



### 电力电子、智能运动、可再生能源

上海国际电力元件、可再生能源管理展览会 International Exhibition and Conference for Power Electronics, Intelligent Motion, Renewable Energy and Energy Management

26 – 27 October 2022, Shanghai, China

# **Proceedings**

→ Contents



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#### Dear PCIM Asia participants,

I am very pleased and honored to welcome all of you to the PCIM Asia Conference and Exhibition 2022 in Shanghai.

The PCIM Asia Conference the leading Power Electronics Event worldwide for discussing future technology trends in this technical domain and offering a competent platform for introducing the new generation of components and scalable power electronic building blocks in the market. Researchers from academia and experts from industry will provide presentations and being available for open discussions on new materials for power devices and passive components, advanced packaging technologies with extended lifetime and outstanding reliability, digital controlled energy systems and AI solutions for smart power converters. This year in our technical program we are covering dedicated innovations in the field of power electronics in complimentary to three leading experts for keynote presentations, two special sessions on WBG Devices and AI solutions for intelligent power conversion systems and two Chinese sessions. The PCIM Asia serves as a technical and scientific platform for engineers and researchers in the field of power electronics as well as decision makers from companies to generate new market segments and trigger future research directions.

# Pioneering work of new products will be discussed during this year the PCIM Asia Conference

The technical program of this year's PCIM Asia is covering advanced developments of new power semiconductor devices based on Si and WBG (SiC& GaN) technologies with smart gate driver solutions, dedicated packages for ultrafast switching devices with extended lifetime and predictive diagnostic functions as well as smart digital controlled power conversion concepts with the impact of Al solutions.

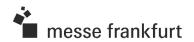
#### Conference highlights and important milestones in Power Electronics

The keynote presentations on High Power Semiconductor Circuit breaker development, benefits of DC Grids in renewable energy technologies and power solutions for Server Applications are addressing important development trends in power electronics. A further strong focus is on new materials to achieve a technology breakthrough towards elevated temperature along with an extended lifetime of devices and smart digital controlled power converter concepts. Distinguished speakers will be discussing Challenges in High Power Density Converter design as well as passive components and filter design.

Special attention has been paid to research carried out by young engineers from industries and universities with their presentations and Best Paper Awards during the PCIM Asia conference 2022 – these are certainly further highlights of the conference.

I wish you an enjoyable and successful conference, an open dialog with all the experts and packed with new ideas for your future product innovation and business.









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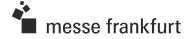
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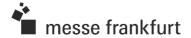




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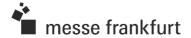






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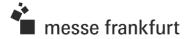
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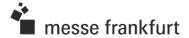
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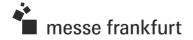






# **Future Power Converter System Solution**

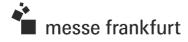
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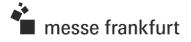
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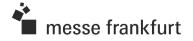
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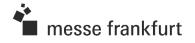
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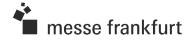
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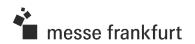
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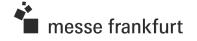
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Lin	Jingbo	Harbin Institute of Technology	China
Liu	Xudan	Bosch (China) Investment Ltd.	China
Liu	Ye	School of Electrical Engineering, Xi'an Jiaotong University	China
Liu	Zhong	Wuxi Power Supply Company of State Grid	China
Liu	Zicheng	School of Electrical and Electronic Engineering, Huazhong University of Science and Technology	China
Lu	Siqing	Mitsubishi Electric & Electronics (Shanghai) Co., Ltd.	China
Lu	Yi	State Grid Jibei Electric Power Co. Ltd. Research Institute (North China Electric Power Research Institute Co., Ltd.)	China
Luo	Haihui	Zhuzhou CRRC Times Semiconductor Co., Ltd.	China
Lv	Chunlin	Xi'an Jiaotong University	China
		M	
Ма	Kwok Wai	Infineon Technologies Asia Pacific	Singapore
Ма	Sichao	Infineon	Germany
Ма	Xin	Infineon Integrated Circuit (Beijing) Co., Ltd.	China
Mademlis	Christos	School of Electrical and Computer Engineering, Aristotle University of Thessaloniki	Greece
Matsuo	Mamoru	Mitsubishi Electric Corporation	Japan
Minagawa	Kei	Fuji Electric Co., Ltd.	Japan
Mitsuzuka	Kaname	Fuji Electric Co., Ltd.	Japan
Miyahara	Satoshi	Mitsubishi Electric Corporation	Japan
Mori	Takahiro	Fuji Electric Co., Ltd.	Japan
		N	
Nakahara	Kenta	Mitsubishi Electric Corporation	Japan
Nakamura	Keiichi	Mitsubishi Electric Corporation	Japan
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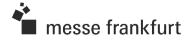
Nakashima	Koichi	SABIC	Japan
Narain	Anuj	Wolfspeed	United States
Ning	Puqi	University of Chinese Academy of Sciences; Institute of Electrical Engineering, Chinese Academy of Sciences; Key Laboratory of Power Electronics and Electric Drive, Institute of Electrical Engineering, Chinese Academy of	China
		Sciences; Collaborative Innovation Center of Electric Vehicles in Beijing	
Nishida	Nobuya	Mitsubishi Electric Corporation	Japan
Nishikawa	Kazuyasu	Advanced Technology R&D Center, Mitsubishi Electric Corporation	Japan
		О	
Ochi	Koki	Power Device Works, Mitsubishi Electric Corporation	Japan
Oh	Jaewook	Konkuk University	Republic of Korea
Okumura	Keiji	Fuji Electric Co.	Japan
Onozawa	Yuichi	Fuji Electric Co.	Japan
Ou	Dailin	Huazhong University of Science and Technology	China
Ou	Jing	Harbin Institute of Technology	China
		Р	
Pal	Ajay Poonjal	Infineon Technologies AG	Germany
Palaniappan	Dinesh	Infineon Technologies Asia Pacific	Singapore
	Andrew	SABIC	USA
		Q	
Qi	Xueqing	Beijing Smartchip Microelectronics Technology Company Limited	China
Qiu	Jianwen	SEMIKRON Electronics (Zhuhai) Co., Ltd.	China
Qu	Ronghai	School of Electrical and Electronic Engineering, Huazhong University of Science and Technology	China
		R	
Ruan	Xinbo	Nanjing University of Aeronautics and Astronautics	China
Ruzza	Stefano	Infineon Technologies Italia S.r.l.	Italy







S			
Sabando	Silnore	onsemi	Vietnam
Saif	Ahmed Majed	Power Integrations GmbH	Germany
Saito	Shota	Mitsubishi Electric Corporation	Japan
Sekigawa	Kiyoshi	Fuji Electric Co., Ltd.	Japan
Sekino	Yusuke	Fuji Electric Co.	Japan
Shamsul	Syed	Infineon Technologies AG, Neubiberg	Germany
Arefin			
Shao	Jianwen	Wolfspeed	United States
Sheng	Jing	Power Electronics Laboratory, EPFL	Switzerland
Shi	Jinshan	Nexperia (China) Ltd.	China
Shiigi	Takashi	Fuji Electric Co.	Japan
Song	Bokkeun	Infineon Technologies Korea	South Korea
Song	Gaosheng	Mitsubishi Electric & Electronics (Shanghai) Co., Ltd.	China
Sui	Xiaosa	Shanghai University, Shanghai	China
Sun	Dunhu	Infineon Technology Competency Center (Shanghai) Co., Ltd.	China
Sun	Jian	Mitsubishi Electric & Electronics (Shanghai) Co., Ltd.	China
Sun	Xiangwen	Huazhong University of Science and Technology	China
Sun	Yi	Innoscience	China
		Т	
Tahir	Mustafa	College of Electrical Engineering, Zhejiang University	China
Тао	Rongning	THINKVO Automation Eqpt. Co., Ltd.	China
Tian	Нао	School of Electrical Engineering, Harbin Institute of Technology	China
Tian	Yuan	Shanxi Tiandi Coal Mining Machinery Co., Ltd.; China Coal Technology & Engineering Group Taiyuan Research Institute Co., Ltd.; China National Engineering Laboratory for Coal Mining Machinery	China
Tsuda	Ryo	Mitsubishi Electric Corporation	Japan
		U	
Uchida	Takafumi	Fuji Electric Co.	Japan
		V	
Villani	Claudio	Infineon Technologies Italia S.r.l.	Italy







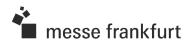
		W	
Wang	Gang	Signify (China) investment Co. Ltd. Research Center	China
Wang	Нао	Power Integrations	China
Wang	Heng	Infineon Integrated Circuit (Beijing) Co., Ltd.	China
Wang	Hua	PN Junction Semiconductor (Hangzhou) Co., Ltd.	China
Wang	Huai	Aalborg University	Denmark
Wang	Jianhua	PN Junction Semiconductor (Hangzhou) Co., Ltd.	China
Wang	Jianing	Hefei University of Technology	China
Wang	Laili	Xi'an Jiaotong University	China
Wang	Li	Nanjing University of Aeronautics and Astronautics	China
Wang	Ning	School of Electrical Engineering, Harbin Institute of Technology	China
Wang	Pengye	School of Electrical and Electronic Engineering, Huazhong University of Science and Technology	China
Wang	Shixian	College of Electrical and Power Engineering, Taiyuan University of Technology	China
Wang	Xiaoling	Mitsubishi Electric & Electronics (Shanghai) Co., Ltd.	China
Wang	Xiaosi	TEDA Tian&Di IT Co. Ltd.	China
Wang	Yijie	Harbin Institute of Technology	China
Wei	Chen	Wolfspeed	China
Wei	Tianliu	State Key Laboratory of HVDC, Electric Power Research Institute, CSG	China
Wu	Deliang	Shanghai University, Shanghai	China
Wu	Tong	Onsemi	China
Wu	Yanqiu	State Grid Liaoning Electric Power Company Anshan Power Supply Company	China
Wu	Zhen	North China University of Technology	China
		X	
Xiang	Junli	Nexperia (China) Ltd.	China
Xu	Во	Nexperia (China) Ltd.	China
Xu	Dianguo	School of Electrical Engineering, Harbin Institute of Technology	China
Xu	Yang	PN Junction Semiconductor (Hangzhou) Co., Ltd.	China
		Υ	
Yamamoto	Sayaka	Fuji Electric Co.	Japan
Yan	Yuanyuan	School of Electrical Engineering, Xi'an Jiaotong University	China
Yang	Guangzhong	Wuxi Power Supply Company of State Grid	China







Yang	Ming	School of Electrical Engineering, Harbin Institute of Technology	China
Yang	Yong	Infineon Integrated Circuit (Beijing) Co., Ltd.	China
Yang	Yugang	College of Electrical and Power Engineering, Taiyuan University of Technology	China
Ye	Zhijing	Tsinghua University	China
Yin	Randy	Nexperia (China) Ltd.	China
Yokoyama	Yoshinori	Advanced Technology R&D Center, Mitsubishi Electric Corporation	Japan
Yu	Fumio	SABIC	Japan
Yu	Zhanqing	Tsinghua University	China
		Z	
Zhang	Chaoqun	SEMIKRON Electronics (Zhuhai) Co., Ltd.	China
Zhang	Chenguang	North China University of Technology	China
Zhang	Fulin	Wolfspeed	China
Zhang	Guofu	North China University of Technology	China
Zhang	Han	North China University of Technology	China
Zhang	Hongbo	Power Device Works, Mitsubishi Electric Corporation	Japan
Zhang	Junzi	School of Electrical Engineering, Xi'an Jiaotong University	China
Zhang	Ken	Nexperia (China) Ltd.	China
Zhang	Xiangfei	Beijing Smartchip Microelectronics Technology Company Limited	China
Zhang	Xiaoguang	North China University of Technology	China
Zhang	Xiaoqi	School of Electrical Engineering, Xi'an Jiaotong University	China
Zhang	Yanzhong	Huawei Digital Power	China
Zhang	Yuanchen	Mitsubishi Electric & Electronics (Shanghai) Co., Ltd.	China
Zhang	Zhouyun	CRRC Zhuzhou Institute Co.,LTD	China
Zhao	Jia	Infineon Integrated Circuit Beijing Co., Ltd	China
Zhao	Rui	Mitsubishi Electric & Electronics (Shanghai) Co., LTD	China
Zhao	Xiaodong	School of Electrical Engineering, Harbin Institute of Technology	China
Zhao	Yuan	State Grid Jibei Electric Power Co. Ltd. Research Institute (North China Electric Power Research Institute Co., Ltd.)	China
Zhao	Zhenbo	Infineon Technologies Center of Competence (Shanghai) Co., Ltd.	China
Zheng	Zedong	Tsinghua University	China
Zhou	Jinchang	onsemi	USA







Zhou	Yuan	SABIC	China
Zhu	Charlie	Nexperia (China) Ltd.	China
Zhu	Fengjie	Semikron Electronics (Zhuhai) Co., Ltd. Beijing	China
Zhu	Zhengbin	College of Electrical Engineering, Zhejiang University	China
Zong	Shaolei	Wuxi Power Supply Company of State Grid	
Zuo	Huiling	Nexperia (China) Ltd.	China

