Conference Program

26 – 28 June 2018
Shanghai World Expo Exhibition and Convention Center
Shanghai, China
# Table of Content

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welcome Address</td>
<td>1</td>
</tr>
<tr>
<td>Room Plan</td>
<td>2</td>
</tr>
<tr>
<td>Location Information</td>
<td>3</td>
</tr>
<tr>
<td>Boards</td>
<td>4</td>
</tr>
<tr>
<td>Awards</td>
<td>6</td>
</tr>
<tr>
<td>Conference Program at a Glance</td>
<td>7</td>
</tr>
<tr>
<td>Keynotes</td>
<td>8</td>
</tr>
<tr>
<td>Tuesday Oral Sessions</td>
<td>10</td>
</tr>
<tr>
<td>Tuesday Poster Sessions</td>
<td>12</td>
</tr>
<tr>
<td>Wednesday Oral Sessions</td>
<td>14</td>
</tr>
<tr>
<td>Wednesday Poster Sessions</td>
<td>16</td>
</tr>
<tr>
<td>Thursday Oral Sessions</td>
<td>17</td>
</tr>
<tr>
<td>Registration Information</td>
<td>19</td>
</tr>
<tr>
<td>Exhibition</td>
<td>20</td>
</tr>
<tr>
<td>General Information</td>
<td>21</td>
</tr>
<tr>
<td>PCIM Asia 2019 Call for Papers</td>
<td>22</td>
</tr>
</tbody>
</table>
Welcome Address

Dear PCIM Asia participants,

We are very pleased to welcome you to the PCIM Asia 2018 conference and exhibition. The PCIM is an international forum for power electronics experts with a strong focus on the Chinese market. This important event is held to be a technical and scientific forum for engineers and researchers engaged in all fields related to power conversion technologies. The conference and exhibition is covering power electronics in the whole value added chain from materials to components and system solutions in industry, the automotive sector and renewable energy technologies.

A high level technical conference program

This year again we have seen a high quality of papers submitted and selected the best and most important for inclusion in the program of oral and poster presentations. The technical program for this year’s conference is high lighting advanced technologies for power semiconductor devices and passive components as well as high efficient power converters for e-mobility and renewable energy technologies. Keynote papers covering the development trend for power semiconductor devices optimized in high performance power converters and hybrid renewable energy standalone systems. In particular I am happy that we could include a special session on renewable energy and smart grid for showing future development directions.

I am convinced that with its high level technical program and discussion platform, this year’s PCIM Asia Conference will provide you with an overview of the key technology development trends in power electronics and inspire you to pursue new business opportunities.

I wish you an enjoyable and successful conference in Shanghai.

[Signature]

[Image of a man]
Shanghai World Expo Exhibition and Convention Center (SWEECC)

Address:
No. 1099, Guozhan road,
Pudong New Area, Shanghai 200126, P.R.China

How to get there
By Metro
Exit No. 4, Yaohua Road Station, Metro Line 7 & Line 8
Exit No. 4, China Art Palace Station, Metro Line 8

By Bus
A number of bus lines run through SWEECC, fixing stations nearby: 314, 787, 815, 610, 786 etc.

By Taxi
from Pudong Int’s Airport: about 50 minutes
from Hongqiao Int’l Airport: about 40 minutes
from downtown (Pu Xi): about 20 minutes
from Shanghai Railway Station: about 20 minutes
Location Information

Dear visitors, please noted that we have separate registration counter for Exhibition and Conference, which are locating at the 1st floor of the fair ground. And the conference meeting room will be at the Exhibition Hall 2. Please be sure that you have already got your conference badge at Conference Counter.

Conference Registration Counter

1st Floor, entrance of exhibition hall 2

Conference room & Conference Poster Session Gallery

Exhibition Hall 2

Registration Counter Opening hours

<table>
<thead>
<tr>
<th>Date</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuesday, 26 June 2018</td>
<td>08:15 – 16:30 hrs</td>
</tr>
<tr>
<td>Wednesday, 27 June 2018</td>
<td>08:30 – 16:30 hrs</td>
</tr>
<tr>
<td>Thursday, 28 June 2018</td>
<td>08:30 – 13:00 hrs</td>
</tr>
</tbody>
</table>
Advisory Board and Technical Committee PCIM Asia 2018

Chairman

Leo Lorenz
ECPE, D

Board of Directors

Enrique J. Dede
ETSE University of Valencia, E

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, HK

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, F
Min Chen, Zhejiang University, CN
Youngchul Choi, ON Semiconductor, USA
Chuang Fu, China Southern Power Grid Technology Research Center, CN
Yong Kang, Huazhong University of Science and Technology, CN
Romeo Letor, STMicroelectronics, IT
Meiqin Mao, Hefei University of Technology, CN
Abhijit D. Pathak, International Rectifier HiRel Products, An Infineon Technologies Company, USA
Tianhao Tang, Shanghai Maritime University, CN
Gaolin Wang, Harbin Institute of Technology, CN
Patrick Wang, ON Semiconductor, F
Xuhui Wen, Chinese Academy of Science, CN
James Yin-Chin Wu, Hosonic Electronic Corporation Group, TW
Lie Xu, Tsinghua University, CN
Xing Zhang, Hefei University of Technology, CN
PCIM Asia 2018 Award Finalists

Best Paper Award Finalist

800V synchronous buck converter with series-connected GaN power transistors
Alexander Hensler, Steffen Franz, Siemens AG, Germany
David Shapiro, Gregory Bunin, VisIC Technologies Ltd., Israel

Session "High Frequency Power Conversion",
26th June 2018, Tuesday Morning 11:05 hrs.

Active Clamping with Nonlinear Gate Voltage Control Unit
Ming Wang, Jianping Ying, Xiaobo Huang, Lifeng Qiao, Xin Wang, Jun Liu,
Delta Electronics, China

Session "Renewable Energy Technologies",
27th June 2018, Wednesday Afternoon, 14:00 hrs.

Fully Optimized Discrete Coupled Inductor DC/DC converter: TriMagiC Converter™
Mitsunao Fujimoto, Alps Electric, Japan
Yutaka Naito, ALPS Electric, Japan

Session “Power Converters”,
28th June 2018, Thursday Morning 10:00 hrs.

This award is sponsored by:

Young Engineer Award Finalist

USCi SiC JFET Cascode and Super Cascode Technologies
Zhongda Li, United Silicon Carbide, USA

Session "SiC Technologies for Efficient and Reliable Application",
26th June 2018, Tuesday Afternoon, 14:25 hrs.

Parallel Connection of Silicon Carbide MOSFETs for Electric Vehicle Application
Wei Liu, ZF Japan Co., Ltd., Japan

Session “SiC Technologies for Efficient and Reliable Application”,
26th June 2018, Tuesday Afternoon, 14:50 hrs.

A Novel Carrier-Overlapped PWM Based Voltage Balancing Method for Four-Level Neutral-Point Clamped Converters
Kui Wang, Zedong Zheng, Lie Xu, Yongdong Li, Tsinghua University, China

Session “Power Converters”,
28th June 2018, Thursday Morning, 11:05 hrs.

This award is sponsored by:
# Conference Program at a Glance

## Tuesday, 26 June 2018

<table>
<thead>
<tr>
<th>Time</th>
<th>Location</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:30</td>
<td></td>
<td>Conference &amp; Exhibition Opening</td>
</tr>
<tr>
<td>10:00 - 12:00</td>
<td>Room 1</td>
<td>Oral session</td>
</tr>
<tr>
<td></td>
<td>Room 2</td>
<td>Oral session</td>
</tr>
<tr>
<td></td>
<td>Room 1</td>
<td>Room 1: Intelligent Power Modules and Integrated Devices</td>
</tr>
<tr>
<td></td>
<td>Room 2</td>
<td>Room 2: High Frequency Power Conversion</td>
</tr>
<tr>
<td>12:00 - 12:40</td>
<td>Room 1</td>
<td>Keynote: A Vision on Industrial Induction Heating Converter Technology: Trends and Challenges</td>
</tr>
<tr>
<td>12:40 - 14:00</td>
<td></td>
<td>Ahead of the Conference Room in Hall 2: Poster session</td>
</tr>
<tr>
<td>14:00 - 16:30</td>
<td>Room 1</td>
<td>Oral session</td>
</tr>
<tr>
<td></td>
<td>Room 2</td>
<td>Special session</td>
</tr>
<tr>
<td></td>
<td>Room 2</td>
<td>Room 2: Electric Vehicle</td>
</tr>
<tr>
<td></td>
<td>Room 1</td>
<td>Room 1: SiC Technologies for Efficient and Reliable Application</td>
</tr>
</tbody>
</table>

## Wednesday, 27 June 2018

<table>
<thead>
<tr>
<th>Time</th>
<th>Location</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:00 - 12:00</td>
<td>Room 1</td>
<td>Oral session</td>
</tr>
<tr>
<td></td>
<td>Room 2</td>
<td>Oral session</td>
</tr>
<tr>
<td></td>
<td>Room 2</td>
<td>Room 2: IGBT Application Performance</td>
</tr>
<tr>
<td>12:00 - 12:40</td>
<td>Room 1</td>
<td>Keynote: Technology Trend of e-Mobility Charging</td>
</tr>
<tr>
<td>12:40 - 14:00</td>
<td></td>
<td>Ahead of the Conference Room in Hall 2: Poster session</td>
</tr>
<tr>
<td>14:00 - 16:30</td>
<td>Room 1</td>
<td>Oral session</td>
</tr>
<tr>
<td></td>
<td>Room 2</td>
<td>Oral session</td>
</tr>
<tr>
<td></td>
<td>Room 2</td>
<td>Room 2: Power Electronics in Electric Vehicle Application</td>
</tr>
<tr>
<td></td>
<td>Room 1</td>
<td>Room 1: Renewable Energy Technologies</td>
</tr>
</tbody>
</table>

## Thursday, 28 June 2018

<table>
<thead>
<tr>
<th>Time</th>
<th>Location</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:00 - 12:00</td>
<td>Room 1</td>
<td>Special session</td>
</tr>
<tr>
<td></td>
<td>Room 2</td>
<td>Oral session</td>
</tr>
<tr>
<td></td>
<td>Room 2</td>
<td>Room 2: Power Converters</td>
</tr>
<tr>
<td></td>
<td>Room 1</td>
<td>Room 1: Intelligence of Electrical Motion System</td>
</tr>
</tbody>
</table>
PCIM Asia 2018 – Short description keynotes

12:00 - 12:40, 26 June 2018, Tuesday

A Vision on Industrial Induction Heating Converter Technology: Trends and Challenges

Power Converters for Industrial Induction Heating ranges from power levels of 5 kW to several MW and frequencies from 0.5 kHz to 500 kHz depending on the heating application. Forging and melting applications require very high power levels in the MW range but very low frequencies. On the opposite, tube welding require medium power levels, less than 1 MW, but extreme high frequencies as 500 kHz.

Actual Power Converters for Industrial Induction Heating are based in Si-IGBT and Si-MOS Technology with heavy connection bus bars, efficiencies in the range of 90% and power densities in the range of 2-5 kW/litre.

With the advent of new active and passive components, some of them pushed by the e-mobility requirements, a complete new vision on the converter technology for induction heating converters is foreseen. Wideband semiconductors can dramatically improve efficiency to higher than 99% as well as reliability, advanced passives and high current PCB technology can help to increase power density by around ten times compared with the actual standard technology and improve converter reliability as per its automatized production.

New powerful FPGA and u-Controllers will add smartness to the induction heating converters due to its very high processing capabilities allowing the development of innovative algorithms with a closer interaction between the heating process and the converter, so that the induction heating converter no longer simply “processes” the piece to be heated, but it feedbacks the electrical parameters to the generator that auto-adjusts its parameters accordingly for optimizing the heating process.

12:00 - 12:40, 27 June 2018, Wednesday

Technology Trend of e-Mobility Charging

E-mobility is become a trend to deploy from railway train to EV, E-Bus, E-Truck and E-boat due to the significant trend of technology improvement and price reduction on batteries. One of the E-mobility technology is used the electric motors to replace the traditional combustion engine and the motor energy come from the battery. As the power train brings in the requirement of high power electronic requirement like AC/DC on-vehicle charger, DC/DC converter, DC/AC inverter (motor drive) and also off-vehicle charging stations. In this presentation, the charging technology trend of E-mobility systems will be presented.
Conference
Tuesday, 26 June 2018,
Morning Oral Sessions

Room 1
Intelligent Power Modules and Integrated Devices

Chairperson: Dr. Gourab Majumdar,
Mitsubishi Electric Corporation, Japan

10:00
RC-IGBT Based Transfer Molded SMD Type IPM for Home Appliance Application
Jian Chen, Hongguang Huang, Mitsubishi Electric & Electronics, China
Yazhe Wang, Hongbo Zhang, Ming Shang, Mitsubishi Electric Corporation, Japan

10:25
A New Generation of Minimized 1200V Intelligent Power Module for the Low and Medium Power Motor Drive Applications
JunHo Lee, SeungJae Lee, JinYong Jeong, TaeSung Kwon, EHyun Lee, HyunSoo Bae, ON Semiconductor, Korea

10:50 Coffee Break

11:05
Low power loss level-shifter based gate driver ICs enable high frequency switching
Jinseng Song, Infineon Technologies Americas Corp., USA

11:30
High Power next Core (HPnC) package with 3.3kV SiC Hybrid chip combination
Yusuke Sekino, Akira Iso, Yuichi Harada, Tomohiro Moriya, Susumu Iwamoto, Hideaki Kakki, Osamu Ikawa, Fuji Electric, Japan

Room 2
High Frequency Power Conversion

Chairperson: Prof. Dehong Xu,
Zhejiang University, China

10:00
A Synchronous FET Class E Rectifier for >30W Highly Resonant Wireless Power Receivers
Michael De Rooij, Yuanzhe Zhang, Efficient Power Conversion, USA

10:25
Kilowatt Laser Driver with 120 A, sub-10 nanosecond pulses in < 3 cm2 using an GaN FET
John Glaser, Efficient Power Conversion, USA

10:50 Coffee Break

11:05
800V synchronous buck converter with series-connected GaN power transistors
Alexander Hensler, Steffen Franz, Siemens AG, Germany
David Shapiro, Gregory Bunin, VisIC Technologies Ltd., Israel

11:30
CCM Totem Pole PFC with Single-Shunt Peak Current Sensing and Indirect Differential AC Voltage Sensing
Wei Wu, Infineon Technologies America Corp., USA

Room 1
12:00 - 12:40
Keynote
A Vision on Industrial Induction Heating Converter Technology: Trends and Challenges

Speaker: Prof. Dr. Enrique J. Dede, from the University of Valencia, Spain
Chairperson: Dr. Dapeng Zheng, Shenzhen Hopewind Electric, China
Room 1
SiC Technologies for Efficient and Reliable Application

Chairperson: Dr. Naoto Fujishima, Fuji Electric, Japan

14:00
3.3kV/500A SiC Power Module for Railway Traction Application
Haotao Ke, Guiqin Chang, Wei Zhou, Chengzhan Li, Yongdian Peng, Xiaoping Dai, Zhuzhou CRRC Times Electric, China

14:25
USCI SiC JFET Cascode and Super Cascode Technologies
Zhongda Li, United Silicon Carbide, USA

14:50
Parallel Connection of Silicon Carbide MOSFETs for Electric Vehicle Application
Wie Liu, Xiaoguang Liang, Thomas Chiron, ZF Japan, Japan

15:15 Coffee Break

15:30
A Reliable Gate Driver with Desaturation and Over-Voltage Protection Circuits for SiC MOSFET
Shan Yin, China Academy of Engineering Physics, China
Yitao Liu, Shenzhen University, China

Room 2
Special session
Electric Vehicle

Chairperson: Prof. Zhihong Wu, Tongji University, China

14:00
New Energy Vehicle Power Electronics Technology Development Situation and Requirements Trends
Yongjie Han, SAIC Motor, China

14:25
Investigation of SiC MOSFET applications in electric vehicle
Tao Wu, United Automotive Electronics Systems Company, China

14:50
Key Technologies of Power Electronics Integration Devices for New Energy Vehicles
Yongjian Pan, Shanghai-Edrive, China

15:15 Coffee Break

15:30
Presentation 4
Conference Tuesday, 26 June 2018, Poster Dialogue Session
12:40 - 14:00, Ahead of the Conference Room in Hall 2

Chairperson: Dr. Dapeng Zheng, Shenzhen Hopewind Electric, China

PP001 Low Inductance 3.3KV/1800A High Power IGBT Module
Daohui Li, Fang Qi, Yangang Wang, Dynex Semiconductor Ltd, UK
Wei Zhou, Guiqing Chang, Yongdian Peng, Haihui Luo, Xiaoping Dai, Guoyou Liu, CRRC Times Electric, Zhuzhou, China

PP002 Rugged Automotive IGBTs for Reliable Electronic Ignition
Gianluca, Aureliano, Filippo, Scrimizzi, Agatino, Palermo, Giusy, Gambino, STMicroelectronics, Italy

PP003 Ruggedness Evaluation of Low Voltage Trench MOSFET against Repetitive Avalanche
Barry Wynne, Yan Lai, Nexperia, UK

PP004 High Performance 2nd Generation Trench Schottky Diodes for Switch Mode Power Supplies
Aibin Hu, WeEn Semiconductors, China
Ed Huang, WeEn Semiconductors, UK

PP005 Innovative Protection Concept for Single Ended Parallel Resonant Induction Heaters
Giuseppe De Falco, Jorge Cerezo, Infineon Technologies, Austria

PP006 Calculating On-State Voltage Drop of Bipolar Semiconductors using the αβ-Model
Stefan Wettengel, Lars Lindenmüller, Tiago Kommers Jappe, Steffen Bernet, TU Dresden, Germany
Michael Stelte, Christof Drilling, Matthias Leifeld, Jürgen Schiele, Mario Schenk, Infineon Technologies Bipolar, Germany

PP007 Evaluation of Active Current Source Gate Driver for IGBT Module Switching Transitions
Bing Ji, Kun Tan, University of Leicester
Tao Xie, Chen Li, Zhiqiang Wang, Dalian University of Technology, China

PP008 Extended life time of new IGBT module for traction applications
Volker Demuth, Semikron, Germany

PP009 Status and Trend of SiC device Power module Packaging
Fang Qi, Daohui Li, Yangang Wang, Helong Li, Dynex Semiconductor Ltd, UK
Wei Zhou, Guiqing Chang, Xiaoping Dai, CRRC Times Electric, China

PP010 New package design to enhance the reliability performance of power module
Jian Sun, Gaosheng Song, Xiankui Ma, Mitsubishi Electric & Electronics, China

PP011 Power Factor Corrected LED Direct AC Driver with Self-Adaptive Control
Ningliang Mi, On Semiconductor, USA

PP012 High reliability and robust monolithic 1200 V three phase gate driver with integrated bootstrap diode for multiple applications
Jinsheng Song, Diego Raffo, Weidong Chu, Infineon Technologies, USA
Conference
Wednesday, 27 June 2018,
Morning Oral Sessions

Room 1
Motor Drives and Motion Control
Chairperson: Dr. Jianping Ying, Delta Electronics, China

10:00
Power analysis of effects of MOSFET intrinsic characteristics on motor drive application
Alan Wai-Keung Lun, Infineon Technologies, China

10:25
Higher efficiency and power density of variable speed drives with new TRENCHSTOP™ IGBT7
Song Shen, Infineon Technologies, China
B. Sahan, C. Jaeger, A. Puyadenia, A. Brodt, A. Lenze, C. R. Müller, Infineon Technologies, Germany

10:50 Coffee Break

11:05 MiniSKiiP Dual Enables High Power Density Motor Drive up to 90kW
Yufeng Li, Wei Jing, Norbert Pluschke, SEMIKRON Hong Kong, China

11:30 Dual SOGI-Network Based Current Ripple and Position Error Fluctuation Elimination for PMSM Sensorless Drives
Guoqiang Zhang, Gaolín Wang, Dianguo Xu, Harbin Institute of Technology, China

Room 2
IGBT Application Performance
Chairperson: Norbert Pluschke, Semikron, Hongkong

10:00 Development and application potential of 6500V / 900A HiPak IGBT Module with enhanced reliability
Makan Chen, C. Papadopoulos, Evgeny Tsyplakov, ABB, Switzerland

10:25 Influence of negative voltage between gate and emitter to the turn-off behavior of IGBT device
Fumio Yukawa, Taku Takaku, Naoto Fujisawa, Seiki Igarashi, Fuji Electric Co., Ltd., Japan, Koji Yano, University of Yamanashi, Japan

10:50 Coffee Break

11:05 Expansion of power rating with 7th-Generation "X Series" RC-IGBT Modules for Industrial Applications

11:30 High \(I^2t\) capability power modules for EV power train with leadframe and RC-IGBT combination
Akihiro Osawa, Keiichi Higuchi, Hayato Nakano, Akio Kitamura, Shunji Takenoiri, Daisuke Inoue, Souichi Yoshida, Hiromichi Gohara, Masahito Otsuki, Fuji Electric, Japan

Room 1
12:00 - 12:40
Keynote
Technology Trend of e-Mobility Charging
Speaker: Herman Zhang, Delta Electronics, China
Chairperson: Prof. Yongdong Li, Tsinghua University, China
Conference
Wednesday, 27 June 2018,
Afternoon Oral Sessions

Room 1
Renewable Energy Technologies

Chairperson: Prof. Meiqin Mao,
Hefei University of Technology, China

14:00
Active Clamping with Nonlinear Gate Voltage Control Unit
Ming Wang, Jianping Ying, Xiaobo Huang, Lifeng Qiao, Xin Wang, Jun Liu, Delta Electronics, China

14:25
Power Optimization And Fault Tolerant Control For Power Converter Of Wind Energy Conversion System Using Permanent Magnet Synchronous Generator
Muhammad Noman, Wang, Wei, Southeast University, China

14:50
A Review on Low Voltage Ride-through for DFIG Based Wind Turbines
Zaki Ud Din, Jianzhong, Zhang, Zheng, Xu, Southeast University, China

15:15 Coffee Break

15:30
Tandem Diode Solution with Split NPC Topology For 1500V Renewable Energy
Nosung Park, Vincotech, South Korea

15:55
Analysis on overvoltage stress of NPC2 power module in PV string inverter
Zhenbo Zhao, Sichao Ma, Infineon Technologies, China
Xujian Li, Shanghai Maritime University, China

Room 2
Power Electronics in Electric Vehicle Application

Chairperson: Prof. Xuhui Wen,
Chinese Academy of Science, China

14:00
High performance high power modules for MV converter application
Xiankui Ma, Xing Zhang, Hefei University of Technology - Mitsubishi Electric Joint Laboratory, China; Jianfei Li, Sineng Electric, China

14:25
Compact regenerative elevator drive with one unique power module
Changsheng Ye, Semikron Electronics, China

14:50
1,700 V IGBT module with newly developed 7th Generation technology
Song Chen, T.Yamamoto, D.Nagai, S.Yoshivatari, S.Miyashita, Y.Sakurai, Y.Onozawa, T.Ito, S,Okita, Y.Kobayashi, O.Ikawa, Fuji Electric, Japan; J.Li*, Fuji Electric, China

15:15 Coffee Break

15:30
Best fit between baseplate geometry and ceramic thickness to achieves excellent thermal performance

Song Shen, Ziqing Zheng, Infineon Technologies, China
Jia Zhao, Infineon Integrated Circuit (Beijing), China

15:55
Investigation of power cycling capability of a novel Cu wires bonded interconnection system
Nan Jiang, Josef Lutz, Chemnitz University of Technology, Germany; Anton-Zoran Miirc, Andreas Steffen Klein, Andreas Hinrich, Benjamin Fabia, Marko Kalajica, Heraeus, Germany
Martin Becker, Danfoss Silicon Power, Germany
Conference  Wednesday, 27 June 2018, Poster Dialogue Session
12:40 - 14:00, Ahead of the Conference Room in Hall 2

Chairperson: Tianhao Tang, Shanghai Maritime University, China

PP013  Application of High-voltage 750V Aluminum Electrolytic Capacitor in Inverter
Kezhuang Yu, Yixun Ma, Jianwen Wang, Xuejun Du, Shenzhen Zeasset Electronic Technology, China

PP014  Improved Analysis and Modelling of Leakage Inductance for Planar Transformers
Ziwei Ouyang, Michael A. E. Andersen, Technical University of Denmark, Denmark
William Gerard Hurley, National University of Ireland, Ireland

PP015  A Comprehensive Loss Analysis for Quasi Resonant Flyback Converter with Design Purpose
Halil Alper Onay, Akim Metal San. Ve Tic. A.Ş., Turkey
Volkan Süel, Akim Metal A.Ş, Turkey
Ahmet Hava, Middle East Technical University, Turkey

Jingjing Yang, Wei Chen, Fuzhou University, China

PP017  An Improved Magnetic Coupling Resonant Wireless Charging System for Cell Phones
Binlei Ju, Hailong Pan, Niu Jia, Xiao Zhang, Xuedi Liu, Hefei University of Technology, China

PP018  Introduction of temperature protection for a small IPM for home appliances application
Xiaoling Wang, Hongtao He, Mitsubishi Electric & electronics, China

PP019  A Novel SVPWM Strategy for High-Frequency Noise Suppression of Dual Three-phase PMSM
Boyuan Zheng, Guan Wang, Yongxiang Xu, Harbin Institute of Technology, China

PP020  Improved Smart Power Module for up to 9kW Industrial Motor Applications
Sangmin Park, Ki-Nam Song, Seung-Hyun Hong, Adam Lee, Tae-Sung Kwon, ON semiconductor, South Korea

PP021  Research on Software RDC Decoding Algorithm and Conditioning Circuit
Hengyu Li, Tao Fan, Xuhui Wen, Chinese Academy of Sciences, China

PP022  High efficiency 1.5kW 48V-12V DCDC converter with Leadless MOSFET for Mild Hybrid Electric Vehicle
Rui Rong, Infineon Integrated Circuit, China
Renbo Wang, Infineon Technologies, China

PP023  Analysis of Negative Vce which can be generated in PFC IGBT under the Low Input Voltage Condition
JunHo Lee, JinYong Jeong, SeungJae Lee, HyunSoo Bae, ON Semiconductor, South Korea
Masao Tsukizawa, ON Semiconductor, Japan

PP024  Cleaning Requirements for Improved Efficiency and Reliability
Thomas Kucharek, ZESTRON Europe, Germany
Ravi Parthasarathy, Jigar Patel, ZESTRON Americas, USA
Jerry Ji, ZESTRON, China
Conference
Thursday, 28 June 2018,
Morning Oral Sessions

Room 1
Intelligence of Electrical Motion System
Chairperson: Guoqin Xu,
Shanghai University, China

10:00
Cyber-physical System CPS of Electrical
Motion Control System
Guoqing Xu, Shanghai University, China

10:25
Operational reliability technique for power
electronic converter systems
Dawei Xiang, Tongji University, China

10:50  Coffee Break

11:05
The overview of electrical drive system for electrical
vehicle oriented to safety and energy saving
Wei Cheng, SAIC Motor, China

11:30
Intelligence of Industrial Drive System
Yuesheng Hu, Danfoss, China

Room 2
Power Converters
Chairperson: Lie Xu,
Tsinghua University, China

10:00
Fully Optimized Discrete Coupled Inductor
DC/DC converter: TriMagiC Converter™
Mitsunao Fujimoto, Alps Electric, Japan
Yutaka Naito, ALPS Electric, Japan

10:25
An Improved Topology Derivation Method for
Battery-Integrated DC/DC Converters in Distributed
Photovoltaic System
Tiancan Pang, University of North Carolina at
Charlotte, USA

10:50  Coffee Break

11:05
A Novel Carrier-Overlapped PWM Based
Voltage Balancing Method for Four-Level
Neutral-Point Clamped Converters
Kui Wang, Zedong Zheng, Lie Xu, Yongdong Li,
Tsinghua University, China

11:30
Novel approach for power electronics in efficient
DC fast charging systems
Timo Gassauer, Bernhard Kalkmann, SEMIKRON
Elektronik, Germany
PCIM Asia has been the leading international meeting point for specialists in the Chinese power electronics market for over ten years. In 2018, we have 68 excellent speakers coming from China, USA, Germany, UK, Denmark, Spain, Switzerland, Japan, South Korea and Turkey, which 51 from industry and 17 from Academia.
Registration Information

Registration

These are per named delegate as follows:  

<table>
<thead>
<tr>
<th>Ticket Type</th>
<th>Early bird until 25 May 2018</th>
<th>Normal fee from 26 May 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theme ticket (usually half-day, no proceeding inclusive)</td>
<td>700 CNY</td>
<td>800 CNY</td>
</tr>
<tr>
<td>One Day ticket</td>
<td>1000 CNY</td>
<td>1200 CNY</td>
</tr>
<tr>
<td>3-day full ticket (proceeding inclusive)</td>
<td>1800 CNY</td>
<td>2250 CNY</td>
</tr>
</tbody>
</table>

Conference Proceedings

<table>
<thead>
<tr>
<th>Procedings</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-Proceedings of PCIM Asia 2018 (USB)</td>
<td>RMB 2000</td>
</tr>
<tr>
<td>E-Proceedings of PCIM Asia 2017 (USB)</td>
<td>RMB 750</td>
</tr>
<tr>
<td>E-Proceedings of PCIM Asia 2015-2016 (USB)</td>
<td>RMB 750</td>
</tr>
</tbody>
</table>

To register please go to www.pcimasia-expo.com

Registration Terms

Registration for the PCIM Asia Conference from 26 – 28 June 2018 is binding. Participation fees are due on registration with payment by bank transfer. An invoice covering the fees will be issued by mail. Once the registration process is complete, you will receive an e-mail booking confirmation including an entry voucher to the Shanghai World Exhibition and Convention Center; please make sure to bring this along. Your conference documents will be issued on site at the conference counter.

Cancellations will be accepted in writing only. Cancellation received by Guangzhou Guangya Messe Frankfurt Co., Ltd. by 26 May 2018 will incur a processing fee of 100 RMB. Thereafter if the participant does not attend, the full fee will be due. If a participant is unable to attend, a substitute may be nominated.

Guangzhou Guangya Messe Frankfurt Co., Ltd. has the right to create videos, photographs, sound recordings, and drawings of the conference for documentation purposes or for publication, on the internet and for advertising purposes in particular, or have them created. This right also applies to the persons photographed or recorded. Guangzhou Guangya Messe Frankfurt Co., Ltd. reserves the right to cancel the conference due to poor bookings or other reasons beyond our control. No further claims beyond the reimbursement of participation fees already paid will be accepted. The program or speakers are subject to change and no claims may be made in this respect.

The conference language and presentations are in English or Chinese.

Visa Application: All foreigners must obtain an entry visa before proceeding to China. It is strongly recommended to process the application latest one month before departure from the country of origin.

Payment of fees entitles you to the following services:

→ Conference:
  Participation in the conference days as booked, keynotes, poster sessions, special session, industry session, proceedings on USB flash drive, free admission to the PCIM Asia Exhibition (3 day ticket), exhibition catalogue and break beverages.

Note
Your personal data will be encrypted on being forwarded and used by Guangzhou Guangya Messe Frankfurt Co., Ltd. and its affiliated companies only. If you do not wish to receive further information, please let us know immediately.
PCIM Asia exhibition is a perfect expert platform which covers the whole range of power electronics and is essential for decision makers from industry and science. As a PCIM Asia visitor you can expect not only the most important companies of the power electronics industry, latest trends and developments of the power electronics industry but also an exciting supporting program.

### List of Exhibitors

| Guangzhou Solderwell Advanced Materials | Beijing centurygoldary semiconductor |
| SABIC IP US LLC | Shanghai Eagetop Electronic Technology |
| Wuxi CRE New Energy Technology | Danfoss Automatic Controls Management (Shanghai) |
| Sytech | DMAX technology |
| Analog Devices | Malico |
| Vacuumschmelze China Magnetics Shenyang | Isabellenhütte Heusler |
| Sansonic Electronic S&H (Shanghai) | Apet Chemie |
| Isahaya Electronics Sales Asia | Ducati Energia S.P.A. |
| Guangzhou Nagase Trading | Mega Technology (Zhenjiang) |
| Wolverine Metal (Shanghai) | Tektronix |
| DMAX Technology | ALPS (SHANGHAI) INTERNATIONAL TRADING |
| Shanghai Beginor Polymer Material Company | Alpha Assembly Solutions |
| Chengdu Common Cooling | Yangzhou Guoyang Electronics |
| Hefei Shengda Electronics Technology Industry | Bronze Technologies |
| SEMIKRON Electronics (Zhuhai) | Dalian Si Power Technology |
| Heraeus Holding | Beijing Sunking Power Electronic Technology |
| Zhuzhou CSR Times Electric | Hangzhou Firstack Technology |
| Guangzhou WEVO-CHEMIE | Shanghai Haoli Mechanical and Electric Technology |
| Hangzhou Silan Microelectronic | ZH Wielain Electronic (Hangzhou) |
| Mersen Electrical Power Shanghai | Foshan City Xin Yuan Electronic |
| Shenzhen Pourleroi Technology | NORWE |
| Inventec Performance Chemicals SHA | VisIC Technologies |
| Fuji Electric (CHINA) | Zhejiang Guchi Electronincs |
| Mitsubishi Electric & Electronics (Shanghai) | Shaanxi Kelvin Measurement & Control Technology |
| EBG Shenzhen | Shenzhen Jenkent Electronics Technology |
| CeramTec | INFORMATIC PTE |
| Toshiba Electronics (China) | Plexim |
| Starpower Semiconductor | Rayben Technologies |
| Auxel-FTG (Shanghai) | Mitsui Bussan Electronics |
| Wuxi Grandmake Trading | Sumitomo Heavy Industries |
| GTS Flexible Materials | Mimasu Semiconductor Industry |
| LEM Electronincs (China) | |

* listed in alphabetical order, as of March 2018
General Information

Venue
Shanghai World Expo Exhibition and Convention Center
1199 Guozhan Rd, Pudong, Shanghai, China

Registration Counter Opening Hours
Tuesday, 26 June 2018                          08:15 – 16:30 hrs
Wednesday, 27 June 2018                    08:30 – 16:30 hrs
Thursday, 28 June 2018                        08:30 – 13:00 hrs

Questions?

International Contact
Mesago Messe Frankfurt GmbH
Phone: +49 711 61946-0
Fax: +49 711 61946-91
Email: info@mesago.com

China Contact
Stefanie Huang
Tel: +86 20 3825 1558 Ext 288
Fax: +86 20 3825 1400
pcim-con@china.messefrankfurt.com

City Information about Shanghai

Shanghai, Hu for short, is a multi-cultural metropolis with both modern and traditional Chinese features. The city has a status equivalent to a province, and reports directly to the central government. Serving as the largest base of Chinese industrial technology, one of the most important seaports and China’s largest commercial and financial center, Shanghai draws the attention of the whole world. Shanghai is one of the most populated cities in China. It has a permanent resident population of 23,019,200, of which 12.21 million live in the urban areas.

Due to the deep influences of foreign culture for years, Shanghai may be China’s most international city. Tourists coming here can visit the Art and History Museum, learning the ancient Chinese history, and also enjoy the magnificent Chinese architecture from temples and buildings.

The Bund
The bund occupies a large area of Huangpu River. Here is the center of Shanghai overseas business organizations and as well as the symbol of this modern city.

Pudong New Area
Over a decade ago, Pudong New Area was just one side of the Huangpu drain farmland. Pudong Special Economic Zone area is even larger than the old Shanghai. As the Asian Wall Street, Pudong is the economic and business center of Shanghai, and many multinational corporations and international banking headquarters are located here.

Huxinting Teahouse
The Huxinting Teahouse in Shanghai China is an attractive pagoda style building located in Old Shanghai. Built on stilts in the middle of a pond, the teahouse is accessible via a zigzagged bridge designed to keep bad spirits away.
PCIM Asia 2019 Call for Papers
Be part of conference as a presenter

Benefits

• Publish your paper in the proceedings

• Exchange experiences with power electronics experts and expand your knowledge on current and upcoming industry trends.

• Establish new contacts and take advantage of networking opportunities with global leading industry brands.

Chance to Win One of the Awards

The papers for the awards will be selected upon the paper submissions by the Advisory Board, and will be granted at PCIM Asia 2019 Conference. The winners will receive prize money of RMB 8,000 each.

Important Dates

<table>
<thead>
<tr>
<th>Submission of abstracts</th>
<th>January - December 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notification of acceptance</td>
<td>February 2019</td>
</tr>
<tr>
<td>Submission of full paper</td>
<td>April 2019</td>
</tr>
</tbody>
</table>

Selection Process

All submitted abstracts will be reviewed to ensure a high-quality conference. Submitted abstracts maybe selected for oral or poster presentation. Notification of acceptance will be announced in February 2019.

Online Submission

Please find detailed information instructions on submitting your synopsis/abstract online at

www.pcimasia-expo.com/callforpapers

Format pdf-file with 2 - 3 pages

Conference language

• Abstract and paper written in English only.
• Oral presentations conducted in English or Chinese.
• Presenter’s PowerPoint presentation can be compiled in English or bilingual (English and Chinese).
PCIM Asia 2019 Call for Papers
Conference topics

1. Environmental Friendly and Renewable Energy Technologies
   1.1 Power Electronics Architecture for clean and renewable Energy
   1.2 Wind Power Generators and Converters/Inverters
   1.3 Solar Power Generators and Converters/Inverters
   1.4 Fuel Cells and Fuel Cell Energy System
   1.5 Energy Harvesting

2. Advanced Power Semiconductors
   2.1 High Power Semiconductors
   2.2 MOSFETs, IGBTs, FREDs & Schottkys
   2.3 Power Modules and Power Hybrids
   2.4 SiC, GaN and Wide Gap Devices and their applications
   2.5 Device and Packaging Technology Trends
   2.6 Power Supply Control IC and Power Management ICs
   2.7 Gate Driver
   2.8 IPM and System Integrated Module

3. Passive Components and Integration
   3.1 Higher Frequency and Low Loss Materials & Techniques for Inductors and Capacitors
   3.2 Planar Inductors and Transformers and Thin Film Magnetic Component
   3.3 Passive Integration

4. AC/DC Converter
   4.1 High Efficiency/High Density Power Converters/Inverters
   4.2 Resonant and Quasi Resonant Topologies for Power Supplies
   4.3 Standalone Power Supplies (Adapters) and on Board Supplies
   4.4 New Topologies (Single Switch, Phase Shift, ZVS, ZCS, ZVZCS)

5. DC/DC Converter
   5.1 DC/DC Converter topologies for enhanced efficiency and control
   5.2 Synchronous Rectification
   5.3 Battery Management
   5.4 Point of Load Converters
   5.5 New Topologies for Distributed Power Supply Systems (Single or Multi-Stage Architecture, ZVS, ZCS, ZVZCS)

6. Digital Power Conversion
   6.1 PM Bus and other Digital Power Control Protocols
   6.2 Digital Control Enables Smart Power Solutions
   6.3 Advantages of Digital Power Conversion and Associated Challenges
   6.4 System on a Chip (SOC)

7. Motor Drive & Motion Control
   7.1 Home Appliances
   7.2 Small Power Motor “general purpose drive” with highly sophisticated Control Strategies and Low Cost Solutions
   7.3 New Converter/Inverter Types for Single and Three Phase Systems
   7.4 Advanced Motor Concepts for Industrial Application and Traction Drives
   7.5 New Control Architectures DSP, Microcontroller or FPGA
   7.6 Advanced Sensor Concepts for Motor Drives

8. High Frequency Power Electronic Converters and Inverters
   8.1 Thermal Design, Packaging and EMI Issues
   8.2 Sensors specific to Power Electronics (e.g. voltage, current, power, frequency, phase, temperature)
   8.3 Techniques to reduce Switching Losses to improve Efficiency and reduce Size and Weight
   8.4 Wireless Power Transfer

9. Automotive Power Electronics
   9.1 Hybrid-/Electric Vehicle
   9.2 MOSFET and IGBT Modules in Motor Traction Applications
   9.3 DC/DC Conversion in Automobiles
   9.4 Bidirectional DC/DC Converters
   9.5 Electronics for Powertrain and Power management
   9.6 Energy Storage and Management, including Battery Types, Super capacitors and Fly Wheels

10. Power Quality Solutions
   10.1 UPS Systems and Inverters
   10.2 Novel UPS Concepts and Applications
   10.3 Active Power Filter (APF), DVR, SVG
   10.4 Energy Storage System (Battery Technologies, Flywheel, Super (ultra) capacitors)
   10.5 Harmonics and Power Factor Correction

11. Smart Grid Power Electronics
   11.1 Grid Inverter control
   11.2 Battery charging and V2G
   11.3 Energy storage system and control
   11.4 Micro-Grid

12. Power Electronics in Transmission Systems
   12.1 FACTS
   12.2 Converters for Offshore/Onshore HVDC links
   12.3 Frequency Converter Stations
Energise the future with power electronics
启动电力电子，激活绿色未来

26 – 28. 6. 2019
Shanghai World Expo Exhibition and Convention Center
Shanghai, China
中国 · 上海
上海世博展览馆

www.pcimasia-expo.com
International Exhibition and Conference for Power Electronics, Intelligent Motion, Renewable Energy and Energy Management

Nuremberg, 5–7 June 2018

Power for Efficiency

pcim-europe.com
Organizer

messe frankfurt
Guangzhou Guangya Messe Frankfurt Co Ltd.
Room A2001, Center Plaza, No.161 Linhe Road West, Tianhe District, Guangzhou
Phone: +86 20 38251558
Fax: +86 20 38251400
pcimasia@china.messefrankfurt.com
pcim-con@china.messefrankfurt.com

Partner

mesago
Messe Frankfurt Group
Mesago Messe Frankfurt GmbH
Rotebuehlstr. 83-85
70178 Stuttgart
Phone: +49 711 61946-0
Fax: +49 711 61946-91
pcim@mesago.com
pcim-europe.com

Sponsors

Media Partners

PCIM Worldwide

pcim
EUROPE
5 – 7 June 2018
Nuremberg, Germany

pcim
ASIA
26 – 28 June 2018
Shanghai, China