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TECHNICAL PAPERS

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Location: Room 211AB

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Location: Room 211AB

March 20, 2019 8:30 - 10:10

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Location: Room 212AB

March 20, 2019 8:30 - 10:10

Session Chairs: Sandeep Bala, *ABB U.S. Corporate Research Center*
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Location: Room 213C

March 20, 2019 8:30 - 10:10

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Location: Room 213D

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Session Chairs: Yingying Kuai, *Caterpillar Inc.*

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Location: Room 303AB

March 20, 2019 8:30 - 10:10

Session Chairs: Poria Fajri, *University of Nevada, Reno*

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Location: Room 303CD

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Session Chairs: Yu Du, *ABB Inc.*

Fred Weber, *FTW, LLC*

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Location: Room 304AB

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Session T16: Medical/Computing/Lighting Applications

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Session Chairs: Indumini Ranmuthu, *Texas Instruments Inc.*
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Session T17: Single-Phase AC-DC Converters

Location: Room 211AB

March 20, 2019 14:00 - 17:30

Session Chairs: Gerry Moschopoulos, *Western University*
Qiang Li, *Virginia Tech*

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Location: Room 212AB

March 20, 2019 14:00 - 17:30

Session Chairs: Cahit Gezgin, *Infineon Technologies*
Abey Mathew, *IBM*

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Location: Room 213C

March 20, 2019 14:00 - 17:30

Session Chairs: Sheldon Williamson, *University of Ontario Institute of Technology*
Faisal Khan, *University of Missouri at Kansas City*

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Session T20: Control Strategies for Inverters and Motor Drives

Location: Room 213D

March 20, 2019 14:00 - 17:30

Session Chairs: Jaber Abu Qahouq, *The University of Alabama*
Yusi Liu, *ON Semiconductor*

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Session T21: Driving WBG devices

Location: Room 303AB

March 20, 2019 14:00 - 17:30

Session Chairs: Alireza Dayeizadeh, *North Carolina State University*
Dong Dong, *Virginia Tech*

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- In Depth Analysis of Driving Loss and Driving Power Supply Structure for SiC MOSFETs** 965
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Location: Room 303CD	
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Session T23: Diagnostic and Fault-Tolerant Control of Renewable Energy Systems

Location: Room 304AB

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Session Chairs: Fei Lu, *Drexel University*
Minjie Chen, *Princeton University*

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Session T24: Transportation/Storage/Grid

Location: Room 304CD

March 20, 2019 14:00 - 17:30

Session Chairs: Petar Grbović, *University of Innsbruck*
Tae Hong Kim, *Huawei*

- A Bidirectional Modular DC-AC Converter with High Frequency Isolation for Marine Application** 1115
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Session T25: Multilevel and Multi-Phase AC-DC Converters

Location: Room 211AB

March 21, 2019 8:30 - 11:15

Session Chairs: Daniel Costinett, *University of Tennessee, Knoxville*
Michael A. E. Andersen, *Technical University of Denmark*

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Session T26: Magnetics Modeling, Design & Applications

Location: Room 212AB

March 21, 2019 8:30 - 11:15

Session Chairs: Fang Luo, *University of Arkansas*
Shuo Wang, *University of Florida*

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Matthias Leinfelder, *Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany*
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Session T27: Step-up DC-DC Converters

Location: Room 213C

March 21, 2019 8:30 - 11:15

Session Chairs: Gab-Su Seo, *National Renewable Energy Laboratory*
Wisam Moussa, *Infineon Technologies*

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Bertan Bakkaloglu, <i>Arizona State University, United States</i>	
Sayfe Kiaei, <i>Arizona State University, United States</i>	

Session T28: Control Strategies for Improving Quality and Performance

Location: Room 213D

March 21, 2019 8:30 - 11:15

Session Chairs: Seungdeog Choi, *Mississippi State University*
Panagiotis Kakosimos, *ABB AB Corporate Research*

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Zhiliang Zhang, <i>Nanjing University of Aeronautics and Astronautics, China</i>	
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Jiahao Niu, <i>University of Tennessee, United States</i>	
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Haiguo Li, <i>University of Tennessee, United States</i>	
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Fred Wang, <i>University of Tennessee and Oak Ridge National Laboratory, United States</i>	
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C. Fernandez, *Universidad Carlos III de Madrid, Spain*
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Hongjie Wang, *Utah State University, United States*
Regan Zane, *Utah State University, United States*

Session T29: SiC & GaN based Power Converters

Location: Room 303AB

March 21, 2019 8:30 - 11:15

Session Chairs: Victor Veliadis, *Power America*
Qing Ye, *Toshiba International Corporation*

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Lingxi Zhang, *Rolls-Royce@NTU Corporate Lab, Singapore*
Ziyong Lim, *Rolls-Royce@NTU Corporate Lab, Singapore*
Arie Nawawi, *Rolls-Royce@NTU Corporate Lab, Singapore*
Yong Liu, *Rolls-Royce@NTU Corporate Lab, Singapore*
Josep Pou, *Rolls-Royce@NTU Corporate Lab, Singapore*
Rejeki Simanjorang, *Rolls-Royce@NTU Corporate Lab, Singapore*

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Volker Pickert, *Newcastle University, United Kingdom*

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Yongbin Chu, *Texas Instruments Inc., United States*

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Xuhui Wen, *Chinese Academy of Sciences, China*
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Cyril Buttay, *Université de Lyon, France*
Hervé Morel, *Université de Lyon, France*

Session T30: Magnetics optimization

Location: Room 303CD

March 21, 2019 8:30 - 11:15

Session Chairs: Seungryul Moon, *Nat'l Energy Technology Laboratory*
Matthew Wilkowski, *Intel*

Effects of Secondary Leakage Inductance on the LLC Resonant Converter – Part II: Frequency Control Bandwidth with Respect to Load Variation 1408
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Tomohide Shirakawa, *Okayama University, Japan*
Kazuhiro Umetani, *Okayama University, Japan*
Jun Imaoka, *Nagoya University, Japan*
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Eiji Hiraki, *Okayama University, Japan*

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Roberto Prieto, *Universidad Politécnica de Madrid, Spain*

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Fred C. Lee, *Virginia Polytechnic Institute and State University, United States*

Session T31: Control Algorithms for Utility Interactive Systems

Location: Room 304AB

March 21, 2019 8:30 - 11:15

Session Chairs: Praveen Jain, *Queen's University*
Xiongfei Wang, *Aalborg University*

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Ping Wang, *Princeton University, United States*
Haoran Li, *Tsinghua University, China*
Minjie Chen, *Princeton University, United States*

Session T32: Wireless Power Transfer Design Techniques

Location: Room 304CD

March 21, 2019 8:30 - 11:15

Session Chairs: Alfred Hesener, *Infineon Technologies*
Wisam Alhoor, *Dialog Semiconductor*

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Session T33: DC-DC Converter Applications

Location: Room 211AB

March 21, 2019 13:45 - 17:00

Session Chairs: Olivier Trescases, *University of Toronto*
Zach Pan, *ABB U.S. Corporate Research Center*

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Alejandro Villarruel-Parra, *University of Manchester, United Kingdom*
Andrew Forsyth, *University of Manchester, United Kingdom*

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Shu Ishida, *Shinshu University, Japan*
Tomohiro Shirasawa, *Shinshu University, Japan*
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Session T34: Soft Switching DC-DC Converters

Location: Room 212AB

March 21, 2019 13:45 - 17:00

Session Chairs: Hanh-Phuc Le, *University of Colorado at Boulder*
Chenhao Nan, *Google*

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Hongfei Wu, *Nanjing University of Aeronautics and Astronautics, China*

Session T35: Power Electronics for Transportation

Location: Room 213C

March 21, 2019 13:45 - 17:00

Session Chairs: Omer Onar, *Oak Ridge National Laboratory*
Behrooz Mirafzal, *Kansas State University*

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Mohamed Orabi, *Aswan University, Egypt*

Session T36: Control Applications

Location: Room 213D

March 21, 2019 13:45 - 17:00

Session Chairs: Martin Ordonez, *The University of British Columbia*
Weiming Zhang, *SF Motors*

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Session T37: Faults and Dynamics in Grid-Tied Systems

Location: Room 303AB

March 21, 2019 13:45 - 17:00

Session Chairs: Majid Pahlevani, *University of Calgary*
Xiaoqing Song, *ABB*

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Victor Goncalves, *Alpha Technologies Ltd., Canada*
Majid Pahlevani, *University of Calgary, Canada*

Session T38: Motor Drive Modulation & Control Strategies

Location: Room 303CD

March 21, 2019 13:45 - 17:00

Session Chairs: Rakib Islam, *Dura Automotive Systems*
Zhe Zhang, *Nexteer Automotive*

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Xiaodan Wang, <i>The Ohio State University, United States</i>	
Jin Wang, <i>The Ohio State University, United States</i>	
Liming Liu, <i>ABB Inc., United States</i>	
Sandeep Bala, <i>ABB Inc., United States</i>	

Session T39: Power Converter Design for Renewable Energy Applications

Location: Room 304AB

March 21, 2019 13:45 - 17:00

Session Chairs: Yinglai Xia, *Texas Instruments Inc.*

Ashish Kumar, *Texas Instruments Inc.*

- New Surface Mount SiC MOSFETs Enable High Efficiency High Power Density Bi-Directional On-Board Charger with Flexible DC-Link Voltage** 1904
Chen Wei, *Cree Inc., China*
Jianwen Shao, *Cree Inc., United States*
Binod Agrawal, *Cree Inc., India*
Dongfeng Zhu, *Cree Inc., China*
Haitao Xie, *Cree Inc., China*
- Analysis and Design of Three Phase Single Stage Isolated Flyback based PFC Converter with a Novel Clamping Circuit** 1910
Sivanagaraju Gangavarapu, *Concordia University, Canada*
Akshay K. Rathore, *Concordia University, Canada*
- Single-Phase Quasi-Z-Source Inverters: Switching Loss Reduction using a Quasi-Sinusoidal Modulation Strategy** 1918
Ahmed Abdelhakim, *University of Padova, Italy*
Frede Blaabjerg, *Aalborg University, Denmark*
Paolo Mattavelli, *University of Padova, Italy*
- Isolated AC-DC Interleaved Converter for MVDC Collection Grid in HVDC Offshore Wind Farm** 1926
Marcus A.A. Bezerra, *Federal University of Ceará, Brazil*
Jorge L.W. Oliveira Jr., *Federal Institute of Ceará, Brazil*
Paulo P. Praça, *Federal University of Ceará, Brazil*
Demercil S. Oliveira Jr., *Federal University of Ceará, Brazil*
Luiz Henrique S.C. Barreto, *Federal University of Ceará, Brazil*
Bruno R. de Almeida, *University of Fortaleza, Brazil*
- A Notch Prefilter for Three-Phase PLL under Adverse Grid Conditions** 1934
Jinbo Li, *Nanjing University of Aeronautics and Astronautics, China*
Qin Wang, *Nanjing University of Aeronautics and Astronautics, China*
Peng He, *Nanjing University of Aeronautics and Astronautics, China*
Lan Xiao, *Nanjing University of Aeronautics and Astronautics, China*
Ling Mao, *Nanjing University of Aeronautics and Astronautics, China*
- An Improved Modulation Strategy for the Active Voltage Clamping HERIC Inverter** 1938
Hui Wang, *Central South University, China*
Zhenxi Wu, *Central South University, China*
Zhongting Tang, *Central South University, China*
Hua Han, *Central South University, China*
Yongheng Yang, *Aalborg University, Denmark*
Frede Blaabjerg, *Aalborg University, Denmark*

A New Modulation Strategy to Operate Bidirectional Resonant Converter under Extended Input Range 1943
Changkyu Bai, *Pohang University of Science and Technology, South Korea*
Byeongcheol Han, *Virginia Polytechnic Institute and State University, United States*
Sooa Kim, *Pohang University of Science and Technology, South Korea*
Sung-Ho Lee, *Korea Atomic Energy Research Institute, South Korea*
Minsung Kim, *Dongguk University, South Korea*

DC Voltage Control Architecture in Renewable Energy based Three-Level Converters 1949
Emanuel Serban, *Schneider Electric, Canada*
Cosmin Pondiche, *Schneider Electric, Canada*
Helmine Serban, *Simon Fraser University, Canada*
Cristian Lascu, *University Politehnica of Timisoara, Romania*
Octavian Cornea, *University Politehnica of Timisoara, Romania*

Impact of Background Harmonic on Filter Capacitor Reliability in Wind Turbine 1957
Dao Zhou, *Aalborg University, Denmark*
Yipeng Song, *Aalborg University, Denmark*
Frede Blaabjerg, *Aalborg University, Denmark*

Session T40: Industrial Applications

Location: Room 304CD

March 21, 2019 13:45 - 17:00

Session Chairs: Jesus Acero, *Universidad de Zaragoza*
Sombuddha Chakraborty, *Texas Instruments Inc.*

Digital Current Control of Electric Arc Furnace by Parallel Modular Three-Phase IGBT Inverters 1963
Sandro Calligaro, *Free University of Bolzano, Italy*
Roberto Petrella, *University of Udine, Italy*

An Analysis of Electromagnetic Forces on Cooking Vessels used in Domestic Induction Heating Appliances oriented to Identify the Properties of Materials 1971
Jesús Acero, *Universidad de Zaragoza, Spain*
Claudio Carretero, *Universidad de Zaragoza, Spain*
Ignacio Lope, *BSH-Home Appliances, Spain*
José Miguel Burdío, *Universidad de Zaragoza, Spain*

An Assessment of a Square-Wave Series Voltage Compensator increasing Power Quality on Industrial Electronic Loads compensating Voltage Sag and Swell 1976
Marcos Paulo Brito Gomes, *Federal University of Minas Gerais, Brazil*
Igor Amariz Pires, *Federal University of Minas Gerais, Brazil*
Sidélmo Magalhães Silva, *Federal University of Minas Gerais, Brazil*
Braz de Jesus Cardoso Filho, *Federal University of Minas Gerais, Brazil*
Alysson Augusto Pereira Machado, *Federal University of Minas Gerais, Brazil*
José Ronaldo Silveira Junior, *Federal University of Minas Gerais, Brazil*
Alex-Sander Amável Luiz, *Centro Federal de Educação Tecnológica de Minas Gerais, Brazil*
Samir Duarte Machado, *Federal University of Itajubá, Brazil*

Ensemble Machine Learning based Adaptive Arc Fault Detection for DC Distribution Systems 1984
Vu Le, *University at Buffalo, United States*
Xiu Yao, *University at Buffalo, United States*

Active Common-Mode Voltage Cancellation using Fourth-Leg of Three-Level NPC Converter based on IGBT for High Voltage Operation 1990
Jun-Hyung Jung, *Pusan National University, South Korea*
Seon-Ik Hwang, *Pusan National University, South Korea*
Jang-Mok Kim, *Pusan National University, South Korea*

A Regulated 48V-to-1V/100A 90.9%-Efficient Hybrid Converter for POL Applications in Data Centers and Telecommunication Systems 1997
Ratul Das, *University of Colorado-Boulder, United States*
Hanh-Phuc Le, *University of Colorado-Boulder, United States*

Current Spike Suppression Techniques for Magnetic Bearing Amplifier 2002
Hsin-Che Hsieh, *Virginia Polytechnic Institute and State University, United States*
Cheng-Wei Chen, *Virginia Polytechnic Institute and State University, United States*
Ming-Cheng Chen, *National Taiwan University of Science and Technology, Taiwan*
Jih-Sheng Lai, *Virginia Polytechnic Institute and State University, United States*
Jin-Mu Lin, *Industrial Technology Research Institute, Taiwan*

Low-Power Photovoltaic Energy Harvesting with Parallel Differential Power Processing using a SEPIC 2008
F. Selin Bagci, *National Taiwan University of Science and Technology, Taiwan*
Yu-Chen Liu, *National Ilan University, Taiwan*
Katherine A. Kim, *National Taiwan University, Taiwan*

Identifying Deteriorated or Contaminated Power System Components from RF Emissions ... 2015
Kyungin Nam, *University of Akron, United States*
Mohammad Arifur Rahman, *University of Akron, United States*
Jose Alexis De Abreu-Garcia, *University of Akron, United States*
Robert Veillette, *University of Akron, United States*
Michael French, *University of Akron, United States*
Yilmaz Sozer, *University of Akron, United States*
John Lauletta, *Exacter, Inc., United States*

Session D01: AC-DC Converters

Location: Poster Area

March 21, 2019 11:15 - 13:45

Session Chairs: Suzan Eren, *Queen's University*
Srdjan Lukic, *North Carolina State University*

A Boost-Full-Bridge-Type Single-Active-Bridge Isolated AC-DC Converter 2021
Yitong Li, *Imperial College London, United Kingdom*
Adrià Junyent-Ferré, *Imperial College London, United Kingdom*
Paul D. Judge, *University of Edinburgh, United Kingdom*

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Gangyao Wang, <i>Texas Instruments Inc., United States</i>	
Manish Bhardwaj, <i>Texas Instruments Inc., United States</i>	
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Minji Kim, <i>Jeonju University, South Korea</i>	
Jaesung Oh, <i>Jeonju University, South Korea</i>	
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Owon Kwon, <i>Pohang University of Science and Technology, South Korea</i>	
Hwasoo Seok, <i>Pohang University of Science and Technology, South Korea</i>	
Minsung Kim, <i>Dongguk University, South Korea</i>	
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Montiê A. Vitorino, *Federal University of Campina Grande, Brazil*
Maurício B.R. Corrêa, *Federal University of Campina Grande, Brazil*
Dushan Boroyevich, *Virginia Polytechnic Institute and State University, United States*

Control Scheme Design for Isolated Swiss-Rectifier based on Phase-Shifted Full-Bridge Topology 2092
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Shaojun Xie, *Nanjing University of Aeronautics and Astronautics, China*
Xincheng Wang, *Nanjing University of Aeronautics and Astronautics, China*
Qiang Qian, *Nanjing University of Aeronautics and Astronautics, China*
Zhao Zhang, *Nanjing University of Aeronautics and Astronautics, China*
Jinming Xu, *Nanjing University of Aeronautics and Astronautics, China*

Variable On-Time (VOT) Control with Phase Leading Input Current (PLIC) Compensation for 400Hz CRM Boost PFC Converters 2097
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Xiaoyong Ren, *Nanjing University of Aeronautics and Astronautics, China*
Zhehui Guo, *Nanjing University of Aeronautics and Astronautics, China*
Yu Wu, *Nanjing University of Aeronautics and Astronautics, China*
Zhiliang Zhang, *Nanjing University of Aeronautics and Astronautics, China*
Qianhong Chen, *Nanjing University of Aeronautics and Astronautics, China*

Session D02: DC-DC Converters I

Location: Poster Area

March 21, 2019 11:15 - 13:45

Session Chairs: Brad Lehman, *Northeastern University*
Tirthajyoti Sarkar, *Onsemi*

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Satyaki Mukherjee, *University of Colorado-Boulder, United States*
Debranjana Mukherjee, *Indian Institute of Technology Kharagpur, India*
Debaprasad Kastha, *Indian Institute of Technology Kharagpur, India*

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Chao Fei, *Virginia Polytechnic Institute and State University, United States*
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Hung-Chi Chen, *National Chiao Tung University, Taiwan*
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Francisco D. Freijedo, <i>École Polytechnique Fédérale de Lausanne, Switzerland</i>	
Drazen Dujic, <i>École Polytechnique Fédérale de Lausanne, Switzerland</i>	
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Fang Zhuo, <i>Xi'an Jiaotong University, China</i>	
Lei Feng, <i>Xi'an Jiaotong University, China</i>	
Chengzhi Zhu, <i>Zhejiang Electric Power Corporation, China</i>	
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Shouxiang Li, <i>Beijing Institute of Technology, China</i>	
Yifei Zheng, <i>University of California-Irvine, United States</i>	
Keyue Smedley, <i>University of California-Irvine, United States</i>	
Jianze Wang, <i>Harbin Institute of Technology, China</i>	
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Mario Ursino, <i>University of Udine, Italy</i>	
Francesco Ciappa, <i>STMicroelectronics, Italy</i>	
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Zedong Zheng, <i>Tsinghua University, China</i>	
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Session D03: DC-DC Converters II

Location: Poster Area

March 21, 2019 11:15 - 13:45

Session Chairs: Yuxiang Shi, *ABB U.S. Corporate Research Center*
Jaehoon Baek, *Korea University of Technology & Education*

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Eunsoo Kim, <i>Jeonju University, South Korea</i>	
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Xiaoyong Ren, *Nanjing University of Aeronautics and Astronautics, China*

Session D04: Utility Interactive Converters I

Location: Poster Area

March 21, 2019 11:15 - 13:45

Session Chairs: Jonathan Kimball, *Missouri University of Science and Technology*
Pritam Das, *Binghamton University*

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Heya Yang, *Zhejiang University, China*
Huan Yang, *Zhejiang University, China*
Min Chen, *Zhejiang University, China*
Wuhua Li, *Zhejiang University, China*
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Junfei Han, *Inner Mongolia Electric Power Research Institute, China*

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Session D06: Inverters

Location: Poster Area

March 21, 2019 11:15 - 13:45

Session Chairs: Mehdi Farasat, *Louisiana State University*
Poria Fajri, *University of Nevada, Reno*

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Leon M. Tolbert, *University of Tennessee and Oak Ridge National Laboratory, United States*
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Session D07: Motor Drives

Location: Poster Area

March 21, 2019 11:15 - 13:45

Session Chairs: Rashmi Prasad, *General Motors*
Sangshin Kwak, *Chung-Ang University*

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<i>V. Viswanathan, Rolls-Royce Singapore Pte. Ltd., Singapore</i>	
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Session D08: Magnetic Components

Location: Poster Area

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Kisacikoglu Mithat, *Seoul Tech*

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Location: Poster Area

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Session Chairs: Yam Siwakoti, *University of Technology Sydney*
Christina Dimarino, *Virginia Tech*

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Prasanth Sundararajan, *Rolls-Royce@NTU Corporate Lab, Singapore*
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Josep Pou, *Nanyang Technological University, Singapore*
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Session D10: Power Converter Packaging and Reliability

Location: Poster Area

March 21, 2019 11:15 - 13:45

Session Chairs: Yuzhi Zhang, *ABB U.S. Corporate Research Center*
Yu Du, *ABB Inc.*

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Location: Poster Area

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Session Chairs: Shilpa Marti, *University of Texas at San Antonio*
Babak Parkhideh, *University of North Carolina - Charlotte*

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Session D12: Power Device and Magnetics Modeling

Location: Poster Area

March 21, 2019 11:15 - 13:45

Session Chairs: Hui Li, *Florida State University*
Ruxi Wang, *GE Global Research*

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Session D13: Control

Location: Poster Area

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Session Chairs: Martin Ordonez, *The University of British Columbia*
Lucas Lu, *GaN Systems*

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Location: Poster Area

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Location: Poster Area

March 21, 2019 11:15 - 13:45

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Session D16: Transportation Power Electronics

Location: Poster Area

March 21, 2019 11:15 - 13:45

Session Chairs: Hengzhao Yang, *California State University Long Beach*
John Vigars, *Allegro MicroSystems*

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Session D17: Misc Application

Location: Poster Area

March 21, 2019 11:15 - 13:45

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Yichao Tang, *Texas Instruments Inc.*

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