

International Exhibition & Conference for Power Electronics, Intelligent Motion, Renewable Energy and Energy Management (PCIM Europe 2026)

Nuremberg, Germany
9-11 June 2026

Volume 1 of 5

ISBN: 979-8-3313-3925-8

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2026) by Mesago Messe Frankfurt GmbH
All rights reserved.

Printed with permission by Curran Associates, Inc. (2026)

For permission requests, please contact Mesago Messe Frankfurt GmbH
at the address below.

Mesago Messe Frankfurt GmbH
Rotebuehlstrasse 83-85
70178 Stuttgart Germany

Phone: 49 711 619 460
Fax: 49 711 619 4690

info@mesago.com

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

VOLUME 1

KEYNOTE

K01	The GaN Evolution: Lateral, Vertical, and Bidirectional — What's Next?	N/A
	<i>Michael Basler</i>	
K02	AI Meets Power Electronics: Are We There Yet?	N/A
	<i>Uwe Drofenik</i>	
K03	TransformerLess Partial Power Converters. Disruptive Solutions for Reduction of Losses, Cost, Volume	N/A
	<i>Thierry Meynard</i>	

GAN DEVICES

OP001	1.2 kV Integrated Power Switch with PSJ GaN, Si IGBT and SiC Diode.....	4
	<i>Alireza Sheikhan</i>	
OP002	SmartGaN: First Smart Cut-Based Engineered Substrate for High-Performance GaN Power Devices	10
	<i>Youssef Hamdaoui</i>	
OP003	3GaN-HEMTs Vs. GaN-"Bricks" – a Device Concept Comparison	16
	<i>Richard Reiner</i>	

ADVANCED COOLING

OP004	Multi Layered Mo Effects on the Spacer for Double Sided Cooling Power Module	24
	<i>Byeongchan Kim</i>	
OP005	Validated Electro-Thermal Methodology for Transient Current Capability in IGBT Power Modules	30
	<i>Ludovica Longo</i>	
OP006	Loop Heat Pipe Technology for Enhanced Cooling in Power Electronics	40
	<i>Olivier De Laet</i>	

ADVANCED CONTROL METHODS FOR POWER CONVERTERS

OP007	Stability of Inner-Loop Only Control of Single Stage AC-Link Converter for OBC Applications.....	48
	<i>Rami Troudi</i>	
OP008	Novel Method for Power Supply of AI Server Racks (Hybrid Optimal Trajectory Control for LLC)	58
	<i>Ayoub Ziraoui</i>	

OP009	a Closed-Loop Dead Time Control Method Based on di/dt Peak Detection.....	70
	<i>Hongming Zhao</i>	

MEASUREMENT TECHNIQUES AND METHODS I

OP010	Automated Deskew of Double-Pulse Measurements for Precise Switching Loss Calculation.....	75
	<i>Philipp Rehlaender</i>	
OP011	Emulating SiC Modules Using Electrically Representative PCBs to Investigate Die-Level Current Phenomena	83
	<i>Matt Appleby</i>	
OP012	500 MHz Magnetic-Field-Gradient-Based Sensing of Die Currents in SiC Power Modules.....	93
	<i>Jiaqi Yan</i>	

CHARGING TECHNOLOGIES

OP013	Techno-Economic Sizing of a Renewable Hybrid Energy System for an EV Charging Station.....	103
	<i>Maria Nunez</i>	
OP014	Implementation of a Power Gyrator for Electric Vehicle Chargers	112
	<i>Luis Ruiz Chamorro</i>	
OP015	Multiport Single-Transformer Power Converter Enabling Onboard Charging and DC-DC Conversion in EVs.....	122
	<i>Oscar Lucia</i>	

ADVANCED MODELING AND DESIGN TECHNOLOGIES FOR ELECTRICAL DRIVES

OP016	Determination of Parasitic Capacitances in a Motor Using Ansys Maxwell	127
	<i>Muhammad Ahmad Masood Gill</i>	
OP017	Evaluation of PWM Techniques for Reduced Powertrain Losses and NVH.....	134
	<i>Giorgio Valente</i>	
OP018	Model Reference Adaptive Control of Permanent Magnet Synchronous Machines Using Exact Discretization.....	142
	<i>Kristof Bandy</i>	

POWER ELECTRONICS IN TRANSPORTATION

OP019	Battery Integration in Railways: Review of Power Converter Topologies and Their Industrial Readiness.....	149
	<i>Saad Ahmad</i>	
OP020	Shared DC-Link Optimization for Paralleled Inverters Using Phase-Shifted PWM.....	159
	<i>Axel Wagret</i>	
OP021	Towards Reliability-Oriented Mission Profiles for Electric Aircraft Propulsion Converters	169
	<i>Jeff Kugener</i>	

ADVANCED MATERIALS AND TECHNOLOGIES

OP022 Motor and Inverter Fault Detection Using Current Signature Analysis for GaN-Based Motor Drives	178
<i>Holger Kapels</i>	
OP023 Optimized High Frequency Cable–Motor Impedance Parameter Design for Voltage Stress Mitigation	186
<i>Muhamad Usman Sardar</i>	
OP024 Microclimate Inside of Power Semiconductor Modules and Their Surrounding Cabinet During Operation.....	192
<i>Wilfried Holzke</i>	

THERMAL MONITORING AND MODELING

OP025 Sensor Virtualization to Leverage Cost Savings in Realtime Electric Machine Temperature Monitoring.....	201
<i>Christian Hahn</i>	
OP026 Temperature Estimation Model for EV Drive Unit	206
<i>Andreas Sidorow</i>	
OP027 is Transient Thermal Network Model Applicable Under Short-Circuit Conditions?.....	213
<i>Chengmin Li</i>	

INTELLIGENT GATE DRIVERS II

OP028 Low-Complexity Sub-Nanosecond Active Gate Driver for SiC Modules with IV-Trajectory Optimisation.....	222
<i>Matt Appleby</i>	
OP029 a Novel, Adaptive Closed-Loop Dead-Time Control for High Voltage SiC-MOSFET Based Power Converters.....	230
<i>Michael Rauh</i>	
OP030 Three-Channel Gate Monitoring Driver for SiC MOSFET Power Modules with Redundant Fault Detection	240
<i>Mathis Picot-Digoix</i>	

BIPOLAR POWER DEVICES

OP031 New 6.5 kV IGCT and Fast Recovery Diode Product Set with Outstanding Safe Operation Area Performance	247
<i>Umamaheswara Reddy Vemulapati</i>	
OP032 1.2 kV Fast Recovery Diode with Stable Turn-Off Under Harsh Voltage and Temperature Stress	252
<i>Hadi Hematian</i>	
OP033 on Coupled Gate Drive Units for Paralleled IGBTs and Their Effect on Dynamic Current Mismatches.....	257
<i>Lukas Tomforde</i>	

CUTTING-EDGE DEVELOPMENTS IN HIGH-PERFORMANCE DRIVES

OP034 Integrated Interphase Transformer and Dv/Dt Filter Analysis for Interleaved SiC Motor Drives	267
<i>Tiago Jappe</i>	
OP035 Artificial Intelligence Based Diverse Redundancy for Safety Critical Automotive Motor Control Applications.....	273
<i>Mihail Jefremow</i>	
OP036 Safety-Compliant DC-Link Surge Suppression with Integrated Diagnostic in 48 V Automotive Drives	282
<i>Nima Saadat</i>	

SPECIAL SESSION: ARTIFICIAL INTELLIGENCE IN POWER ELECTRONICS

OP037 Environment-Oriented Predictive Maintenance for Distribution Transformers	291
<i>Alper Çoban</i>	
OP038 AI-Enhanced Energy Networks: Enabling Smart Power Management for Software-Defined Vehicles.....	301
<i>Hardy Stoelben</i>	
OP039 Accelerating SiC Power Module Design Via AI Enabled Web Based Virtual Prototyping	309
<i>Yanfeng Shen</i>	
OP040 the Silent Enabler: WBG Power Technology & Packages for the AI-HPC Revolution	316
<i>Giuliano Cassataro</i>	
OP041 AI and Electronics – Trends, Challenges, and Urgent Opportunities	321
<i>Alexander Gerfer</i>	

WBG RELIABILITY

OP042 Silicon Carbide Reliability During 960V DC Link Capacitor Active Discharge.....	328
<i>Daniel Norwood</i>	
OP043 Comparative Study of Dynamic Gate Stress Effects on SiC MOSFETs	335
<i>Akihiro Koyama</i>	
OP044 Novel Test Concept for Active Short-Circuit Characterization	340
<i>Mohamed Alaluss</i>	
OP045 Reliability Assessment of AlGaN/GaN MISHEMTs Under Self-Heating and Current Collapse Effects.....	350
<i>Nilesh Kumar Jaiswal</i>	
OP046 Methodology for Temperature Calibration and Power Cycling Testing of Schottky p-GaN HEMTs	356
<i>Gengqi Li</i>	

ADVANCED PACKAGING

OP047 Long-Term High-Temperature Operation of Liquid-Metal Interconnects on SiC MOSFETs.....	364
<i>Nick Baker</i>	
OP048 Novel 3D SiC Power Module with Epoxy-Resin Insulated Substrate and Pressure-Less Ag Sintering TIM.....	372
<i>Shoichiro Otani</i>	
OP049 Next Generation 3.3kV LV LinPak Si Power Module with 3AC Design for Traction Applications.....	378
<i>Slavo Kicin</i>	
OP050 3 Level TNPC in a SEMITRANS 20 Package for LV Power Drives	385
<i>Jürgen Engstler</i>	
OP051 Fabrication Technology for Hybrid Ceramic/PCB Embedded SiC MOSFET Halfbridge Pre-Packages	392
<i>Niko Haag</i>	

HIGH POWER CONVERTERS I

OP052 Hybrid Symmetrizing Voltage-Clamp for Voltage Balancing of Two-Level Operated 3L-NPC Topology	401
<i>Amin Darvishzadeh</i>	
OP053 a Novel Compact High-Power PCB-Based Transformer Geometry for Electric Aircraft Applications.....	410
<i>Lufan Zhou</i>	
OP054 Rogowski Coil with Passive Optical Output for Short-Circuit Protection of MMC Submodules	418
<i>Ali Sharaf Addin</i>	
OP055 Reduction of Passive Components in Quasi-2-Level Operated MMC for MVDC DAB Converter.....	429
<i>Jose Andres Aguilar Croston</i>	
OP056 B-TRAN MMC HVDC: An Efficient and Low-Cost MMC HVDC with Half-Bridge Submodule and DC Fault Blocking.....	439
<i>Bhuwenesh Gupta</i>	

ACTIVE FILTERS AND ELECTROMAGNETIC COMPATIBILITY

OP057 Investigation of Conducted EMI in a 3-Phase Induction Motor Drive Under Different Predictive Control Methods.....	447
<i>Gregory Almeida</i>	
OP058 Improving Transient Performance on Server and AI Applications	457
<i>Jose Luis Silva Perales</i>	

OP059	Advanced Power Quality Control in Industrial Power Grids: AI-Integrated Active Filtering	463
	<i>Philipp Wissmann</i>	
OP060	a Novel Active dV/dt Filter for Common-Mode Current Reduction in SiC-Based Motor Drives	472
	<i>Felix Schulte</i>	
OP061	Sensorless Active EMI Filtering Via Real-Time Estimation of Common-Mode Dynamics.....	479
	<i>Mohammadreza Bagheribavaryani</i>	

INDUCTORS AND TRANSFORMERS

OP062	Optimal Design of High Leakage Inductance Integrated Planar Transformer with Interleaved Windings.....	488
	<i>Hamza Ahmad</i>	
OP063	Design of an Integrated Three-Port Fractional-Turn Planar Transformer for a Redundant LLC Converter	495
	<i>Arya Venugopal</i>	
OP064	Copper Foil-Based Air Core Transformer Equivalent Model and Feasibility Study for MHz Switching Freq	505
	<i>Oleksandr Husev</i>	
OP065	Very High Frequency Characterization of a Foil Air Inductance Using Transmission Lines	513
	<i>Jacques Laeuffer</i>	
OP066	Integration of CMDM Choke Using Ellipsoidal Core for High Power Density and Volume Reduction	522
	<i>David Prados</i>	

COMPONENTS RELIABILITY

OP067	Improved Rth-Calculation for SiC MOSFETs in Power Cycling Tests.....	528
	<i>Lukas Farnbacher</i>	
OP068	Lifetime of IGBTs Under Mixed Sequential Power Cycling: A Matched-Lifetime Sequencing Experiment.....	535
	<i>Diego Velazco</i>	
OP069	Component-Based Acceleration of Lifetime Tests for Automotive Inverters.....	545
	<i>Jelto Oltmanns</i>	

HIGH POWER DENSITY DESIGNS I

OP070	Integrated High-Power-Density 48 V Power Converter with 3D-Printed Heatsink Busbars.....	551
	<i>Zhaobo Zhang</i>	
OP071	a GaN-Enabled Low-EMI Three-Phase/Single-Phase PFC Family for EV Chargers and Data Center Applications.....	558
	<i>Reza Asgarnia</i>	

OP072 500kVA/L High Density 3-Phase Traction Inverter Based on PCB Embedded Power Modules.....	568
<i>Wiljan Vermeer</i>	

DESIGN FOR ENVIRONMENTAL COMPATIBILITY

OP073 Material Composition of Power Semiconductors for Life Cycle Assessment.....	578
<i>Ariya Sangwongwanich</i>	
OP074 Eco-Design of Magnetic Components in Power Electronics a Life Cycle Assessment Perspective.....	585
<i>Ning Wang</i>	
OP075 is SiC the Key to Achieving Sustainable CO2 Reduction in Inverters?	593
<i>Disha Sharma</i>	

DESIGN OPTIMIZATION

OP076 4D Design Space Based Unified Magnetic and Circuit Design Optimization Framework for CLLC Converter	601
<i>Hamza Ahmad</i>	
OP077 Inductance-Controlled PCB Design of an Instrumented Si/SiC Hybrid Switch with Module-Level Parasitics	608
<i>Yuyang Wang</i>	
OP078 Data-Driven Physics-Informed Modeling of Stripline Inductors for High-Density Power Converters	617
<i>Raúl Henares Vargas</i>	

MULTI-DOMAIN MODELING

OP079 Improved Electrothermal SPICE Model for ASFTs Enabling Dynamic Current Sharing and Enhanced SOA.....	626
<i>Sabrina Chowdhury</i>	
OP080 Accurate Modeling and Analysis of Dissipation Losses in Output Capacitance of Power Semiconductors	635
<i>Kaushik Mirdoddi</i>	
OP081 Dynamic Reverse Transfer Capacitance Modeling for New IGBT Generations	644
<i>Patrick Popp</i>	

AC-AC CONVERTERS

OP082 Design and Performances of Thyristor-Based Electronics On-Load Tap Changer.....	651
<i>Jiasheng Huang</i>	
OP083 Three-Leg Operation of Back-To-Back Voltage Source Converters with Zero Voltage Switching.....	658
<i>Lou Scholtissek</i>	

OP084	Enabling Direct AC-AC Power Conversion in Induction Cooking with GaN BDS.....	668
	<i>Veit Hellwig</i>	

SPECIAL SESSION: POWER CONTINUITY VS. POWER QUALITY – AI DATA CENTER

OP085	8 kW SiC/GaN-Based PFC Design with MCM Operation Achieving >99% Flat Efficiency for AI Servers	675
	<i>Marco Torrisi</i>	
OP086	12 kW Single Phase AC/DC Power Supply for Highly Dynamic AI Loads.....	683
	<i>Martin Wattenberg</i>	
OP087	UPS Front-End Converter as Shunt Active Filter for Power Quality Improvement in Data Centers.....	689
	<i>Rocco Luciano Grimaldi</i>	
OP088	Comparison of 1.2 to 3.3 kV Silicon Carbide Power Modules for Solid-State Transformer Applications.....	694
	<i>Christopher D. New</i>	

SPECIAL SESSION: DFG PRIORITY PROGRAM "ENERGY EFFICIENT POWER ELECTRONICS – GANIUS"

OP089	a Novel Multistage Gate Driver for GaN GITs.....	704
	<i>Céline Lawniczak</i>	
OP090	Analysis of the Temperature- And Voltage-Dependencies of Gate Impedance in Different GaN Devices.....	710
	<i>Andreas Bäuml</i>	
OP091	Measurement-Based Parameter Extraction for ASM-HEMT Compact Modeling of Power GaN-HEMTs	720
	<i>Philipp Swoboda</i>	
OP092	Design and Practical Verification of a Highly Efficient Resonant LLC-Converter	730
	<i>Jonas Schlindwein</i>	

POWER ELECTRONICS FOR E-MOBILITY II

OP093	Tiny Power Box 2: Part 1 - Topology Design for a High Power Density Bidirectional OBC with Integrated DC-DC	738
	<i>Franz Vollmaier</i>	
OP094	Optimised PWM Schemes and Voltage Distribution in Four-Level Flying Capacitor Inverters for EVs	747
	<i>Bharadwaj Raghuraman</i>	
OP095	Optimized Gate Control Strategy of Si/SiC Hybrid Switches for Electric Drive Inverters	757
	<i>Niklas Seltner</i>	

VOLUME 2

OP096 Next Generation SiC Inverter with Low Power Loop Inductance and Variable Gate Drive Strength	767
<i>Andreas Apelsmeier</i>	

WBG APPLICATION AND PACKAGE

OP097 Inductance-Optimized Power Module Concept: Balance Di/Dt Symmetry and Losses by Leadframe Overlap	776
<i>Michael Fügl</i>	
OP098 All-SiC Power Modules with 3rd-Generation Trench-Gate SiC-MOSFET	780
<i>Taku Takaku</i>	
OP099 Off-State Gate Voltage Modulated Reverse Recovery of SiC Trench Power MOSFETs	787
<i>Michael Schliiter</i>	
OP100 Advanced Three-Phase GaN-Based Power Micro-Module for Motor Drives in Robotic Hands	796
<i>Marco Palma</i>	

ADVANCED DC-DC CONVERTERS

OP101 Innovative Bidirectional DCDC Partial Power Converter for the Battery Backup Units in AI Datacenters	804
<i>Rafael Antonio Garcia Mora</i>	
OP102 Steady-State Model and Operating Analysis of an MMC-Based Multiport DC-DC Converter	814
<i>Martin Votava</i>	
OP103 Transformer-Centered Design of an Asymmetrical Half-Bridge Converter for an ISOP-System	823
<i>Daniel Breidenstein</i>	
OP104 High Power Density CLLC-DCX Converter with >250 kW Reaching >99 % Efficiency at 200 kHz	831
<i>Jörg Bornwasser</i>	

IGBT TECHNOLOGIES

OP105 200 a 1200 V IGBT with Optimized Carrier Confinement and Trench Design for Automotive Applications	841
<i>Tommaso Stecconi</i>	
OP106 6500 V-Class PPI Using 2nd Generation Trench-IEGTs	847
<i>Ryohei Gejo</i>	
OP107 Development of the 8th Generation 1200V NX Series Featuring 1000A Current Rating	853
<i>Kota Ohara</i>	

OP108 Newly Developed 1,200V 8th Generation IGBT Module for Industrial Applications	859
<i>Junya Kawabata</i>	

POWER ELECTRONICS FOR E-MOBILITY III

OP109 Quantifying the Impact of a Reduced Stray Inductance to the SiC MOSFET Module- /Inverter Current	865
<i>Christian Schweikert</i>	
OP110 Efficiency and Cost Evaluation of 300 kW SiC Inverter Topologies for Battery Electric Vehicles	871
<i>Christoph Sachs</i>	
OP111 Si/SiC Fusion Switch for Automotive Traction Inverters with 1200 V Blocking Capability	881
<i>Tomas Reiter</i>	
OP112 Distributed and Fault-Tolerant State-Of-Charge (SoC) Balancing Applied to CMCs	891
<i>Daniel Galvis</i>	

SIC MOSFETS II

OP113 Next-Generation High-Performance and Robust 1200V SiC Trench MOSFETs	899
<i>Karl Oberdieck</i>	
OP114 SiC Trench-Gate Superjunction MOSFET in Low Inductive Discrete Package for EV Inverter Applications	907
<i>Nico Fontana</i>	
OP115 Mitigating Snap-Off During Reverse Recovery of SiC MOSFET Body-Diode.....	917
<i>Abhishek Maitra</i>	
OP116 Efficient High-Frequency Inverter Operation of Power Module with Advanced SBD- Embedded SiC MOSFET	927
<i>Shunsuke Asaba</i>	

DATA CENTER DC-DC CONVERTERS

OP117 Eliminating Magnetic Components in a 48-To-12V Switched Tank Converter for Data Center Applications	934
<i>Filippas Sotirios</i>	
OP118 Distributed Current-Mode Control of a Multiphase DC-DC Converter for Space μ P PoL Applications.....	941
<i>Marc Cousineau</i>	
OP119 Energy Buffer to Meet the Peak Power Demands in AI Server PSUs Without Disturbing the Grid.....	950
<i>Sam Abdel-Rahman</i>	
OP120 12 kW Power Supply Unit with High Power Density and Integrated Peak Power Shaving Functionality for AI Server and Datacenters	956
<i>Sam Abdel-Rahman</i>	

NOVEL AC-DC CONVERTERS

OP121 Single-Stage and Single-Phase Isolated Resonant AC-DC-Converter Using Integral Cycle Mode Control	966
<i>David Bohne</i>	
OP122 Variable-Inductor-Controlled Integrated LLC–PFC Converter for Wide Output Regulation.....	976
<i>Alireza R. Ghanbari</i>	
OP123 Highly Efficient 34.5 kVA SiC-Based Power Amplifier with 20 kHz Large-Signal Bandwidth	984
<i>Anton Gorodnichev</i>	
OP124 High Power Density 18kW Three-Phase PSU for AI Server and Data Center with Hold-Up and Current Shaping Capability	994
<i>Alex Rossi</i>	

DIE ATTACH MATERIALS

OP125 Pressure-Less Sintering Copper Paste	1002
<i>Hideo Nakako</i>	
OP126 Innovative Approach for Transient Liquid Phase Soldering (TLPS) with Solder Preforms for Power Module Packaging	1007
<i>Ryan Mayberry</i>	
OP127 Thermal Characterization of SLID Bonding Die-Attach in IGBT Module Packaging Application	1013
<i>Shenyi Liu</i>	
OP128 Bonding Properties and Reliability Evaluation of Cu Sinter Paste for Heatsink Attach.....	1020
<i>Yuki Shirakawa</i>	

CAPACITORS AND CURRENT SENSORS

OP129 Investigation of Retrofittable GHz Bandwidth Current Sensors for Evaluation of GaN and SiC Devices	1025
<i>Sebastian Klötzer</i>	
OP130 Next Generation 200C Film Capacitors for Optimized Power Conversion Solutions in Harsh Environments	1035
<i>Michael Brubaker</i>	
OP131 High-Temperature-Stable Ultra-Thin-Film Capacitors.....	1042
<i>Bartosz Gackowski</i>	
OP132 LC-Filter Circuit with Periodic Time-Modulated Capacitance	1048
<i>Norbert Seliger</i>	

IGBT DEVICES

PP001 New 2.3 kV IGBT8 and EmCon8 in XHP 2 for Demanding High-Power Applications.....	1056
<i>Marcel Morisse</i>	

PP002	2.5kV IGBT Module with High Withstand Voltage and High Reliability.....	1062
	<i>Tomokazu Kanna</i>	
PP003	Current Mismatch During Turn-On of Parallel IGBTs Due to Uneven Mutual Inductances	1068
	<i>Tim Scheel</i>	
PP004	1.2 kV Narrow-Mesa Trench IGBT Platform for Optimized Losses and Ruggedness Performance.....	1077
	<i>Indrajeet Bajarang Jadhav</i>	
PP005	Stability of Paralleled IGBTs Driven by a Common Gate Drive Unit During Turn-Off.....	1082
	<i>Lukas Tomforde</i>	
PP006	New 6.5 kV IGBT7 in IHV Module for Demanding HVDC Systems	1091
	<i>Martin Hennig</i>	
PP007	Design and Performance Study of 750V RC-IGBT for High Power EV Application.....	1097
	<i>Liheng Zhu</i>	
PP008	Turn-Off Delay Time Reduction in Modern IGBTs with a Two-Step Turn-Off Method	1103
	<i>Vishwas Acharya Nayampalli</i>	
PP009	New 6.5 kV HVIGBT Module with Low Loss and High Switching Robustness	1112
	<i>Yuta Nishimura</i>	
PP010	Miniaturization of 3-Level Topology Utilizing 8th Generation New NX Module.....	1119
	<i>Nobuchika Aoki</i>	

DEVICE ROBUSTNESS

PP011	Comparison Between Two Short-Circuit Protection Techniques for SiC Power Module	1125
	<i>Quyen Nguyen</i>	
PP012	Device and Bias Influence on Short-Circuit Performance in 3.3 kV SiC MOSFETs.....	1132
	<i>Ehab Tarmoom</i>	
PP013	Investigation of Dynamic On-Resistance in GaN HEMTs Under Single-Pulse Short- Circuit Operation.....	1141
	<i>Nikhil Bhardwaj</i>	
PP014	Short-Circuit Faults for 3.3 kV SiC-MOSFET Power Modules.....	1148
	<i>Muhammad Nawaz</i>	

NOVEL MATERIALS AND THERMAL MANAGEMENT

PP015	Novel Thermal Interface Material for PCBs: High Insulation Reliability, Validated by Cooling Tests	1155
	<i>Takenori Kakutani</i>	
PP016	Experimental Evaluation of Direct-Mounted Flat Heat Pipes for Thermal Management on a PSFB Converter	1163
	<i>Georg Woywod</i>	

PP017 Characterization Method for Pulsed Current Capability of SiC Trench MOSFET in Third Quadrant Operation	1169
<i>Shashank Mathur</i>	
PP018 Real-Time Detection of Loss of Coolant and Thermal Management Using Model-Sensor Junction Temperature Divergence in Traction Inverters.....	1175
<i>Vishwas Shashidhar</i>	
PP019 Optimizing Wide Bandgap Device Performance Via Thermal Interface Material and Mounting Choices	1183
<i>Rony Thomas</i>	
PP020 Comparative Evaluation of Top-Side Cooled SMD SiC Packages: Efficiency and Power Capability	1192
<i>Fatih Cetindag</i>	
PP021 Comparison of Measurement Methods for Determining Thermal Impedance (Z_{th}) in Power Semiconductors	1199
<i>Tobias Heise</i>	
PP022 Determination of Parameters Influencing Phase Change Cooling Close to the Chip.....	1207
<i>Moritz Naumann</i>	
PP023 Direct Insulative Cooling Power Module Development and Thermal Evaluation	1215
<i>Emanuela Privitera</i>	

STRESS MONITORING AND LIFETIME PREDICTION

PP025 Mission Profile Based Lifetime Prediction for IGBT Power Modules with Coupled Failure Mode.....	1224
<i>Min-Ki Kim</i>	
PP026 Gate Switching Instability in SiC MOSFETs at Extended Lifetimes Using a Stress-Frequency of 40 MHz.....	1232
<i>Ruben Schnitzler</i>	
PP027 SiC MOSFET Bondfoot Degradation Model with Assumption for Elastic Deformation	1242
<i>Holger Heinisch</i>	
PP028 Advanced Reliability Assessment of Power Modules Under Low Cycle Thermal Fatigue	1250
<i>Jaemin Jeon</i>	

PULSE WIDTH MODULATION METHODS

PP029 Flux-Track-Curve-Based Optimisation Constraint for OPP in PWM for Automotive Applications.....	1256
<i>Christian Vorobev</i>	
PP030 Fast Processing Modulation for Parallel Interleaved Inverters with Zero-Sequence Circulating Current.....	1265
<i>Lucia Clavero</i>	
PP031 Modulation Techniques and Experimental Validation of High-Voltage GaN-Based 3-Level ANPC Inverters	1275
<i>Matthieu Gaychet</i>	

PP032	Novel Reduced-Transition Discontinuous PWM for Full ZVS Range Pulsed DC-Link Three-Phase Inverter	1282
	<i>Mohamed Atef Tawfik</i>	
PP033	Frequency Correction Method for iTCM Modulation with Powder Core Inductors.....	1291
	<i>Gang Zhang</i>	
PP034	OPP Policy Design Using Differentiable Programming.....	1300
	<i>Mohammad Abu-Ali</i>	
PP128	DC-DC Converter with Voltage Balancing Capability.....	1306
	<i>Lorenzo Giuntini</i>	

INTELLIGENT GATE DRIVERS I

PP035	High-Voltage Double-Gate IGBT Driver with Floating Island Architecture for 6.5 kV Isolation.....	1313
	<i>Faiq Siddiqui</i>	
PP036	Approach for Overcoming Bootstrap-Circuit Limitations in High-Side Gate-Driver Supplies	1319
	<i>Matthias Gorski</i>	
PP037	In-Situ Dead-Time Control Based on Gate-Charge Information Derived from Gate- Current.....	1325
	<i>Lukas Knappstein</i>	
PP038	Three-Level Gate Driver for Slew Rate Control in Reliability-Oriented Voltage Switching Tests.....	1332
	<i>Sarthak Swaroop Dash</i>	
PP039	Hardware-In-The-Loop Optimization of AGD Patterns for SiC MOSFETs Comparing Model-Free Algorithms	1338
	<i>Lukas Kappel</i>	
PP040	SPI Programmable Current-Mode Isolated Gate Driver for High-Performance Automotive Traction Inverters	1346
	<i>Ion Tesu</i>	

TRANSPORTATION INFRASTRUCTURE

PP041	Estimating Energy Use and Waste to Consider EV Charging Potential for an Urban Tram Network.....	1356
	<i>Fiona McBride</i>	
PP042	Efficiency Maximization Strategy for a Dual-Stage High-Voltage Charging Infrastructure.....	1363
	<i>Francesco Porpora</i>	
PP043	Unlocking Transformer Secrets: A Revolutionary Approach to High-Frequency Parasitic Modeling	1372
	<i>Hasan Mousavi Somarin</i>	
PP044	Design and Experimental Validation of a 200kW/L PCB Based 50kW DC-DC Converter for E-Mobility.....	1379
	<i>Guillaume Lefevre</i>	

CHARGING STRATEGIES AND BATTERY CHARACTERIZATION

PP045 Degradation Modes Analysis for Fast Charging Design of Lithium-Ion Cells	1387
<i>Xabier Dorronsoro Martinez</i>	
PP047 Mutual Transferability of the Results from HPPC and EIS for Internal Battery Resistance Estimation.....	1392
<i>Lars Leister</i>	
PP048 Parameter Identification of Aerospace LiB Using Optimization Algorithm and the Thevenin Model	1398
<i>Ngoc Nam Pham</i>	
PP049 Enhancing LFP State-Estimation Through Self-Diagnostic Tests in Modular Battery Systems.....	1405
<i>Manex Aizpurua</i>	

ELECTROMAGNETIC COMPATIBILITY: EMISSION AND IMMUNITY

PP051 Frequency-Independent Mechanisms Limiting Common-Mode Filter Scaling in Power Electronics	1413
<i>Torbjorn Sorsdahl</i>	
PP052 Impedance Modeling in Cabling Scenarios.....	1423
<i>Aimar Telletexea</i>	
PP053 An Integrated Active EMI Filter to Attenuate Both DM and cm Noise in Single-Phase AC Systems.....	1429
<i>Timothy Hegarty</i>	
PP054 Impact of Galvanic Isolation in Automotive DC-DC Converters on Their Conducted and Radiated Electromagnetic Interference.....	1437
<i>Shounak Shashishekhar Kulkarni</i>	
PP055 Negative Effect of Common Mode Chokes and Remedies for This Effect.....	1446
<i>Christoph Fritsch</i>	
PP056 Multi-Objective Optimization of EMI Filters with Messy Genetic Algorithm	1455
<i>Róbert Orvai</i>	

MODELING AND SIMULATION OF POWER ELECTRONIC SYSTEMS

PP058 Novel Design Algorithm for LCL Grid Filters Under Consideration of Arbitrary Grid Codes.....	1465
<i>Simon Johannliemke-Appelbaum</i>	
PP059 Gerber File-Based Electrical-Thermal Co-Simulation for Printed Circuit Board Design	1477
<i>Xianghao Mo</i>	
PP060 Evaluation and Optimization of PCB Loop Inductance for Three-Phase Inverter with Low Common Mode Voltage.....	1483
<i>Soumyabrata Patra</i>	

PP061 Enhancing Performance of Megawatt Scale SiC-Power Stacks Through Novel Parallelization Method.....	1490
<i>Fabio Carastro</i>	
PP062 Pulse Width Modulation Analysis and Optimization for Fast Simulation and Automatic Code Generation.....	1498
<i>Thomas Effenberger</i>	
PP063 Real-Time-Capable Oversampling Model for Different Three-Level-Three-Phase Converter Topologies	1506
<i>Martin Klassen</i>	

MEASUREMENT TECHNIQUES AND METHODS II

PP064 Impact of Kelvin-Source Vs. Power-Source Sensing in Si/SiC Power Switch Characterizations.....	1512
<i>Deekshith Venkatesha Prabhu</i>	
PP065 A Measurement-Based Methodology for Determining the Minimum Dead-Time.....	1520
<i>Philipp Rehlaender</i>	
PP066 Single-Chamber Air-Cooled Heat-Balance Calorimeter with High Accuracy Across a Wide Power Range.....	1529
<i>Sascha Langfermann</i>	

VOLUME 3

PP068 Compensated Fluxgate Current Sensor for DC and AC Measurements.....	1537
<i>Slavko Veinovic</i>	
PP069 Comparison of Different Methods for Extracting Parasitic Inductances in Inverter Designs	1545
<i>Tim Scheel</i>	
PP070 A Modified DPT Platform Enabling Faster Inductor Discharge and Extended Current Range.....	1552
<i>Mohammad Vedadi</i>	
PP071 Efficiency Measurements Require High Precision - Consistency Enables Comparability	1560
<i>Jörg Bornwasser</i>	
PP072 Comparative Analysis of Results from Disparate Double-Pulse-Test Environments.....	1567
<i>Arthur Boutry</i>	
PP073 Electroluminescence-Based Junction Temperature Sensing in Silicon Fast Recovery Diode.....	1576
<i>Antonis Stathatos</i>	

RELIABILITY AND CONDITION MONITORING

PP074 Comprehensive Short-Circuit Comparison of Low Voltage Schottky-Gate GaN HEMTs and Silicon MOSFETs.....	1583
<i>Marco Cannone</i>	

PP075 Flexible Test Platform for Mission-Profile-Based Validation of Active Thermal Control Techniques.....	1591
<i>Eneko Agirrezabala</i>	
PP076 Overcurrent Detection for GaN HEMTs with 20 Ns Detection Time	1598
<i>Nick Van Houtven</i>	
PP077 Fault-Tolerant Control of Dual Three-Phase PMSM for Light Electric Vehicles.....	1603
<i>Mathana Venkatesh Sivanantham</i>	
PP078 Electro-Thermal Health Monitoring for GaN-Based Power Converters	1613
<i>Manex Gondat</i>	
PP079 Data-Driven Remaining Useful Life Prediction for Si-IGBT	1619
<i>Lena Köhler</i>	
PP080 IGBT Turn-Off Delay Time for Condition Monitoring	1628
<i>Yoann Pascal</i>	

SIC MOSFETS I

PP081 New Generation 3300V/1000A Full-SiC Power Module for Railway Traction Application	1637
<i>Hui Wang</i>	
PP082 Features and Benefits Expected of Future Trench and Planar SiC MOSFETs.....	1643
<i>Naoki Kaji</i>	
PP083 Experimental Analysis of Parasitic Turn-On in Different 650V SiC MOSFET Cell Designs.....	1649
<i>Anshul Tyagi</i>	
PP084 Unlocking the Potential of 750V CoolSiC MOSFET M2 in Power Modules	1659
<i>Ainhua Puyadena</i>	
PP085 Intrinsic Robustness of Planar and Trench SiC MOSFETs Against PTO Regarding Short Channel Effects	1666
<i>Rony Thomas</i>	
PP086 New 1200 V, 6 mOhm SiC MOSFET with Integrated Temperature Sense Enabling Significant System Benefits	1672
<i>Amy Romero</i>	

DEVICE PACKAGING

PP089 Orthogonal Two-Chip-Per-Ribbon Layout Enabling Stable Low-Rg Switching in 800-V SiC 2-In-1 Power Modules	1677
<i>Yudai Yatsu</i>	
PP090 A New Surface-Mount Power Module for Wide Bandgap Power Devices	1687
<i>Robin Simpson</i>	
PP091 Smart Paralleling of SiC MOSFET in Power Modules	1694
<i>Michael Frisch</i>	

PP092	SiC High Voltage LinPak: 3.3 kV Power Module for Medium- And High-Voltage Converter Applications.....	1703
	<i>Jeremy Jones</i>	
PP093	Low Inductance, High Power Density: Compact EasyPACK S Unlocks CoolSiC M2 Performance.....	1713
	<i>Koray Yilmaz</i>	
PP094	The Application of Snubber Chips in Three-Level Topology Modules	1721
	<i>Shuai Cao</i>	
PP095	Characterization of the Magnetic Couplings of Parasitic Elements of GaN Devices with a Kelvin Source	1726
	<i>Maxime Boulan</i>	
PP096	Estimation of Commutation Loop Inductance in a 90 kW IMS-Based Discrete IGBT Traction Inverter	1734
	<i>Avinash Maguluri</i>	

ADVANCED THERMAL MODELING, ESTIMATION AND MANAGEMENT

PP097	Advanced Cooling Solutions for High Frequency Medium Voltage Planar Transformers.....	1740
	<i>Zayed Ahmed</i>	
PP098	Advanced Air-Cooled Solutions for Industrial Power Electronics	1747
	<i>Thomas Pfeifer</i>	
PP099	Design of and Analytical Thermal Model for a Pair of Coaxial 3.3 kV SiC MOSFET Packages	1753
	<i>Jack Knoll</i>	
PP101	A Superposition Method for Electrothermal Analysis of an Onboard SiC MOSFET Power Assembly.....	1763
	<i>Jianfeng Li</i>	
PP102	Thermal Model for Heat Sink Optimization for High-Performance Semiconductor Modules in Electrolysers	1772
	<i>Karsten Wenzel</i>	
PP103	Comparing 1D and 3D Temperature Estimations of a 2kV SiC MOSFET Under Short Circuit Conditions	1782
	<i>Jorge Mari</i>	
PP104	Thermodynamic-Based Model Suitable for Real-Time Junction Temperature Estimation of Power Devices.....	1792
	<i>Maurizio Tranchero</i>	
PP105	Real-Time Temperature Estimation of Passive Components in Traction Inverters.....	1799
	<i>Raja Sekhar Kammala</i>	

DC-DC CONVERTER AND SWITCHED MODE POWER SUPPLY

PP106	Hybrid-Flyback Unlocking High Performance Battery Charging.....	1805
	<i>Tobias Riedel</i>	

PP107	Control of Bidirectional Power Flow in a Dual Active Half Bridge	1811
	<i>Peter Van Duijsen</i>	
PP108	Tristate Super Buck Converter	1821
	<i>Helmut Votzi</i>	
PP109	A Soft-Switching, High Step-Up, Non-Isolated LLC Resonant Converter.....	1831
	<i>Ozturk Sahin Alemdar</i>	
PP111	Experimentally Validated Pareto-Optimization for a Dual-Active-Bridge Converter	1840
	<i>Nikolas Förster</i>	
PP113	Coupled-Inductor Series Capacitor Buck Converter for Higher Step-Down Voltage Conversion Ratios	1850
	<i>Inigo Martinez De Alegria Mancisidor</i>	
PP114	A Resonant-Inductor-Integrated H-Transformer for 48V–12V LLC Bus Converters	1857
	<i>Tianxiao Chen</i>	

LOW POWER AC-DC AND DC-AC CONVERTERS I

PP116	Design and Thermal Analysis of a Modular Power Converter for Axial-Flux Motors in Electric Vehicles	1867
	<i>Oriol Subirats Rillo</i>	
PP118	Coupled Chokes Configurations for Power Combining Class E Converter Topologies.....	1877
	<i>Prateek Wagle</i>	
PP119	Implementation of a Synchronous-CCM-Power Factor Corrector Using a Half-Bridge GaN-Power Module.....	1887
	<i>Federico Levati</i>	
PP120	Bidirectional GaN Based Single Stage Microinverter.....	1894
	<i>Marco Ruggeri</i>	
PP121	Where to Innovate in Power Electronics with Discrete MOSFETs: Advanced Packaging Or Next-Generation	1902
	<i>Josef Wildauer</i>	

SOLID-STATE TRANSFORMER AND DC-DC CONVERTER

PP124	Decentralized Control for a Cascaded H-Bridge Converter	1911
	<i>Eduardo García-Martínez</i>	
PP125	A Simplified Analytical Method for Accurate ZVS Estimation in Dual Active Bridge Converter.....	1920
	<i>Priya Sinsinwar</i>	
PP126	Design of 8kW Three-Phase Interleaved LLC for AI Server	1927
	<i>Marco Torrisi</i>	
PP127	Design of a Highly Integrated 250 kW Partial Power Converter for Next-Gen Energy Systems.....	1935
	<i>Jon Anzola</i>	

PP129 Design Considerations for a 7 kW SiC-Based Bidirectional CLLC Converter for Battery Charging	1943
<i>Ivan Clemente Massimiani</i>	

RAILWAY, AEROSPACE AND MARINE APPLICATIONS

PP131 A Rail Traction Converter Chopper Control Algorithm for Dynamic Braking in EMUs.....	1950
<i>Osman Senturk</i>	
PP132 Smart Detection of Motor Suspension Breakdown in Railway Traction Drives Using HF Motor Current.....	1957
<i>Markus Vogelsberger</i>	
PP133 Highly Integrated, Robust Power Solution for Aerospace Motor Drive Applications Up to 80 kVA.....	1965
<i>Alain Calmels</i>	
PP134 Development and Parameter Identification of an Advanced Thermal–Thevenin Model for Aircraft LiB	1973
<i>Jan Leuchter</i>	
PP135 Design of a 100kW SiC Interleaved DC-DC Converter for Aviation Application	1979
<i>Dennis Wöhrle</i>	
PP136 Integrated Motor Drive Inverter with Active Fault Handling for Aerospace Applications	1985
<i>Leonard Kuhn</i>	
PP137 Automated EMI Simulation Workflow for Frequency-Variable High Power DC-DC Converter for Aviation.....	1991
<i>Anne Sacher</i>	
PP138 Efficiency Analysis of a Multilevel CHB Converter for Battery-To-Grid Waterborne Applications.....	2001
<i>Eneko Otaola</i>	

RENEWABLE ENERGY SYSTEMS

PP139 Enhanced Cascaded Voltage Control of Interleaved Boost Converter for PV MPPT	2010
<i>Kaspars Kroics</i>	
PP140 Comparative Analysis of SiC- And IGBT-Based NPC Inverters in Photovoltaic Applications.....	2020
<i>Jaspera Dominique Rohner</i>	
PP141 A Three-Level Energy Management System Using the Battery as Power Pulsation Buffer	2027
<i>Pelle Weiler</i>	
PP142 Adjustable Hybrid Switch Converter for Enhanced Efficiency and Reliability in PV Systems.....	2033
<i>Tanya Thekemuriyil</i>	
PP143 Design of a SiC-Based Synchronous Floating Interleaved Boost Converter for PV Applications.....	2041
<i>Anita Mijajlovic</i>	

PP144 Performance Assessment of a Split-Phase String Inverter Based on Integrated Gate Driver GaN FET	2048
<i>Riccardo Ruffo</i>	
PP145 Practical Analysis of an 800V Output Boost in Three Topologies for Energy-Storage Systems.....	2054
<i>Akshat Jain</i>	
PP146 Critical Review of DC-DC Converter Topologies for Hydrogen Fuel Cell and Battery-Based Hybrid Systems.....	2061
<i>Jose Vicente Rocamonde Navarro</i>	
PP147 Evaluation of a Battery Charging System Using MPPT Powered by a Thermoelectric Generator.....	2068
<i>Juliane Farret</i>	

MODELING AND SIMULATION OF COMPONENTS

PP148 Advanced Evaluation of Internal Switching Oscillations in SiC Multichip Power Modules Based on 3-D V	2076
<i>Alessandro Ilardi Garofalo</i>	
PP149 Validation of a Vendor Independent Electro-Thermal Power Loss Simulator.....	2083
<i>Claudio Romano</i>	
PP150 Design and Validation of a 60 kW LLC Transformer with Electromagnetic and Thermal Simulation	2090
<i>Caner Demir</i>	
PP151 Development of 6500V Press-Pack Trench IGBT Devices for Power Grids	2098
<i>Haowen Shi</i>	
PP152 Modeling of Space Charge Behavior in Mold Epoxy Resin at Power Semiconductor Chip Termination	2104
<i>Koki Kishimoto</i>	

INDUCTOR DESIGN

PP154 Feasibility Study on Via-Based Shielding for Reducing Fringing Losses in Planar Magnetics	2114
<i>Othman Abujazar</i>	
PP156 Improvement of Transformerless DC/DC Converters Using Controllable Inductors	2124
<i>Jonas Pfeiffer</i>	
PP157 Simple Ferromagnetic Shielding for Loss Reduction in Gapped Inductors	2136
<i>Andres Garzon</i>	
PP158 Temperature Rise of Iron Core Inductor in DC-DC Converter Operated in Discontinuous Conduction Mode	2141
<i>Lorenzo Giuntini</i>	
PP159 Modeling of Powder Core Inductors for Assessing the Accuracy of Finite Element Simulation	2148
<i>Masoumeh Amirbandeh</i>	

PP160	Scaling Ferrite Core Manufacturing for Next-Generation HighPower Converters	2153
	<i>Christian Blaum</i>	

PP161	Redefining EMI Filter Design by Ferrites for High-Frequency Automotive Applications	2159
	<i>Philemon Wrensch</i>	

RESOURCES AVAILABILITY AND SUSTAINABILITY

PP162	GANZ – Sustainability of Power Electronics	2165
	<i>Paul Gierth</i>	

PP163	Selective Repair of Power Modules: A Process Solution Approach for Circular Power Electronics	2170
	<i>Lars Rebenklau</i>	

PP164	Automotive Power Electronics in the Context of Recyclability	2180
	<i>Daiyi Hu</i>	

SIC RELIABILITY

PP165	Static and Dynamic Reliability Assessment of Bipolar Degradation in 1.2 kV SiC MOSFET	2190
	<i>Michele Fiore</i>	

PP166	Demonstrating Intrinsic Gate-Oxide Reliability in 1200 V SiC MOSFETs Via Inline Defect Screening	2195
	<i>Nicolo Oliva</i>	

PP167	Repetitive Switching Stability of SiC MOSFETs Under Overload Conditions for Hybrid Power Modules	2201
	<i>Nick Schneider</i>	

PP168	Temperature Effects on SiC MOSFET Reliability: Separating Artifacts from True Degradation	2208
	<i>Sara Kuzmanoska</i>	

PP170	Enhanced Performance and Reliability of 1200V SiC MOSFETs for Automotive Drive Applications	2215
	<i>Chen Liu</i>	

PP172	Sensitivity Analysis of Parasitic Turn-On (pTO) in a SiC-Power Module	2220
	<i>Muhammad Muneeb Alam</i>	

PP173	Impact of RDS(on) Stability on Power Density for Power Electronics Application	2230
	<i>Fatih Cetindag</i>	

ADVANCED POWER DEVICES

PP174	Experimental Analysis of Gallium Doping Process in GTO Thyristors: Impact of SiO ₂ and Si ₃ N ₄ Layers	2236
	<i>Muhammad Awais</i>	

PP175 SuperQ Technology: A Game-Changer in Power Device Innovation. Analysis of SuperQ 200V MOSFET Industry Leading Design, Manufacture and Performance.....	2243
<i>Christopher Kocon</i>	
PP176 Paralleling of Normally-On SiC JFETs for the Usage in Solid State Circuit Breakers.....	2248
<i>Rene Mente</i>	
PP177 Impact of Edge Termination on the Dynamic Performance of SiC MPS Diodes in Bipolar Mode.....	2255
<i>Simon Ginzl</i>	
PP178 Characterization and Performance Evaluation of New 1200 V Silicon Carbide JFET Technology	2265
<i>Elisa Navari</i>	
PP179 A Simple Zero-Voltage Turn-On Scheme for Solid-State Relays	2271
<i>Dinesh Palaniappan</i>	
PP180 A 600 V Three-Phase Inverter as GaN Power Converter IC on Substrate Biasing-Free Isolating Substrate	2278
<i>Stefan Mönch</i>	
PP181 A Practical Test Bench for 650V WBG Switch Comparison by Transient Calorimetric Loss Analysis.....	2284
<i>Göktug Tonay</i>	
PP182 MOSFET with Lossless, High Precision Current Sensing in Motor Drive Applications	2292
<i>Jens Sorensen</i>	

ENCAPSULATION AND DIE ATTACH: MATERIALS AND TECHNIQUES

PP183 Impact of Soft Encapsulation on Power Module Lifetime	2297
<i>Rowan Aldridge</i>	

VOLUME 4

PP184 Development of High-Reliability LMC for Power Module Encapsulation as a Replacement for Silicone Gel.....	2304
<i>Daejin Kim</i>	
PP185 A Double Enhanced Novel SAC Composites Solder Preform	2310
<i>Lung-Chuan Tsao</i>	
PP186 Development of Pressureless Short-Time Sintering Material for Next-Generation Power Semiconductors	2315
<i>Naoto Karakida</i>	
PP187 New “Paste in Cavity” Concept for Embedded Power Electronics Using Copper Sinter Paste	2322
<i>Aline Jarofski</i>	
PP188 Investigation of Large Area Soldering Using High Stress Assembly and Challenging Surface Coatings.....	2329
<i>Andres Socarras</i>	

PP189 Investigation of Solder Joint Strength of Pb-Free Solder Alloys Using Head Wire Interconnects	2335
<i>Mani Krishna Swami Puppala</i>	

CONTROL AND DIGITAL TECHNIQUES FOR POWER CONVERTERS AND DRIVES

PP191 Timing Analysis and Comparison of EtherCAT and RS485 Communication in a Modular Multilevel Converter	2343
<i>Stefan Orterer</i>	
PP192 Reactive-Current Transient-Based Dual-Signal Gain Scheduling for Energy Balancing in Cascaded H-Bridge STATCOMs	2348
<i>Debdeep Samajdar</i>	
PP193 FPGA-Based Voltage-Mode Regulation of Boost PFC Converter with Interpretable Neural Network Control	2356
<i>Zhi Li</i>	
PP194 Minimizing DC-Link Capacitance in Variable-Frequency Critical-Mode Soft-Switching Bidirectional PFCs	2362
<i>Julian Hartmann</i>	
PP195 Design and Performance Evaluation of a DCM/CCM Boundary Boost PFC with Enhanced Current Mode Control	2371
<i>Claudio Adragna</i>	
PP196 Zero Voltage Switching Multilevel Power Stage at 1MHz Switching Frequency with Asynchronous Delta-Sigma Modulation	2381
<i>Jannik Maier</i>	
PP197 Control-To-Output Transfer Function of an ISOP-System Based on an Asymmetrical Half-Bridge	2389
<i>Sophia Roesel</i>	
PP198 Improved Virtual Synchronous Machine with Grid Impedance Estimator for Islanding Detection	2398
<i>Alessandro Roveri</i>	
PP199 A Finite Control Set Modulated Model Predictive Control for SiC Inverter with Sinusoidal Filter	2406
<i>Mattia Pecile</i>	

EMI AND WIRELESS POWER TRANSFER

PP200 Modulation Effects on Common-Mode Currents in Hybrid-Electric Aircraft	2413
<i>Abbas Mehraban</i>	
PP202 EMI Diagnosis for Power Converter PCB Layouts Based on a Vision Language Model	2423
<i>Martin Kuo</i>	
PP204 Dynamic Wireless Power Transfer for Multiple AGVs Using Capacitive Coupling Method	2428
<i>Fujiyuki Iwamoto</i>	

HIGH POWER CONVERTERS II

PP206	PHIL Testbench for MMC Submodules Under Realistic Operating Conditions	2438
	<i>Sophie Knierim</i>	
PP207	Impact of Auxiliary Inductor Placement in Three-Phase ARCP Inverters	2445
	<i>Yan Zhou</i>	
PP208	Addressing Switching Losses of Low RDS(on) 1200 V SiC MOSFETs with ZVS PFCs Using the Parallel Capacitor Technique.....	2455
	<i>Bela Truschenski</i>	
PP209	Design Considerations to Meet Future Datacenter Power Supply Needs	2465
	<i>Daniel Goldmann</i>	
PP210	New Isolated Three-Phase Push-Pull Rectifier Topology with Freewheeling Paths	2468
	<i>Sandro Benjamin Meyer</i>	
PP211	3kW Compact GaN-Based PFC for AI Server with 99.2% Efficiency	2474
	<i>Marco Torrisi</i>	
PP212	200 kVA Rectifier with Grid-Supporting Functions for Hydrogen Applications	2480
	<i>Maximilian Döring</i>	
PP213	Analysis of a Series VSC Converter Topology for MVDC Applications.....	2489
	<i>Damiano Lanzarotto</i>	
PP214	High Current Solid-State Circuit Breaker of 2kV DC Based on 3.3kV SiC MOSFETs Modules.....	2499
	<i>Victor Lopez</i>	

CHARGING IN E-MOBILITY

PP215	Design and Evaluation of 3.5 kW Planar Transformers for DAB Converters.....	2507
	<i>Hend Ben Dhaou</i>	
PP217	Hybrid Two-Cell Flying Capacitor Inverter for 1200V On-Board Chargers.....	2515
	<i>Arda Kasim</i>	
PP218	Evaluation of Neutral-To-DC-Link Configurations in Three-Phase Six-Switch Bidirectional PFC Rectifiers for On-Board Chargers.....	2522
	<i>Kelly Ribeiro</i>	
PP219	Three-Phase Integrated Onboard Charger for Electric Vehicles with Induction Motors	2529
	<i>Endalkachew Degarege Almwu</i>	
PP220	Tiny Power Box: Part 2 - System Design for a High Density Isolated Bidirectional OBC with Integrated DCDC.....	2538
	<i>Ismail Recepti</i>	
PP221	Highly Integrated On-Board Charger and DC/DC Converter for Electric Vehicles.....	2548
	<i>David Rokusek</i>	

PP222 From Concept to Vehicle Demo: 11 kW - 85 kHz Wireless EV Charger with Active Load Impedance Matching	2557
<i>Nicolas Allali</i>	

MOTORS AND ACTUATORS

PP223 Electromagnetic Design of a Synchronous Reluctance Motor Based on Natural Flux Line Propagation.....	2567
<i>Christian Rachoi</i>	
PP224 Co-Optimization of Traction Inverter and Electrical Machine for Electric Vehicle Applications.....	2572
<i>Timothé Delaforge</i>	
PP225 Analysis of Current Third Harmonic Injection Control Enabling Iron Loss Reduction in PMSMs.....	2578
<i>Kaiki Akizuki</i>	

MEASUREMENT TECHNIQUES

PP226 Addressing EMI Noise in In-Situ Motor Drives Via Time-Domain Waveform Analysis	2587
<i>Hans Hoffmann Sathler</i>	
PP227 Design and Experimental Validation of a Hybrid EMI Filter for Compact EMI Filter Design in On-Board Chargers	2597
<i>Moritz Mondre</i>	
PP228 Development of a Simple Double Pulse Test Bench for Cryogenic Applications.....	2606
<i>Maximilian Kleemann</i>	
PP230 Design-For-Test Considerations in WBG Converter Designs	2614
<i>Marcus Sonst</i>	
PP231 Laboratory Setup for Accuracy Investigation of Current Sensors Under Real Operating Conditions	2623
<i>Robin Luca Abraham</i>	
PP232 DC-Loop Stray Inductance Characterization in Printed Circuit Board Using Vector Network Analyzer.....	2630
<i>Maurizio Tranchero</i>	

ADVANCED DESIGN AND SIMULATION

PP233 Efficient Evaluation of Power Modules for Multi-Objective Optimization Using PEEC Method	2636
<i>Rando Raßmann</i>	
PP236 AI-Based Two-Stage Learning for Rapid Thermal Map Reconstruction in EV Power Semiconductors	2645
<i>Chi Zhang</i>	
PP237 Estimating Semiconductor State of Health and Remaining Life Using Statistics and Digital Twin Model	2651
<i>Emmanuel Batista</i>	

PP238 Electrical and Thermal Real-Time Model of an ANPC Photovoltaic Inverter for Digital Twin Application	2658
<i>Derk Gonschor</i>	

PP239 Modular Open-Source Toolchain for Multi-Objective Power Converter Design Up to 1 MHz.....	2668
<i>Andreas Sack</i>	

MAGNETIC MATERIALS

PP241 Characterization and Feasibility Study of Nanocrystalline Core Based EMI Filters for On-Board Chargers in Electric Vehicles	2677
<i>Karnpreet Singh</i>	

PP242 Modeling Derating Curves of PCB Ferrites Impact of Core Composition.....	2684
<i>Andres Garzon</i>	

PP243 Effects of Inter-Laminar Conduction on Losses and Permeability in Laminated Cores	2690
<i>Miguel Astudillo</i>	

PP244 Magnetic Core and Component Testing Automation for Industrial Benchmarking, Databases, Design Tools.....	2700
<i>Paul Ohodnicki</i>	

PP245 Fabrication Guidelines for Amorphous and Nanocrystalline Soft Magnetic Components.....	2710
<i>Inge Lindemann</i>	

PP246 Improved DC Bias Core Loss Model by Using the Loss Separation Technique.....	2716
<i>Jon Anzola Garcia</i>	

PP247 Nanocrystalline Tape-Wound Cores of High-B Alloys – Fabrication and Properties	2722
<i>Merlin Thamm</i>	

PP248 A Novel Phase Shift Virtual Correction for Magnetic Core Losses Measurement.....	2727
<i>Anartz Agote</i>	

GAN DEVICES AND DRIVING

PP250 The Influence of Field Plates on the Dynamic RON in GaN-Based Monolithic Bidirectional Switches.....	2732
<i>Daniel Fugmann</i>	

PP251 Reliability and Robustness for 3 Phase GaN IPMs in Motor Driver Applications.....	2738
<i>Anthony Lodi</i>	

PP252 Impact of Charge Carrier Trapping on GaN-HEMT Characteristics at Cryogenic Temperatures	2744
<i>Martin Fein</i>	

PP253 Gate Driver with Vgs Clamping and DESAT for Fast Short-Circuit Protection of SiC MOSFET Modules	2753
<i>Hao Wang</i>	

PP254 Multi-Stage Short-Circuit Protection for GaN Devices	2760
<i>Haitz Gezala</i>	

PP255	Advanced Driver IC with IGSS Detection and Constant Current Driving for Inverter Applications.....	2770
	<i>Zhong Ye</i>	
PP257	A Simple AC Bootstrap Circuit for Topologies Using Bidirectional Switches	2778
	<i>Kennith Leong</i>	
PP258	A Monolithic Dual-Output High-Voltage Linear Regulator for Self-Supplying GaN Power Stages	2787
	<i>Niklas Deneke</i>	

DEVICE APPLICATION

PP259	Robust Thermal Balancing Technology for Parallel Power Modules Applications	2793
	<i>Antoine Laspeyres</i>	
PP260	Concept Proposal for HV Hot-Swap Using Novel SiC-JFET for HVDC Power Distribution in AI Datacenters	2799
	<i>Maximilian Huber</i>	
PP261	Super-Cascode Topologies Optimized for HF Insulation Diagnostics: A Multi-Stage Pulse Generator.....	2808
	<i>Christian Hüther</i>	
PP262	Research on Multi-Mode Control Strategy for High-Efficiency Four-Switch Buck-Boost Converter.....	2818
	<i>Jiahua Zhuang</i>	
PP263	Neglected Effects of Multicommutation in 2-Level SiC Inverters: Insights into Switching Behavior	2828
	<i>Marius Wegner</i>	
PP264	Enabling Compact and Efficient Motor Drives for Robotics Through GaN Half-Bridge Power Stage.....	2835
	<i>Nicholas Oborny</i>	
PP266	The Impact of Time Related Effective Output Capacitance of Power Device on ZVS Condition of DAB	2840
	<i>Cheng-Ming Shih</i>	
PP267	Parallel Connection of GaN FET Switching Legs for High-Current Applications	2846
	<i>Marco Palma</i>	
PP268	Experimental Corner-Case Analysis for Paralleling GaN Gate-Injection Transistors Using Double-Pulse Testing.....	2854
	<i>Arunkumar Jayaraman</i>	

PACKAGING MATERIALS AND TECHNOLOGY

PP270	Optimized Top-Side-Contacts for Minimizing Parasitic Inductances in GaN Based Power Module Designs.....	2863
	<i>Jesco Beyer</i>	

PP271 Design and Evaluation of Directly Attached SiC Bare Die Power Modules on Various Substrates	2869
<i>Mario Wasner</i>	
PP274 Effect of IMS Dielectric Thickness on Power Loss and Heat Dissipation in VHF Power Conversion.....	2879
<i>Ioannis Nikiforidis</i>	
PP275 Dielectric Breakdown Characteristics of Alumina-Based Ceramic Thin Films Deposited by Aerosol Deposition Method.....	2886
<i>Ichiro Ota</i>	
PP276 Creepage Distances for High Voltages on PCBs Revisited?	2891
<i>Michael Schleicher</i>	
PP277 Are Conformal Coatings Fit for 400 V and 800 V Applications?	2900
<i>Alexander Beer</i>	

POWER CYCLING RELIABILITY

PP280 Dependency of Large Area Substrate Solder Lifetime on Different Stress Parameters in Power Cycling	2905
<i>Nils Zöllner</i>	
PP281 Investigation of Aging Effects and Current Sharing in a SiC MOSFET Module with Baseplate	2914
<i>Elena Mengotti</i>	
PP282 Calibration of a 3D Thermo-Mechanical Simulation Model of a PCB Mounted Power MOSFET Using Power Cycling Tests	2922
<i>Patrik Suhaj</i>	
PP283 Refined Power Cycling Results for Reliability Studies of SiC-Inverters.....	2930
<i>Robert Keilmann</i>	
PP285 Challenges of Accelerated Power Cycling Tests at Increased Temperature Swings	2940
<i>Vivien Grau</i>	
PP286 Reliability and Lifetime Power Cycling Study of GaN HEMTs Under Temperature Swings from 70°C to 100°C.....	2950
<i>Xiangyu Wang</i>	
PP287 Sample Size Determination for Power Cycling of Discrete IGBTs	2960
<i>Patrick Heimler</i>	

INTELLIGENT POWER MODULES AND CONTROL

PP288 Multilayer Power Module Design Using the Die on Lead Frame Technology and Integrated Driver PCB.....	2970
<i>Christian Hennig</i>	
PP289 A 650-V SiC Intelligent Power Module for High-Efficiency Motor-Drive Systems	2979
<i>Jaewook Lee</i>	

PP290	Estimation of Switching Losses in Discrete and IPM MOSFETs for Inverter Design.....	2985
	<i>Jongmu Lee</i>	
PP291	Integrated Drain-Capacitor-Self-Supply in a 350V PMIC for Fast Switching GaN-Based Half-Bridges	2993
	<i>Christoph Hillmer</i>	
PP292	Embedded Implementation of a Thermal Coupling Matrix Using AURIX TC4x Parallel Processing Unit for xEV Applications.....	3000
	<i>Renke Han</i>	
PP293	Mixed Signal Compact Controller Device for Type-C EPR Battery Charger and Power Supply Solutions.....	3007
	<i>Venkata Appanabhotla</i>	

POWER ELECTRONICS FOR E-MOBILITY I

PP294	Multiport Planar Transformer Design and Optimization for Combined OBC and DC-DC Power Conversion in EVs	3012
	<i>Oscar Lucia</i>	
PP295	Enabling More Power Dense and Durable 500 V Battery Systems with 750 V Compact, Overmolded Modules	3017
	<i>Brett Sparkman</i>	
PP296	Ultra-Compact Discrete Semiconductor Package for Use in Automotive Power Electronics.....	3022
	<i>Lathom Louco</i>	
PP297	Hybrid Physics–AI Framework for Real-Time Junction Temperature Estimation in EV Power Semiconductor.....	3027
	<i>Chi Zhang</i>	
PP298	Minimizing Thermal Imbalances in Paralleled SiC MOSFETs: The Impact of High Switching Speeds on Tvj	3034
	<i>Tomas Reiter</i>	
PP299	Development of the New 1200V SiC MOSFET-Based Transfer Molded Module for Automotive Applications.....	3041
	<i>Tony Kwon</i>	
PP300	Commercialization of a Cost-Optimized Hybrid Si/SiC EV Inverter with Minimum Die Area	3047
	<i>Hao Chen</i>	

CONTROL TECHNIQUES IN ELECTRICAL DRIVES

PP301	Modeling of Monolithic Bidirectional GaN HEMTs Using the Physics-Based ASM-HEMT Compact Model	3052
	<i>Aline Reck</i>	
PP302	Simulation-Based Evaluation of Structural Switching Methods for AC Machines in the Field-Weakening Range	3060
	<i>Ellen Bünte</i>	

VOLUME 5

PP305 Energy-Aware Stator-Flux-Oriented Induction Generator Control for Trailerbased Refrigeration Units	3069
<i>Volker Staudt</i>	
PP306 Synchronous Optimal Pulse Patterns (SOPP) for PMSM Electrical Drives Based on AURIX TC4x	3077
<i>Marko Gecic</i>	
PP307 Enhancing Traditional Controllers with Reinforcement Learning Agents in Electric Drives	3085
<i>Nandor Szecsenyi</i>	
PP308 Current Control in Asymmetrical Segmented Multiphase Machines Using Vector Space Decomposition.....	3094
<i>Ann-Sophie Schmitt</i>	

DC GRIDS

PP310 Smart Circuit Breaker for Smart Low Voltage DC Power Grids.....	3102
<i>Kenan Askan</i>	
PP311 Adaptive Control of Multi-Source Low Voltage DC Traction Systems	3112
<i>Mohammad Rajabi Nasab</i>	
PP312 Coordinated Converter-Side and Feeder-Side Active Impedance Control for DC-Grid Stability	3122
<i>Ehsan Asadi</i>	
PP313 Stability Considerations in DC Grids.....	3132
<i>Peter Van Duijsen</i>	
PP314 Harmonic Magnetic Field Energy Harvesting for Self-Powered Sensors in DC Grid	3142
<i>Antonio Miguel Munoz Gomez</i>	
PP315 Practical Implementation and Evaluation of Two Detection Algorithms for Series DC Arcs	3150
<i>Emmeline Danckaert</i>	

POWER QUALITY

PP316 Improvement of a Single-Phase UPQC Performance by Using DE Metaheuristic for Tuning PI and SF-MR Controllers Gains	3159
<i>Sergio Da Silva</i>	
PP317 A Comparative Analysis of PFC Architectures in On-Board Chargers: Pursuing Zero Harmonics	3169
<i>Sara Bourouga</i>	
PP318 Introduction of a CHB-Inverter/SSBC MMCC in a Four-Leg Converter Configuration.....	3179
<i>Alexander Bode</i>	
PP319 UIS Test Setups for Characterization of Power MOSFETs.....	3187
<i>Sabrina Ulmer</i>	

CAPACITORS AND RESISTORS

PP320	High Temperature Capacitors for eMobility - Technology Overview	3197
	<i>Adel Bastawros</i>	
PP321	Application Oriented Aging for AC- And DC-Capacitors in Photovoltaic Inverters	3204
	<i>Christian Lottis</i>	
PP322	High Temperature Metallized Film Capacitors Utilizing Low Dissipation Factor Nanolayered Film	3211
	<i>Mason Wolak</i>	
PP323	Integrated High Voltage Resistors for Voltage Monitoring in Isolated and Non-Isolated Systems.....	3216
	<i>Esteban Garcia</i>	
PP324	Enabling Precision Current Measurements for Control in Modern Grid Systems	3223
	<i>Shreyankh Krishnamurthy</i>	
PP325	Low-Profile, High-Current Vertical Shunt Resistor: Development and Packaging for Power Modules.....	3229
	<i>Thiyu Warnakulasooriya</i>	
PP326	A Comparative Study of Stelora™ EPN Vs. Isotactic Polypropylene Used in Film Capacitors.....	3234
	<i>Thomas Pichler</i>	

ADVANCED SENSORS

PP327	Inductive Long-Range Position Sensor Integrated on Flexible Substrates.....	3242
	<i>Jay Khazaai</i>	
PP328	LED Powered Rotor Telemetry System with Simultaneous Data and Energy Transmission.....	3248
	<i>Raphael Beyerle</i>	
PP329	Advanced Current Source for Thermal Impedance Measurement with Integrated Filters and Data Recorder	3257
	<i>Jan Fuhrmann</i>	
PP330	Smart Compliance Validation of IEEE 1547.1 and EN 50549 for Grid-Tied Inverters Using Oscilloscopes	3263
	<i>Vivek Shivaram</i>	
PP331	In-Depth Analysis of Multilevel Battery Systems with Multi-Channel High-Performance Data Acquisition	3269
	<i>Lars Leister</i>	
PP332	Low-Cost 2-Wire Interface for Condition Monitoring of Sensorless Controlled Motors	3279
	<i>Jens Onno Krah</i>	

SIC AND GAN DEVICE MODELING

PP333 SiC SPICE Model Refinement Via Uncertainty Analysis and Data Fusion for Aircraft Applications.....	3288
<i>Ngoc Nam Pham</i>	
PP334 Applicability of the CoolSiC 1200 V G2 Compact Models Across a Wide Range of Applications and Operation Conditions.....	3295
<i>Andreas Huerner</i>	
PP335 Simulating Active Short Circuit Characteristics of SiC MOSFETs Using Compact Models.....	3305
<i>Qing Sun</i>	
PP336 Calibration of Electrical Models for SiC MOSFET and Diode Using Neural Network	3311
<i>Mohammed Amira</i>	
PP337 An Analytical Model for Switching Transients of GaN Devices Considering Crosstalk and Reverse Conduction Transient.....	3318
<i>Renhe Shao</i>	
PP338 Simulation-Based Sensitivity Analysis of Switching Losses in a GaN-Half-Bridge	3325
<i>Benedikt Kohlhepp</i>	
PP339 A Novel Physics-Based SPICE Model for 1.2kV Vertical GaN.....	3335
<i>Kan Jia</i>	
PP340 Performance Evaluation of AlN/AlGaN/AlN HEMTs for High-Voltage Power Switching Applications.....	3340
<i>Aadil Anam</i>	

HIGH POWER DENSITY DESIGNS II

PP341 SiC MOSFETs in Parallel Switching for MW Inverter Applications.....	3349
<i>Christian Bender</i>	
PP342 Warpage Relaxation of Pre-Bent Cu Baseplates with Grooves During Reflow in Power Modules.....	3358
<i>Seunghyun Won</i>	
PP343 Power Semiconductor Assembly to Boost Power-Density in Commercial Vehicle Drivetrain Designs.....	3364
<i>Martin Schulz</i>	
PP344 DBC-Integrated PCB-Embedded GaN Power Module with Double-Sided Cooling for Improved Performance	3371
<i>A Yeong Choi</i>	
PP345 Effect of Resin-Insulated Substrate Application on the Cooler Joint in Automotive Power Modules.....	3378
<i>Tsubasa Watakabe</i>	

POWER ELECTRONIC COMPONENTS RELIABILITY

PP347	Benchmarking Press-Fit Zones in Power Electronics: Linking Geometry and Reliability	3386
	<i>Akshata Ankush Sangle</i>	
PP348	Influence of DC-Link Voltage and Case Temperature on Short-Circuit Robustness of SiC MOSFETs.....	3395
	<i>Krisztián Kovács</i>	
PP349	DC AC Operating Life Test for 650V GaN FETs Method and Results.....	3400
	<i>Sebastian Klötzer</i>	
PP352	Influence of Substrate and Coating Variations on Crack Propagation in Silver-Sintered Wide Band Gap	3405
	<i>Benjamin Fabian</i>	
PP353	A Hybrid Chemical–Mechanical Reinforcement for EMC–AMB Interfacial Reliability in SiC Power Modules.....	3415
	<i>Han Cai</i>	
PP354	SiC MOSFET Gate Switching Stress with In-Situ Threshold Voltage Monitoring.....	3421
	<i>Diane Bonkounou</i>	
PP355	Online Condition Monitoring of SiC Power Modules Using Turn-Off Delay Time and Neural Networks.....	3429
	<i>Victor Golev</i>	
PP356	Experimental Validation of Thermal Degradation Detection in Solder Joints of Passive Components.....	3439
	<i>Christoph Schmickler</i>	

INTELLIGENT GATE DRIVE UNITS

PP357	A Comprehensive Comparison of Resonant Gate Drive Concepts	3446
	<i>Muhammad Umair Munir</i>	
PP358	Counteraction of Inductance-Based Passive Current Balancing Methods for Paralleled GaN Devices.....	3456
	<i>Tianyu Li</i>	
PP359	Design and Integration of a Compact Half-Bridge Gate Driver for 3.3 kV SiC MOSFET Modules.....	3466
	<i>Priyanka Ghosh</i>	
PP360	Adaptive Gate Shaping Using Gate Driver Parameter Identification and Drain Current Sensing for 3-Phase Inverters.....	3476
	<i>Pushkar Kulkarni</i>	
PP361	Intermediate Impedance Step Active Gate Driving Feature Analysis and Optimization.....	3485
	<i>Lorenzo Leijnen</i>	
PP362	Single-Profile Active Gate Driving of SiC Modules Across the Full AC Current Range	3491
	<i>Pramit Nandi</i>	

LOW POWER AC-DC AND DC-AC CONVERTERS II

PP363	Experimental Characterization of Saturable Ferrite Filter Inductors for Three-Phase Inverters.....	3500
	<i>Marius Kaufmann-Bühler</i>	
PP364	A Unidirectional Single-Phase PFC with Active Power Decoupling	3509
	<i>Giorgio Valente</i>	
PP365	High-Efficiency 22 kW Bidirectional Battery Charger Based on ACEPACK SMIT 1200 V SiC Power Modules.....	3515
	<i>Francesco Gennaro</i>	
PP366	Energy Buffer Circuit for Hold-Up Extension and Grid Current Shaping Purposes in AI Data Centers	3520
	<i>Theodoros Mouselinos</i>	
PP367	Novel Cost-Efficient Three-Phase PFC-Rectifier Topology on a Commercial Scale	3531
	<i>Cem Karci</i>	
PP368	SiC-Based DC-AC Power Conversion Systems: A Path to Modular, Compact, and Efficient Designs	3539
	<i>Suresh Thangavel</i>	
PP046	Dying Gast Power Design for Communication Networks: Evaluation of Existing Topologies	3544
	<i>Willy Stephen Tounsi Fokui</i>	

TRACTION IN E-MOBILITY

PP370	Scalable Power Module for Automotive Traction Inverter with High Power Density Using Power Chip Embedding.....	3550
	<i>Achim Endruschat</i>	
PP371	Compact and Efficient Integrated Bias Supply Enabling Active Gate Drive Voltage Control.....	3558
	<i>Fabrizio Dicone</i>	
PP372	A Virtual Prototype eTRUCK Inverter Investigation with HybridPACK HD	3566
	<i>Olca Korkmaz</i>	
PP373	A Cost-Optimized Approach to xEV Traction Inverter Design Using Discrete SiC-MOSFETs	3574
	<i>Dongsoo Kim</i>	
PP374	Development of a Power Control Unit Built into e-Axle for the 6th Generation Plug-In Hybrid System.....	3579
	<i>Satoshi Yasuda</i>	
PP375	Comprehensive Comparison of Si IGBTs and SiC MOSFETs in Automotive Exciter Module Applications	3588
	<i>Saad Khalid</i>	

PP376 Active Short Circuit Strategies Considering Hybrid Converter Topologies with Normally-On Devices	3598
<i>Tim Ringelmann</i>	
PP377 xEVCap Next Level: Capacitor Bank and Thermo-Mechanical Evaluation of a Powertrain Inverter	3605
<i>David Olalla</i>	
PP378 Impact of Soft Reverse-Recovery in 1200 V SiC MOSFETs on xEV Traction Inverter Efficiency and Performance	3614
<i>Hansol Seo</i>	

DIGITAL DRIVES AND MOTION CONTROL

PP379 Digital Controller Implementation for a Multiphase Electric Drive Testing Platform Using RCP Tools.....	3623
<i>Ane Gelbentzu-Arriaga</i>	
PP380 Sensorless High Frequency Injection (HFI) Field-Oriented Control (FOC) for Maximum Torque at Zero Speed in Power Tools and Other Industrial Motor Applications.....	3628
<i>Christoph Stangl</i>	
PP382 Quantifying the Efficiency Advantage of Cascode GaN FETs in Variable-Speed Drives.....	3638
<i>Marco Ruggeri</i>	
PP383 Miniaturization in Low Voltage Motor Drives Through Integration and Flip Chip Power Packaging	3644
<i>Nicholas Oborny</i>	
PP384 Automation Drives Built Using Intellectual Property Provided by Microprocessor Vendors	3654
<i>Joschka Laufs-Randerath</i>	
PP385 Multi-Axis Safe Motion Based on Standard Hardware with Diverse Algorithm Processing	3664
<i>Jens Onno Krah</i>	

BATTERY MANAGEMENT AND STORAGE

PP386 Viability of Modular Battery Systems: Cost-Of-Storage Analysis.....	3671
<i>Manex Aizpurua</i>	
PP387 Initial Scaled Demonstrator of an Off-Grid Electric Vehicle Charging Station	3677
<i>Yazan Al-Wreikat</i>	
PP388 Residual Magnetizing Current Elimination in MAB-Based Active Balancing by Multiwinding Planar Transformer Design.....	3686
<i>Francesco Porpora</i>	
PP391 Cell-Level 1s-MMC Topology for Intelligent Battery Management and Enhanced Active Balancing.....	3691
<i>Rakshith Satheesh</i>	
PP392 Lithium-Ion Battery Degradation Diagnostics: Influence of Cell Balancing Method.....	3700
<i>Sergio Fernandez Gonzalez</i>	

PP393	A Thermal Zone Based Hybrid Balancing Strategy for Battery Storage Systems	3709
	<i>Meng Chen</i>	

MICRO GRIDS AND GRID STABILITY

PP394	Conductive AC-Charging of a Moving Platoon Utilizing State-Of-Charge Dependent Droop Control.....	3714
	<i>Jan Wiegard</i>	
PP395	The Cost of Simplified Battery Degradation Models in Microgrid Sizing.....	3722
	<i>June Urkizu</i>	
PP396	Transient Coordination in Weak Multi-Feeder AC Networks With Low-Voltage Series Modules.....	3732
	<i>Ehsan Asadi</i>	
PP397	High-Dynamics Measurement System for Impedance Characterization of Grid-Forming Converters	3742
	<i>Lucas Ehrlich</i>	
PP398	Physics-Guided Machine Learning for Fault Protection in LVDC Microgrids	3750
	<i>Neeraj Sanjay Mogal</i>	

CURRENT SENSORS AND CURRENT MEASUREMENT

PP399	Pushing Miniaturisation in Current Sensing: Ultra-Compact Mini-M-Shunts for Even Faster Transients.....	3759
	<i>For Even Faster Transients Hauke Lutzen</i>	
PP400	High-Bandwidth Magnetic Current Sensors: Fast Protection and Control in Modern Power Conversion.....	3766
	<i>Sudhir Nagaraj</i>	
PP401	In-Phase Current Sensing: Error and Performance Analysis.....	3772
	<i>Michael Schmidt</i>	
PP402	Comparison and Calibration of Medium-Voltage Oscilloscope Probes Using Transmission Line Pulses	3780
	<i>Chad Fortin</i>	
PP403	Clip-On Current Sensor for Price-Sensitive Markets.....	3788
	<i>Gerhard Wessels</i>	

COUPLED INDUCTORS AND TRANSFORMERS

PP405	Comparative Evaluation of Electrical Core Loss Measurement Methods.....	3793
	<i>Jamshid Kavianpour Sangeno</i>	
PP406	A Fast Analytical Method for Calculating Leakage Inductance in Interleaved Toroidal Transformers.....	3803
	<i>William Bourne</i>	
PP407	Evaluation of Magnetic Integration in Context of Halfbridge Paralleling	3808
	<i>Minjia Chen</i>	

PP408 Comparative Study of PCB-Integrated Air-Core Coupled Inductors for Interleaved
Converters 3814
Javier Ballestin Fuertes

PP409 Volume Optimized Magnetic Components for DC-DC Converters in Fuel Cell Vehicles 3823
Michael Schmidhuber

PP410 Novel All-In-One TLVR Construction for AI and Server Applications 3831
Jan Zimon

Author Index