University of Rostock, DE
PP009	**New 6.5 kV HVIGBT Module with Low Loss and High Switching Robustness** Yuta Nishimura, Mitsubishi Electric, JP
PP010	**Miniaturization of 3-level Topology Utilizing 8th Generation New NX Module** Nobuchika Aoki, Mitsubishi Electric, JP

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Device Robustness

Chairperson: Pierre-Laurent Doumergue, Microchip, FR

PP011 **Comparison Between Two Short-Circuit Protection Techniques for SiC Power Module**
Quyen Nguyen, Nidec Leroy-Somer, FR

PP012 **Device and Bias Influence on Short-Circuit Performance in 3.3 kV SiC MOSFETs**
Ehab Tarmoom, Microchip Technology, US

PP013 **Investigation of Dynamic On-Resistance in GaN HEMTs under Single- Pulse Short-Circuit Operation**
Nikhil Bhardwaj, IIT Bombay, IN

PP014 **Short-circuit Faults for 3.3 kV SiC-MOSFET Power Modules**
Muhammad Nawaz, Hitachi Energy, SE

Novel Materials and Thermal Management

Chairperson: Geraldo Nojima, Eaton, US

PP015 **Novel Thermal Interface Material for PCBs: High Insulation Reliability, Validated by Cooling Tests**
Takenori Kakutani, Taiyo, JP

PP016 **Experimental Evaluation of Direct-Mounted Flat Heat Pipes for Thermal Management on a PSFB Converter**
Georg Woywod, Munich University of Applied Sciences, DE

PP017 **Characterization Method for Pulsed Current Capability of SiC Trench MOSFET in Third Quadrant Operation**
Rene Mente Infineon Technologies, AT

PP018 **Real-Time Detection of Loss of Coolant and Thermal Management using Model-Sensor Junction Temperature Divergence in Traction Inverters**
Vishwas Shashidhar, BorgWarner, IN

PP019 **Optimizing Wide Bandgap Device Performance via Thermal Interface Material and Mounting Choices**
Rony Thomas, Nexperia, DE

PP020 **Comparative Evaluation of Top-Side Cooled SMD SiC Packages: Efficiency and Power Capability**
Fatih Cetindag, Nexperia, DE

PP021 **Comparison of Measurement Methods for Determining Thermal Impedance (Zth) in Power Semiconductors**
Tobias Heise, University of Rostock, DE

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PP022 **Determination of Parameters Influencing Phase Change Cooling Close to the Chip**
Moritz Naumann, University of Bayreuth, DE

PP023 **Direct Insulative Cooling Power Module Development and Thermal Evaluation**
Emanuela Privitera, Nexperia, IT

Stress Monitoring and Lifetime Prediction
Chairperson: Ulrike Grossner, ETH Zurich, CH

PP025 **Mission Profile Based Lifetime Prediction for IGBT Power Modules with Coupled Failure Mode**
Min-Ki Kim, Hyundai MOBIS, KR

PP026 **Gate Switching Instability in SiC MOSFETs at Extended Lifetimes Using a Stress-Frequency of 40 MHz**
Ruben Schnitzler, University of Stuttgart, DE

PP027 **SiC MOSFET Bondfoot Degradation Model with Assumption for Elastic Deformation**
Holger Heinisch, Robert Bosch, DE

PP028 **Advanced Reliability Assessment of Power Modules Under Low Cycle Thermal Fatigue Through Redefined 3-D J-Integral**
Jaejin Jeon, Seoul National University, KR

Pulse Width Modulation Methods
Chairperson: Marija Jankovic, ROHM Semiconductor, DE

PP029 **Flux-Track-Curve-Based Optimisation Constraint for OPP in PWM for Automotive Applications**
Christian Vorobev, Ruhr-University Bochum, DE

PP030 **Fast Processing Modulation for Parallel Interleaved Inverters with Zero-Sequence Circulating Current**
Lucia Clavero, Huawei, DE

PP031 **Modulation Techniques and Experimental Validation of High-Voltage GaN-Based 3-Level ANPC Inverters**
Matthieu Gaychet, STMicroelectronics, FR

PP032 **Novel Reduced-Transition Discontinuous PWM for Full ZVS Range Pulsed DC-Link Three-Phase Inverter**
Mohamed Atef Tawfik, University of Southern Denmark, DK

PP033 **Frequency Correction Method for iTCM Modulation with Powder Core Inductors**
Gang Zhang, University of Twente, NL

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PP034 **OPP Policy Design Using Differentiable Programming**
Mohammad Abu-Ali, Robert Bosch, DE

PP128 **DC-DC Converter with Voltage Balancing Capability**
Lorenzo Giuntini, ABB, CH

Intelligent Gate Drivers I

Chairperson: Marc Hiller, Karlsruhe Institute of Technology, DE

PP035 **High-Voltage Double-Gate IGBT Driver with Floating Island Architecture for 6.5 kV Isolation**
Faiq Siddiqui, University of Rostock, DE

PP036 **Approach for Overcoming Bootstrap-Circuit Limitations in High-Side Gate-Driver Supplies**
Matthias Gorski, Trane Technologies, DE

PP037 **In-Situ Dead-Time Control Based on Gate-Charge Information Derived from Gate-Current**
Lukas Knappstein, TU Dortmund University, DE

PP038 **Three-Level Gate Driver for Slew Rate Control in Reliability-Oriented Voltage Switching Tests**
Sarthak Swaroop Dash, Chemnitz University of Technology, DE

PP039 **Hardware-in-the-Loop Optimization of AGD Patterns for SiC MOSFETs Comparing Model-Free Algorithms**
Lukas Kappel, TU Dortmund University, DE

PP040 **SPI Programmable Current-Mode Isolated Gate Driver for High-Performance Automotive Traction Inverters**
Ion Tesu, Skyworks Solutions, US

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Transportation Infrastructure
Chairperson: Thiago Batista Soeiro, University of Twente, NL

PP041 **Estimating Energy Use and Waste to Consider EV Charging Potential for an Urban Tram Network**
Fiona McBride, University of Sheffield, UK

PP042 **Efficiency Maximization Strategy for a Dual-stage High-voltage Charging Infrastructure**
Francesco Porpora, University of Cassino and Southern Lazio, IT

PP043 **Unlocking Transformer Secrets: A Revolutionary Approach to High-Frequency Parasitic Modeling**
Hasan Mousavi Somarin, Valeo, FR

PP044 **Design and Experimental Validation of a 200kW/L PCB Based 50kW DC-DC Converter for E-Mobility**
Guillaume Lefevre, Mitsubishi Electric, FR

Charging Strategies and Battery Characterization
Chairperson: Marco Jung, University of Applied Sciences Bonn-Rhein-Sieg, DE

PP045 **Degradation Modes Analysis for Fast Charging Design of Lithium-Ion Cells**
Xabier Dorronsoro Martinez, University of Mondragon, ES

PP047 **Mutual Transferability of the Results From HPPC and EIS for Internal Battery Resistance Estimation**
Lars Leister, Karlsruhe Institute of Technology, DE

PP048 **Parameter Identification of Aerospace LiB Using Optimization Algorithm and the Thevenin Model**
Ngoc Nam Pham, Brno University of Technology, CZ

PP049 **Enhancing LFP State-Estimation through Self-Diagnostic Tests in Modular Battery Systems**
Manex Aizpurua, University of Mondragon, ES

Electromagnetic Compatibility: Emission and Immunity
Chairperson: Francesco Gennaro, STMicroelectronics, IT

PP051 **Frequency-Independent Mechanisms Limiting Common-Mode Filter Scaling in Power Electronics**
Torbjorn Sorsdahl, Inovance Automotive, NO

PP052 **Impedance Modeling in Cabling Scenarios**
Aimar Telletexea, Ikerlan, ES

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PP053 **An Integrated Active EMI Filter to Attenuate Both DM and CM Noise in Single-Phase AC Systems**
Timothy Hegarty, Texas Instruments, US

PP054 **Impact of Galvanic Isolation in Automotive DC-DC Converters on their Conducted and Radiated Electromagnetic Interference**
Shounak Shashishekhar Kulkarni, Helmut Schmidt University, DE

PP055 **Negative Effect of Common Mode Chokes and Remedies for this Effect**
Christoph Fritsch, Siemens, DE

PP056 **Multi-Objective Optimization of EMI Filters with Messy Genetic Algorithm**
Róbert Orvai, Budapest University of Technology and Economics, HU

Modeling and Simulation of Power Electronic Systems
Chairperson: Jacques Laeuffer, Dtalents, FR

PP058 **Novel Design Algorithm for LCL Grid Filters Under Consideration of Arbitrary Grid Codes**
Simon Johannliemke-Appelbaum, Ruhr-University Bochum, DE

PP059 **Gerber File-based Electrical-Thermal Co-Simulation for Printed Circuit Board Design**
Xianghao Mo, Polytechnic University of Madrid, ES

PP060 **Evaluation and Optimization of PCB Loop Inductance for Three-phase Inverter with Low Common Mode Voltage**
Soumyabrata Patra, University of Southern Denmark, DK

PP061 **Enhancing performance of Megawatt scale SiC-Power Stacks through novel parallelization method**
Fabio Carastro, Semikron Danfoss, DE

PP062 **Pulse Width Modulation Analysis and Optimization for Fast Simulation and Automatic Code Generation**
Thomas Effenberger, Rosenheim University of Applied Sciences, DE

PP63 **Real-Time-Capable Oversampling Model for different Three-Level-Three-Phase Converter Topologies**
Martin Klassen, dSPACE, DE

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Measurement Techniques and Methods II
Chairperson: Wolfram Teppan, LEM INTERNATIONAL, CH

PP064	**Impact of Kelvin-Source vs. Power-Source Sensing in Si/SiC Power Switch Characterizations** Deekshith Venkatesha Prabhu, onsemi, DE
PP065	**A Measurement-Based Methodology for Determining the Minimum Dead-Time** Philipp Rehlaender, onsemi, DE
PP066	**Single-Chamber Air-Cooled Heat-Balance Calorimeter with High Accuracy across a Wide Power Range** Sascha Langfermann, BLOCK Transformatoren-Elektronik, DE
PP068	**Compensated Fluxgate Current Sensor for DC and AC Measurements** Slavko Veinovic, University of Belgrade, RS
PP069	**Comparison of Different Methods for Extracting Parasitic Inductances in Inverter Designs** Tim Scheel, University of Rostock, DE
PP070	**A Modified DPT Platform Enabling Faster Inductor Discharge and Extended Current Range** Mohammad Vedadi, onsemi, DE
PP071	**Efficiency Measurements Require High Precision - Consistency Enables Comparability** Jörg Bornwasser, Fraunhofer ISE, DE
PP072	**Comparative Analysis of Results from Disparate Double-Pulse-Test Environments** Arthur Boutry, University of Alabama, US
PP073	**Electroluminescence-based Junction Temperature Sensing in Silicon Fast Recovery Diode** Antonis Stathatos, Eindhoven University of Technology, NL

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Reliability and Condition Monitoring

Chairperson: Peter Wallmeier, AEG Power Solutions, DE

PP074	**Comprehensive Short-Circuit Comparison of Low Voltage Schottky-Gate GaN HEMTs and Silicon MOSFETs** Marco Cannone, Infineon Technologies, AT
PP075	**Flexible Test Platform for Mission-Profile-Based Validation of Active Thermal Control Techniques** Eneko Agirrezabala, Mondragon University, ES
PP076	**Overcurrent Detection for GaN HEMTs with 20 ns Detection Time** Nick Van Houtven, MinDCet, BE
PP077	**Fault-Tolerant Control of Dual Three-Phase PMSM for Light Electric Vehicle under Open-Phase Faults** Mathana Venkatesh Sivanantham, SEG Automotive, DE
PP078	**Electro-Thermal Health Monitoring for GaN-Based Power Converters: A Hybrid Prognostics Approach** Manex Gondat, Ikerlan, ES
PP079	**Data-driven Remaining Useful Life Prediction for Si-IGBT in a Digital Twin Architecture** Lena Köhler, Fraunhofer, DE

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Stage: Tokio, Level 3
Power Electronics in Transportation
Chairperson: Philippe Ladoux, University of Toulouse, FR

14:30	**Battery Integration in Railways: Review of Power Converter Topologies and their Industrial Readiness** Saad Ahmad, University of Oviedo, ES
14:50	**Shared DC-Link Optimization for Paralleled Inverters Using Phase-Shifted PWM** Axel Wagret, Airbus, FR
15:10	**Towards Reliability-Oriented Mission Profiles for Electric Aircraft Propulsion Converters** Jeff Kugener, German Aerospace Center (DLR), DE

Stage: St. Petersburg, Level 2
Condition and Health Monitoring
Chairperson: Jürgen Schuderer, Hitachi Energy, CH

14:30	**Motor and Inverter Fault Detection using Current Signature Analysis for GaN-based Motor Drives** Holger Kapels, Hamburg University of Technology, DE
14:50	**Optimized High Frequency Cable–Motor Impedance Parameter Design for Voltage Stress Mitigation** Muhamad Usman Sardar, Tallinn University of Technology, EE
15:10	**Microclimate Inside of Power Semiconductor Modules and Their Surrounding Cabinet During Operation** Wilfried Holzke, University of Bremen, DE

Stage: Shanghai, Level 3
Thermal Monitoring and Modeling
Chairperson: Christina DiMarino, Virginia Tech, US

14:30	**Sensor Virtualization to Leverage Cost Savings in Realtime Electric Machine Temperature Monitoring** Christian Hahn, Robert Bosch, DE
14:50	**Temperature Estimation Model for EV Drive Unit** Andreas Sidorow, Isuzu Motors, DE
15:10	**Is Transient Thermal Network Model Applicable Under Short-Circuit Conditions?** Chengmin Li, Eindhoven University of Technology, NL

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Stage: Kyjiw, Level 2
Intelligent Gate Drivers II
Chairperson: Michael Hartmann, Graz University of Technology, AT

14:30	**Low-Complexity Sub-nanosecond Active Gate Driver for SiC Modules with IV-Trajectory Optimisation** Matt Appleby, University of Bristol, UK
14:50	**A Novel, Adaptive Closed-Loop Dead-Time Control for High Voltage SiC-MOSFET based Power Converters** Michael Rauh, University of Bayreuth, DE
15:10	**Three-Channel Gate Monitoring Driver for SiC MOSFET Power Modules with Redundant Fault Detection** Mathis Picot-Digoix, Laplace Laboratory, FR

Stage: Seoul, Level 3
Bipolar Power Devices
Chairperson: Katsuaki Saito, Nexperia, JP

14:30	**New 6.5 kV IGCT and Fast Recovery Diode Product Set with Outstanding Safe Operation Area Performance** Umamaheswara Reddy Vemulapati, Hitachi Energy, CH
14:50	**1.2 kV Fast Recovery Diode with Stable Turn-Off Under Harsh Voltage and Temperature Stress** Hadi Hematian, Littelfuse, DE
15:10	**On Coupled Gate Drive Units for Paralleled IGBTs and Their Effect on Dynamic Current Mismatches** Lukas Tomforde, University of Rostock, DE

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Stage: Istanbul, Level 2
Cutting-Edge Developments in High-Performance Drives
Chairperson: Robert Plikat, Volkswagen, DE

14:30	**Integrated Interphase Transformer and dv/dt Filter Analysis for Interleaved SiC Motor Drives** Tiago Jappe, Vincotech, DE
14:50	**Artificial Intelligence Based Diverse Redundancy for Safety Critical Automotive Motor Control Applications** Mihail Jefremow, Infineon Technologies, DE
15:10	**Safety-Compliant DC-Link Surge Suppression with Integrated Diagnostic in 48 V Automotive Drives** Kaveh Haghverdi, SEG Automotive, DE
15:30 – 17:00	**Poster/Dialogue Session & Coffee Time (Hall 4A)**

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SiC MOSFETs I

Chairperson: Bernd Eckardt, Fraunhofer IISB, DE

PP081 **New Generation 3300V/1000A Full-SiC Power Module for Railway Traction Application**
Hui Wang, Zhuzhou CRRC Times Electric, CN

PP082 **Features and Benefits Expected of Future Trench and Planar SiC MOSFETs**
Naoki Kaji, ROHM, JP

PP083 **Experimental Analysis of Parasitic Turn-On in Different 650V SiC MOSFET Cell Designs**
Anshul Tyagi, Infineon Technologies, AT

PP084 **Unlocking the Potential of 750V CoolSiC MOSFET M2 in Power Modules**
Ainhoa Puyadena, Infineon Technologies, DE

PP085 **Intrinsic Robustness of Planar and Trench SiC MOSFETs Against PTO Regarding Short Channel Effects**
Rony Thomas, Nexperia, DE

PP086 **New 1200 V, 6 mOhm SiC MOSFET with Integrated Temperature Sense Enabling Significant System Benefits**
Amy Romero, Wolfspeed, US

PP087 **Dynamic Switching Analysis of 1.2kV 4H-SiC MOSFETs with Tightened Vth Distribution on 200mm Wafers**
Jeff Joohyung Kim, Wolfspeed, US

PP088 **10-kV SiC MOSFET Module Characterization for Two-Level 4.16-kV High-Speed Motor Drives in Gas and Pumping Applications**
Ashish Kumar, Wolfspeed, US

Device Packaging

Chairperson: Stéphane Lefebvre, CNAM - SATIE, FR

PP089 **Orthogonal Two-Chip-Per-Ribbon Layout Enabling Stable Low-Rg Switching in 800-V SiC 2-in-1 Power Modules**
Yudai Yatsu, Renesas Electronics, JP

PP090 **A New Surface-Mount Power Module for Wide Bandgap Power Devices**
Robin Simpson, Nexperia, UK

PP091 **Smart Paralleling of SiC-MOSFET in Power Modules**
Michael Frisch, Vincotech, DE

PP092 **SiC High Voltage LinPak: 3.3 kV Power Module for Medium- and High-Voltage Converter Applications**
Jeremy Jones, Hitachi Energy, CH

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PP093 **Low Inductance, High Power Density: Compact EasyPACK S Unlocks CoolSiC M2 Performance**
Koray Yilmaz, Infineon Technologies, DE

PP094 **The Application of Snubber Chips in Three-level Topology Modules**
Shuai Cao, MACMIC Science & Technology, CN

PP095 **Characterization of the Magnetic Couplings of Parasitic Elements of GaN Devices with a Kelvin Source**
Maxime Boulan, University of Lille, FR

PP096 **Estimation of Commutation Loop Inductance in a 90 kW IMS-Based Discrete IGBT Traction Inverter**
Avinash Maguluri, Zhuzhou CRRC Times Electric, UK

Advanced Thermal Modeling, Estimation and Management
Chairperson: Huai Wang, Aalborg University, DK

PP097 **Advanced Cooling Solutions for High Frequency Medium Voltage Planar Transformers**
Zayed Ahmed, Advanced Cooling Technologies, US

PP098 **Advanced Air-Cooled Solutions for Industrial Power Electronics**
Thomas Pfeifer, Miba Cooling, AT

PP099 **Design of and Analytical Thermal Model for a pair of Coaxial 3.3 kV SiC MOSFET Packages**
Jack Knoll, Viriginia Polytechnic and State University, US

PP101 **A Superposition Method for Electrothermal Analysis of an Onboard SiC MOSFET Power Assembly**
Jianfeng Li, Zhuzhou CRRC Times Electric, UK

PP102 **Thermal Model for Heat Sink Optimization for High-Performance Semiconductor Modules in Electrolysers**
Uwe Schuffenhauer, University of Applied Sciences Dresden, DE

PP103 **Comparing 1D and 3D Temperature Estimations of a 2kV SiC MOSFET under Short Circuit Conditions**
Jorge Mari, Semikron Danfoss, DE

PP104 **Thermodynamic-Based Model Suitable for Real-Time Junction Temperature Estimation of Power Devices**
Claudio Romano, Ideas & Motion, IT

PP105 **Real-Time Temperature Estimation of Passive Components in Traction Inverters**
Raja Sekhar Kammala, BorgWarner, DE

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DC-DC Converter and Switched Mode Power Supply

Chairperson: Christopher Kocon, iDEAL Semiconductor Devices, US

PP106 **Hybrid-Flyback Unlocking High Performance Battery Charging**
Tobias Riedel, Infineon Technologies, DE

PP107 **Control of Bidirectional Power Flow in a Dual Active Half Bridge**
Peter van Duijsen, The Hague University of Applied Sciences, NL

PP108 **Tristate Super Buck Converter**
Helmut Votzi, University of Applied Sciences Vienna, AT

PP109 **A Soft-Switching, High Step-Up, Non-Isolated LLC Resonant Converter**
Ozturk Sahin Alemdar, TOGG, TR

PP110 **Design and Implementation of a Photovoltaic DC-DC Converter with MPP Tracker and Droop Control**
Raphael Otte, University of Applied Sciences and Arts Ostwestfalen-Lippe, DE

PP111 **Experimentally Validated Pareto-Optimization for a Dual-Active-Bridge Converter**
Nikolas Förster, Paderborn University, DE

PP113 **Coupled-inductor Series Capacitor Buck Converter for Higher Step-down Voltage Conversion Ratios**
Inigo Martinez de Alegria Mancisidor, University of the Basque Country, ES

PP114 **A Resonant-Inductor-Integrated H-Transformer for 48V–12V LLC Bus Converters**
Jiayu Ying, Huawei Technologies, DE

Low Power AC-DC and DC-AC Converters I

Chairperson: Klaus F. Hoffmann, Helmut Schmidt University, DE

PP116 **Design and Thermal Analysis of a Modular Power Converter for Axial-Flux Motors in Electric Vehicles**
Oriol Subirats Rillo, Polytechnical University of Catalonia, ES

PP117 **SiC-Based Three-Phase PFC Infeed Converter for Industrial DC Grids with Symmetrical Common Mode Volt**
Jan-Niklas Koch, University of Applied Sciences and Arts Ostwestfalen-Lippe, DE

PP118 **Coupled Chokes Configurations for Power Combining Class E Converter Topologies**
Prateek Wagle, Imperial College, UK

PP119 **Implementation of a Synchronous-CCM-Power Factor Corrector Using a Half-Bridge GaN-power Module**
Federico Levati, STMicroelectronics, IT

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PP120 **Bidirectional GaN based Single stage Microinverter**
Marco Ruggeri, Renesas, DE

PP121 **Where to Innovate in Power Electronics with Discrete MOSFETs: Advanced Packaging or Next-Generation**
Josef Wildauer, Infineon Technologies, AT

Solid-State Transformer and DC-DC Converter

Chairperson: Michael Hartmann, Graz University of Technology, AT

PP124 **Decentralized control for a Cascaded H-Bridge Converter**
Eduardo García-Martínez, CIRCE, ES

PP125 **A Simplified Analytical Method for Accurate ZVS Estimation in Dual Active Bridge Converter**
Priya Sinsinwar, Indian Institute of Technology, IN

PP126 **Design of 8kW Three-Phase Interleaved LLC for AI Server**
Marco Torrisi, STMicroelectronics, IT

PP127 **Design of a highly integrated 250 kW Partial Power Converter for Next-Gen Energy Systems**
Jon Anzola, Mondragon University, ES

PP129 **Design Considerations for a 7 kW SiC-Based Bidirectional CLLC Converter for Battery Charging**
Ivan Clemente Massimiani, STMicroelectronics, IT

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Railway, Aerospace and Marine Applications
Chairperson: Eckart Hoene, Fraunhofer IZM, DE

PP131 **A Rail Traction Converter Chopper Control Algorithm for Dynamic Braking in EMUs**
Osman Senturk, OSSEN Software and Energy, TR

PP132 **Smart Detection of Motor Suspension Breakdown in Railway Traction Drives Using HF Motor Current**
Markus Vogelsberger, Alstom, AT

PP133 **Highly Integrated, Robust Power Solution for Aerospace Motor Drive Applications up to 80 kVA**
Alain Calmels, Microchip Technology, FR

PP134 **Development and Parameter Identification of an Advanced Thermal–Thevenin Model for Aircraft LiB**
Jan Leuchter, Brno University of Technology, CZ

PP135 **Design of a 100kW SiC Interleaved DC-DC Converter for Aviation Application**
Dennis Wöhrle, Fraunhofer Institute ISE, DE

PP136 **Integrated Motor Drive Inverter with Active Fault Handling for Aerospace Applications**
Leonard Kuhn, Fraunhofer IISB, DE

PP137 **Automated EMI Simulation Workflow for Frequency-Variable High Power DC-DC Converter for Aviation**
Anne Sacher, Fraunhofer Institute IISB, DE

PP138 **Efficiency Analysis of a Multilevel CHB Converter for Battery-to-Grid Waterborne Applications**
Eneko Otaola, TECNALIA, ES

Renewable Energy Systems
Chairperson: Hans-Günter Eckel, University of Rostock, DE

PP139 **Enhanced Cascaded Voltage Control of Interleaved Boost Converter for PV MPPT**
Kaspars Kroics, Riga Technical University, LV

PP140 **Comparative Analysis of SiC- and IGBT-based NPC Inverters in Photovoltaic Applications**
Jaspera Dominique Rohner, University of Applied Sciences and Arts Northwestern Switzerland, CH

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PP141 **A Three-level Energy Management System using the Battery as Power Pulsation Buffer**
Pelle Weiler, University of Tokyo, JP

PP142 **Adjustable Hybrid Switch Converter for Enhanced Efficiency and Reliability in PV Systems**
Tanya Thekemuriyil, University of Applied Sciences and Arts Northwestern Switzerland, CH

PP143 **Design of a SiC-based Synchronous Floating Interleaved Boost Converter for PV Applications**
Anita Mijajlovic, University of Belgrade, RS

PP144 **Performance Assessment of a Split-Phase String Inverter Based on Integrated Gate Driver GaN FET**
Riccardo Ruffo, Texas Instruments, DE

PP145 **Practical Analysis of an 800V Output Boost in Three Topologies for Energy-Storage Systems**
Akshat Jain, STMicroelectronics, IN

PP146 **Critical Review of DC-DC Converter Topologies for Hydrogen Fuel Cell and Battery-Based Hybrid System**
Jose Vicente Rocamonde, Technological Institute of Energy, ES

PP147 **Evaluation of a Battery Charging System Using MPPT Powered by a Thermoelectric Generator**
Juliane Farret, University of Alabama, US

Modeling and Simulation of Components
Chairperson: Klaus Rigbers, SMA Solar Technology, DE

PP148 **Advanced Evaluation of Internal Switching Oscillations in SiC Multichip Power Modules based on 3-D V**
Alessandro Ilardi Garofalo, APS - ETH Zurich, CH

PP149 **Validation of a Vendor Independent Electro-Thermal Power Loss Simulator**
Maurizio Tranchero, Ideas & Motion, IT

PP150 **Design and Validation of a 60 kW LLC Transformer with Electromagnetic and Thermal Simulation**
Caner Demir, Aselsan, TR

PP151 **Development of 6500V Press-pack Trench IGBT Devices for Power Grids**
HaoWen Shi, Zhuzhou CRRC Times Electric, CN

PP152 **Modeling of Space Charge Behavior in Mold Epoxy Resin at Power Semiconductor Chip Termination**
Koki Kishimoto, Mitsubishi Electric, JP

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Inductor Design
Chairperson: Thomas Ebel, University of Southern Denmark, DK

PP154 **Feasibility Study on Via-Based Shielding for Reducing Fringing Losses in Planar Magnetics**
Othman Abujazar, University of Paderborn, DE

PP156 **Improvement of Transformerless DC/DC Converters Using Controllable Inductors**
Jonas Pfeiffer, Helmut Schmidt University, DE

PP157 **Simple Ferromagnetic Shielding for Loss Reduction in Gapped Inductors**
Andres Garzon, Würth Elektronik, DE

PP158 **Temperature Rise of Iron Core Inductor in DC-DC Converter operated in Discontinuous Conduction Mode**
Lorenzo Giuntini, ABB, CH

PP159 **Modeling of Powder Core inductors for assessing the accuracy of Finite Element simulation**
Masoumeh Amirbandeh, Bourns Electronics, IE

PP160 **Scaling Ferrite Core Manufacturing for Next-Generation HighPower Converters**
Christian Blaum, SUMIDA Components & Modules, DE

PP161 **Redefining EMI Filter Design by Ferrites for High-Frequency Automotive Applications**
Philemon Wrensch, SUMIDA Components & Modules, DE

Resources Availability and Sustainability
Chairperson: Anton Z. Miric, Heraeus, DE

PP162 **GANZ – Sustainability of Power Electronics**
Paul Gierth, Fraunhofer IKTS, DE

PP163 **Selective Repair of Power Modules: A Process Solution Approach for Circular Power Electronics**
Lars Rebenklau, Fraunhofer IKTS, DE

PP164 **Automotive Power Electronics in the Context of Recyclability**
Daiyi Hu, Technical University of Braunschweig, DE

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Wednesday, 10 June 2026

08:15 **Community Coffee**

Stage: Tokio, Level 3

08:45 **Keynote**
AI Meets Power Electronics: Are We There Yet?
Uwe Drofenik, Vienna University of Technology, AT
Chairperson: Drazen Dujic, EPFL, CH

09:30 **Coffee Break**

Stage: Tokio, Level 3
Special Session: Artificial Intelligence in Power Electronics
Chairperson: Ole Gerkensmeyer, Nexperia, DE

09:50 **Environment-oriented Predictive Maintenance for Distribution Transformers**
Alper Çoban, Empa Electronics, TR

10:10 **AI-enhanced Energy Networks: Enabling Smart Power Management for Software-Defined Vehicles**
Hardy Stoelben, NXP Semiconductors, DE

10:30 **Accelerating SiC Power Module Design via AI Enabled Web Based Virtual Prototyping**
Yanfeng Shen, Semikron Danfoss, DE

10:50 Coffee Break

11:10 **The Silent Enabler: WBG Power Technology & Packages for the AI-HPC Revolution**
Giuliano Cassataro, Nexperia, DE

11:30 **AI and Electronics – Trends, Challenges, and Urgent Opportunities**
Alexander Gerfer, Würth Elektronik, DE

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Stage: St. Petersburg, Level 2
WBG Reliability
Chairperson: Peter Kanschat, Infineon Technologies, DE

09:50	**Silicon Carbide Reliability During 960V DC Link Capacitor Active Discharge** Daniel Norwood, Texas Instruments, US
10:10	**Comparative Study of Dynamic Gate Stress Effects on SiC MOSFETs** Akihiro Koyama, Mitsubishi Electric Corporation, JP
10:30	**Novel Test Concept for Active Short-Circuit Characterization** Mohamed Alaluss, Chemnitz University of Technology, DE
10:50	**Coffee Break**
11:10	**Reliability Assessment of AlGaN/GaN MISHEMTs Under Self-Heating and Current Collapse Effects** Nilesh Kumar Jaiswal, University of Southern Denmark, DK
11:30	**Methodology for Temperature Calibration and Power Cycling Testing of Schottky p-GaN HEMTs** Gengqi Li, Chemnitz University of Technology, DE

Stage: Shanghai, Level 3
Advanced Packaging
Chairperson: Aylin Bicakci, University of Applied Sciences Kiel, DE

09:50	**Long-Term High-Tempersature Operation of Liquid-Metal Interconnects on SiC MOSFETs** Nick Baker, University of Alabama, US
10:10	**Novel 3D SiC Power Module with Epoxy-resin Insulated Substrate and Pressure-less Ag Sintering TIM** Shoichiro Otani, Tohoku University, JP
10:30	**Next Generation 3.3kV LV LinPak Si Power Module with 3AC Design for Traction Applications** Slavo Kicin, Hitachi Energy, CH
10:50	**Coffee Break**
11:10	**3 level TNPC in a SEMITRANS 20 Package for LV Power Drives** Jürgen Engstler, Semikron-Danfoss, DE
11:30	**Fabrication Technology for Hybrid Ceramic/PCB Embedded SiC MOSFET Halfbridge Pre-packages** Niko Haag, University of Applied Sciences Kempten, DE

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Stage: Kyjiw, Level 2
High Power Converters I
Chairperson: Ki-Bum Park, KAIST, RK

09:50	**Hybrid Symmetrizing Voltage-Clamp for Voltage Balancing of Two-Level Operated 3L-NPC Topology** Amin Darvishzadeh, EPFL, CH
10:10	**A Novel Compact High-Power PCB-Based Transformer Geometry for Electric Aircraft Applications** Lufan Zhou, Polytechnic University of Madrid, ES
10:30	**Rogowski Coil with Passive Optical Output for Short-Circuit Protection of MMC Submodules** Ali Sharaf Addin, Universität der Bundeswehr München, DE
10:50	**Coffee Break**
11:10	**Reduction of Passive Components in Quasi-2-Level Operated MMC for MVDC DAB Converter** Jose Andres Aguilar Croston, SuperGrid Institute, FR
11:30	**B-TRAN MMC HVDC: An Efficient and Low-Cost MMC HVDC with Half-Bridge Submodule and DC Fault Blocking** Bhuwenesh Gupta, Ideal Power, US

Stage: Seoul, Level 3
Active Filters and Electromagnetic Compatibility
Chairperson: Christof Sihler, GE Vernova, FR

09:50	**Investigation of Conducted EMI in a 3-Phase Induction Motor Drive Under Different Predictive Control Methods** Gregory Almeida, French Institute of Technology (IRT Saint-Exupery), FR
10:10	**Improving Transient Performance on Server and AI Applications** Jose Luis Silva Perales, Monolithic Power Systems, ES
10:30	**Advanced Power Quality Control in Industrial Power Grids: AI-Integrated Active Filtering** Philipp Wissmann, Siemens, DE
10:50	**Coffee Break**
11:10	**A Novel Active dv/dt Filter for Common-Mode Current Reduction in SiC-Based Motor Drives** Felix Schulte, TU Dortmund University, DE
11:30	**Sensorless Active EMI Filtering via Real-Time Estimation of Common-Mode Dynamics** Mohammadreza Bagheribavaryani, Braunschweig University of Technology, DE

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Stage: Istanbul, Level 2
Inductors and Transformers
Chairperson: Bernhard Strzalkowski, Consultant, DE

09:50	**Optimal Design of High Leakage Inductance Integrated Planar Transformer with Interleaved Windings** Hamza Ahmad, Korea Advanced Institute of Science and Technology (KAIST), KR
10:10	**Design of an Integrated Three-Port Fractional-Turn Planar Transformer for a Redundant LLC Converter** Arya Venugopal, Silicon Austria Labs, AT
10:30	**Copper Foil-Based Air Core Transformer Equivalent Model and Feasibility Study for MHz Switching Freq** Oleksandr Husev, Warsaw University of Technology, PL
10:50	**Coffee Break**
11:10	**Very High Frequency Characterization of a Foil Air Inductance using Transmission Lines** Jacques Laeuffer, Dtalents, FR
11:30	**Integration of CMDM Choke Using Ellipsoidal Core for High Power Density and Volume Reduction** David Prados, Prax, ES
11:50	**Lunch Break**
12:45	**Poster/Dialogue Session & Coffee Time (Hall 4A)**

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SiC Reliability

Chairperson: Masahito Otsuki, Fuji Electric, JP

PP165 **Static and Dynamic Reliability Asessment of Bipolar Degradation in 1.2 kV SiC MOSFET**
Michele Fiore, STMicroelectronics, IT

PP166 **Demonstrating Intrinsic Gate-Oxide Reliability in 1200 V SiC MOSFETs via Inline Defect Screening**
Nicolo Oliva, SwissSEM Technologies, CH

PP167 **Repetitive Switching Stability of SiC MOSFETs under Overload Conditions for Hybrid Power Modules**
Nick Schneider, SwissSEM Technologies, CH

PP168 **Temperature Effects on SiC MOSFET Reliability: Separating Artifacts from True Degradation**
Sara Kuzmanoska, onsemi, DE

PP170 **Enhanced Performance and Reliability of 1200V SiC MOSFETs for Automotive Drive Applications**
Chen Liu, Zhuzhou CRRC Times Electric, CN

PP172 **Sensitivity Analysis of Parasitic Turn-On (pTO) in a SiC-Power Module**
Muhammad Muneeb Alam, Robert Bosch, DE

PP173 **Impact of RDS(on) Stability on Power Density for Power Electronics Application**
Fatih Cetindag, Nexperia, DE

Advanced Power Devices

Chairperson: Prasad Venkatraman, onsemi, US

PP174 **Experimental Analysis of Gallium Doping Process in GTO Thyristors: Impact of SiO2 and Si3N4 Layers**
Muhammad Awais, Dynex Semiconductor, UK

PP175 **SuperQ Technology: A Game-Changer in Power Device Innovation. Analysis of SuperQ 200V MOSFET Industry Leading Design, Manufacture and Performance**
Christopher Kocon, Ideal Semiconductor, US

PP176 **Paralleling of normally-on SiC JFETs for the usage in Solid State Circuit Breakers**
Rene Mente, Infineon Technologies, AT

PP177 **Impact of Edge Termination on the Dynamic Performance of SiC MPS Diodes in Bipolar Mode**
Simon Ginzel, Helmut-Schmidt-University, DE

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PP178 **Characterization and Performance Evaluation of New 1200 V Silicon Carbide JFET Technology**
Elisa Navari, Infineon Technologies, AT

PP179 **A Simple Zero-Voltage Turn-On Scheme for Solid-State Relays**
Dinesh Palaniappan, Infineon Technologies, SG

PP180 **A 600 V three-phase inverter as GaN power converter IC on substrate biasing-free isolating substrate**
Stefan Mönch, University of Stuttgart, DE

PP181 **A Practical Test Bench for 650V WBG Switch Comparison by Transient Calorimetric Loss Analysis**
Göktuğ Tonay, Middle East Technical University, TR

PP182 **MOSFET With Lossless, High Precision Current Sensing in Motor Drive Applications**
Jens Sorensen, Infineon, US

Encapsulation and Die Attach: Materials and Techniques
Chairperson: Chengmin Li, Eindhoven University of Technology, NL

PP183 **Impact of Soft Encapsulation on Power Module Lifetime**
Rowan Aldridge, University of Alabama, US

PP184 **Development of High-Reliability LMC for Power Module Encapsulation as a Replacement for Silicone Gel**
Daejin Kim, KCC, KR

PP185 **A double enhanced novel SAC composites solder preform**
Lung-Chuan Tsao, National Pingtung University of Science and Technology, TW

PP186 **Development of Pressureless Short-Time Sintering Material for Next-Generation Power Semiconductors**
Naoto Karakida, artience, JP

PP187 **New “Paste in Cavity” Concept for Embedded Power Electronics Using Copper Sinter Paste**
Aline Jarofski, Heraeus Electronics, DE

PP188 **Investigation of Large Area Soldering Using High Stress Assembly and Challenging Surface Coatings**
Andres Socarras, MacDermid Alpha Electronics Solutions, DE

PP189 **Investigation of Solder Joint Strength of Pb-free Solder Alloys Using Head Wire Interconnects**
Mani Krishna Swami Puppala, Littelfuse, DE

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Control and Digital Techniques for Power Converters and Drives
Chairperson: Marcelo Lobo Heldwein, Technical University of Munich, DE

PP190 **Experimental Validation of Flux-Based Control in an e-Motor with Integrated Sensing Array**
Maurizio Tranchero, Ideas & Motion, IT

PP191 **Timing Analysis and Comparison of EtherCAT and RS485 Communication in a Modular Multilevel Converter**
Stefan Orterer, Fraunhofer Institute IISB, DE

PP192 **Reactive-Current Transient–Based Dual-Signal Gain Scheduling for Energy Balancing in Cascaded H-Bridge STATCOMs**
Debdeep Samajdar, Delta Electronics, IN

PP193 **FPGA-Based Voltage-Mode Regulation of Boost PFC Converter with Interpretable Neural Network Control**
Zhi Li, Infineon Technologies, DE

PP194 **Minimizing DC-Link Capacitance in Variable-Frequency Critical-Mode Soft-Switching Bidirectional PFCs**
Julian Hartmann, Hella, DE

PP195 **Design and Performance evaluation of a DCM/CCM Boundary Boost PFC with Enhanced Current Mode Control**
Claudio Adragna, STMicroelectronics, IT

PP196 **Zero Voltage Switching Multilevel Power Stage at 1MHz Switching Frequency with Asynchronous Delta-Sigma Modulation**
Jannik Maier, Reutlingen University, DE

PP197 **Control-to-Output Transfer Function of an ISOP-System Based on an Asymmetrical Half-Bridge**
Sophia Roesel, Friedrich-Alexander University of Erlangen-Nuremberg, DE

PP198 **Improved Virtual Synchronous Machine with Grid Impedance Estimator for Islanding Detection**
Alessandro Roveri, Prima Electro, IT

PP199 **A Finite Control Set Modulated Model Predictive Control for SiC Inverter with Sinusoidal Filter**
Mattia Pecile, Technical University of Denmark, DK

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EMI and Wireless Power Transfer

Chairperson: Junichi Itoh, Nagaoka University of Technology, JP

PP200 **Modulation Effects on Common-Mode Currents in Hybrid-Electric Aircraft**
Abbas Mehraban, Technical University of Braunschweig, DE

PP202 **EMI Diagnosis for Power Converter PCB Layouts based on a Reasoning Aligned Vision Language Model**
Martin Kuo, ITG Electronics, US

PP204 **Dynamic Wireless Power Transfer for Multiple AGVs using Capacitive Coupling Method**
Fujiyuki Iwamoto, MIRISE Technologies, JP

High Power Converters II

Chairperson: Ilknur Colak, Schneider Electric, DE

PP206 **PHiL Testbench for MMC Submodules under Realistic Operating Conditions**
Sophie Knierim, Karlsruhe Institute of Technology, DE

PP207 **Impact of Auxiliary Inductor Placement in Three-Phase ARCP Inverters**
Yan Zhou, Friedrich-Alexander University of Erlangen-Nuremberg, DE

PP208 **Experimental Analysis of Parasitic Turn-On in Different 650V SiC MOSFET Cell Designs**
Bela Truschenski, Forschungs- und Transferzentrum Leipzig, DE

PP209 **Design Considerations to Meet Future Datacenter Power Supply Needs**
Jeevan Thomas, onsemi, IN

PP210 **New Isolated Three-Phase Push-Pull Rectifier Topology with Freewheeling Paths**
Sandro Benjamin Meyer, University of Applied Sciences Bielefeld, DE

PP211 **3kW Compact GaN-based PFC for AI Server with 99.2% Efficiency**
Marco Torrisi, STMicroelectronics, IT

PP212 **200 kVA Rectifier with Grid-Supporting Functions for Hydrogen Applications**
Maximilian Döring, Fraunhofer Institute IEE, DE

PP213 **Analysis of a Series VSC Converter Topology for MVDC Applications**
Damiano Lanzarotto, Supergrid Institute, FR

PP214 **High current Solid-State Circuit Breaker of 2kV DC based on 3.3kV SiC MOSFETs modules**
Victor Lopez, Ikerlan, ES

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Charging in E-Mobility

Chairperson: Eckart Hoene, Fraunhofer IZM, DE

PP215 **Design and Evaluation of 3.5 kW Planar Transformers for DAB Converters in EV Chargers**
Hend Ben Dhaou, Valeo, FR

PP217 **Hybrid Two-Cell Flying Capacitor Inverter for 1200V On-Board Chargers**
Arda Kasim, Middle East Technical University, TR

PP218 **Comparison of Common mode noise in a 3-Phase Six-Switch PFC Type Rectifier using Different Neutral**
Kelly Ribeiro, Valeo, FR

PP219 **Three-Phase Integrated Onboard Charger for Electric Vehicles with Induction Motors**
Endalkachew Degarege Almawu, Kiel University, DE

PP220 **Tiny Power Box: Part 2 - System Design for a High Density Isolated Bidirectional OBC with Integrated DCDC**
Ismail Recepi, Silicon Austria Labs, AT

PP221 **Highly Integrated On-Board Charger and DC/DC Converter for Electric Vehicles**
David Rokusek, Ricardo, CZ

PP222 **From Concept to Vehicle Demo: 11 kW - 85 kHz Wireless EV Charger with Active Load Impedance Matching**
Nicolas Allali, Valeo, FR

Motors and Actuators

Chairperson: Spasoje Miric, University of Innsbruck, AT

PP223 **Electromagnetic Design of a Synchronous Reluctance Motor Based on Natural Flux Line Propagation**
Christian Rachoi, Bern University of Applied Sciences, CH

PP224 **Co-Optimization of Traction Inverter and Electrical Machine for Electric Vehicle Applications**
Timothé Delaforge, Bern University of Applied Sciences, CH

PP225 **Analysis of Current Third Harmonic Injection Control Enabling Iron Loss Reduction in PMSMs**
Kaiki Akizuki, University of Tokyo, JP

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Measurement Techniques

Chairperson: Christof Sihler, GE Vernova, FR

PP226 **Addressing EMI Noise in In-Situ Motor drives via Time-Domain Waveform Analysis**
Hans Hoffmann Sathler, TE Connectivity, CH

PP227 **Design and Experimental Validation of a Hybrid EMI Filter for Compact EMI Filter Design in On-Board Chargers**
Moritz Mondre, University of Applied Sciences Bonn-Rhein-Sieg, DE

PP228 **Development of a Simple Double Pulse Test Bench for Cryogenic Applications**
Maximilian Kleemann, University of Applied Sciences Munich, DE

PP230 **Design-For-Test Considerations In WBG Converter Designs**
Marcus Sonst, Rohde&Schwarz, DE

PP231 **Laboratory Setup for Accuracy Investigation of Current Sensors Under Real Operating Conditions**
Robin Luca Abraham, Physikalisch-Technische Bundesanstalt, DE

PP232 **DC-Loop Stray Inductance Characterization in Printed Circuit Board Using Vector Network Analyzer**
Maurizio Tranchero, Ideas & Motion, IT

Advanced Design and Simulation

Chairperson: Peter Wallmeier, AEG Power Solutions, DE

PP233 **Efficient Evaluation of Power Modules for Multi-Objective Optimization Using PEEC Method**
Rando Raßmann, University of Applied Sciences Kiel, DE

PP236 **AI-Based Two-Stage Learning for Rapid Thermal Map Reconstruction in EV Power Semiconductors**
Chi Zhang, Volvo Cars, SE

PP237 **Estimating Semiconductor State of Health and Remaining Life Using Statistics and Digital Twin Model**
Emmanuel Batista, Alstom, FR

PP238 **Electrical and Thermal Real-Time Model of an ANPC Photvoltaic Inverter for Digital Twin**
Derk Gonschor, Bonn-Rhein-Sieg University of Applied Sciences, DE

PP239 **Modular Open-Source Toolchain for Multi-Objective Power Converter Design up to 1 MHz**
Andreas Sack, University of Siegen, DE

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Magnetic Materials

Chairperson: Eric Favre, Consultant, CH

PP241	**Characterization and Feasibility Study of Nanocrystalline Core based EMI Filters for On-board Chargers in Electric Vehicles** Karnpreet Singh, KU Leuven, BE
PP242	**Modeling Derating Curves of PCB Ferrites Impact of Core Composition** Andres Garzon, Würth Electronics, DE
PP243	**Effects of Inter-laminar Conduction on Losses and Permeability in Laminated Cores** Miguel Astudillo, ETH Zurich, CH
PP244	**Magnetic Core and Component Testing Automation for Industrial Benchmarking, Databases, Design Tools** Paul Ohodnicki, University of Pittsburgh, US
PP245	**Fabrication Guidelines for Amorphous and Nanocrystalline Soft Magnetic Components** Inge Lindemann, Fraunhofer IFAM, DE
PP246	**Improved DC Bias Core Loss Model by Using the Loss Separation Technique** Jon Anzola Garcia, Mondragon University, ES
PP247	**Nanocrystalline Tape-Wound Cores of High-B alloys – Fabrication and Properties** Merlin Thamm, Fraunhofer Institute IFAM, DE
PP248	**A Novel Phase Shift Virtual Correction for Magnetic Core Losses Measurement** Anartz Agote, Mondragon University, ES

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Stage: Tokio, Level 3
Components Reliability
Chairperson: Frank Osterwald, Gesellschaft für Energie und Klimaschutz Schleswig-Holstein, DE

14:30 **Improved R_{th}-Calculation for SiC MOSFETs in Power Cycling Tests**
Lukas Farnbacher, Fraunhofer IISB, DE

14:50 **Lifetime of IGBTs Under Mixed Sequential Power Cycling: A Matched-Lifetime Sequencing Experiment**
Diego Velazco, SuperGrid Institute, FR

15:10 **Component-Based Acceleration of Lifetime Tests for Automotive Inverters**
Jelto Oltmanns, Volkswagen, DE

Stage: St. Petersburg, Level 2
High Power Density Designs I
Chairperson: Daniel Chatroux, CEA-LITEN, FR

14:30 **Integrated High-Power-Density 48 V Power Converter with 3D-Printed Heatsink Busbars**
Zhaobo Zhang, University of Bristol, UK

14:50 **A GaN-Enabled Low-EMI Three-Phase/Single-Phase PFC Family for EV Chargers and Data Center Applications**
Reza Asgarnia, Paderborn University, DE

15:10 **500kVA/L High Density 3-Phase Traction Inverter Based on PCB Embedded Power Modules**
Wiljan Vermeer, Fraunhofer IZM, DE

Stage: Shanghai, Level 3
Design for Environmental Compatibility
Chairperson: Regine Mallwitz, Technical University of Braunschweig, DE

14:30 **Material Composition of Power Semiconductors for Life Cycle Assessment**
Ariya Sangwongwanich, Aalborg University, DK

14:50 **Eco-design of Magnetic Components in Power Electronics A Life Cycle Assessment Perspective**
Ning Wang, Aalborg University, DK

15:10 **Is SiC the Key to Achieving Sustainable CO2 Reduction in Inverters?**
Disha Sharma, Siemens, DE

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Stage: Kyjiw, Level 2
Design Optimization
Chairperson: Uwe Drofenik, Vienna University of Technology, AT

14:30 **4D Design Space based Unified Magnetic and Circuit Design Optimization framework for CLLC Converter**
Hamza Ahmad, Korea Advanced Institute of Science and Technology (KAIST), KR

14:50 **Inductance-Controlled PCB Design of an Instrumented Si/SiC Hybrid Switch with Module-Level Parasitics**
Yuyang Wang, University of Bristol, UK

15:10 **Data-Driven Physics-Informed Modeling of Stripline Inductors for High-Density Power Converters**
Raúl Henares Vargas, Tyndall National Institute, IE

Stage: Seoul, Level 3
Multi-Domain Modeling
Chairperson: Nicolas Rouger, University of Toulouse, FR

14:30 **Improved Electrothermal SPICE Model for ASFETs Enabling Dynamic Current Sharing and Enhanced SOA**
Sabrina Chowdhury, Nexperia, UK

14:50 **Accurate Modeling and Analysis of Dissipation Losses in Output Capacitance of Power Semiconductors**
Kaushik Mirdoddi, Silicon Austria Labs, AT

15:10 **Dynamic Reverse Transfer Capacitance Modeling for New IGBT Generations**
Patrick Popp, Infineon Technologies, DE

Stage: Istanbul, Level 2
AC-AC Converters
Chairperson: Ulrich Kirchenberger, STMicroelectronics, DE

14:30 **Design and Performances of Thyristor-Based Electronics On-Load Tap Changer**
Jiasheng Huang, EPFL, CH

14:50 **Three-Leg Operation of Back-to-Back Voltage Source Converters with Zero Voltage Switching**
Lou Scholtissek, Technical University of Munich, DE

15:10 **Enabling Direct AC-AC Power conversion in Induction Cooking with GaN BDS**
Veit Hellwig, Infineon Technologies, DE

15:30 – 17:00 **Poster/Dialogue Session & Coffee Time (Hall 4A)**

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GaN Devices and Driving

Chairperson: Thomas Neyer, Infineon Technologies, DE

PP249 **Comparative Switching Characterization of 650-V GaN Devices Using a Flexible HB Architecture**
Francesco Porpora, University of Cassino and Southern Lazio, IT

PP250 **The Influence of Field Plates on the Dynamic RON in GaN-Based Monolithic Bidirectional Switches**
Daniel Fugmann, Fraunhofer IAF, DE

PP251 **Reliability and Robustness for 3 Phase GaN IPMs in Motor Driver Applications**
Anthony Lodi, Texas Instruments, US

PP252 **Impact of Charge Carrier Trapping on GaN-HEMT Characteristics at Cryogenic Temperatures**
Martin Fein, Karlsruhe Institute of Technology, DE

PP253 **Gate Driver with Vgs Clamping and DESAT for Fast Short-Circuit Protection of SiC MOSFET Modules**
Hao Wang, Unversity of Rostock, DE

PP254 **Multi-Stage Short-Circuit Protection for GaN Devices**
Haitz Gezala, Mondragon University, ES

PP255 **Advanced Driver IC with IGSS Detection and Constant Current Driving for Inverter Applications**
Zhong Ye, Inventchip Technology, CN

PP257 **A Simple AC Bootstrap Circuit for Topologies using Bidirectional Switches**
Kennith Leong, Infineon Technologies, AT

PP258 **A Monolithic Dual-Output High-Voltage Linear Regulator for Self-Supplying GaN Power Stages**
Niklas Deneke, Leibniz University Hanover, DE

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Device Application

Chairperson: Katsuaki Saito, Nexperia, JP

PP259 **Robust Thermal Balancing Technology for Parallel Power Modules Applications**
Antoine Laspeyres, Mitsubishi, FR

PP260 **Concept Proposal for HV Hotswap Using Novel SiC-JFET for HVDC Power Distribution in AI Datacenters**
Maximilian Huber, Infineon Technologies, AT

PP261 **Super-Cascode Topologies Optimized for HF Insulation Diagnostics: A Multi-Stage Pulse Generator**
Christian Hüther, CRW Engineering, DE

PP262 **Research on Multi-Mode Control Strategy for High-Efficiency Four-Switch Buck-Boost Converter**
Jiahua Zhuang, Huazhong University of Science and Technology, CN

PP263 **Neglected Effects of Multicommutation in 2-Level SiC Inverters: Insights into Switching Behavior**
Marius Wegner, University of Rostock, DE

PP264 **Enabling Compact and Efficient Motor Drives for Robotics through GaN Half-bridge Power Stage**
Nicholas Oborny, Texas Instruments, US

PP266 **The Impact of Time Related Effective Output Capacitance of Power Device on ZVS Condition of DAB**
Cheng-Ming Shih, Infineon Technologies, TW

PP267 **Parallel Connection of GaN FET Switching Legs for Modular High-Current Device Applications**
Marco Palma, Efficient Power Conversion, IT

PP268 **Experimental Corner-Case Analysis for Paralleling GaN Gate-Injection Transistors Using Double-Pulse Testing**
Arunkumar Jayaraman, Bonn-Rhein-Sieg University of Applied Sciences, DE

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Packaging Materials and Technology

Chairperson: Uwe Schilling, Semikron Danfoss, DE

PP270 **Optimized Top-Side-Contacts for Minimizing Parasitic Inductances in GaN Based Power Module Designs**
Jesco Beyer, F&E, DE

PP271 **Design and Evaluation of Directly Attached SiC Bare Die Power Modules on Various Substrates**
Mario Wasner, University of Applied Sciences Munich, DE

PP274 **Effect of IMS Dielectric Thickness on Power Loss and Heat Dissipation in VHF Power Conversion**
Ioannis Nikiforidis, Imperial College London, UK

PP275 **Dielectric Breakdown Characteristics of Alumina-based Ceramic Thin Films Deposited by Aerosol Deposition Method**
Ichiro Ota, Daicel, JP

PP276 **Creepage Distances for High Voltages on PCBs revisited?**
Michael Schleicher, SEMIKRON Danfoss Elektronik, DE

PP277 **Are Conformal Coatings fit for 400 V and 800 V applications ?**
Alexander Beer, ELANTAS, DE

Power Cycling Reliability

Chairperson: Anton Z. Miric, Heraeus, DE

PP280 **Dependency of Large Area Substrate Solder Lifetime on Different Stress Parameters in Power Cycling**
Nils Zöllner, Infineon Technologies, DE

PP281 **Investigation of Aging Effects and Current Sharing in a SiC MOSFET Module with Baseplate**
Elena Mengotti, ABB Switzerland, CH

PP282 **Calibration of a 3D Thermo-Mechanical Simulation Model of a PCB-Mounted Power MOSFET Using Power Cycling Tests**
Patrik Suhaj, FEI STU, SK

PP283 **Refined Power Cycling Results for Reliability Studies of SiC-Inverters**
Robert Keilmann, Technical University Braunschweig, DE

PP284 **Test Bench for In-Situ Evaluation of SiC MOSFET Ageing in Automotive Applications**
Camille Leurquin, CEA, FR

PP285 **Challenges of Accelerated Power Cycling Tests at Increased Temperature Swings**
Vivien Grau, Robert Bosch, DE

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PP286 **Reliability and Lifetime Power Cycling Study of GaN HEMTs under Temperature Swings from 70°C to 100°C**
Xiangyu Wang, University of Bristol, UK

PP287 **Sample Size Determination for Power Cycling of Discrete IGBTs**
Patrick Heimler, Chemnitz University of Technology, DE

Intelligent Power Modules and Control

Chairperson: Mark M. Bakran, University of Bayreuth, DE

PP288 **Multilayer Power Module Design Using the Die on Lead Frame Technology and Integrated Driver PCB**
Christian Hennig, University of Applied Sciences Kiel, DE

PP289 **A 650-V SiC Intelligent Power Module for High-Efficiency Motor-Drive Systems**
Jaewook Lee, Infineon Technologies, KR

PP290 **Estimation of Switching Losses in Discrete and IPM MOSFETs for Inverter Design**
JongMu Lee, Alpha and Omega Semiconductors, US

PP291 **Integrated Drain-Capacitor-Self-Supply in a 350V PMIC for Fast Switching GaN-Based Half-Bridges**
Christoph Hillmer, Leibniz University Hanover, DE

PP292 **Embedded Implementation of a Thermal Coupling Matrix Using AURIX TC4x Parallel Processing Unit for xEV Applications**
Renke Han, Infineon Technologies, DE

PP293 **Mixed Signal Compact Controller Device for Type-C EPR Battery Charger and Power Supply Solutions**
Venkata Appanabhotla, Infineon Technologies, DE

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Power Electronics for E-Mobility I

Chairperson: Thiago Batista Soeiro, University of Twente, NL

PP294 **Multiport Planar Transformer Design and Optimization for Combined OBC and DC-DC Power Conversion in EVs**
Oscar Lucia, University of Zaragoza, ES

PP295 **Enabling More Power Dense and Durable 500 V Battery Systems with 750 V Compact, Overmolded Modules**
Brett Sparkman, Wolfspeed, US

PP296 **Ultra-Compact Discrete Seminconductor Package for Use in Automotive Power Electronics**
Lathom Louco, BorgWarner, US

PP297 **Hybrid Physics–AI Framework for Real-Time Junction Temperature Estimation in EV Power Semiconductor**
Chi Zhang, Volvo Cars, SE

PP298 **Minimizing Thermal Imbalances in Paralleled SiC MOSFETs: The Impact of High Switching Speeds on Tvj**
Tomas Reiter, Infineon Technologies, DE

PP299 **Development of the new 1200V SiC MOSFET-based transfer molded module for automotive applications**
Tony Kwon, Infineon Technologies, KR

PP300 **Commercialization of a Cost-Optimized Hybrid Si/SiC EV Inverter With Minimum Die Area**
Hao Chen, Guangzhou Chengxingzhidong Motor Technology, CN

Control Techniques in Electrical Drives

Chairperson: Spasoje Miric, University of Innsbruck, AT

PP301 **Modeling of Monolithic Bidirectional GaN HEMTs Using the Physics-Based ASM-HEMT Compact Model**
Aline Reck, University of Stuttgart, DE

PP302 **Simulation-Based Evaluation of Structural Switching Methods for AC Machines in the Field-Weakening Range**
Ellen Bünte, dSPACE, DE

PP305 **Energy-aware Stator-flux-oriented Induction Generator Control for Trailer-based Refrigeration Units**
Volker Staudt, Ruhr-University Bochum, DE

PP306 **Synchronous Optimal Pulse Patterns (SOPP) for PMSM electrical drives based on AURIX TC4x**
Marko Gecic, Infineon Technologies, DE

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PP307 **Enhancing Traditional Controllers with Reinforcement Learning Agents in Electric Drives**
Nandor Szecsenyi, Budapest University of Technology and Economics, HU

PP308 **Current Control in Asymmetrical Segmented Multiphase Machines Using Vector Space Decomposition**
Ann-Sophie Schmitt, Karlsruhe Institute of Technology, DE

Smart DC-Grid Control and Protection
Chairperson: Bernhard Strzalkowski, Consultant, DE

PP310 **Smart Circuit Breaker for Smart Low Voltage DC Power Grids**
Kenan Askan, Eaton Industries, AT

PP311 **Adaptive Control of Multi-Source Low Voltage DC Traction Systems**
Mohammad Rajabi Nasab, Polytechnic University of Bari, IT

PP312 **Coordinated Converter-Side and Feeder-Side Active ImpedanceControl for DC-Grid Stability**
Ehsan Asadi, Technical University of Kaiserslautern-Landau, DE

PP313 **Stability Considerations in DC Grids**
Peter van Duijsen, The Hague University of Applied Sciences, NL

PP314 **Harmonic Magnetic Field Energy Harvesting for Self-Powered Sensors in DC Grid**
Antonio Miguel Munoz Gomez, CIRCE Research Centre, ES

PP315 **Practical Implementation and Evaluation of Two Detection Algorithms for Series DC Arcs**
Emmeline Danckaert, KU Leuven, BE

Power Quality
Chairperson: Francesco Gennaro, STMicroelectronics, IT

PP316 **Improvement of a Single-Phase UPQC Performance by Using DE Metaheuristic for Tuning PI and SF-MR Controllers Gains**
Sergio Da Silva, Federal University of Technology - UTFPR, BR

PP317 **A Comparative Analysis of PFC Architectures in On-Board Chargers: Pursuing Zero Harmonics**
Sara Bourouga, STMicroelectronics, FR

PP318 **Introduction of a CHB-Inverter/SSBC MMCC in a Four-Leg Converter Configuration**
Alexander Bode, Technical University of Darmstadt, DE

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PP319 **UIS Test Setups for Characterization of Power MOSFETs**
Sabrina Ulmer, Robert Bosch, DE

Capacitors and Resistors
Chairperson: Thomas Ebel, University of Southern Denmark, DK

PP320 **High Temperature Capacitors for eMobility - Technology Overview**
Adel Bastawros, SABIC, US

PP321 **Application Oriented Aging for AC- and DC-Capacitors in Photovoltaic Inverters**
Christian Lottis, University of Applied Sciences Bonn-Rhein-Sieg, DE

PP322 **High Temperature Metallized Film Capacitors Utilizing Low Dissipation Factor (LDF) Nanolayered Film**
Mason Wolak, Peak Nano, US

PP323 **Integrated High Voltage Resistors for Voltage Monitoring in Isolated and Non-Isolated Systems**
Esteban Garcia, Texas Instruments, US

PP324 **Enabling Precision Current Measurements for Control in Modern Grid Systems**
Shreyankh Krishnamurthy, Bourns, DE

PP325 **Low-Profile, High-Current Vertical Shunt Resistor: Development and Packaging for Power Modules**
Thiyu Warnakulasooriya, Nagoya University, JP

PP326 **A comparative study of SteloraTM EPN vs. isotactic polypropylene used in film capacitors**
Thomas Pichler, Borealis, AT

Advanced Sensors
Chairperson: Wolfram Teppan, LEM INTERNATIONAL, CH

PP327 **Inductive Long-Range Position Sensor Integrated on Flexible Substrates**
Jay Khazaai, Bourns Electronics, DE

PP328 **LED Powered Rotor Telemetry System with Simultaneous Data and Energy Transmission**
Raphael Beyerle, Technical University of Vienna, AT

PP329 **Advanced Current Source for Thermal Impedance Measurement with Intergrated Filters and Data Recorder**
Jan Fuhrmann, University of Rostock, DE

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PP330 **Smart Compliance Validation of IEEE 1547.1 and EN 50549 for Grid-Tied Inverters using Oscilloscopes**
Vivek Shivaram, Tektronix, IN

PP331 **In-Depth Analysis of Multilevel Battery Systems with Multi-Channel High-Performance Data Acquisition**
Lars Leister, Karlsruhe Institute of Technology, DE

PP332 **Low-Cost 2-Wire Interface for Condition Monitoring of Sensorless Controlled Motors**
Jens Onno Krah, Cologne University of Applied Sciences, DE

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Thursday, 11 June 2026

08:15 **Community Coffee**

Stage: Tokio, Level 3

08:45 **Keynote**
TransformerLess Partial Power Converters. Disruptive Solutions for Reduction of Losses, Cost, Volume
Thierry Meynard, Laplace – CNRS, FR
Chairperson: Philippe Ladoux, University of Toulouse, FR

09:30 **Coffee Break**

Stage: Tokio, Level 3
Special Session: Power Continuity vs. Power Quality – AI Data Center
Chairperson: Lorenzo Giuntini, ABB, CH

09:50 **8 kW SiC/GaN-Based PFC Design with MCM Operation Achieving >99% Flat Efficiency for AI Servers**
Marco Torrisi, STMicroelectronics, IT

10:10 **12 kW Single Phase AC/DC Power Supply for Highly Dynamic AI Loads**
Martin Wattenberg, Infineon Technologies, AT

10:30 **UPS Front-end Converter as Shunt Active Filter for Power Quality Improvement in Data Centers**
Rocco Luciano Grimaldi, ABB, CH

10:50 **Comparison of 1.2 to 3.3 kV Silicon Carbide Power Modules for Solid-State Transformer Applications**
Christopher D. New, Wolfspeed, US

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Stage: St. Petersburg, Level 2
Special Session: DFG Priority Program "Energy Efficient Power Electronics – GaNius"
Chairpersons:
Andreas Lindemann, Otto von Guericke University Magdeburg, DE
Sibylle Dieckerhoff, Technical University of Berlin, DE

09:50 **A Novel Multistage Gate Driver for GaN GITs**
Céline Lawniczak, TU Dortmund, DE

10:10 **Analysis of the Temperature- and Voltage-Dependencies of Gate Impedance in Different GaN Devices**
Andreas Bäumler, University of Bayreuth, DE

10:30 **Measurement-Based Parameter Extraction for ASM-HEMT Compact Modeling of Power GaN-HEMTs**
Philipp Swoboda, Karlsruhe Institute of Technology, DE

10:50 **Design and Practical Verification of a Highly Efficient Resonant LLC-Converter**
Jonas Schlindwein, Technical University of Berlin, DE

Stage: Shanghai, Level 3
Power Electronics for E-Mobility II
Chairperson: Marc Cousineau, University of Toulouse, FR

09:50 **Tiny Power Box 2: Part 1 - Topology Design for a High Power Density Bidirectional OBC with Integrated DC-DC**
Franz Vollmaier, Silicon Austria Labs, AT

10:10 **Optimised PWM Schemes and Voltage Distribution in Four-Level Flying Capacitor Inverters for EVs**
Bharadwaj Raghuraman, ETH Zurich, CH

10:30 **Optimized Gate Control Strategy of Si/SiC Hybrid Switches for Electric Drive Inverters**
Niklas Seltner, Chemnitz University of Technology, DE

10:50 **Next Generation SiC Inverter with Low Power Loop Inductance and Variable Gate Drive Strength**
Andreas Apelsmeier, BorgWarner Systems Engineering, DE

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Stage: Kyjiw, Level 2

WBG Application and Package

Chairperson: Bernd Eckardt, Fraunhofer IISB, DE

09:50 **Inductance-optimized Power Module Concept: Balance di/dt Symmetry and Losses by Leadframe Overlap**
Michael Fügl, Infineon Technologies, DE

10:10 **All-SiC Power Modules with 3rd-Generation Trench-Gate SiC-MOSFET**
Taku Takaku, Fuji Electric, JP

10:30 **Off-State Gate Voltage Modulated Reverse Recovery of SiC Trench Power MOSFETs**
Michael Schlüter, Infineon Technologies, DE

10:50 **Advanced Three-Phase GaN-Based Power Micro-Module for Motor Drives in Robotic Hands**
Marco Palma, Efficient Power Conversion, IT

Stage: Seoul, Level 3

Advanced DC-DC Converters

Chairperson: Christopher Kocon, iDEAL Semiconductor Devices, US

09:50 **Innovative Bidirectional DCDC Partial Power Converter for the Battery Backup Units in AI Datacenters**
Rafael Antonio Garcia Mora, Infineon Technologies, AT

10:10 **Steady-State Model and Operating Analysis of an MMC-Based Multiport DC–DC Converter**
Martin Votava, Christian-Albrechts-University of Kiel, DE

10:30 **Transformer-Centered Design of an Asymmetrical Half-Bridge Converter for an ISOP-System**
Daniel Breidenstein, Friedrich-Alexander University of Erlangen-Nuremberg, DE

10:50 **High Power Density CLLC-DCX Converter with >250 kW Reaching >99 % Efficiency at 200 kHz**
Jörg Bornwasser, Fraunhofer ISE, DE

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Stage: Istanbul, Level 2

IGBT Technologies

Chairperson: Thomas Basler, Chemnitz University of Technology, DE

09:50	**200 A 1200 V IGBT with Optimized Carrier Confinement and Trench Design for Automotive Applications** Tommaso Stecconi, SwissSEM Technologies, CH
10:10	**6500 V-Class PPI Using 2nd Generation Trench-IEGTs** Ryohei Gejo, Toshiba, JP
10:30	**Development of the 8th Generation 1200V NX Series Featuring 1000A Current Rating** Kota Ohara, Mitsubishi Electric, JP
10:50	**Newly developed 1,200V 8th Generation IGBT Module for Industrial Applications** Junya Kawabata, Fuji Electric, JP

11:15 – 12:45 **Poster/Dialogue Session & Coffee Time (Hall 4A)**

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SiC and GaN Device Modeling

Chairperson: Ulrich Kirchenberger, STMicroelectronics, DE

PP333 **SiC SPICE Model Refinement via Uncertainty Analysis and Data Fusion for Aircraft Applications**
Ngoc Nam Pham, Brno University of Technology, CZ

PP334 **Applicability of the CoolSiC 1200 V G2 Compact Models Across a Wide Range of Applications and Operation Conditions**
Andreas Huerner, Infineon Technologies, DE

PP335 **Simulating Active Short Circuit Characteristics of SiC MOSFETs Using Compact Models**
Qing Sun, Infineon Technologies, DE

PP336 **Calibration of Electrical Models for SiC MOSFET and Diode Using Neural Network**
Mohammed Amira, University of Technology of Bratislava, SK

PP337 **A Method for Modeling the Switching Process of GaN Devices Considering Crosstalk**
Renhe Shao, Huazhong University of Science and Technology, CN

PP338 **Simulation-Based Sensitivity Analysis of Switching Losses in a GaN-Half-Bridge**
Benedikt Kohlhepp, Technical University of Berlin, DE

PP339 **A Novel Physics-Based SPICE Model for 1.2kV Vertical GaN**
Kan Jia, onsemi, CN

PP340 **Performance Evaluation of AlN/AlGaN/AlN HEMTs for High-Voltage Power Switching Applications**
Aadil Anam, University of Southern Denmark, DK

High Power Density Designs II

Chairperson: Shiori Idaka, Mitsubishi Electric, DE

PP341 **SiC MOSFETs in Parallel Switching for MW Inverter Applications**
Christian Bender, Siemens, DE

PP342 **Warpage Relaxation of Pre-Bent Cu Baseplates with Grooves During Reflow in Power Modules**
Seunghyun Won, Seoul National University, KR

PP343 **Power Semiconductor Assembly to Boost Power-Density in Commercial Vehicle Drivetrain Designs**
Martin Schulz, Littelfuse, DE

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PP344 **DBC-Integrated PCB-Embedded GaN Power Module with Double-Sided Cooling for Improved Performance**
A Yeong Choi, Seoul National University, KR

PP345 **Effect of Resin-Insulated Substrate Application on the Cooler Joint in Automotive Power Modules**
Tsubasa Watakabe, Fuji Electric, JP

Power Electronic Components Reliability
Chairperson: Hans-Günter Eckel, University of Rostock, DE

PP347 **Benchmarking Press-Fit Zones in Power Electronics: Linking Geometry and Reliability**
Akshata Ankush Sangle, Technical University of Kaiserlautern-Landau, DE

PP348 **Influence of DC-Link Voltage and Case Temperature on Short-Circuit Robustness of SiC MOSFETs**
Krisztián Kovács, Slovak University of Technology, SK

PP349 **DC AC Operating Life Test for 650V GaN FETs Method and Results**
Sebastian Klötzer, Nexperia, UK

PP351 **HV-H3TRB Test on SiC Power Modules: Boosting Reliability & Understanding Failure Mechanisms**
Felix Fraas, Li Auto, DE

PP352 **Influence of Substrate and Coating Variations on Crack Propagation in Silver-Sintered Wide Band Gap**
Benjamin Fabian, Heraeus Electronics, DE

PP353 **A Hybrid Chemical–Mechanical Reinforcement for EMC–AMB Interfacial Reliability in SiC Power Modules**
Xinyu Sun, Li Auto, CN

PP354 **SiC MOSFET Gate Switching Stress with In-Situ Threshold Voltage Monitoring and Self-Heating Analysis**
Diane Bonkoungou, CEA, FR

PP355 **Online Condition Monitoring of SiC Power Modules using Turn-Off Delay Time and Neural Networks**
Victor Golev, University of Applied Sciences Kiel, DE

PP356 **Experimental Validation of Thermal Degradation Detection in Solder Joints of Passive Components**
Christoph Schmickler, TU Dortmund University, DE

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Intelligent Gate Drive Units

Chairperson: Klaus F. Hoffmann, Helmut Schmidt University, DE

PP357 **A Comprehensive Comparison of Resonant Gate Drive Concepts**
Muhammad Umair Munir, Graz University of Technology, AT

PP358 **Counteraction of Inductance-Based Passive Current Balancing Methods for Paralleled GaN Devices**
Tianyu Li, Otto von Guericke University Magdeburg, DE

PP359 **Design and Integration of a Compact Half-Bridge Gate Driver for 3.3 kV SiC MOSFET Modules**
Priyanka Ghosh, Helmut Schmidt University, DE

PP360 **Adaptive Gate Shaping using Gate Driver Parameter Identification and Drain Current Sensing for 3-Phase Inverters**
Pushkar Kulkarni, Robert Bosch, DE

PP361 **Intermediate Impedance Step Active Gate Driving Feature Analysis and Optimization**
Lorenzo Leijnen, NXP Semiconductors, FR

PP362 **Single-Profile Active Gate Driving of SiC Modules Across the Full AC Current Range**
Pramit Nandi, University of Bristol, UK

Low Power AC-DC and DC-AC Converters II

Chairperson: Daniel Chatroux, CEA-LITEN, FR

PP363 **Experimental Characterization of Saturable Ferrite Filter Inductors for Three-Phase Inverters**
Marius Kaufmann-Bühler, Technical University of Berlin, DE

PP364 **A Unidirectional Single-phase PFC with Active Power Decoupling**
Giorgio Valente, Cadence Design Systems, IT

PP365 **High-Efficiency 22 kW Bidirectional Battery Charger Based on ACEPACK SMIT 1200 V SiC Power Modules**
Francesco Gennaro, STMicroelectronics, IT

PP366 **Energy Buffer Circuit for Hold-up Extension and Grid Current Shaping Purposes in AI Data Centers**
Alex Rossi, Infineon Technologies, AT

PP367 **Novel Cost-Efficient Three-Phase PFC-Rectifier Topology on a Commercial Scale**
Cem Karci, University of Applied Sciences Bielefeld, DE

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PP368 **SiC-Based DC-AC Power Conversion Systems: A Path to Modular, Compact, and Efficient Designs**
Suresh Thangavel, Infineon Technologies, DE

PP046 **Dying Gast Power Design for Communication Networks: Evaluation of Existing Topologies**
Willy Stephen Tounsi Fokui, Teleconnect, DE

Traction in E-Mobility

Chairperson: Mark M. Bakran, University of Bayreuth, DE

PP370 **Scalable Power Module for Automotive Traction Inverter with High Power Density using Power Chip Embedding**
Achim Endruschat, Vitesco Technologies, DE

PP371 **Compact and Efficient Integrated Bias Supply Enabling Active Gate Drive Voltage Control**
Fabrizio Dicone, Allegro Microsystem, IT

PP372 **A Virtual Prototype eTRUCK Inverter Investigation with HybridPACK HD**
Olcay Korkmaz, AVL Software and Functions, DE

PP373 **A Cost-Optimized Approach to xEV Traction Inverter Design Using Discrete SiC-MOSFETs**
Dongsoo Kim, Infineon Technologies, KR

PP374 **Development of A Power Control Unit Built Into e-Axle For the 6th.Generation Plug-in Hybrid System**
Satoshi Yasuda, Toyota Motor, JP

PP375 **Comprehensive Comparison of Si IGBTs and SiC MOSFETs in Automotive Exciter Module Applications**
Saad Khalid, Robert Bosch, DE

PP376 **Active Short Circuit Strategies Considering Hybrid Converter Topologies with Normally-On Devices**
Tim Ringelmann, University of Bayreuth, DE

PP377 **xEVCap Next Level: Capacitor Bank and Thermo-Mechanical Evaluation of a Powertrain Inverter**
Alberto Espinar, TDK Electronics, DE

PP378 **Impact of Soft Reverse-Recovery in 1200 V SiC MOSFETs on xEV Traction Inverter Efficiency and Performance**
Hansol Seo, onsemi, KR

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Digital Drives and Motion Control
Chairperson: Jens Schmenger, Siemens, DE

PP379 **Digital Controller Implementation for a Multiphase Electric Drive Testing Platform using RCP tools**
Ane Gelbentzu-Arriaga, University of the Basque Country, ES

PP380 **Sensorless High Frequency Injection (HFI) Field-Oriented Control (FOC) for Maximum Torque at Zero Speed in Power Tools and Other Industrial Motor Applications**
Christoph Stangl, Allegro MicroSystems, DE

PP382 **Quantifying the Efficiency Advantage of Cascode GaN FETs in Variable-Speed Drives**
Marco Ruggeri, Renesas, DE

PP383 **Miniaturization in Low Voltage Motor Drives Through Integration and Flip Chip Power Packaging**
Nicholas Oborny, Texas Instruments, US

PP384 **Automation Drives built using Intellectual Property Provided by Microprocessor Vendors**
Joschka Laufs-Randerath, Cologne University of Applied Sciences, DE

PP385 **Multi-Axis Safe Motion based on Standard Hardware with Diverse Algorithm Processing**
Jens Onno Krah, Cologne University of Applied Sciences, DE

Battery Management and Storage
Chairperson: Petar J. Grbovic, University of Innsbruck, AT

PP386 **Viability of Modular Battery Systems: Cost-Of-Storage Analysis**
Manex Aizpurua, Mondragon University, ES

PP387 **Initial Scaled Demonstrator of an Off-Grid Electric Vehicle Charging Station**
Yazan Al-Wreikat, University of Southampton, UK

PP388 **Residual Magnetizing Current Elimination in MAB-based Active Balancing by Multiwinding Planar Transformer Design**
Francesco Porpora, University of Cassino and Southern Lazio, IT

PP390 **Isolated Reconfigurable Battery for Integrated Cell Balancing and Conversion in Residential Storage**
Martin Votava, Christian-Albrechts-University of Kiel, DE

PP391 **Cell-Level 1s-MMC Topology for Intelligent Battery Management and Enhanced Active Balancing**
Rakshith Satheesh, Robert Bosch, DE

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PP392 **Lithium-Ion Battery Degradation Diagnostics: Influence of Cell Balancing Method**
Sergio Fernandez Gonzalez, Mondragon University, ES

PP393 **A Thermal Zone Based Hybrid Balancing Strategy for Battery Storage Systems**
Rita Chen, Hong Kong Applied Science and Technology Research Institute, HK

Micro Grids and Grid Stability
Chairperson: Thomas Brückner, University of the Bundeswehr Munich, DE

PP394 **Conductive AC-Charging of a Moving Platoon Utilizing State-of-Charge Dependent Droop Control**
Jan Wiegard, University of Paderborn, DE

PP395 **The Cost of Simplified Battery Degradation Models in Microgrid Sizing**
June Urkizu, Mondragon University, ES

PP396 **Transient Coordination in Weak Multi-Feeder AC Networks WithLow-Voltage Series Modules**
Ehsan Asadi, Technical University of Kaiserslautern-Landau, DE

PP397 **High-Dynamics Measurement System for Impedance Characterization of Grid-Forming Converters**
Lucas Ehrlich, Karlsruhe Institute of Technology, DE

PP398 **Physics-Guided Machine Learning for Fault Protection in LVDC Microgrids**
Neeraj Sanjay Mogal, Technical University of Kaiserlautern-Landau, DE

Current Sensors and Current Measurement
Chairperson: Francisco Javier Azcondo, University of Cantabria, ES

PP399 **Pushing Miniaturisation in Current Sensing: Ultra-Compact Mini-M-Shunts for Even Faster Transients**
Hauke Lutzen, University of Bremen, DE

PP400 **High-Bandwidth Magnetic Current Sensors: Fast Protection and Control in Modern Power Conversion**
Sudhir Nagaraj, Allegro MicroSystems, US

PP401 **In-Phase Current Sensing: Error and Performance Analysis**
Michael Schmidt, Infineon Technologies, AT

PP402 **Comparison and Calibration of Medium-Voltage Oscilloscope Probes Using Transmission Line Pulses**
Chad Fortin, University of Alabama, US

PP403 **Clip-On Current Sensor for Price-Sensitive Markets**
Gerhard Wessels, Bourns Electronics, DE

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Coupled Inductors and Transformers

Chairperson: Stéphane Lefebvre, CNAM - SATIE, FR

PP405	**Comparative Evaluation of Electrical Core Loss Measurement Methods** Jamshid Kavianpour Sangeno, Graz University of Technology, AT
PP406	**A Fast Analytical Method for Calculating Leakage Inductance in Interleaved Toroidal Transformers** William Bourne, University of Oxford, UK
PP407	**Evaluation of Magnetic Integration in Context of Halfbridge Paralleling** Minjia Chen, Technical University of Braunschweig, DE
PP408	**Comparative Study of PCB-Integrated Air-Core Coupled Inductors for Interleaved Converters** Javier Ballestin Fuertes, CIRCE, ES
PP409	**Volume Optimized Magnetic Components for DC-DC Converters in Fuel Cell Vehicles** Michael Schmidhuber, SUMIDA Components & Modules, DE
PP410	**Novel All-In-One TLVR Construction for AI and Server Applications** Jan Zimon, YAGEO Group, DE

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Stage: Tokio, Level 3
Power Electronics for E-Mobility III
Chairperson: Silvio Colombi, ABB, CH

14:00	**Quantifying the Impact of a Reduced Stray Inductance to the SiC MOSFET Module-/Inverter Current** Christian Schweikert, Infineon Technologies, FR
14:20	**Efficiency and Cost Evaluation of 300 kW SiC Inverter Topologies for Battery Electric Vehicles** Christoph Sachs, University of Stuttgart, DE
14:40	**Si/SiC Fusion Switch for Automotive Traction Inverters with 1200 V Blocking Capability** Tomas Reiter, Infineon Technologies, DE
15:00	**Distributed and Fault-Tolerant State-of-Charge (SoC) Balancing applied to CMCs** Daniel Galvis, LAPLACE Laboratory, FR

Stage: St. Petersburg, Level 2
SiC MOSFETs II
Chairperson: Nando Kaminski, University of Bremen, DE

14:00	**Next-Generation High-Performance and Robust 1200V SiC Trench MOSFETs** Karl Oberdieck, Robert Bosch, DE
14:20	**SiC Trench-gate Superjunction MOSFET in Low Inductive Discrete Package for EV Inverter Applications** Nico Fontana, Infineon Technologies, AT
14:40	**Mitigating Snap-Off during Reverse Recovery of SiC MOSFET Body-Diode** Abhishek Maitra, Chemnitz University of Technology, DE
15:00	**Efficient High-Frequency Inverter Operation of Power Module with Advanced SBD-Embedded SiC MOSFET** Shunsuke Asaba, Toshiba, JP

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Stage: Shanghai, Level 3
Data Center DC-DC Converters
Chairperson: Johannes Konert**,** Texas Instruments, DE

14:00	**Eliminating Magnetic Components in a 48-to-12V Switched Tank Converter for Data Center Applications** Filippas Sotirios, University of Patras, GR
14:20	**Distributed Current-Mode Control of a Multiphase DC-DC Converter for Space µP PoL Applications** Marc Cousineau, University of Toulouse, FR
14:40	**Energy Buffer to Meet the Peak Power Demands in AI server PSUs without Disturbing the Grid** Sam Abdel-Rahman, Infineon Technologies, US
15:00	**12 kW PSU for AI Servers featuring 113W/in3 with integrated Peak Shaving and Hold-up Functionalities** Sam Abdel-Rahman, Infineon Technologies, US

Stage: Kyjiw, Level 2
Novel AC-DC Converters
Chairperson: Jacques Laeuffer, Dtalents, F

14:00	**Single-Stage and Single-Phase Isolated Resonant AC-DC-Converter Using Integral Cycle Mode Control** David Bohne, Cologne University of Applied Sciences, DE
14:20	**Variable-Inductor-Controlled Integrated LLC–PFC Converter for Wide Output Regulation** Alireza R. Ghanbari, V-Research, AT
14:40	**Highly Efficient 34.5 kVA SiC-Based Power Amplifier with 20 kHz Large-Signal Bandwidth** Anton Gorodnichev, Fraunhofer IEE, DE
15:00	**High Power Density 18kW Three-Phase PSU for AI Server and Data Center with Hold-up and Current Shaping** Alex Rossi, Infineon Technologies, AT

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Stage: Seoul, Level 1
Die Attach Materials
Chairperson: Jacek Rudzki, Semikron Danfoss, DE

14:00	**Pressure-Less Sintering Copper Paste** Hideo Nakako, Resonac, JP
14:20	**Innovative Approach for Transient Liquid Phase Soldering (TLPS) with Solder Preforms for Power Module Packaging** Ryan Mayberry, Indium, US
14:40	**Thermal Characterization of SLID Bonding Die-Attach in IGBT Module Packaging Application** Shenyi Liu, Aalto University, FI
15:00	**Bonding Properties and Reliability Evaluation of Cu Sinter Paste for Heatsink Attach** Yuki Shirakawa, Mitsui Kinzoku, JP

Stage: Istanbul, Level 2
Capacitors and Current Sensors
Chairperson: Petar Ljushev, Danisense, DK

14:00	**Investigation of Retrofittable GHz Bandwidth Current Sensors for Evaluation of GaN and SiC Devices** Sebastian Klötzer, Nexperia, DE
14:20	**Next Generation 200C Film Capacitors for Optimized Power Conversion Solutions in Harsh Environments** Michael Brubaker, Advanced Conversion, US
14:40	**High-Temperature-Stable Ultra-Thin-Film Capacitors** Bartosz Gackowski, University of Southern Denmark, DK
15:00	**LC-Filter Circuit with Periodic Time-Modulated Capacitance** Norbert Seliger, Rosenheim University of Applied Sciences, DE