

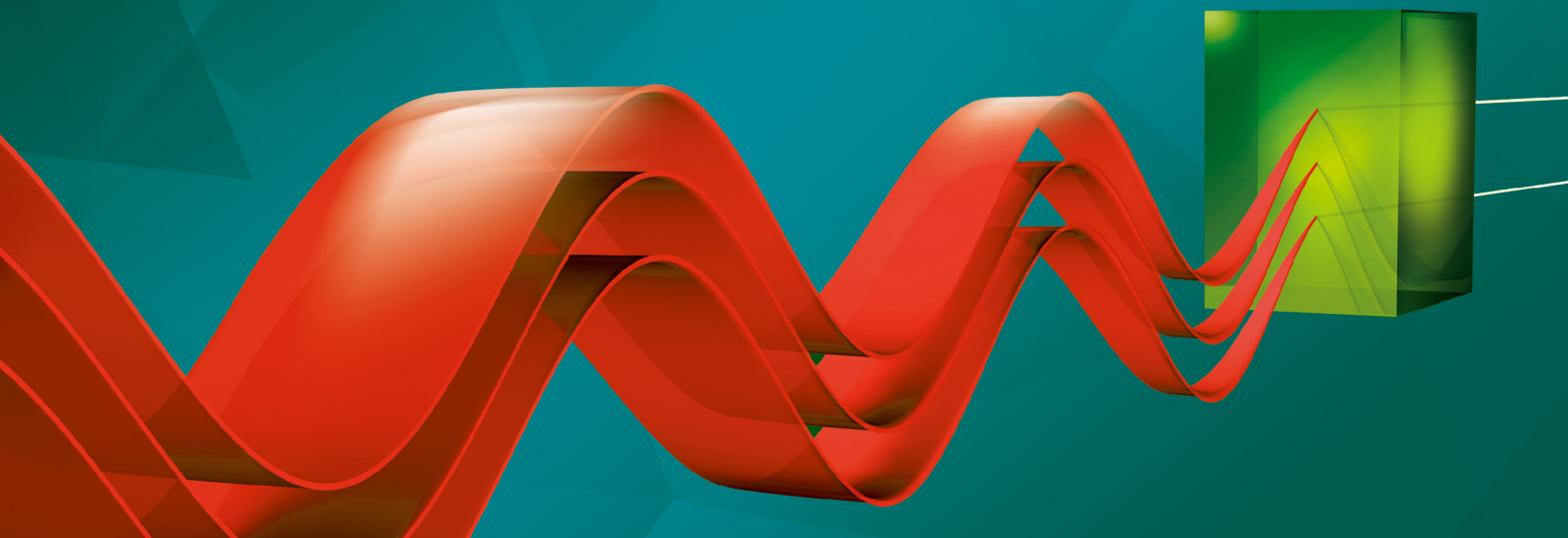
电力电子、智能运动、可再生能源
深圳国际电力元件、可再生能源管理展览会
International Exhibition and Conference
for Power Electronics, Intelligent Motion,
Renewable Energy and Energy Management

9 – 11 September 2021, Shenzhen, China

Proceedings

[→ Contents](#)

Power for Efficiency!



Organizer:
Guangzhou Guangya Messe Frankfurt Co Ltd.
Guangzhou, China
www.pcimasia-expo.com

Partner:
Mesago Messe Frankfurt GmbH

Chairman:
Leo Lorenz, ECPE, D

Enrique J. Dede, Smart Induction Converter Technologies, E
Naoto Fujishima, Fuji Electric, J
Yongdong Li, Tsinghua University, CN
Jinjun Liu, Xi'an Jiaotong University, CN
Gourab Majumdar, Mitsubishi Electric Corporation, J
Norbert Pluschke, Semikron, HKSAR, CN
Xinbo Ruan, Huazhong University of Science and Technology, CN
Zhihong Wu, Tongji University, CN
Dehong Xu, Zhejiang University, CN
Dianguo Xu, Harbin Institute of Technology, CN
Jianping Ying, Delta Electronics, CN
Dapeng Zheng, Shenzhen Hopewind Electric, CN

Organizer:
Guangzhou Guangya Messe Frankfurt Co Ltd.
Room B3107, Center Plaza, No.161 Linhe Road West,
Tianhe District, Guangzhou, China

Partner:
Mesago Messe Frankfurt GmbH
Rotebuehlstrasse 83-85
70178 Stuttgart, Germany

www.pcimasia-expo.com

Bibliographic Information of the German National Library

The German National Library lists this publication in the National Bibliography; detailed bibliographic data are available on the Internet at <http://dnb.dnb.de>.

ISBN 978-3-8007-5620-9 (CD-ROM)
ISBN 978-3-8007-5621-6 (E-Book)
ISSN 2510-7704

© 2021 VDE VERLAG GMBH · Berlin · Offenbach
www.vde-verlag.de

All rights reserved. Any utilization in breach of the strict limits of copyright law, without the prior approval of the publisher, is prohibited. Reproductions of common names, brand names, trademarks etc. in this publication are not subject to the acceptance that these names could be regarded as free or could be used by anyone, even without particular marking, in the sense of the trademark and brand protection legislation. Publication does not imply that the solutions described are not protected by intellectual property rights (e. g. patents and utility models). The publisher assumes no liability for the correctness and practicability of the programs, circuits, and any other arrangements and instructions published, nor for the correctness of the technical content of this publication. The up-to-date valid versions of the relevant statutory and official regulations and technical regulations (e.g. VDE body of regulations) have to be respected.

Produced in Germany

Dear PCIM Asia participants,

I am very proud to invite all of you to the PCIM Asia Conference and Exhibition 2021 in Shenzhen.

Researchers, application engineers and experts from industry and academia will meet to discuss and exchange ideas on future digital energy systems, advanced smart power converters, energy efficiency by applying the next generation of power devices, new materials for chip interfacing technologies and proper power module designs considering all parasitics including extended lifetime for power devices. I am very happy that this year we are having an outstanding high level technical program in complimentary to 3 leading experts for keynote presentations, one tutorial, one special session on multilevel topologies in addition to one dedicated session on selected topics from the PCIM Europe digital days 2021. Companies are eager to utilize the PCIM Asia for launching new products in the market and leading scientists are presenting their latest research achievements for power electronic components, building blocks and systems. Decision makers from companies use the PCIM Asia platform to generate new market segments and trigger future research directions. The driving targets for power conversion systems are weight-, volume- and cost reduction along with an increase in lifetime.

Product innovations will be a focus at PCIM Asia Conference this year

The new generation of wide bandgap devices are covering a wide power range and showing a high maturity level in terms of ruggedness and reliability. An exciting technical program compiled is addressing the next generation of power devices with a strong focus on wide bandgap material and the latest research results on advanced digital controlled power converters for industry and automotive applications.

Highlights of important development trends

Definitely an exciting discussion will come up of how to manage the ultrafast switching devices with extremely high power density in terms of circuit parasitics and thermal management. In the keynote presentations this year, we are highlighting energy digitalization, power density and efficiency in data centers of the future as well as driving and protection of SiC devices. Distinguished speakers will be discussing high power multilevel converter topologies.

Special attention has been paid to research carried out by young engineers with the presentation of the Young Engineer and Best Paper Awards during the PCIM Asia Conference 2021 – this is certainly one of the highlights of the conference.

I am very excited having the opportunity to interact with the power electronics experts around the globe and look forward to sharing with all of you an outstanding and successful high level technical conference in Shenzhen.

Leo Losay



Advisory Board and Technical Committee PCIM Asia 2021

Chairman

Leo Lorenz, ECPE, DE

Board of Directors

Enrique J. Dede, Smart Induction Converter Technologies, ES
Naoto Fujishima, Fuji Electric, JP
Yongdong Li, Tsinghua University, CN
Jinjun Liu, Xi'an Jiaotong University, CN
Gourab Majumdar, Mitsubishi Electric Corporation, JP
Norbert Pluschke, Semikron, HKSAR, CN
Xinbo Ruan, Huazhong University of Science and Technology, CN
Zhihong Wu, Tongji University, CN
Dehong Xu, Zhejiang University, CN
Dianguo Xu, Harbin Institute of Technology, CN
Jianping Ying, Delta Electronics, CN
Dapeng Zheng, Shenzhen Hopewind Electric, CN

Technical Committee

Jean-Paul Beaudet, Schneider Electric, FR
Min Chen, Zhejiang University, CN
Youngchul Choi, Panjit International, USA
Ziying Chen, Infineon Technologies, CN
Chuang Fu, China Southern Power Grid Technology Research Center, CN
Yong Kang, Huazhong University of Science and Technology, CN
Haihui Luo, Zhuzhou CRRC Times Semiconductor, CN
Yu-Kang Lo, Lite-ON Technology, TW, CN
Meiqin Mao, Hefei University of Technology, CN
Abhijit D. Pathak, International Rectifier, USA
Gaosheng Song, Great China Mitsubishi Electric Semiconductor, CN
Tianhao Tang, Shanghai Maritime University, CN
Yi Tang, Starpower Semiconductor, CN
Shunli Wang, Southwest University of Science and Technology, CN
Xuhui Wen, Institute of Electrical Engineering, Chinese Academy of Sciences, CN
James Yin-Chin Wu, Hosonic Electronic, TW, CN
Lie Xu, Tsinghua University, CN
Xing Zhang, Hefei University of Technology, CN
Guoqiang Zhang, Harbin Institute of Technology, CN

Table of Content PCIM Asia Conference 2021

High Power Devices

- 1 New 5.2 kV StakPak Platform with Innovative Second Generation BIGT chip 12**
Luca De Michielis, Boni Boksteen, Evgeny Tsyplakov, Makan Chen, Daniel Prindle,
Franc Dugal, Wolfgang Amadeus Vitale, Andreas Baschnagel, Gontran Pâques, Hitachi ABB
Power Grids, Semiconductors, Switzerland
- 
pcim Asia
Best Paper Award
FINALIST
- 2 Increasing in the Output Power of IGBT Modules by Applying RC-IGBT Technology
for High-Power Applications 20**
Yuta Ebukuro, Akio Yamano, Mitsuhiro Kakefu, Yuki Oda, Kaname Mitsuzuka, Seiji Momota,
Taichi Itoh, Souichi Okita, Shinichi Yoshiwatari, Yasuyuki Kobayashi, Fuji Electric Co. Ltd.,
Japan
- 3 Easy-to-Scale Paralleling for IGBTs in Renewable Energy Application 27**
Jianlong Chen, Hao Wang, Power Integrations, China
Karsten Fink, Power Integrations GmbH, Germany
- 4 An Improved Performance of High Voltage RC-IGCT for Applications up to
5.3 kV_{DC} 34**
Umamaheswara Reddy Vemulapati, Thomas Stiasny, Christian Winter, Chiara Corvasce,
Hitachi ABB Power Grids Ltd., Switzerland
Matthias Lüscher, ABB Switzerland Ltd., Switzerland

High Power Density Converter

- 5 11 kW High-efficiency bidirectional CLLC converter with 1200 V SiC MOSFET 40**
Sanbao Shi, Rui Chen, Cheng Zhang, Infineon Technology Xian, China
Wei Shi, Infineon Technologies Austria AG, Austria

6 Volume Optimization of a 300 kW MMC based DC-DC Converter for a DC Grid Connected Agricultural Machine..... 49

Hafiz Kashif Iqbal, Pedro Leal dos Santos, Jawad Ismail, Steven Liu, Technical University of Kaiserslautern, Germany



pcim Asia
Best Paper Award
FINALIST

7 Improvement of SCSOA, I²t and reliability of in-vehicle power modules by RC-IGBT and leadframe structure..... 55

Tomohiro Isono, Hayato Nakano, Akio Kitamura, Daisuke Inoue, Souichi Yoshida, Fuji Electric Co., Ltd., Japan



pcim Asia
Young Engineer Award
WINNER

8 Optimized power module set for ESS and Solar under consideration of power factor -1/+1 60

Manyuan Zhao, Changsheng Ye, SEMIKRON Electronics (Zhuhai) Co., Ltd., China

Advanced Power Devices

9 Fabrication and characterization of 3.3 kV SiC MOSFET with embedded Junction Barrier Schottky Diode..... 65

Changwei Zheng, Qijun Liu, Yafei Wang, Yachao Ma, Lele Li, Wuyue Lu, Chengzhan Li, State Key Laboratory of Advanced Power Semiconductor Devices, Zhuzhou CRRC Times Semiconductor Co., Ltd., China

10 Advanced Edge Termination Design for 1200 V Rated Thin Wafer Fast Recovery Diodes Shows Lower Leakage Current and Higher Operating Temperature up to 200 °C 69

Pengfei Liu, Rongzhen Qin, Wei Hu, Mengjie Wang, Qiang Xiao, Haihui Luo, State Key Laboratory of Advanced Power Semiconductor Devices, China Zhuzhou CRRC Times Semiconductor Co. Ltd., China

11 Investigation on electrical characteristic of 3.3 kV SiC MOSFET with integrated SBD 73

Guan Song, Yafei Wang, Ximing Chen, Chenzhan Li, State key Laboratory of Advanced Power Semiconductor Devices, Zhuzhou CRRC Times Semiconductor Co., Ltd., China

- 12 New Developed 1000 A / 6500 V IGBT Module Based on TMOS⁺ IGBT and PIC FRD Technology..... 77**
Feiyu Zhou, Hui Wang, Liheng Zhu, Pengfei Liu, Haibo Xiao, Rongzhen Qin, Qiang Xiao, Haihui Luo, State Key Laboratory of Advanced Power Semiconductor Devices, China
Zhuzhou CRRC Times Semiconductor Co., Ltd., China
- 13 A Flexible, Physically based SPICE Model for the JFET Resistance in Silicon Carbide and Super-Junction MOSFETs..... 82**
Kan Jia, Yunpeng Xiao, ON Semiconductor, China
Petr Betak, Jaromir Foff, Jiri Lehocky, Dan Zurek, ON Semiconductor, Czech Republic
Canzhong He, James Victory, ON Semiconductor, USA

Power Converter and Motion Control

- 14 AC/DC converter for aircraft power supply system 87**
Sorokin Dmitriy, Sergey Volskiy, Moscow aviation institute (National Research University), Russia
N.V. Kuznetsov, Institute for problems in mechanical engineering RAS, Russia
N.V. Kuznetsov, M. V. Yuldashev, R. V. Yuldashev, Saint-Petersburg State University, Russia



pcim Asia
Young Engineer Award
FINALIST

- 15 A Suppressed Switching Noise Full Bridge Inverter with Constant Switching Frequency Operation 94**
Atsushi Hirota, National Institute of Technology, Akashi College, Japan
- 16 Characterizing the Output Load Transient Based on a New Output Filter Circuit Extraction for CPU VRM Design..... 99**
Richard(Hua) Yang, Texas Instruments, China
- 17 Variety of sensing method to reliably measure the switching loss of SiC/GaN devices in a small space and Issues 107**
Ryu Nagahama, Iwatsu Electric Co., Ltd., Japan

Power Modules

- 18 Power Modules: Implementing Solder-Reinforced Matrix-Preforms for Increased Reliability & Unique Inline X-Ray Algorithms to Eliminate False Void calls110**

Andreas Karch, Indium Corporation, UK
Daniel Topan, Nordson, Germany

- 19 The Latest Generation Small Intelligent Power Module for Compact Inverter systems116**

Hidetomo Ohashi, Tadanori Yamada, Takahiro Tamura, Akihiro Jonishi, Yasuyuki Kobayashi, Fuji Electric Co., Ltd., Japan
Song Chen, Fuji Electric China Co., Ltd., China



pcim Asia
Best Paper Award
FINALIST

- 20 Using Zth matrix model for more accurate Tvj calculation for IGBT power modules... 122**

Hao Zhang, Lifeng Chen, Infineon Technologies Center of Competence (Shanghai) Co. Ltd., China
Matthias Lassmann, Koray Yilmaz, Infineon Technologies AG, Germany



pcim Asia
Young Engineer Award
FINALIST

- 21 Research on the Feasibility of Industry LV100 Modules Applied in Onshore Wind Power Converters 128**

Rui Zhao, Yuancheng Zhang, Siqing Lu, Xiankui Ma, Mitsubishi Electric & Electronics (Shanghai) Co., Ltd., China

DC/DC and AC/DC

- 22 A novel power stack designed by half-bridge module with ANPC topology for a high-power offshore windpower converter 135**

Heng Wang, Infineon Integrated Circuit (Beijing) Co., Ltd., China
Hao Zhang, Infineon Technologies Center of Competence (Shanghai) Co. Ltd., China
Uwe Jansen, Infineon Technologies AG, Germany

23 A Novel Output Load Transient Optimization Approach for Multiphase VRM Design..... 142
Richard (Hua) Yang, Texas Instruments, China

24 The Simultaneous Use of Two Alternative Neutral Point Current Paths in a 3-Level ANPC Topology – Benefits and Challenges in High Power Applications 150
Andreas Giessmann, SEMIKRON Electronics (Zhuhai) Co., Ltd. Shanghai Branch, China
Christopher Schmidt, Matthias Spang, SEMIKRON Elektronik GmbH & Co. KG, Germany



pcim Asia
Best Paper Award
FINALIST

25 A Novel Luenberger Observer for the Sensorless Speed Control of PMSM..... 158
Qianbao Mi, Ruiqing Ma, Northwestern Polytechnical University, China

26 Research on silicon carbide devices used in PFC for DC EV charger applications 165
Ming Zhou, Infineon Semiconductor (Shenzhen), China

Keynote

27 Circuit Protection with SiC FETs in dual-gate configuration..... 170
Anup Bhalla, Xueqing Li, Jonathan Dodge, United Silicon Carbide Inc., USA

Special Session

28 Topology, Modulation and Control of Multilevel Converters 178
Yongdong Li, Tsinghua University, CN

29 Neutral-Point Voltage Balancing Method for Diode-Clamped Four-Level Converters.. 179
Kui Wang, Tsinghua University, China

30 A transformer-less Motor Drive based on Back-to-Back MMCs with the Capability of Zero/Low-Speed High-Torque Operation 180
Jinjun Liu, Xi'an Jiaotong University, China

31 A transformer-less Motor Drive based on Back-to-Back MMCs with the Capability of Zero/Low-Speed High-Torque Operation 181
Sixing Du, Xi'an Jiaotong University, China

- 32 Modulation strategy with coordinated multi-control objective for three-level converter 182**
Weidong Jiang, Hefei University of Technology, China

SiC and GaN Devices

- 33 3.3 kV SiC Power MOSFETs with High-k Gate Dielectric 183**
Lars Knoll, Gianpaolo Romano, Andrei Mihaila, Hitachi ABB Power Grids Ltd., Semiconductors, Switzerland



pcim Asia
Best Paper Award
WINNER

- 34 1700V rated All SiC module with 2nd generation trench gate SiC-MOSFETs 188**
Aiko Takasaki, Tomoyuki Kani, Keiji Okumura, Rikihiko Maruyama, Yoshiyuki Kusunoki, Yasuyuki Kobayashi, Fuji Electric Co., Ltd., Japan
Song Chen, Fuji Electric China, China

- 35 A study to use 600 V GaN HEMTs to drive motors 194**
Jinsheng Song, Infineon Technologies Americas Corp., USA

Automotive Power Electronics

- 36 A compact solution of IGBT-module for traction inverter of EV 198**
Lizhong Zhao, Hongtao He, Mitsubishi Electric & Electronics (Shanghai) Co., Ltd., China

- 37 Low stray inductance automotive power module using SiC Chips and welded power terminals 202**
Norbert Pluschke, SEMIKRON (Hong Kong), HKSAR, China

- 38 Accurate Measurement of EV Range 207**
Mitchell Marks, Hottinger Bruel & Kjaer Co.,Ltd, USA

Power Devices and Reliability

- 39 TCL-based Parallel Study of 3.3 kV Full SiC Power Modules.....211**
Jian Sun, Bo Hu, Gaosheng Song, Mitsubishi Electric & Electronics (Shanghai) Co., Ltd.,
China
- 40 Silicon Nitride and Electric Vehicles..... 215**
Xiaosi Wang, Teda Tian&di IT Co. Ltd., China
- 41 Reducing Design-For-Manufacturing Complexity with Tool-Free Solder Preform
Technology for Power Module Assembly..... 219**
Joseph Hertline, Timothy Jensen, Indium Corporation, USA
Andreas Karch, Indium Corporation, Germany
Aaron Hutzler, Bond Pulse, Germany
Leo Hu Yan Jie, Indium Corporation, China

Tutorial

- 42 The Opportunity and Solution of Magnetics for High-frequency Power Supplies 224**
Wei Chen, Fuzhou University, China

Keynote

- 43 Challenges and Latest Achievements in Energy Efficient Solution for Data Center
System..... 225**
Alpha J. Zhang, Delta Electronics Inc., China

Authors Index PCIM Asia Conference 2021			
B			
Baschnagel	Andreas	Hitachi ABB Power Grids, Semiconductors	Switzerland
Betak	Petr	ON Semiconductor	Czech Republic
Bhalla	Anup	United Silicon Carbide Inc.	USA
Boksteen	Boni	Hitachi ABB Power Grids, Semiconductors	Switzerland
C			
Chen	Makan	Hitachi ABB Power Grids, Semiconductors	Switzerland
Chen	Jianlong	Power Integrations	China
Chen	Rui	Infineon Technology Xian	China
Chen	Ximing	State key Laboratory of Advanced Power Semiconductor Devices, Zhuzhou CRRC Times Semiconductor Co., Ltd.	China
Chen	Song	Fuji Electric China Co., Ltd.	China
Chen	Lifeng	Infineon Technologies Center of Competence (Shanghai) Co. Ltd.	China
Chen	Wei	Fuzhou University	China
Corvasce	Chiara	Hitachi ABB Power Grids Ltd.	Switzerland
D			
Dmitriy	Sorokin	Moscow aviation institute (National Research University)	Russia
Dodge	Jonathan	United Silicon Carbide Inc.	USA
dos Santos	Pedro Leal	Technical University of Kaiserslautern	Germany
Du	Sixing	Xi'an Jiaotong University	China
Dugal	Franc	Hitachi ABB Power Grids, Semiconductors	Switzerland
E			
Ebukuro	Yuta	Fuji Electric Co. Ltd.	Japan
F			
Fink	Karsten	Power Integrations GmbH	Germany
Foff	Jaromir	ON Semiconductor	Czech Republic
G			
Giessmann	Andreas	SEMIKRON Electronics (Zhuhai) Co., Ltd. Shanghai Branch	China
H			
He	Canzhong	ON Semiconductor	USA

He	Hongtao	Mitsubishi Electric & Electronics (Shanghai) Co., Ltd	China
Hertline	Joseph	Indium Corporation	USA
Hirota	Atsushi	National Institute of Technology, Akashi College	Japan
Hu	Wei	State key Laboratory of Advanced Power Semiconductor Devices Zhuzhou CRRC Times Semiconductor Co. Ltd.	China
Hu	Bo	Mitsubishi Electric & Electronics (Shanghai) Co., Ltd.	China
Hu	Leo Yan Jie	Indium Corporation	China
Hutzler	Aaron	Bond Pulse	Germany
I			
Inoue	Daisuke	Fuji Electric Co., Ltd.	Japan
Iqbal	Hafiz Kashif	Technical University of Kaiserslautern	Germany
Ismail	Jawad	Technical University of Kaiserslautern	Germany
Isono	Tomohiro	Fuji Electric Co., Ltd.	Japan
Itoh	Taichi	Fuji Electric Co. Ltd.	Japan
J			
Jansen	Uwe	Infineon Technologies AG	Germany
Jensen	Timothy	Indium Corporation	USA
Jia	Kan	ON Semiconductor	China
Jiang	Weidong	Hefei University of Technology	China
Jonishi	Akihiro	Fuji Electric Co., Ltd.	Japan
K			
Kakefu	Mitsuhiro	Fuji Electric Co. Ltd.	Japan
Kani	Tomoyuki	Fuji Electric Co., Ltd.	Japan
Karch	Andreas	Indium Corporation	Germany
Karch	Andreas	Indium Corporation	UK
Kitamura	Akio	Fuji Electric Co., Ltd.	Japan
Knoll	Lars	Hitachi ABB Power Grids Ltd., Semiconductors	Switzerland
Kobayashi	Yasuyuki	Fuji Electric Co., Ltd.	Japan
Kusunoki	Yoshiyuki	Fuji Electric Co., Ltd.	Japan
Kuznetsov	Nikolay	Institute for problems in mechanical engineering RAS Saint-Petersburg State University	Russia
L			
Lassmann	Matthias	Infineon Technologies AG	Germany
Lehocky	Jiri	ON Semiconductor	Czech Republic
Li	Lele	State Key Laboratory of Advanced Power Semiconductor Devices, Zhuzhou CRRC Times Semiconductor Co., LTD	China

Li	Chengzhan	State Key Laboratory of Advanced Power Semiconductor Devices, Zhuzhou CRRC Times Semiconductor Co., LTD	China
Li	Chenzhan	State key Laboratory of Advanced Power Semiconductor Devices, Zhuzhou CRRC Times Semiconductor Co., LTD	China
Li	Xueqing	United Silicon Carbide Inc.	USA
Li	Yongdong	Tsinghua University	China
Liu	Jinjun	Xi'an Jiaotong University	China
Liu	Steven	Technical University of Kaiserslautern	Germany
Liu	Qijun	State Key Laboratory of Advanced Power Semiconductor Devices, Zhuzhou CRRC Times Semiconductor Co., LTD	China
Liu	Pengfei	State key Laboratory of Advanced Power Semiconductor Devices, Zhuzhou CRRC Times Semiconductor Co. Ltd.	China
Lu	Wuyue	State Key Laboratory of Advanced Power Semiconductor Devices, Zhuzhou CRRC Times Semiconductor Co., Ltd.	China
Lu	Siqing	Mitsubishi Electric & Electronics (Shanghai) Co., Ltd.	China
Luo	Haihui	State key Laboratory of Advanced Power Semiconductor Devices, Zhuzhou CRRC Times Semiconductor Co. Ltd.	China
Lüscher	Matthias	ABB Switzerland Ltd.	Switzerland
M			
Ma	Yachao	State Key Laboratory of Advanced Power Semiconductor Devices, Zhuzhou CRRC Times Semiconductor Co., Ltd.	China
Ma	Xiankui	Mitsubishi Electric & Electronics (Shanghai) Co., Ltd.	China
Ma	Ruiqing	Northwestern Polytechnical University	China
Marks	Mitchell	Hottinger Bruel & Kjaer Co., Ltd.	USA
Maruyama	Rikihiro	Fuji Electric Co., Ltd.	Japan
Mi	Qianbao	Northwestern Polytechnical University	China
Michielis	Luca De	Hitachi ABB Power Grids, Semiconductors	Switzerland
Mihaila	Andrei	Hitachi ABB Power Grids Ltd., Semiconductors	Switzerland
Mitsuzuka	Kaname	Fuji Electric Co. Ltd.	Japan
Momota	Seiji	Fuji Electric Co. Ltd.	Japan
N			
Nagahama	Ryu	Iwatsu Electric Co., Ltd	Japan
Nakano	Hayato	Fuji Electric Co., Ltd.	Japan

O			
Oda	Yuki	Fuji Electric Co. Ltd.	Japan
Ohashi	Hidetomo	Fuji Electric Co., Ltd.	Japan
Okita	Souichi	Fuji Electric Co. Ltd.	Japan
Okumura	Keiji	Fuji Electric Co., Ltd.	Japan
P			
Pâques	Gontran	Hitachi ABB Power Grids, Semiconductors	Switzerland
Pluschke	Norbert	SEMIKRON (Hong Kong)	HKSAR, China
Prindle	Daniel	Hitachi ABB Power Grids, Semiconductors	Switzerland
Q			
Qin	Rongzhen	State key Laboratory of Advanced Power Semiconductor Devices, Zhuzhou CRRC Times Semiconductor Co. Ltd.	China
R			
Romano	Gianpaolo	Hitachi ABB Power Grids Ltd., Semiconductors	Switzerland
S			
Schmidt	Christopher	SEMIKRON Elektronik GmbH & Co. KG	Germany
Shi	Sanbao	Infineon Technology Xian	China
Shi	Wei	Infineon Technologies Austria AG	Austria
Song	Guan	State key Laboratory of Advanced Power Semiconductor Devices, Zhuzhou CRRC Times Semiconductor Co., Ltd.	China
Song	Jinsheng	Infineon Technologies Americas Corp.	USA
Song	Gaosheng	Mitsubishi Electric & Electronics (Shanghai) Co., Ltd.	China
Spang	Matthias	SEMIKRON Elektronik GmbH & Co. KG	Germany
Stiasny	Thomas	Hitachi ABB Power Grids Ltd.	Switzerland
Sun	Jian	Mitsubishi Electric & Electronics (Shanghai) Co., Ltd.	China
T			
Takasaki	Aiko	Fuji Electric Co., Ltd.	Japan
Tamura	Takahiro	Fuji Electric Co., Ltd.	Japan
Topan	Daniel	Nordson	Germany
Tsyplakov	Evgeny	Hitachi ABB Power Grids, Semiconductors	Switzerland

V			
Vemulapati	Umamaheswara Reddy	Hitachi ABB Power Grids Ltd.	Switzerland
Victory	James	ON Semiconductor	USA
Vitale	Wolfgang Amadeus	Hitachi ABB Power Grids, Semiconductors	Switzerland
Volskiy	Sergey	Moscow aviation institute (National Research University)	Russia
W			
Wang	Hao	Power Integrations	China
Wang	Kui	Tsinghua University	China
Wang	Yafei	State Key Laboratory of Advanced Power Semiconductor Devices, Zhuzhou CRRC Times Semiconductor Co., Ltd.	China
Wang	Mengjie	State key Laboratory of Advanced Power Semiconductor Devices, Zhuzhou CRRC Times Semiconductor Co. Ltd.	China
Wang	Hui	State key Laboratory of Advanced Power Semiconductor Devices, Zhuzhou CRRC Times Semiconductor Co., Ltd.	China
Wang	Heng	Infineon Integrated Circuit (Beijing) Co., Ltd.	China
Wang	Xiaosi	Teda Tian&di IT Co. Ltd.	China
Winter	Christian	Hitachi ABB Power Grids Ltd.	Switzerland
X			
Xiao	Qiang	State key Laboratory of Advanced Power Semiconductor Devices, Zhuzhou CRRC Times Semiconductor Co. Ltd.	China
Xiao	Haibo	State key Laboratory of Advanced Power Semiconductor Devices, Zhuzhou CRRC Times Semiconductor Co., Ltd.	China
Xiao	Yunpeng	ON Semiconductor	China
Y			
Yamada	Tadanori	Fuji Electric Co., Ltd.	Japan
Yamano	Akio	Fuji Electric Co. Ltd.	Japan
Yang	Richard(Hua)	Texas Instruments	China
Ye	Changsheng	SEMIKRON Electronics (Zhuhai) Co., Ltd.	China
Yilmaz	Koray	Infineon Technologies AG	Germany
Yoshida	Souichi	Fuji Electric Co., Ltd.	Japan

Yoshiwatari	Shinichi	Fuji Electric Co. Ltd.	Japan
Yuldashev	M. V.	Saint-Petersburg State University	Russia
Yuldashev	Renat	Saint-Petersburg State University	Russia
Z			
Zhang	Cheng	Infineon Technology Xian	China
Zhang	Hao	Infineon Technologies Center of Competence (Shanghai) Co. Ltd.	China
Zhang	Yuancheng	Mitsubishi Electric & Electronics (Shanghai) Co., Ltd.	China
Zhang	Alpha J.	Delta Electronics Inc.	China
Zhao	Manyuan	SEMIKRON Electronics (Zhuhai) Co., Ltd.	China
Zhao	Rui	Mitsubishi Electric & Electronics (Shanghai) Co., Ltd.	China
Zhao	Lizhong	Mitsubishi Electric & Electronics (Shanghai) Co., Ltd.	China
Zheng	Changwei	State Key Laboratory of Advanced Power Semiconductor Devices, Zhuzhou CRRC Times Semiconductor Co., Ltd.	China
Zhou	Feiyu	State key Laboratory of Advanced Power Semiconductor Devices Zhuzhou CRRC Times Semiconductor Co., Ltd.	China
Zhou	Ming	Infineon Semiconductor (Shenzhen)	China
Zhu	Liheng	State key Laboratory of Advanced Power Semiconductor Devices, Zhuzhou CRRC Times Semiconductor Co., Ltd.	China
Zurek	Dan	ON Semiconductor	Czech Republic