

Conference Program PCIM 2025

Keynote

- K01 **Medium Voltage Power Electronics Building Blocks for Future Electronic Energy Networks**
Dushan Boroyevich, Virginia Tech, USA
- K02 **Monolithically Integrated Bi-Directional Switch (BDS) GaN HEMT Technology**
Michael Harrison, Enphase Energy, US
- K03 **Challenges of Green Growth – Limited Energy Return on Energy Invested & Critical Raw Material Shortage**
Johann W. Kolar, ETH Zürich, CH

SiC MOSFET

- OP001 **SiC MOSFET Module Using Body Diode with High Reliability for Industrial Applications**
Hidetaka Matsuo, Mitusbishi Electric Corporation, JP; Yuji Miyazaki, Masayuki Imaizumi, Mitsubishi Electric Power Device Works, JP; Koichi Masuda, Mitsubishi Electric, DE
- OP002 **Impact of SBD Embedding into SiC MOSFETs on the Dynamic Behavior at High Temperature**
Shunsuke Asaba, Masaru Furukawa, Hiroshi Kono, Toshiba Electronic Devices & Storage, JP
- OP003 **The 1200V CoolSiC M2 Easy C and .XT Interconnection Technology: Redefining Efficiency and Lifetime**
Ainhua Puyadena, Paul Salmen, Daniel Heer, Frederick Groepper, Andreas Korzenietz, Infineon Technologies, DE

Packaging Concepts

- OP004 **The Novel High Reliability Materials for Power Module**
Yuta Ikari, Go Ichizawa, Cecilia Yustisia, Hwa Yoo, Sumitomo Bakelite, SG
- OP005 **High Reliability Al Bonding Wire for Power Devices**
Tomohiro Uno, Tetsuya Oyamada, Yuya Suto, Nippon Steel, JP; Motoki Eto, Tadashi Yamaguchi, Nippon Micrometal, JP
- OP006 **Comparison Between a Single-Side Cooled and Two Double-Side Cooled Power Module Layouts**
Konstantin Kostov, Lakshmi Priya Gandla, Mietek Bakowski, Saeed Akbari, RISE Research Institutes of Sweden, SW; Kooros Moabber, Volvo Car, SW

Converter Design Optimisation

- OP007 **22kW High-Power-Density Bidirectional DC-DC Converter with Top-Side-Cooled SiC MOSFETs for OBCs**
Yuequan Hu, Wolfspeed, US; Hailin Wang, Zongzeng Hu, Chen Wei, Wolfspeed, CN
- OP008 **Innovative 12 kW Three-level Power Supply for AI Servers Empowered by 400 V SiC MOSFET Technology**
Martin Wattenberg, Matthias Joachim Kasper, Alessandro Pevere, Ralf Siemienieć, Gerald Deboy, Infineon Technologies, AT
- OP009 **A Quasi 2-Level Modulation Technique to Increase Efficiency and Reduce Motor Overvoltage**
Sebastian Gick, Mark-M. Bakran, University of Bayreuth, DE; Markus Pfeifer, Sebastian Nielebock, Siemens, DE

Modeling and Simulations I

- OP010 **Double-Injection Based Plasma SPICE Modeling in IGBTs with High Carrier Confinement**
Arnab Biswas, Maria Cotorogea Infineon Technologies, DE; Peter Tuerkes, PT Consult, DE
- OP011 **Evidence of Frequency-dependent SiC Power MOSFET Capacitances in Switching Transients**
Michel Nagel, Ivana Kovacevic-Badstuebner, Anja Katerina Brandl, Salvatore Race, Ulrike Grossner, ETH Zurich, CH
- OP012 **Digital Design for High-Performance IGBT Devices Using Machine Learning and Multi-Physics Simulation**
Nayeon Choi, Sung-Uk Zhang, Dong-Eui University, KR

Monitoring and Testing

- OP013 **Precision Junction Temperature Monitoring with Integrated Sensor: and Comparison with In-situ Methods**
Ismail Recepi, Lukas Adelbrecht, Christian Mentin, Stefan Mollov, Silicon Austria Labs, AT; Severin Kampl, Infineon Technologies, AT
- OP014 **On the Importance of Appropriate Current Probes for Double Pulse Tests and How to Select Them**
Sebastian Sprunck, Fraunhofer Institute IEE, DE; Hauke Lutzen, Nando Kaminski, University of Bremen, DE; Marco Jung, University of Applied Sciences Bonn-Rhein-Sieg, DE
- OP015 **AI Techniques for Continuous Monitoring of Winding Insulation Health of Transformers**
Gayan Wickramasinghe, Ruchira Yapa, University of Central Lancashire, UK; Kapila Warnakulasuriya, University of Teesside, UK; Vajira Dhanapala, Buckingham Magnetics, UK

Virtual Prototyping

- OP016 **Intelligent Methodology for Efficient Power Module Design by SPICE-based Virtual Prototyping**
Taegyun Lee, Inpil Yoo, Indrajit Paul, Valentin Divay, STMicroelectronics, DE; Michele Aparo, Edoardo Matteo Marchica, STMicroelectronics, IT
- OP017 **Method to Fit a HV-IGBT TCAD-Model to Match the Switching Behaviour in Measurements**
Tim Scheel, Lukas Tomforde, Hans-Günter Eckel, University of Rostock, DE
- OP018 **Thermal Neural Networks for Temperature Estimation of Traction Inverters in Electric Vehicles**
Jessica Yu, Prabhakaran Alagarsamy, Volkswagen, DE; Oliver Wallscheid, University of Siegen, DE

High Power Converters

- OP019 **Active Power Decoupling using Zero-Sequence Inductance of Three-Phase Transformer**
Yi Han, Satyam Sa, Cheng Feng Wang, Olivier Trescases, University of Toronto, CA
- OP020 **A 2MW Power Stack Design with LV100-Package IGBT Modules for Renewable Energy Application**
Zheng Feng Li, Nobuya Nishida, Ryo Tsuda, Mitsubishi Electric, JP; Koichi Masuda, Narendra Lakshmanan, Mitsubishi Electric, DE
- OP021 **Test Rig for Investigation of New Generation of 3.3kV SiC MOSFET based Traction Converters**
Pavel Drabek, Zdenek Peroutka, Jan Molnar, Martin Jara, Ales Peroutka, Stepan Janous, Ondrej Suchy, University of West Bohemia, CZ; Yohei Mitsui, Shota Morisaki, Yasushige Mukunoki, Mitsubishi Electric, JP

Hybrid Device Concepts

- OP022 **Evaluation of a 650 V GaN Si SiC Hybrid Power Switch**
Alireza Sheikhan, Ekkanath Madathil Sankara Narayanan, University of Sheffield, UK
- OP023 **Parallel Operating SiC MOSFET and Si RC-IGBT in SLIMDIP for Higher Efficiency Air Conditioners**
Toma Takao, Keisuke Kawamoto, Haruhiko Murakami, Akiko Goto, Koichiro Noguchi, Kazuki Takakura, Mitsubishi Electric, JP; Mustafa Cem Ozkilic, Mitsubishi Electric Europe, DE
- OP024 **Soft Switching Method for MOSFETs used in Low Voltage DC Solid-State Circuit Breakers**
Kenan Askan, Eaton Industries, AT; Radek Kloff, Eaton European Innovation Center, CZ

Condition Health Monitoring

- OP025 **Neural Network-Enabled Condition Monitoring of DC-Link Capacitors in Three-Phase Inverters**
Youssef Fassi, Jérôme Boutet, Vincent Heiries, Sébastien Boisseau, CEA-Leti, FR; Xing Wei, Shuai Zhao, Huai Wang, Aalborg University, DK
- OP026 **Machine Learning and Digital Twins for RUL Prediction of DC Semiconductor Circuit Breakers**
Lena Köhler, Marco Messinger, Kilian Drexler, Martin Schellenberger, Georg Roeder, Vincent R. H. Lorenz, Fraunhofer IISB, DE; Anna Rusakova, Noopur Amoli, Johann Wagner, GEFASOFT Engineering, DE
- OP027 **Film Capacitors in the High Voltage - Temperature Humidity Bias (HV-THB) Test**
Sven Clausner, Nando Kaminski, Tjark Djuren, University of Bremen, DE

Package Reliability

- OP028 **Physics-Based Reliability Analysis of Power Modules at Substrate and Component Level**
Anu Mathew, Susana Oliveira Richter-Trummer, Sven Rzepka Jan Albrecht, Fraunhofer Institute ENAS, DE; Corinna Grosse-Kockert, Berliner Nanotest und Design, DE; Daniel May, Dong Xie, Mohamed Alaluss, Patrick Heimler, Thomas Basler, Chemnitz University of Technology, DE
- OP030 **Power Semiconductor Package Structure Highly Robust against Power Cycling Stress at $\Delta T_{vj}=165^{\circ}\text{C}$**
Yuki Tanaka, Makoto Mizukami, Nobutaka SAGAMI, Hideo Nakako, Dai Ishikawa, Resonac, JP
- OP031 **Influence of Low Temperature Swings and Short Heating Times on the Power Cycling Capability of IGBTs in Discrete Housings**
Patrick Heimler, James Abuogo, Sören Gesell, Josef Lutz, Thomas Basler, Jens Heilmann, Patrick Türk, Bernhard Wunderle, Chemnitz University of Technology, DE

Pulse Width Modulation

- OP032 **Hybrid Pulse Width Modulation for Optimizing Key Index Parameters in Multi-Level Traction Inverters**
Kooros Moabber, Volvo, SW; Vishal Rajesh Bhat, University of Bologna, IT
- OP033 **Angle Synchronized PWM to Enable High Degree of Overmodulation for Increased E-Drive Performance**
Thomas Zeltwanger, Gunther Götting, Michele Hirsch, Robert Bosch, DE
- OP034 **Selective DPWM (SDPWM) Method for Inner Modulation ANPC with Paralleled SiC MOSFET and IGBT**
Gergő Varga, Vincotech, HU

Measurement Methods

- OP035 **Thermal Impedance Spectroscopy by Varying the Gate Voltage during Inverter Operation**
Michael Gleissner, Mark-M. Bakran, University of Bayreuth, DE
- OP036 **Accuracy Comparison of Temperature Sensors for the Thermal Characterization of GaN Transistors**
Aline Reck, Ingmar Kallfass, Dominik Koch, University of Stuttgart, DE
- OP037 **Novel Short Circuit Detection Using an Isolated Add-on Coil on Type-B LV-nHPD2 Package**
Akira Mima, Hitachi, JP; Konno Akitoyo, Minebea Power Semiconductor Device, JP

Power Electronics for E-Mobility II

- OP038 **Using Embedding Die Technology in GaN Half Bridge Module for 48V Inverter Application**
Olca Korkmaz, Andreas Schuppan, AVL Software and Functions, DE; Mike Morianz, Thomas Köck, Markus Kastelic, AT & S Austria Technologie & Systemtechnik, AT; Maximilian Hepp, Daniel Messering, Mercedes-Benz, DE
- OP039 **Optimal Design of the DAB as a Single Stage DC/DC Interface for Bidirectional DC Chargers**
Simon Fuchs, Morris Fuller, Milad Khani, Shazeb Jehangir, ambibox, DE
- OP040 **Optimized Modulation of Isolated Bidirectional Single-Stage Three-/Single-Phase X-Rectifier for EV On-Board Chargers**
Sven Weihe, Johann W. Kolar, ETH Zurich, CH; Jonas Huber, Advanced Mechatronic Systems Center, CH
- OP041 **An Evaluation of the Performance and Efficiency of a Si/SiC Fusion Power Module Based Inverter**
Nikolaj Gorte, Christoph Pannemann, Hakan Akabay, Infineon Technologies, DE
- OP042 **New HybridPACK HD – Key to Reliable Highest Performance eTRUCK Inverters for Heavy-Duty Operation**
Christian Müller, Krzysztof Mainka, Gernot Stracke, Ulrich Nolten, Wilhelm Rusche, Infineon Technologies, DE

SiC Robustness

- OP043 **A Novel Test Method for Bipolar Degradation under Short Dead Times**
Clemens Herrmann, Mengdi He, Mohamed Alaluss, Christian Herold, Thomas Basler, Chemnitz University of Technology, DE
- OP044 **Surge Current Robustness of 1.2 kV SiC JFETs for Active Short Circuit Events in Automotive Applications**
Tim Ringelmann, Andreas Bäuml, Mark-M. Bakran, University of Bayreuth, DE

- OP045 **Robustness of SiC MOSFETs Design Under Repetitive Short Circuit and Avalanche Cycles Stress**
Andrea Piccioni, Gabriel Conti, Infineon Technologies, AT
- OP046 **Short-Circuit Behavior of Quasi Series Connected SiC-MOSFETs: Measurements and Simulative Validation**
Christian Bäumler, Thomas Basler, Chemnitz University of Technology, DE; Felix Gesele, Universität der Bundeswehr, DE; Thomas Brückner, Universität der Bundeswehr Munich, DE
- OP047 **SiC MOSFET Reliability Assessment Under Accelerated Dynamic Reverse Bias Methodology**
Abdul Haleem Malik, Mohammed Amer Karout, Ahmed Topkil, Philip Mawby, M. Taha, University of Warwick, UK

Materials for Thermal Management

- OP048 **Advanced Copper-Based CTE-Composites with High Performance vs Cost Ratio Made by a Novel Technology**
Andreas Zeller, Darek Kossakowski, Matteo Zanon, Kymera International - Ecka Granules, DE
- OP049 **The Usage of Power Metallurgy in Power Electronic Applications**
Markus Schneider, GKN Powder Metallurgy, DE; Virgil Savu, Ian Donaldson, Tom Fonville, GKN Powder Metallurgy, US; Alessandro DeNicolo, Omar Franceschi, GKN Powder Metallurgy, IT
- OP050 **Reliability Testing of Liquid Metal Embedded Elastomers for Power Modules**
Cara Rossetti, Dylan Shah, Navid Kazem, Tomoya Yamashiki, Loren Russell, Arieca, US
- OP051 **Novel Interlayer Alloy for Bonding High Conductivity Metals to Silicon Using Laser Powder Bed Fusion**
Andrea Mistrini, Polytechnic University of Milan, IT; Amin Hodaei, Davoud Jafari, University of Twente, NL; Riccardo Casati, PoliMI, IT
- OP052 **LIME: Liquid Metal Interconnections for Power Semiconductors**
Nick Baker, Andrew Lemmon, Su Gupta, Alec Mshar, University of Alabama, US; Szymon Beczkowski, Kjeld Pedersen, Thore Aunsborg, Asger Bjorn Jorgensen, Ruben Garcia, Aalborg University, DK; Francesco Iannuzzo, Polytechnical University of Turin, IT

Inductors & Transformers Design

- OP053 **Improved Insulation Design of Medium-Frequency Transformers Using a Semiconductive Coil Former**
Bastian Korthauer, Juergen Biela, ETH Zurich, CH
- OP054 **Fast Analytical Model for Losses of Litz Wire in Transformers with Arbitrary Winding Arrangements Based on Triple 2D Concept**
Qingchao Meng, Juergen Biela, ETH Zurich, CH

OP055 **Transient Stress to the Insulation of a Power Inductor with HF Litz Wire or Copper Foil**
Lukas Reißenweber, Alexander Stadler, Coburg University of Applied Sciences, DE; Ingo Hahn, Friedrich-Alexander-University Erlangen-Nuremberg, DE

OP056 **AI based Multi Criterion Optimization Solution for Magnetic Design**
Gayan Wickramasinghe, Ruchira Yapa, University of Central Lancashire, UK; Kapila Warnakulasuriya, University of Teesside, UK; Vajira Dhanapala, Buckingham Magnetix, UK; Gayashan Porawagamage, University of Manitoba, CA

OP057 **Extremely High Q-factor Inductor for Loss Reduction in Power Converters for MHz Range**
Franci Zajc, Anja Zajc, Ivica Zajc Zdešar, Franc Zajc, FRAZA, SI

Intelligent Gate Drivers

OP058 **A Gate Drive Circuit for GaN GIT Power Semiconductors with a Minimal Number of Components**
Bikash Sah, Bonn-Rhein-Sieg University of Applied Sciences, DE; Sebastian Sprunck, Fraunhofer IEE, DE; Marco Jung, University of Applied Sciences Bonn-Rhein-Sieg and Fraunhofer IEE, DE

OP059 **Low-Loss Active Gate Driver with Surge Voltage Detection for SiC MOSFET**
Hironori Akiyama, Akimasa Niwa, Mitsuyasu Abe, MIRISE Technologies, JP

OP060 **Gate Drive Concept for Power Semiconductors in Cryogenic Applications**
Marek Galek, Josef Klugbauer-Heilmeyer, Munich University of Applied Sciences, DE; Florian Kapaun, Airbus Central Research & Technology, DE; Gerhard Steiner, Ravi-Kiran Surapaneni, Gowtham Galla, Airbus, DE; Ludovic Ybanez, Airbus, FR

OP061 **An Active Gate Driver to Enhance SiC-MOS Performance Utilising a Controlled Parasitic Turn-on Effect**
Michael Frank, Mark-M. Bakran, University of Bayreuth, DE

OP062 **IGBT Module Demonstrator for High Frequency Applications with Integrated Driver and DoL Technology**
Ruman Mahapatra, Thomas Ebel, Kasper Mayntz Paasch, University of Southern Denmark, DK; Christian Hennig, Aylin Bicakci, University of Applied Sciences Kiel, DE; Ramkrishan Maheshwari, SDU Center for Industrial Electronics, DK; Stefan Behrendt, Semikron Danfoss, DE

Innovative Drive Systems for E-Mobility

OP063 **The Impedance Matrix Approach - Machine Modulation Effects from kHz to MHz**
Jan Allgeier, Robert Bosch, DE

OP064 **Meeting Standby Energy Requirements in Motor Drive Applications**
Juan Paolo Quismundo, John Emmanuel Tan, Power Integrations, PH

- OP065 **Integrated High-Resolution Flux Sensing Array for Next Generation High Performance Traction Drives**
Michael Saur, Mercedes-Benz, DE
- OP125 **A Modular Rapid Prototyping Test Bench Platform for Accelerated Electric Drive Research**
Stephan Goehner, Alexander Oerder, Tobias Zeller, Benjamin Bachowsky, Mattis Parche, Leonard Geier, Martin Bremer, Christian Digel, Benedikt Schmitz-Rode, Johannes Stoß, Matthias Brodatzki, Andreas Liske, Martin Doppelbauer, Marc Hiller, Karlsruhe Institute of Technology, DE; Felix Hoffmann, Schaeffler Automotive, CH
- OP066 **Position Sensorless Control of a Motor-Pump-Unit for an Active Suspension in Automotive Applications**
Andreas Lang, Richard Spießberger, Manfred Schrödl, Technical University of Vienna, AT

Converter Design for E-Mobility

- OP067 **Single-Stage Isolated AC/DC Converter for Highly Efficient On- Board Charger**
Xiaoshan Liu, Wendell Da Cunha Alves, Gnimdu Dadanema, Ibrahim Guenoune, Valeo Power Division, FR
- OP068 **Future of Bidirectional On-Board Charging: A comparative Analysis of CLLC and DAB topologies**
Hector Sarnago, Oscar Lucia, University of Zaragoza, ES; Francisco Cabaleiro, Jonas Muehlethaler, Frenetic, ES
- OP069 **Performance Comparison between GaN-based Flying Capacitor and Active Neutral Point Clamped Three-Level Active Front End**
Francesco Gennaro, Giuseppe Aiello, Dario Patti, STMicroelectronics, IT; Giacomo Scelba, Angelo Di Cataldo, Reza Akbari, Alessandro Lieto, University of Catania, IT; Antonio Testa, University of Messina, IT

Reliability in Power Electronics

- OP070 **Optimal Reliability-aware Current Sharing in Adjustable Hybrid Switch (AHS) Power Converter**
Tanya Thekemuriyil, Amin Rezaeizadeh, Silvia Mastellone, Renato Minamisawa, University of Applied Sciences and Arts Northwestern Switzerland, CH; Munaf T.A. Rahimo, MTAL, CH
- OP071 **PELCA: An Open-Source Research Power Electronics Life Cycle Assessment Tool**
Nicolas Degrenne, Mitsubishi Electric Europe, FR; Briac Baudais, Mitsubishi Electric R&D Centre, FR; Hamid Ben Ahmed, Gurvan Jodin, ENS Rennes, FR; Stéphane Lefebvre, CNAM, FR
- OP072 **Cosmic Ray Robustness: 2kV SiC-based B6 Topology vs Prominent Industrial Solutions for 1500V DCLinks**
Carlos Fuentes, Ignacio Lizama, Christian Felgemacher, Andreas Thamm, ROHM Semiconductor, DE

Advanced Cooling Technology

- OP073 **Stabilizer with Included Pulsating Heat Pipe for Stability, Electrical Insulation and Heat Dispersal**
Claus Brede, Florian Schwarz, Vladimir Danov, Siemens, DE; Stefan Becker, Friedrich-Alexander-University Erlangen-Nuremberg, DE
- OP074 **Practical Considerations for Pulsating Heat Pipe and Embedded Heat Pipe Heat Spreaders**
Nathan Van Velson, SaiKiran Hota, Greg Hoeschele, Srujan Rokkam, Advanced Cooling Technologies, US
- OP075 **Physics of Failure Based Lifetime Modelling of Double Side Cooled Power Electronics Modules of Electric Vehicles Under Power Cycling**
Saeed Akbari, Konstantin Kostov, Mietek Bakowski, Jang-Kwon Lim, Lakshmi Priya Gandla, RISE Research Institutes of Sweden, SW; Kooros Moabber, Volvo Car, SW

Paralleling Devices

- OP076 **Technical Verification of a New 2kV-Class SiC Power Module Aimed at High-Speed Operation**
Tetsuo Yamashita, Yuji Miyazaki, Takuya Kitabayashi, Mitsubishi Electric JP; Thomas Radke, Akiyoshi Masuda, Severin Klever, Mitsubishi Electric, DE
- OP077 **A Gain Maximized Gate Circuit Feedback Loop and its Effect on Current Mismatches of Paralleled IGBTs**
Lukas Tomforde, Tim Scheel, Hans-Günter Eckel, University of Rostock, DE
- OP078 **Parallelization of XHP2 CoolSiC 3.3 kV Devices**
Andreas Fischer, Matthias Bürger, Diana Car, Infineon Technologies, DE

Server Power Supplies

- OP079 **IISB² Topology for 48 V to 1 V Point of Load Applications**
Stefan Zeltner, Jan Hager, Bernd Seliger, Gerson Ayllon, Daniel Haager, Bernd Eckard, Fraunhofer IISB, DE
- OP080 **5 kW Isolated 400 V to 50 V, DC-DC Converter for Server Power Supplies**
Alejandro Pozo, Michael de Rooij, Efficient Power Conversion, US
- OP081 **High-Density and High-Efficiency of an 8 kW Power Supply Unit for AI Datacenters in 100 W/in³**
Antonello Laneve, Manuel Escudero, Matteo-Alessandro Kutschak, Alex Mirtchev, Theodoros Mouselinos, Infineon Technologies, AT; David Meneses Herrera, Infineon Technologies, FIN

Power Electronics for E-Mobility III

- OP082 **Estimating Semiconductor Switch Temperature in Automotive Applications Using DeSat Voltage**
Nima Saadat, Syed Hafeez, Shadman Mohd Ali, Markus Einhorn, Murugaperumal Devaraja, SEG Automotive Germany, DE; Shiyong Zhu, Lei Dai, SEG Automotive Products, CN
- OP083 **Compact Highly Integrated 1kW Peak Motor Drive**
Martin Schiestl, Andreas Albrecht, Maurizio Incurvati, Ronald Stärz, Edward Jones, Gerald Deboy, Infineon Technologies, AT
- OP084 **Pushing the Boundaries of High Current LV GaN Motor Drive with a Dual Side Parallel Approach**
Marco Cannone, Martin Wattenberg, Edward Jones, Infineon Technologies, AT

Special Session: Circular Economy in Power Electronics

- OP085 **„Circular Economy in Power Electronics“ - Generate More Energy for More Innovation**
Regina Roos, Typhoon HIL, CH
- OP086 **Life Cycle Assessment Tool enabling Ecodesign of PCBs for Power Applications**
Thomas Krivec, Christof Wernbacher, Jana Tiffner, AT&S, AT
- OP087 **Circular Economy in Power Electronics – Power Semiconductors**
Tobias Keller, Hitachi Energy, CH
- OP088 **Sustainability in Power Electronics for Automotive Applications**
Raphael Hartwig, Anneke Schleusener, Alexander Otto, Mohamad Ismail, Volkswagen, DE; Sönke Hansen, Mark Mennenga, Christoph Herrmann, Technical University of Braunschweig, DE

GaN Devices II

- OP089 **140-mΩ GaN Bidirectional Switch for Single-Stage Power Converters**
Davide Bisi, Aditya Raj, Carl Neufeld, Geetak Gupta, Nihal Singh, Yu Huang, Floro Camenforte III, Likun Shen, Primit Parikh, Renesas Electronics, US
- OP090 **Highly-Integrated 1200 V GaN-Based Monolithic Bidirectional Switch**
Michael Basler, Richard Reiner, Daniel Grieshaber, Fouad Benkhelifa, Stefan Mönch, Stefan Müller, Fraunhofer Institute IAF, DE
- OP091 **Demonstration of a Novel Monolithically Integrated GaN-on-AIN/SiC Half-bridge**
Xiaomeng Geng, Nick Wiecezorek, Benedikt Kohlhepp, Sibylle Dieckerhoff, Technical University of Berlin, DE; Mihaela Wolf, Oliver Hilt, Ferdinand-Braun-Institute, DE
- OP092 **Characterizations of a 1200 V / 150 A GaN Power Module**
Guillaume Piquet Boisson, Van-Sang Nguyen, Anthony Bier, Stephane Catellani, CEA, FR

Control Methods II

- OP093 **Reactive Power Control of an Inverter Based Totem Pole Topology Using Low Frequency Leg**
Rami Troudi, Ousmane Mbaye, Oumaima Hadjadj, Kelly Ribeiro, Moctar Coulibaly, Valeo, FR
- OP094 **Enhanced Full-Mode Modulation Scheme for Switching Oscillation Reduction in SiC 3L-ANPC Inverter**
Hangxian Gao, Tetsuya Kawashima, Yoshihiro Kamiduma, Takashi Hirao, Hitachi, JP
- OP095 **Impact of Deadtime and Modulation Schemes on 800 V / 40 kW IMS-based 3L-ANPC Inverter**
Pouya Ahmadi, Jose Ortiz Gonzalez, Philip Mawby, University of Warwick, UK; Temoc Rodriguez, Ricardo, UK
- OP096 **Optimal Trajectory Tracking of IPMSM Drives using Continuous Control Set Model Predictive Control**
Kristóf Gábor Bándy, Péter Pál Stumpf, Zoltán Sütő, Budapest University of Technology and Economics, HU

Inverter Design and Reliability

- OP097 **Medium-Voltage versus Low-Voltage Converter Reliability in Wind Turbines: A Field-Data Based Study**
Sören Fröhling, Katharina Fischer, Julia Walgern, Fraunhofer IWES, DE; Fraser Anderson, Fraunhofer UK Research, UK
- OP098 **Practical Use of xEVCap: The Modular and Std. DC-Link Capacitor for the Main Powertrain Inverter**
David Olalla, TDK Electronics, DE; Fernando Rodriguez, Tomas Wagner, Alberto Espinar, TDK Electronics Components, ES
- OP099 **Design of GaN FET-Based Multilevel Three-Phase Inverter for High Voltage Automotive Applications**
Fabio Mandrile, Polytechnic University of Turin, IT; Marco Palma, EPC, IT; Enrico Vico, Salvatore Musumeci, Eric Armando, Fausto Stella, Radu Bojoi, Technical University of Turin, IT
- OP100 **Characterization of the Power Stage for a GaN-Embedded-based Traction Inverter**
Maurizio Tranchero, Luca Bongiovanni, Andrea Vinci, Claudio Romano, Paolo Santero, Ideas & Motion, IT

High-Power Modular Converters

- OP101 **Evaluation of Magnetic Integration in Modularized-Bridge-Rectifier Solid-State Transformer**
Zhenchao Li, Drazen Dujic, EPFL, CH
- OP102 **Novel Control Strategy for Modular Multilevel Resonant Converter based Solid-State Transformer**

OP103 Zhengzhao Li, Reza Mirzadarani, Zian Qin, Mohamad Ghaffarian Niasar, Pavol Bauer, Delft University of Technology, NL; Jarno van der Weg, Werner Heyns, VONK, NL
Grid Friendly Supply of Nonlinear Dynamic Loads by a Scalable Hybrid Multilevel Converter
Pierre-Louis Garmier, Duro Basic, Cyrille Baviere, Philippe Clavier, Nicolas Lapassat, Christof Sihler, Franck Terrien, GE Vernova Power Conversion, FR

OP104 **Testbench Converter to Validate Control Algorithms for a High-Cell-Count Cascaded H-Bridge System**
Paul Aspalter, Markus Vogelsberger, Hans Ertl, Technical University of Vienna, AT

IGBT Technologies

OP105 **New 3.3kV XB-Series HVIGBT Module for High-Speed-Switching**
Saito Shuhei, Mitsubishi Electric, JP; Kenji Hatori, Shogo Tokumaru, Yoichi Hironaka, Mitsubishi Electric Power Device Works, JP; Nils Soltau, Victor Tolstopyatov, Mitsubishi Electric, DE

OP106 **900 A 1200 V ED Module with New Micropattern Trench IGBT Featuring Local Carrier Confinement Control**
Nick Gilles Schneider, Paula Diaz Reigosa, Roger Stark, Tommaso Stecconi, Raffael Schnell, Lars Christian Knoll, Rémi Guillemin, SwissSEM Technologies, CH; Coris Li, Leon Liang, Sun.King Pacific Semiconductor Technology, CN

OP107 **Next-generation 670 V RC IGBT in HCC Enhances Performance and Ruggedness in PFC Application**
Ajith Kumar Sekar, Jaeel Yeon, Infineon Technologies, AT

OP108 **Double- and Single Gate Desaturated Turn-off of Low Saturation IGBTs for Reduced Turn-off Losses**
Vishwas Acharya Nayampalli, Hans-Günter Eckel, University of Rostock, DE

Smart Battery and DC Grids

OP109 **Automotive Li-Ion Cells Representative Abusive Test at Megawatt Scale**
Daniel Chatroux, CEA-Liten, FR; Julien Chauvin, Rémi Vincent, David Brun Buisson, Laurent Garnier, CEA, FR

OP110 **Cloud-connected Battery Management System for Secure Battery-Passport Implementation**
Wenzel Prochazka, Marc Manninger, NXP Semiconductors, AT; Henk Jan Bergveld, NXP Semiconductors, NL; Avedis A. Dadikozyan, Sjoerd G. J. Rongen, Erik R.G. Hoedemaekers, Siddarth Dinnepati, TNO, NL

OP111 **Experimental Evaluation of Droop Control Characteristics in an Industrial DC Microgrid**
Normann Schwingal, Robin Weiß, Steffen Bernet, Technical University of Dresden, DE; Guido Bachmann, Schaltbau, DE

OP112 **High-Frequency 360kW Motor Control Using Modular Switched Battery Technology**
Ghislain Despesse, Remy Thomas, Yan Lopez, Thibault Bertin Riviere De La Souchere, Eric Fernandez, CEA, FR

High Frequency Converters

- OP113 **GaN-Based Bi-Directional 7.2kW OBC with 10kW/L Power Density and High Efficiency**
Esmaeil Jalalabadi, Xiaoyu Wang, Carleton University, CA; Yang Jiao, Infineon Technologies, US; Lucas Lu, Infineon Technologies, CA
- OP114 **Electrolytic Capacitor-Less Integrated Stage Converter for AC-DC Applications**
Alireza Ramezan Ghanbari, Sayed Reza Afzali Arani, Fabian Ammann, Rashid Kazemi, V-Research, AT
- OP115 **A Common-Mode Active EMI Filter for Low-Voltage Distribution System in Automotive Application**
Weihao Zhao, Stefan Mollov, Roberto Petrella, Silicon Austria Labs, AT; Michael Hartmann, Graz University of Technology, AT
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Ismail Recepi, Jacob Reynvaan, Arya Venugopal, Patrick Nagelmaier, Stefan Mollov, Silicon Austria Labs, AT

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Jonas Pfeiffer, Michael Schmidhuber, Herbert Maier, SUMIDA Components & Modules, DE; Marco Jung, Fabian Schnabel, Fraunhofer Institute IEE, DE; Jonathan Billeke, University of Applied Sciences Bonn-Rhein-Sieg, DE

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