

2016 IEEE Applied Power Electronics Conference and Exposition (APEC 2016)

**Long Beach, California, USA
20-24 March 2016**

Pages 2973-3726



**IEEE Catalog Number: CFP16APE-POD
ISBN: 978-1-4673-9551-9**

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IEEE Catalog Number:	CFP16APE-POD
ISBN (Print-On-Demand):	978-1-4673-9551-9
ISBN (Online):	978-1-4673-9550-2
ISSN:	1048-2334

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TECHNICAL PAPERS

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Location: 101A

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Patrick Wheeler, *University of Nottingham*

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Location: 102AB

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Location: 104C

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Location: 104A

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Session Chairs: Bilal Akin, *Univeristy of Texas, Dallas*
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Session Chairs: Matthew Wilkowski, *Enpirion*

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Location: 102C

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Ernie Parker, *Crane Aerospace & Electronics*

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Location: 104B

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Session Chairs: Jaber Abu Qahouq, *The University of Alabama*
Xiongfei Wang, *Aalborg University*

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Location: 103C

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Session Chairs: Jim Marinos, *Payton Group*
Brian Narveson, *Narveson Innovative Consulting*

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Location: 104C

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Session T18: Solid State Lighting

Location: 103AB

March 23, 2016 8:30 - 10:10

Session Chairs: Jim Spangler, *Spangler Prototype Inc*
Nan Chen, *ABB*

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Session T19: Resonant and Soft Switching DC-DC Converters

Location: 101A

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Session Chairs: Mahshid Amirabadi, *Northeastern University*
Ray Orr, *Solantra*

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Zhihua Yang, <i>Murata Power Solutions, Canada</i>	

Session T20: Control Applications and Modulation Schemes

Location: 102C

March 23, 2016 14:00 - 17:30

Session Chairs: Masoud Karimi Ghartemani, *Mississippi state University*
Paul Bauer, *University of Lorraine*

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Siew-Chong Tan, <i>University of Hong Kong, Hong Kong</i>	
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Leon M. Tolbert, *University of Tennessee, United States*

Session T21: Advances in Wide BandGap Devices

Location: 104A

March 23, 2016 14:00 - 17:30

Session Chairs: Doug Hopkins, *North Carolina State University*
Alex Huang, *North Carolina State University*

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Scott Allen, *Wolfspeed, A Cree Company, United States*
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<i>Chengcheng Yao, Ohio State University, United States</i>	
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Session T22: Motor Drive Design and Inverter Topologies

Location: 101B

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Session Chairs: Yingying Kuai, *Caterpillar Inc.*

Jin Wang, *The Ohio State University*

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Louelson A. Costa, *Universidade Federal de Campina Grande, Brazil*

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Montiê A. Vitorino, *Universidade Federal de Campina Grande, Brazil*

Gutemberg G. Dos Santos, *Universidade Federal de Campina Grande, Brazil*

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Oscar Lucia, *Universidad de Zaragoza, Spain*

José M. Burdío, *Universidad de Zaragoza, Spain*

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Hulong Zeng, *Michigan State University, United States*

Deepak Gunasekaran, *Michigan State University, United States*

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Fang Z. Peng, *Michigan State University, United States*

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Lixiang Wei, *Rockwell Automation, United States*

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Yi Tang, *Nanyang Technological University, Singapore*

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Craig Winterhalter, *Rockwell Automation, United States*

Session T23: Modeling of Magnetic Circuits and Systems

Location: 102AB

March 23, 2016 14:00 - 17:30

Session Chairs: Ed Herbert,

Jin Ye, *San Francisco State University*

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A.K.M. Arafat, *University of Akron, United States*
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Minjie Chen, *Massachusetts Institute of Technology, United States*
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Rose A. Abramson, *Massachusetts Institute of Technology, United States*
Khurram K. Afridi, *University of Colorado at Boulder, United States*
David J. Perreault, *Massachusetts Institute of Technology, United States*

Session T24: Inverter/Converter Control

Location: 103C

March 23, 2016 14:00 - 17:30

Session Chairs: Siavash Pakdelian, *UMass Lowell*
Behrooz Mirafzal, *Kansas State University*

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Jih-Sheng Lai, *Virginia Polytechnic Institute and State University, United States*

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Location: 104B	
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Session Chairs: Fei Gao, <i>University of Technology of Belfort-Montbéliard</i>	
Kent Wanner, <i>John Deere</i>	
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<i>Josep M. Guerrero, Aalborg University, Denmark</i>	
<i>Kai Sun, Tsinghua University, China</i>	
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Yang Yang, *Nanjing University of Aeronautics and Astronautics, China*
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Osama A. Mohammed, *Florida International University, United States*

Session T26: Electric Vehicle Charging Systems

Location: 104C

March 23, 2016 14:00 - 17:30

Session Chairs: Jim Spangler, *Spangler Prototype Inc*
Hadi Malek, *Ford*

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Byoung-Kuk Lee, *Sungkyunkwan University, Korea, South*

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Session T27: Utility Interface and Inverter Applications

Location: 103AB

March 23, 2016 14:00 - 17:30

Session Chairs: Akshay Kumar Rathore, *Concordia University*
Yichao Tang, *Texas Instruments*

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Hiroki Watanabe, *Nagaoka University of Technology, Japan*
Keisuke Kusaka, *Nagaoka University of Technology, Japan*
Keita Furukawa, *Nagaoka University of Technology, Japan*
Koji Orikiawa, *Nagaoka University of Technology, Japan*
Jun-Ichi Itoh, *Nagaoka University of Technology, Japan*

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Sudip K. Mazumder, *NextWatt LLC, United States*
Ankit Gupta, *University of Illinois at Chicago, United States*
Shirish Raizada, *University of Illinois at Chicago, United States*
Harshit Soni, *University of Illinois at Chicago, United States*
Nikhil Kumar, *University of Illinois at Chicago, United States*
Paromita Mazumder, *NextWatt LLC, United States*
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Miad Nasr, *University of Toronto, Canada*
David Guirguis, *University of Toronto, Canada*
Masafumi Otsuka, *University of Toronto, Canada*
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David K.W. Li, *University of Toronto, Canada*
Vishal Palaniappan, *University of Toronto, Canada*
David Romero, *University of Toronto, Canada*
Cristina Amon, *University of Toronto, Canada*
Ray Orr, *Solantro Semiconductor, Canada*
Olivier Trescases, *University of Toronto, Canada*

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Ke Dai, *Huazhong University of Science and Technology, China*
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L.-C. Lin, *National Tsing Hua University, Taiwan*
J.-W. Huang, *Industrial Technology Research Institute, Taiwan*

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Session T28: Isolated DC-DC Converters

Location: 104A

March 24, 2016 8:30 - 11:20

Session Chairs: Dragan Maksimovic, *UC Boulder*
Zhong Ye, *Texas Instruments*

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Thomas Andersen, *Technical University of Denmark, Denmark*
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Michael A.E. Andersen, *Technical University of Denmark, Denmark*

Session T29: Multilevel Converters

Location: 101A

March 24, 2016 8:30 - 11:20

Session Chairs: Maryam Saeedifard, *Georgia Tech*
Julia Zhang, *Oregon State University*

An Isolated Topology for Reactive Power Compensation with a Modularized Dynamic-Current Building-Block 1437
Hao Chen, *Georgia Institute of Technology, United States*
Anish Prasai, *Varentec, Inc., United States*
Deepak Divan, *Georgia Institute of Technology, United States*

Design and Control of a Compact MMC Submodule Structure with Reduced Capacitor Size using the Stacked Switched Capacitor Architecture 1443
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Location: 102C	
March 24, 2016 8:30 - 11:20	
Session Chairs: SeonHwan Hwang, <i>Kyungnam University, Korea</i>	
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Subhashish Bhattacharya, *North Carolina State University, United States*

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Shibin Qin, *University of Illinois at Urbana-Champaign, United States*
Wen-Chuen Liu, *University of Illinois at Urbana-Champaign, United States*
Intae Moon, *University of Illinois at Urbana-Champaign, United States*
Andrew Stillwell, *University of Illinois at Urbana-Champaign, United States*
Derek Chou, *University of Illinois at Urbana-Champaign, United States*
Thomas Foulkes, *University of Illinois at Urbana-Champaign, United States*
Zichao Ye, *University of Illinois at Urbana-Champaign, United States*
Zitao Liao, *University of Illinois at Urbana-Champaign, United States*
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Maryam Saeedifard, *Georgia Institute of Technology, United States*

Session T31: System Design Techniques for Reduced EMI

Location: 101B

March 24, 2016 8:30 - 11:20

Session Chairs: John Vigars, *Allegro Microsystems*
Doug Hopkins, *North Carolina State University*

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Xiucheng Huang, *Virginia Polytechnic Institute and State University, United States*
Junjie Feng, *Virginia Polytechnic Institute and State University, United States*
Fred C. Lee, *Virginia Polytechnic Institute and State University, United States*
Qiang Li, *Virginia Polytechnic Institute and State University, United States*
Yuchen Yang, *Virginia Polytechnic Institute and State University, United States*

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Arnold Knott, <i>Technical University of Denmark, Denmark</i>	
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Joachim Böcker, <i>Universität Paderborn, Germany</i>	
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He Li, <i>Ohio State University, United States</i>	
Lixing Fu, <i>Ohio State University, United States</i>	
Jin Wang, <i>Ohio State University, United States</i>	
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Andrew Lemmon, <i>University of Alabama, United States</i>	
James Gafford, <i>Mississippi State University, United States</i>	
Michael Mazzola, <i>Mississippi State University, United States</i>	

Session T32: Modeling of DC Energy Converters and Systems

Location: 102AB

March 24, 2016 8:30 - 11:20

Session Chairs: Santanu Kapat, *IIT Kharagpur*

Sombuddha Chakraborty, *Texas Instruments*

A Practical Switching Time Model for Synchronous Buck Converters 1585

Yuan Rao, *Texas Instruments Inc., United States*

Surinder P. Singh, *Texas Instruments Inc., United States*

Taisuke Kazama, *Texas Instruments Inc., United States*

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Marco Meola, *Zentrum Mikroelektronik Dresden AG, Germany*

Anthony Kelly, *Altera Corporation, Ireland*

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Aleksandar Prodić, *University of Toronto, Canada*

Brett A. Miwa, *Maxim Integrated, United States*

Cory B. Arnold, *Maxim Integrated, United States*

Michael W. Baker, *Maxim Integrated, United States*

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Michael Evzelman, *Utah State University, United States*

Regan Zane, *Utah State University, United States*

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Chun Cheung, *Intersil Corporation, United States*

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A. Francés, *Universidad Politécnica de Madrid, Spain*

R. Asensi, *Universidad Politécnica de Madrid, Spain*

O. García, *Universidad Politécnica de Madrid, Spain*

R. Prieto, *Universidad Politécnica de Madrid, Spain*

J. Uceda, *Universidad Politécnica de Madrid, Spain*

Session T33: Gate Drive Techniques

Location: 103C

March 24, 2016 8:30 - 11:20

Session Chairs: Christopher Bridge, *SIMPLIS Technologies*
Martin Ordonez, *University of British Columbia*

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Awneesh Tripathi, *North Carolina State University, United States*
Kasunaidu Vechalapu, *North Carolina State University, United States*
Ankan De, *North Carolina State University, United States*
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Masanori Tsukuda, *Kyushu Institute of Technology, Japan*
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Makoto Takamiya, *University of Tokyo, Japan*
Takayasu Sakurai, *University of Tokyo, Japan*
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Shamim Ahmed, *University of Arkansas, United States*
H. Alan Mantooth, *University of Arkansas, United States*
A. Matt Francis, *Ozark Integrated Circuits, Inc., United States*
- Digital Active Gate Drives using Sequential Optimization** 1650
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- One Adaptive Turn-Off Method for PFC Converter with Voltage Spike Limitation** 1657
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Anthony Kelly, *Altera Corporation, Ireland*
Thomas Conway, *University of Limerick, Ireland*

Session T34: Energy Storage Systems

Location: 104B

March 24, 2016 8:30 - 11:20

Session Chairs: Wei Qiao, *University of Nebraska Lincoln*

Yilmaz Sozer, *University of Akron*

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Feng Guo, *NEC Laboratories America, Inc., United States*

Ratnesh Sharma, *NEC Laboratories America, Inc., United States*

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Joung-hu Park, *Soongsil University, Korea, South*

Jonghoon Kim, *Chosun University, Korea, South*

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Prasad N. Enjeti, *Texas A&M University, United States*

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Ghanshyamsinh Gohil, *Aalborg University, Denmark*

Mihai Ciobotaru, *University of New South Wales, Australia*

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Jongmin Jo, *Chungnam National University, Korea, South*

Hanju Cha, *Chungnam National University, Korea, South*

Proposition and Experimental Verification of a Bi-Directional Isolated DC/DC Converter for Battery Charger-Discharger of Electric Vehicle 1713

Ryota Kondo, *Mitsubishi Electric Corporation, Japan*

Yusuke Higaki, *Mitsubishi Electric Corporation, Japan*

Masaki Yamada, *Mitsubishi Electric Corporation, Japan*

Session T35: Topics on Inductive and Capacitive Wireless Power Transfer

Location: 104C

March 24, 2016 8:30 - 11:20

Session Chairs: Chris Mi, *San Diego State University*
Omer Onar, *Oak Ridge National Laboratory*

- A CLLC-Compensated High Power and Large Air-Gap Capacitive Power Transfer System for Electric Vehicle Charging Applications** 1721
Fei Lu, *University of Michigan at Ann Arbor, United States*
Hua Zhang, *Northeastern Polytechnical University, China*
Heath Hofmann, *University of Michigan at Ann Arbor, United States*
Chris Mi, *San Diego State University, United States*
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Chris Mi, *San Diego State University, United States*
- Dynamic Wireless Power Transfer System for Electric Vehicles to Simplify Ground Facilities – Power Control and Efficiency Maximization on the Secondary Side –** 1731
Katsuhiro Hata, *University of Tokyo, Japan*
Takehiro Imura, *University of Tokyo, Japan*
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Kathleen Blair Farley, *Southern Company Services, Inc., United States*
Zion Tsz Ho Tse, *University of Georgia, United States*
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Andreas Roßkopf, *Fraunhofer Institute for Integrated Systems and Device Technology, Germany*
Stefan Ehrlich, *Fraunhofer Institute for Integrated Systems and Device Technology, Germany*
Christian Dobmeier, *Fraunhofer Institute for Integrated Systems and Device Technology, Germany*
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- Core Design for Better Misalignment Tolerance and Higher Range of Wireless Charging for HEV** 1748
Mostak Mohammad, *University of Akron, United States*
Sangshin Kwak, *Chung-ang University, Korea, South*
Seungdeog Choi, *University of Akron, United States*
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Mariusz Bojarski, *Hevo Power Inc., United States*
Erdem Asa, *Hevo Power Inc. / New York University, United States*
Kerim Colak, *Istanbul Ulasim A.S., Turkey*
Dariusz Czarkowski, *New York University, United States*

Session T36: Wireless Power Transfer

Location: 103AB

March 24, 2016 8:30 - 11:20

Session Chairs: Sriram Jala Reddy, *Ford Motors*
Michael Masquelier, *WAVE*

Full-Bridge Series Resonant Multi-Inverter Featuring New 900-V SiC Devices for Improved Induction Heating Appliances 1762

Mario Pérez-Tarragona, *Universidad de Zaragoza, Spain*

Héctor Sarnago, *Universidad de Zaragoza, Spain*

Óscar Lucía, *Universidad de Zaragoza, Spain*

José M. Burdío, *Universidad de Zaragoza, Spain*

A Novel Phase Control of Single Switch Active Rectifier for Inductive Power Transfer Applications 1767

Kerim Colak, *Istanbul Ulasim A.S., Turkey*

Erdem Asa, *Hevo Power Inc. / New York University, United States*

Dariusz Czarkowski, *New York University, United States*

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Duy T. Nguyen, *Korea Advanced Institute of Science and Technology, Korea, South*

Eun S. Lee, *Korea Advanced Institute of Science and Technology, Korea, South*

Byeung G. Choi, *Korea Advanced Institute of Science and Technology, Korea, South*

Chun T. Rim, *Korea Advanced Institute of Science and Technology, Korea, South*

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Kyohei Konishi, *Kobe University, Japan*

Tomokazu Mishima, *Kobe University, Japan*

Mutsuo Nakaoka, *University of Malaya, Malaysia*

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Yong Yang, *Nanjing University of Aeronautics and Astronautics, China*

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Xinbo Ruan, *Nanjing University of Aeronautics and Astronautics, China*

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Takahiro Moroto, *Keio University, Japan*

Toru Kawajiri, *Keio University, Japan*

Hiroki Ishikuro, *Keio University, Japan*

Session T37: Single-Phase AC-DC Converters

Location: 102AB

March 24, 2016 14:00 - 17:30

Session Chairs: Dusty Becker, *Emerson Network Power*
Pritam Das, *National University of Singapore*

- A Flyback AC/DC Converter using Power Semiconductor Filter for Input Power Factor Correction** 1807
Chung-Pui Tung, *City University of Hong Kong, Hong Kong*
Henry Shu-Hung Chung, *City University of Hong Kong, Hong Kong*
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Yi Wang, *Nanjing University of Science and Technology, China*
Kai Yao, *Nanjing University of Science and Technology, China*
- A Sustained Increase of Input Current Distortion in Active Input Current Shapers to Eliminate Electrolytic Capacitor for Designing AC to DC HB-LED Drivers for Retrofit Lamps Applications** 1823
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Jakob D. Mønster, *Technical University of Denmark, Denmark*
Thomas Andersen, *Technical University of Denmark, Denmark*
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Michael A.E. Andersen, *Technical University of Denmark, Denmark*
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Xiucheng Huang, *Virginia Polytechnic Institute and State University, United States*
Zhengyang Liu, *Virginia Polytechnic Institute and State University, United States*

A Single-Stage Single-Phase Isolated AC-DC Converter based on LLC Resonant Unit and T-Type Three-Level Unit for Battery Charging Applications 1861
Yikai Gao, *University of Texas at Dallas, United States*
Wen Cai, *University of Texas at Dallas, United States*
Fan Yi, *University of Texas at Dallas, United States*

Session T38: Non-Isolated DC-DC Converters

Location: 101A

March 24, 2016 14:00 - 17:30

Session Chairs: Pradeep Shenoy, *Texas Instruments*
Juan Rivas-Davila, *Stanford*

DC-DC Power Converter Controller for SOC Balancing of Paralleled Battery System 1868
Jaber A. Abu Qahouq, *University of Alabama, United States*
Lin Zhang, *University of Alabama, United States*
Yuan Cao, *University of Alabama, United States*
Bharat Balasubramanian, *University of Alabama, United States*

Ultra-Step-Up DC-DC Converter with Integrated Autotransformer and Coupled Inductor ... 1872
Yam P. Siwakoti, *Aalborg University, Denmark*
Frede Blaabjerg, *Aalborg University, Denmark*
Poh Chiang Loh, *Aalborg University, Denmark*

Optimal Dynamic Phase Add/Drop Mechanism in Multiphase DC-DC Buck Converters 1878
Anandha Ruban T T, *Texas Instruments India Pvt. Ltd., India*
Preetam Tadeparthy, *Texas Instruments India Pvt. Ltd., India*
Sankaran Aniruddhan, *Indian Institute of Technology Madras, India*
Vikram Gakhar, *Texas Instruments India Pvt. Ltd., India*
Muthusubramanian Venkateswaran, *Texas Instruments India Pvt. Ltd., India*

A Universal Self-Calibrating Dynamic Voltage and Frequency Scaling (DVFS) Scheme with Thermal Compensation for Energy Savings in FPGAs 1882
Shuze Zhao, *University of Toronto, Canada*
Ibrahim Ahmed, *University of Toronto, Canada*
Carl Lamoureux, *University of Toronto, Canada*
Ashraf Lotfi, *Altera Corporation, United States*
Vaughn Betz, *University of Toronto, Canada*
Olivier Trescases, *University of Toronto, Canada*

Morphing Switched-Capacitor Step-Down DC-DC Converters with Variable Conversion Ratio 1888
Song Xiong, *University of Hong Kong, Hong Kong*
Ying Huang, *University of Hong Kong, Hong Kong*
Siew-Chong Tan, *University of Hong Kong, Hong Kong*
Shu-Yuen Ron Hui, *University of Hong Kong, Hong Kong*

Compact Modular Switched-Capacitor DC/DC Converters with Exponential Voltage Gain 1894

Ying Huang, *University of Hong Kong, Hong Kong*
Song Xiong, *University of Hong Kong, Hong Kong*
Siew-Chong Tan, *University of Hong Kong, Hong Kong*
Shu-Yuen Ron Hui, *University of Hong Kong, Hong Kong*

Study and Implementation of a High Step-Up Voltage DC-DC Converter using Coupled-Inductor and Cascode Techniques 1900

Tsornng-Juu Liang, *National Cheng Kung University, Taiwan*
Yung-Ting Huang, *National Cheng Kung University, Taiwan*
Jian-Hsing Lee, *National Cheng Kung University, Taiwan*
Lo Pang-Yen Ting, *National Cheng Kung University, Taiwan*

20 mV Input, 4.2 V Output Boost Converter with Methodology of Maximum Output Power for Thermoelectric Energy Harvesting 1907

Taichi Ogawa, *Toshiba Corporation, Japan*
Takeshi Ueno, *Toshiba Corporation, Japan*
Takayuki Miyazaki, *Toshiba Corporation, Japan*
Tetsuro Itakura, *Toshiba Corporation, Japan*

Clarification of Relationship between Current Ripple and Power Density in Bidirectional DC-DC Converter 1911

Hoai Nam Le, *Nagaoka University of Technology, Japan*
Koji Orikiawa, *Nagaoka University of Technology, Japan*
Jun-Ichi Itoh, *Nagaoka University of Technology, Japan*

Session T39: Inverter Applications and Technologies

Location: 101B

March 24, 2016 14:00 - 17:30

Session Chairs: Ali Khajehoddin, *University of Alberta*
Wen Cai, *University of Texas, Dallas*

Grid-Voltage Feedforward based Control for Grid-Connected LCL-Filtered Inverter with High Robustness and Low Grid Current Distortion in Weak Grid 1919

Jinming Xu, *Nanjing University of Aeronautics and Astronautics, China*
Qiang Qian, *Nanjing University of Aeronautics and Astronautics, China*
Shaojun Xie, *Nanjing University of Aeronautics and Astronautics, China*
Binfeng Zhang, *Nanjing University of Aeronautics and Astronautics, China*

Evaluation of PV Frequency-Watt Function for Fast Frequency Reserves 1926

J. Neely, *Sandia National Laboratories, United States*
J. Johnson, *Sandia National Laboratories, United States*
J. Delhotal, *Sandia National Laboratories, United States*
S. Gonzalez, *Sandia National Laboratories, United States*
M. Lave, *Sandia National Laboratories, United States*

A Systematic Design Method and Verification for a Zero-Ripple Interface for PV/Battery-to-Grid Applications 1934

Suvankar Biswas, *University of Minnesota, United States*
Ned Mohan, *University of Minnesota, United States*
William Robbins, *University of Minnesota, United States*

Grid-Voltage-Feedforward Active Damping for Grid-Connected Inverter with LCL Filter 1941

Minghui Lu, *Aalborg University, Denmark*
Xiongfei Wang, *Aalborg University, Denmark*
Frede Blaabjerg, *Aalborg University, Denmark*
S.M. Mueen, *Petroleum Institute, U.A.E.*
Ahmed Al-Durra, *Petroleum Institute, U.A.E.*
Siyu Leng, *Petroleum Institute, U.A.E.*

A High Power Density Single-Phase Inverter using Stacked Switched Capacitor Energy Buffer 1947

Colin McHugh, *University of Colorado at Boulder, United States*
Sreyam Sinha, *University of Colorado at Boulder, United States*
Jeffrey Meyer, *University of Colorado at Boulder, United States*
Saad Pervaiz, *University of Colorado at Boulder, United States*
Jie Lu, *University of Colorado at Boulder, United States*
Fan Zhang, *University of Colorado at Boulder, United States*
Hua Chen, *University of Colorado at Boulder, United States*
Hyeokjin Kim, *University of Colorado at Boulder, United States*
Usama Anwar, *University of Colorado at Boulder, United States*
Ashish Kumar, *University of Colorado at Boulder, United States*
Alihossein Sepahvand, *University of Colorado at Boulder, United States*
Scott Jensen, *University of Colorado at Boulder, United States*
Beomseok Choi, *University of Colorado at Boulder, United States*
Daniel Seltzer, *University of Colorado at Boulder, United States*
Robert Erickson, *University of Colorado at Boulder, United States*
Dragan Maksimovic, *University of Colorado at Boulder, United States*
Khurram K. Afridi, *University of Colorado at Boulder, United States*

A Novel Single-Stage Dual-Active Bridge based Isolated DC-AC Converter 1954

Shiladri Chakraborty, *Indian Institute of Technology Kharagpur, India*
Souvik Chattopadhyay, *Indian Institute of Technology Kharagpur, India*

Ultra-Low Ripple Inverters for Distributed Generation Applications 1962

Ang Shen, *Missouri University of Science and Technology, United States*
Pouya Shamsi, *Missouri University of Science and Technology, United States*
Mehdi Ferdowsi, *Missouri University of Science and Technology, United States*

A 15 kV SiC MOSFET Gate Drive with Power Over Fiber based Isolated Power Supply and Comprehensive Protection Functions 1967

Xuan Zhang, *Ohio State University, United States*
He Li, *Ohio State University, United States*
John A. Brothers, *Ohio State University, United States*
Jin Wang, *Ohio State University, United States*
Lixing Fu, *Texas Instruments Inc., United States*
Mico Perales, *MH GoPower Co., Ltd., Taiwan*
John Wu, *MH GoPower Co., Ltd., Taiwan*

A 15-kV Class Intelligent Universal Transformer for Utility Applications 1974

Jih-Sheng Lai, *Virginia Polytechnic Institute and State University, United States*
Wei-Han Lai, *Enertronics, Inc., United States*
Seung-Ryul Moon, *Virginia Polytechnic Institute and State University, United States*
Lanhua Zhang, *Virginia Polytechnic Institute and State University, United States*
Arindam Maitra, *Electric Power Research Institute, United States*

Session T40: Modeling, Modulation and Control of Motor Drive

Location: 102C

March 24, 2016 14:00 - 17:30

Session Chairs: Jin Wang, *The Ohio State University*
River-TinHo Li, *ABB*

- Modulation Technique for Common Mode Voltage Reduction in a Matrix Converter Drive Operating with High Voltage Transfer Ratio** 1982
Varsha Padhee, *Rockwell Automation, United States*
Ashish Kumar Sahoo, *University of Minnesota, United States*
Ned Mohan, *University of Minnesota, United States*
- Soft-Switched Discontinuous Pulse-Width Pulse-Density Modulation Scheme** 1989
Arash Rahnamaee, *University of Illinois at Chicago, United States*
Alireza Mojab, *University of Illinois at Chicago, United States*
Hossein Riazmontazer, *University of Illinois at Chicago, United States*
Sudip K. Mazumder, *University of Illinois at Chicago, United States*
Milos Zefran, *University of Illinois at Chicago, United States*
- A Novel Flux Estimator based on SOGI with FLL for Induction Machine Drives** 1995
Rende Zhao, *China University of Petroleum, China*
Zhen Xin, *Aalborg University, Denmark*
Poh Chiang Loh, *Aalborg University, Denmark*
Frede Blaabjerg, *Aalborg University, Denmark*
- Performance Characterization of Random Pulse Width Modulation Algorithms in Industrial and Commercial Adjustable Speed Drives** 2003
Kevin Lee, *Eaton Corporation, United States*
Guangtong Shen, *Purdue University, United States*
Wenxi Yao, *Zhejiang University, China*
Zhengyu Lu, *Zhejiang University, China*
- Stability Analysis and Controller Synthesis for Digital Single-Loop Voltage-Controlled Inverters** 2011
Xiongfei Wang, *Aalborg University, Denmark*
Poh Chiang Loh, *Aalborg University, Denmark*
Frede Blaabjerg, *Aalborg University, Denmark*
- High Efficiency, Hybrid Selective Harmonic Elimination Phase-Shift PWM Technique for Cascaded H-Bridge Inverters to Improve Dynamic Response and Operate in Complete Normal Modulation Indices** 2019
Amirhossein Moeini, *University of Florida, United States*
Zhao Hui, *University of Florida, United States*
Shuo Wang, *University of Florida, United States*
- Implementation and Experimental Validation of Efficiency Improvement in PMSM Drives through Switching Frequency Reduction** 2027
Parag Kshirsagar, *United Technologies Research Center, United States*
Krishnan Ramu, *Virginia Polytechnic Institute and State University, United States*
- Sensorless Speed Control of Symmetrical Triple-Star Nine-Phase Interior Permanent Magnet Machines** 2035
Olorunfemi Ojo, *Tennessee Technological University, United States*
Medhi Ramezani, *Tennessee Technological University, United States*

Mitigation of Common-Mode Noise in Wide Band Gap Device based Motor Drives 2043
Sneha Narasimhan, *Rockwell Automation, United States*
Saurabh Tewari, *MTS Systems Corporation, United States*
Eric Severson, *University of Minnesota, United States*
Rohit Baranwal, *University of Minnesota, United States*
Ned Mohan, *University of Minnesota, United States*

Session T41: Gate Drivers and Integrated Packaging

Location: 103C

March 24, 2016 14:00 - 17:30

Session Chairs: Qiang Li, *Virginia Tech*

Jean-Luc Schanen, *Ecole Nationale Supérieure de l'Energie*

A High-Efficient Driving Isolated Drive-by-Microwave Half-Bridge Gate Driver for a GaN Inverter 2051

Shuichi Nagai, *Panasonic Corporation, Japan*
Yasufumi Kawai, *Panasonic Corporation, Japan*
Osamu Tabata, *Panasonic Corporation, Japan*
Songbaek Choe, *Panasonic Corporation, Japan*
Noboru Negoro, *Panasonic Corporation, Japan*
Tesuzo Ueda, *Panasonic Corporation, Japan*

Sensing Gallium Nitride HEMT Junction Temperature using Gate Drive Output Transient Properties 2055

He Niu, *University of Wisconsin at Madison, United States*
Robert D. Lorenz, *University of Wisconsin at Madison, United States*

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Suxuan Guo, *North Carolina State University, United States*
Liqi Zhang, *North Carolina State University, United States*
Yang Lei, *North Carolina State University, United States*
Xuan Li, *North Carolina State University, United States*
Wensong Yu, *North Carolina State University, United States*
Alex Q. Huang, *North Carolina State University, United States*

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Fan Zhang, *Xi'an Jiaotong University, China*
Xu Yang, *Xi'an Jiaotong University, China*
Yu Ren, *Xi'an Jiaotong University, China*
Ying Chen, *Xi'an Jiaotong University, China*
Ruifeng Gou, *Xi'an XD Power Systems Co., LTD, China*

A MV Intelligent Gate Driver for 15kV SiC IGBT and 10kV SiC MOSFET 2076

Awneesh Tripathi, *North Carolina State University, United States*
Krishna Mainali, *North Carolina State University, United States*
Sachin Madhusoodhanan, *North Carolina State University, United States*
Akshat Yadav, *North Carolina State University, United States*
Kasunaidu Vechalapu, *North Carolina State University, United States*
Subhashish Bhattacharya, *North Carolina State University, United States*

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Patrick Waltereit, <i>Fraunhofer Institute for Applied Solid State Physics, Germany</i>	
Beatrix Weiss, <i>Fraunhofer Institute for Applied Solid State Physics, Germany</i>	
Matthias Wespel, <i>Fraunhofer Institute for Applied Solid State Physics, Germany</i>	
Dirk Meder, <i>Fraunhofer Institute for Applied Solid State Physics, Germany</i>	
Michael Mikulla, <i>Fraunhofer Institute for Applied Solid State Physics, Germany</i>	
Rüdiger Quay, <i>Fraunhofer Institute for Applied Solid State Physics, Germany</i>	
Oliver Ambacher, <i>Fraunhofer Institute for Applied Solid State Physics, Germany</i>	
 An Innovative Power Module with Power-System-in-Inductor Structure	 2087
Laili Wang, <i>Sumida Corporation, Canada</i>	
Doug Malcolm, <i>Sumida Corporation, Canada</i>	
Yan-Fei Liu, <i>Queen's University, Canada</i>	
 Thermal Analysis of a Magnetic Packaged Power Module	 2095
Laili Wang, <i>Sumida Corporation, Canada</i>	
Doug Malcolm, <i>Sumida Corporation, Canada</i>	
Wenbo Liu, <i>Queen's University, Canada</i>	
Yan-Fei Liu, <i>Queen's University, Canada</i>	
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Xu Yang, <i>Xi'an Jiaotong University, China</i>	
Fan Zhang, <i>Xi'an Jiaotong University, China</i>	
Linlin Tan, <i>Xi'an Jiaotong University, China</i>	
Xiangjun Zeng, <i>Xi'an Jiaotong University, China</i>	
 Session T42: Component Modeling	
Location: 103AB	
March 24, 2016 14:00 - 17:30	
Session Chairs: Sheldon Williamson, <i>University of Ontario Institute of Technology</i>	
Abhijit Pathak, <i>Infineon/IR</i>	
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Bilal Akin, <i>University of Texas at Dallas, United States</i>	
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Zhigang Dang, <i>University of Alabama, United States</i>	
Jaber A. Abu Qahouq, <i>University of Alabama, United States</i>	
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Roy Ball, <i>Mersen USA, United States</i>	
Jerry Mosesian, <i>Mersen USA, United States</i>	
Brad Lehman, <i>Northeastern University, United States</i>	
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Liyao Wu, *Georgia Institute of Technology, United States*
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Adam J. Morgan, *North Carolina State University, United States*
Yang Xu, *North Carolina State University, United States*
Douglas C. Hopkins, *North Carolina State University, United States*
Iqbal Husain, *North Carolina State University, United States*
Wensong Yu, *North Carolina State University, United States*

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Thomas A. Nondahl, *Rockwell Automation, United States*
Jingbo Liu, *Rockwell Automation, United States*
Peter B. Schmidt, *Rockwell Automation, United States*

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Xiaohui Qu, *Southeast University, China*
Huai Wang, *Aalborg University, Denmark*
Xiaoqing Zhan, *City University of Hong Kong, Hong Kong*
Frede Blaabjerg, *Aalborg University, Denmark*
Henry Shu-Hung Chung, *City University of Hong Kong, Hong Kong*

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Jae-Gu Kim, *Sungkyunkwan University, Korea, South*
Jung-Hoon Ahn, *Sungkyunkwan University, Korea, South*
Byoung-Kuk Lee, *Sungkyunkwan University, Korea, South*

Session T43: Grid and Utility Interface

Location: 104A

March 24, 2016 14:00 - 17:30

Session Chairs: Manish Bhardwaj, *Texas Instruments*
Nan Chen, *ABB*

Robust Sensorless Control of Grid Connected Converters with LCL Line Filters using Frequency Adaptive Observers as AC Voltage Estimators 2167

Vlatko Miskovic, *Danfoss Drives, United States*
Vladimir Blasko, *United Technologies Research Center, United States*
Thomas Jahns, *University of Wisconsin at Madison, United States*
Robert Lorenz, *University of Wisconsin at Madison, United States*
Haojiong Zhang, *Danfoss Drives, United States*

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Martin Leubner, *Technische Universität Dresden, Germany*
Nico Remus, *Technische Universität Dresden, Germany*
Marc Stübiger, *Technische Universität Dresden, Germany*
Wilfried Hofmann, *Technische Universität Dresden, Germany*

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<i>Yan Xing, Nanjing University of Aeronautics and Astronautics, China</i>	
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<i>Xiaobin He, Shanghai Institute of Space Power-Sources, China</i>	
<i>Kai Sun, Tsinghua University, China</i>	
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<i>Suleiman M. Sharkh, University of Southampton, United Kingdom</i>	

Session T44: Topics in Renewable Energy Systems II

Location: 104B

March 24, 2016 14:00 - 17:30

Session Chairs: Akshay Kumar Rathore, *Concordia University*
Yichao Tang, *Texas Instruments*

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Xuan Zhang, *University of Tennessee, United States*
Yiwei Ma, *University of Tennessee, United States*
Fred Wang, *University of Tennessee, United States*
- Stability Analysis and Improvement of Solid State Transformer (SST)-Paralleled Inverters System using Negative Impedance Feedback Control** 2237
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- Compensator-Less Structures for Droop Control of Single Phase Inverters in a Flexible Microgrid** 2245
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B.G. Fernandes, *Indian Institute of Technology Bombay, India*
- Comparative Evaluation of the Loss and Thermal Performance of Advanced Three Level Inverter Topologies** 2252
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Brendan McGrath, *RMIT University, Australia*
Carlos Teixeira, *RMIT University, Australia*
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Session T45: Envelope Tracking and Resonant Conversion

Location: 104C

March 24, 2016 14:00 - 17:30

Session Chairs: Brian Zahnstecher, *PowerRox*
 Davide Giacomini, *Infineon*

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Michael de Rooij, <i>Efficient Power Conversion Corporation, United States</i>	
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Srdjan M. Lukic, *North Carolina State University, United States*

Session D01: AC-DC Converters

Location: Poster Area

March 24, 2016 11:30 - 14:00

Session Chairs: Nathan Weise, *Marquette*

Daniel Costinett, *University of Tennessee-Knoxville*

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Min Zhou, *Delta Electronics Shanghai Co., Ltd., China*

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Liqi Zhang, *North Carolina State University, United States*
Wensong Yu, *North Carolina State University, United States*
Alex Q. Huang, *North Carolina State University, United States*

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Younggi Lee, *Seoul National University, Korea, South*
Seung-Ki Sul, *Seoul National University, Korea, South*
Changjin Lim, *LG Electronics, Korea, South*
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Ashish Kumar, *University of Colorado at Boulder, United States*
Khurram K. Afridi, *University of Colorado at Boulder, United States*

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Location: Poster Area

March 24, 2016 11:30 - 14:00

Session Chairs: Charles Sullivan, *Dartmouth*

Mahshid Amirabadi, *Northeastern University*

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Pierre Lefranc, *Grenoble Institute of Technology, France*
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Shinya Manabe, <i>RICOH Electronic Devices Co., Ltd., Japan</i>	
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Marcus R. Castro, *Universidade Federal do Ceará, Brazil*
Fernando L.M. Antunes, *Universidade Federal Rural do Semi-Árido, Brazil*
Edilson M. Sá Jr., *Universidade Federal do Ceará, Brazil*

Session D04: Utility Interface

Location: Poster Area

March 24, 2016 11:30 - 14:00

Session Chairs: Ali Khajehoddin, *University of Alberta*
Julia Zhang, *Oregon State University*

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Takaaki Norisada, *Panasonic Corporation, Japan*
Fumito Kusama, *Panasonic Corporation, Japan*
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Gamal M. Dousoky, *Minia University, Egypt*

Masahito Shoyama, *Kyushu University, Japan*

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Liansong Xiong, *Xi'an Jiaotong University, China*

Xiaokang Liu, *Xi'an Jiaotong University, China*

Feng Wang, *Xi'an Jiaotong University, China*

Fang Zhuo, *Xi'an Jiaotong University, China*

Session D05: Motor Drives and Inverters: Modeling and Control I

Location: Poster Area

March 24, 2016 11:30 - 14:00

Session Chairs: Liming Liu, *ABB Inc.*

Thomas Gietzold, *United Technologies Aerospace Systems*

Initial Orientation and Sensorless Starting Strategy of Wound-Rotor Synchronous Starter/Generator 2748

Jichang Peng, *Northwestern Polytechnical University, China*

Weiguo Liu, *Northwestern Polytechnical University, China*

Jinhao Meng, *Northwestern Polytechnical University, China*

Tao Meng, *Northwestern Polytechnical University, China*

Guangzhao Luo, *Northwestern Polytechnical University, China*

A Novel Method for Polarity Detection of Non-Salient PMSMs in Initial Position Estimation 2754

Bing Liu, *Nanjing University of Aeronautics and Astronautics, China*

Bo Zhou, *Nanjing University of Aeronautics and Astronautics, China*

Jiadan Wei, *Nanjing University of Aeronautics and Astronautics, China*

Long Wang, *Nanjing University of Aeronautics and Astronautics, China*

Tianheng Ni, *Nanjing University of Aeronautics and Astronautics, China*

A Speed Adaptive Sensorless Flux Observer for the Induction Motor Drive using Sylvester Criterion Design 2759

Mihai Comanescu, *Penn State Altoona, United States*

Discontinuous PWM for Low Switching Losses in Indirect Matrix Converter Drives 2764

Yeongsu Bak, *Ajou University, Korea, South*

Kyo-Beum Lee, *Ajou University, Korea, South*

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Jie Li, *Xi'an University of Technology, China*

Li-Heng Zhang, *Xi'an University of Technology, China*

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Weiguo Liu, *Northwestern Polytechnical University, China*
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Habibur Rehman, *American University of Sharjah, U.A.E.*
Shayok Mukhopadhyay, *American University of Sharjah, U.A.E.*

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Hajime Kubo, *Meidensha Corporation, Japan*
Yasuhiro Yamamoto, *Meidensha Corporation, Japan*
Takeshi Kondo, *Meidensha Corporation, Japan*
Kaushik Rajashekara, *University of Texas at Dallas, United States*
Bohang Zhu, *University of Texas at Dallas, United States*

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Gerard O'Donovan, *Moog Ireland Ltd, Ireland*
Ray Walsh, *Moog Ireland Ltd, Ireland*
Michael Egan, *University College Cork, Ireland*
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John G. Hayes, *University College Cork, Ireland*

Motor Current Reference Generation for Reducing Motor Currents in Drive Systems with Single-Phase Diode Rectifier and Small DC-Link Capacitor 2801
Young-Ho Chae, *Seoul National University, Korea, South*
Jung-Ik Ha, *Seoul National University, Korea, South*

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Ali Elrayah, *Qatar Environment and Energy Research Institute, Qatar*
Yilmaz Sozer, *University of Akron, United States*

Session D06: Motor Drives and Inverters: Modeling and Control II

Location: Poster Area

March 24, 2016 11:30 - 14:00

Session Chairs: Bulent Sarlioglu, *University of Wisconsin - Madison*
Yichao Tang, *Texas Instruments*

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Session D07: Motor Drives and Inverters: Topologies

Location: Poster Area

March 24, 2016 11:30 - 14:00

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Babak Nahid-Mobarakeh, *University of Lorraine*

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Doug Hopkins, *North Carolina State University*

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Session D09: System Design Considerations for Power Electronics

Location: Poster Area

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Ernie Parker, *Crane Aerospace & Electronics*

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Melanie Bawohl, *Heraeus Deutschland GmbH & Co. KG, Germany*
Mark Challingsworth, *Heraeus Deutschland GmbH & Co. KG, Germany*
Christoph Czwickla, *Heraeus Deutschland GmbH & Co. KG, Germany*
Virginia Garcia, *Heraeus Deutschland GmbH & Co. KG, Germany*
Christina Modes, *Heraeus Deutschland GmbH & Co. KG, Germany*
Ilias Nikolaidis, *Heraeus Deutschland GmbH & Co. KG, Germany*
Jessica Reitz, *Heraeus Deutschland GmbH & Co. KG, Germany*
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Session D10: Modeling and Simulation

Location: Poster Area

March 24, 2016 11:30 - 14:00

Session Chairs: Marco Meola, ZMD AG

Mehdi Ferdowsi, Missouri University of Science & Technology

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Yoshiyuki Hattori, *Toyota Central R&D Labs., Inc., Japan*

Session D11: Control I

Location: Poster Area

March 24, 2016 11:30 - 14:00

Session Chairs: Bilal Akin, *Univeristy of Texas, Dallas*
Brian Zahnstecher, *PowerRox LLC*

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March 24, 2016 11:30 - 14:00	
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Session D13: Renewable Energy Systems I

Location: Poster Area

March 24, 2016 11:30 - 14:00

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Xiaoqiang Guo, *Yanshan University, China*

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Session D14: Renewable Energy Systems II

Location: Poster Area

March 24, 2016 11:30 - 14:00

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Robert Pilawa-Podgurski, *University of Illinois at Urbana-Champaign*

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Peng Wang, *Nanyang Technological University, Singapore*

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Leonardy Setyawan, *Nanyang Technological University, Singapore*

Changyun Wen, *Nanyang Technological University, Singapore*

Lee Meng Yeong, *Rolls-Royce Singapore Pte. Ltd., Singapore*

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Jinming Xu, *Nanjing University of Aeronautics and Astronautics, China*

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Jorge Garcia, *Universidad de Oviedo, Spain*
Angel Navarro, *Universidad de Oviedo, Spain*
Sarah Saeed, *Universidad de Oviedo, Spain*
Pablo Garcia, *Universidad de Oviedo, Spain*

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Zhe Zhang, *Nexteer Automotive, United States*
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Liyang Qu, *University of Nebraska at Lincoln, United States*

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Qingjun Huang, *State Key Laboratory of Disaster Prevention & Reduction for Power Grid Transmission and Distribution Equipment, China*

Session D15: Transportation Power Electronics

Location: Poster Area

March 24, 2016 11:30 - 14:00

Session Chairs: Ted Bohn, *Argonne National Labs*
Khurram Afridi, *University of Colorado, Boulder*

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Antonio Ginart, *University of Georgia / Sonnenbatterie GmbH, United States*
Kathleen Blair Farley, *Southern Company Services, Inc., United States*
Zion Tsz Ho Tse, *University of Georgia, United States*

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S. Glover, *Sandia National Laboratories, United States*

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Boris Curuvija, *North Dakota State University, United States*
Dong Cao, *North Dakota State University, United States*

Session D16: Power Topologies, Distribution, and Control

Location: Poster Area

March 24, 2016 11:30 - 14:00

Session Chairs: Tiefu Zhao, *Eaton*
Xiaonan Lu, *Argonne National Laboratory*

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Yiliang Gan, *Shanghai Jiao Tong University, China*
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Paulo R. Silva, *Universidade Federal de Uberlândia, Brazil*
Gustavo B. Lima, *Universidade Federal do Triângulo Mineiro, Brazil*
Ernane A.A. Coelho, *Universidade Federal de Uberlândia, Brazil*
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Session D17: Emerging and Renewable Power

Location: Poster Area

March 24, 2016 11:30 - 14:00

Session Chairs: Katherine Kim, *Ulsan NIST*
Dimitri Torregrossa, *EPFL*

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Angelo Raciti, *Università degli Studi di Catania, Italy*
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Jung Kyu Han, *Korea Advanced Institute of Science and Technology, Korea, South*
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Gun-Woo Moon, *Korea Advanced Institute of Science and Technology, Korea, South*
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<i>Juan C. Balda, University of Arkansas, United States</i>	
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