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**March 19, 2014 14:00 - 17:30**

**Session Chairs:** Morgan Kiani, *Texas Christian University*  
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<b>Session Chairs:</b> Steve Carlsen, <i>Raytheon</i>	
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## Session T17: AC Motor Drives

March 19, 2014 14:00 - 17:30

Session Chairs: Pourya Shamsi, *Missouri S&T*  
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**March 19, 2014 14:00 - 17:30**

**Session Chairs:** Paul Schimel, *International Rectifier*  
Bilal Akin, *UT Dallas*

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Session Chairs: Ray Orr, *Solantra Semiconductor*  
Reza Ahmadi, *Southern Illinois University*

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Session Chairs: Jaber Abu Qahouq, *University of Alabama*  
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Session Chairs: Huai Wang, *Aalborg Univeristy*  
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## **Session T26: Advances in Motor Drives and Inverters I**

**March 20, 2014 8:30 - 11:20**

**Session Chairs:** Babak Fahimi, *UT Dallas*

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**March 20, 2014 8:30 - 11:20**

**Session Chairs:** Manish Bhardwaj, *Texas Instruments*

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

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<b>Session Chairs:</b> Jim Spangler, <i>Spangler Prototype</i>	
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<b>March 20, 2014 14:00 - 17:30</b>	
<b>Session Chairs:</b> Olivier Trescases, <i>University of Toronto</i>	
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**March 20, 2014 14:00 - 17:30**

**Session Chairs:** Chris Siegl, *Fairchild Semiconductor*

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**March 20, 2014 14:00 - 17:30**

**Session Chairs:** Mahshid Amirabadi, *University of Illinois in Chicago*  
Wei Wang, *UT Dallas*

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## Session T32: Power Electronics Applications

March 20, 2014 14:00 - 17:30

Session Chairs: Zhong Ye, *Texas Instruments*  
Jim Spangler, *Spangler Prototype*

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**March 20, 2014 14:00 - 17:30**

**Session Chairs:** Bulent Sarlioglu, *University of Wisconsin - Madison*  
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## **Session T34: PV Inverters and Wind Generation**

**March 20, 2014 14:00 - 17:30**

**Session Chairs:** Juan Carlos Balda, *University of Arkansas*  
Xu She, *NC State*

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## Session T35: Control of Grid-Tied Systems

March 20, 2014 14:00 - 17:30

Session Chairs: Ali Mehrizi, *Washington State University*

Nathan Weise, *University of Maine*

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- Space Vector Modulation for 3-Level NPC Converter with Neutral Voltage Balancing and Switching Loss/Noise Reduction** ..... 1780  
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## **Session D01: AC-DC Converters**

**March 20, 2014 11:30 - 14:00**

**Session Chairs:** Nathan Weise, *University of Maine*  
Alberto Guerra, *International Rectifier*

<b>Input Current Control for Bridgeless PFC Converter without Sensing Current</b> .....	1821
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Sheng-Yang Yu, <i>Texas Instruments, United States</i>	

<b>Efficiency of Converters and Amorphous Core AC-Filters in an LVDC Distribution</b> .....	1827
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<b>Power Conversion Architecture for Grid Interface at High Switching Frequency</b> .....	1838
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<b>Tolerance Controls for Open-Switch Fault in a Grid-Connected T-Type Rectifier at Low Modulation Index</b> .....	1846
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<i>Laszlo Huber, Delta Products Corporation, United States</i>	
<i>Milan M. Jovanović, Delta Products Corporation, United States</i>	
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<i>Fei Wang, North Carolina State University, United States</i>	
<i>Alex Huang, North Carolina State University, United States</i>	
<b>A New Control Scheme for an AC-DC Single-Stage Buck-Boost PFC Converter with Improved Output Ripple Reduction and Transient Response</b> .....	1866
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<i>Miaosen Shen, United Technology Research Center, United States</i>	
<i>Vlado Blasko, United Technology Research Center, United States</i>	
<i>Siheng Liang, Michigan State University, United States</i>	
<i>Fang Z. Peng, Michigan State University, United States</i>	
<b>Novel Techniques to Suppress the Common Mode EMI Noise in Class II Off-Line SMPS Applications</b> .....	1882
<i>Chao Sun, FSP-Powerland Technology Inc., China</i>	
<i>Ming Xu, FSP-Powerland Technology Inc., China</i>	
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<i>Luiz Henrique S.C. Barreto, Universidade Federal do Ceará, Brazil</i>	
<i>Paulo P. Praça, Universidade Federal do Ceará, Brazil</i>	
<i>Andreas Kunzea, Universidade Federal do Ceará, Brazil</i>	
<i>Samuel Carvalho, Universidade Federal do Ceará, Brazil</i>	
<b>Quantification Analysis of Input/Output Current of Interleaved Power Factor Correction (PFC) Boost Converter</b> .....	1902
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<i>Richard Garner, Osram Sylvania, United States</i>	
<i>Yuting Zhang, Osram Sylvania, United States</i>	
<i>Shashank Bakre, Osram Sylvania, United States</i>	
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<i>Bo Wen, Virginia Polytechnic Institute and State University, United States</i>	
<i>Rolando Burgos, Virginia Polytechnic Institute and State University, United States</i>	
<i>Dushan Boroyevich, Virginia Polytechnic Institute and State University, United States</i>	
<i>Adam White, United Technology Aerospace Systems, United States</i>	

<b>A New Phase Shedding Scheme for Improved Transient Behavior of Interleaved Boost PFC Converters</b> .....	1916
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Jhih-Da Hsu, <i>Fairchild Semiconductor, Taiwan</i>	
Yong-Ann Ang, <i>Fairchild Semiconductor, Taiwan</i>	
Ta-Yung Yang, <i>Fairchild Semiconductor, Taiwan</i>	

## **Session D02: DC-DC Converters I**

**March 20, 2014 11:30 - 14:00**

**Session Chairs:** William Dunford, *University of British Columbia*  
Davide Giacomini, *International Rectifier*

<b>A Passive Level-Shifter for Elimination of Spurious Turn-On in the Bridge-Leg Configuration</b> .....	1920
Jianjing Wang, <i>City University of Hong Kong, Hong Kong</i>	
Henry Shu-Hung Chung, <i>City University of Hong Kong, Hong Kong</i>	

<b>System Optimization of a High-Power and High-Step-Down Accessory Power Module for Electric Vehicles</b> .....	1926
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W. David Williams, <i>Chrysler Group, LLC, United States</i>	
Chen Duan, <i>Kettering University, United States</i>	
Wei Guo, <i>Kettering University, United States</i>	
Kevin Hua Bai, <i>Kettering University, United States</i>	

<b>A 600 mA, Constant On-Time Controlled DC-DC Converter with 67% Conversion Efficiency at an Output Current of 23 <math>\mu</math>A</b> .....	1932
Takeshi Ueno, <i>Toshiba Corporation, Japan</i>	
Takayuki Miyazaki, <i>Toshiba Corporation, Japan</i>	
Taichi Ogawa, <i>Toshiba Corporation, Japan</i>	
Tetsuro Itakura, <i>Toshiba Corporation, Japan</i>	

<b>On High Frequency High Voltage Generators with Planar Transformers</b> .....	1936
Christoph Loef, <i>RWTH Aachen University, Germany</i>	
Rik W. De Doncker, <i>RWTH Aachen University, Germany</i>	
Bernd Ackermann, <i>Philips Research, Netherlands</i>	

<b>Bidirectional Secondary LLC Resonant Converter using Auxiliary Switches and Inductor</b> .....	1941
Eun-Soo Kim, <i>Jeonju University, Korea, South</i>	
Jun-Hyoung Park, <i>Jeonju University, Korea, South</i>	
Yong-Seog Jeon, <i>Jeonju University, Korea, South</i>	
Young-Su Kong, <i>National Forensic Service, Korea, South</i>	
Seung-Min Lee, <i>KACO new energy, Korea, South</i>	
Kwangseob Kim, <i>KACO new energy, Korea, South</i>	

<b>Low-Volume Stackable Flyback Converter with Near Minimum Deviation Controller</b> .....	1948
Aleksandar Radić, <i>University of Toronto, Canada</i>	
Adrian Straka, <i>University of Toronto, Canada</i>	
Aleksandar Prodić, <i>University of Toronto, Canada</i>	

<b>Dual-Frequency SIMO Power Converters for Low-Power On-Chip Power Grids in SoCs</b> .....	1954
Chih-Wei Chen, <i>Iowa State University, United States</i>	
Jeffrey Morroni, <i>Texas Instruments, United States</i>	
David Anderson, <i>Texas Instruments, United States</i>	
Ayman Fayed, <i>Iowa State University, United States</i>	
<b>Modular DC/DC Converter with Improved Efficiency for Electric Vehicles Applications</b> .....	1958
Marek Galek, <i>Siemens AG, Germany</i>	
Gopal Mondal, <i>Siemens AG, Germany</i>	
<b>Open-Circuit Fault Detection and Tolerant Operation for a Parallel-Connected SAB DC-DC Converter</b> .....	1966
Kiwoo Park, <i>Aalborg University, Denmark</i>	
Zhe Chen, <i>Aalborg University, Denmark</i>	
<b>Improved Modulation Technique for Voltage Fed Quasi-Z-Source DC/DC Converter</b> .....	1973
Yam P. Siwakoti, <i>Macquarie University, Australia</i>	
Graham Town, <i>Macquarie University, Australia</i>	
<b>Distributed Multi-Agent Control of Parallel Cúk Converters using Feedback Linearization</b> .....	1979
Hamid Behjati, <i>University of Texas at Arlington, United States</i>	
Ali Davoudi, <i>University of Texas at Arlington, United States</i>	
Frank Lewis, <i>University of Texas at Arlington, United States</i>	
<b>Sneak Circuit Analysis of Boost Converter Considering Parasitic Parameters</b> .....	1986
Min Li, <i>South China University of Technology, China</i>	
Bo Zhang, <i>South China University of Technology, China</i>	
Donyuan Qiu, <i>South China University of Technology, China</i>	
<b>High Step-Up Active-Clamp Converter with Input Current Doubler and Output Switched-Capacitor Circuit: Analysis, Design, Experiment</b> .....	1988
Liangzong He, <i>Xiamen University, China</i>	
Wei Zhou, <i>Xiamen University, China</i>	
Jiazhi Lei, <i>Huazhong University of Science and Technology, China</i>	
<b>Asymmetrical Interleaving Strategy and AVP Concept for Interleaved LLC Resonant DC/DC</b> .....	2003
Feiyue Duan, <i>Xi'an Jiaotong University, China</i>	
Ming Xu, <i>FSP-Powerland Technology Inc., China</i>	
Xu Yang, <i>Xi'an Jiaotong University, China</i>	
Yuan Yao, <i>FSP-Powerland Technology Inc., China</i>	

## Session D03: DC-DC Converters II

March 20, 2014 11:30 - 14:00

Session Chairs: Brian Lynch, *Texas Instruments*  
Pietro Scalia, *Texas Instruments*

### **Seamless Operation of Bi-Directional LLC Resonant Converter for PV System** ..... 2011

Seiya Abe, *International Center for the Study of East Asian Development, Japan*  
Tamotsu Ninomiya, *International Centre for the Study of East Asian Development, Japan*  
Toshiyuki Zaitso, *Texas Instruments, Japan*  
Junichi Yamamoto, *Texas Instruments, Japan*  
Shinji Ueda, *Texas Instruments, Japan*

### **Optimal Negative Current Control for Four-Phase Interleaved Bi-Directional Buck/Boost Converters to Achieve ZVS and ZCS** ..... 2017

T.-F. Wu, *National Tsing Hua University, Taiwan*  
J.-G. Yang, *National Chung Cheng University, Taiwan*  
C.-L. Kuo, *National Chung Cheng University, Taiwan*  
M.-C. Kuo, *National Chung Cheng University, Taiwan*

### **Optimized Switching Control Strategy for Current-Fed Half-Bridge Converter** ..... 2023

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D.M. Vilathgamuwa, *Nanyang Technological University, Singapore*  
D.L. Maskell, *Nanyang Technological University, Singapore*

### **Self-Oscillating Resonant Gate Drive for Resonant Inverters and Rectifiers Composed Solely of Passive Components** ..... 2029

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Jeppe A. Pedersen, *Technical University of Denmark, Denmark*  
Arnold Knott, *Technical University of Denmark, Denmark*  
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### **Design and Optimization of Parallel DC-DC System based on Current-Driven Phase Shift Full Bridge Converter** ..... 2048

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Yu Chen, *Huazhong University of Science and Technology, China*  
Xiangbo Xia, *Huazhong University of Science and Technology, China*  
Li Peng, *Huazhong University of Science and Technology, China*  
Yong Kang, *Huazhong University of Science and Technology, China*

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Chen-Yu Wang, *National Cheng Kung University, Taiwan*  
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P. Zumel, <i>Universidad Carlos III de Madrid, Spain</i>	
M. Sanz, <i>Universidad Carlos III de Madrid, Spain</i>	
A. Lazaro, <i>Universidad Carlos III de Madrid, Spain</i>	
A. Barrado, <i>Universidad Carlos III de Madrid, Spain</i>	
<b>Current Adaptive Resonant Loop Soft Switching PWM Converters</b> .....	2061
Trillion Q. Zheng, <i>Beijing Jiaotong University, China</i>	
Tiancong Shao, <i>Beijing Jiaotong University, China</i>	
Na Han, <i>Beijing Jiaotong University, China</i>	
Yan Li, <i>Beijing Jiaotong University, China</i>	
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<b>Dynamical Modeling of the Non-Isolated Single-Inductor Three-Port Converter</b> .....	2067
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Yong Kang, <i>Huazhong University of Science and Technology, China</i>	
<b>Digital Implementation and Performance Evaluation of a Time-Shift-Controlled LLC Resonant Half-Bridge Converter</b> .....	2074
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Dino Ciambellotti, <i>STMicroelectronics, Italy</i>	
Marco Dell'Oro, <i>STMicroelectronics, Italy</i>	
Fulvio Gallenda, <i>STmicroelectoincs, Italy</i>	
<b>A Novel Push-Pull Forward Converter with a Passive Resonant Network Introduced in the Secondary Winding</b> .....	2081
Deshang Sha, <i>Beijing Institute of Technology, China</i>	
Tianmei Luo, <i>Beijing Institute of Technology, China</i>	
<b>High Frequency Resonant Bidirectional SEPIC Converter Suitable for Battery Equalization and Charger Applications</b> .....	2087
Timothy Florencki, <i>University of Wisconsin-Madison, United States</i>	
Yehui Han, <i>University of Wisconsin-Madison, United States</i>	
<b>A 10-MHz Resonant Gate Driver Design for LLC Resonant DC-DC Converters using GaN Devices</b> .....	2093
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Fred Wang, <i>University of Tennessee, United States</i>	
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Christopher G. Wilson, <i>Auburn University, United States</i>	
Justin D. Moses, <i>Auburn University, United States</i>	
Jeffrey M. Aggas, <i>Auburn University, United States</i>	
Benjamin K. Rhea, <i>Auburn University, United States</i>	
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Dhaval Patel, *North Carolina State University, United States*  
Subhashish Bhattacharya, *North Carolina State University, United States*  
Kamalesh Hatua, *Indian Institute of Technology Madras, India*

## **Session D04: Power Converter Control in Grid Application**

**March 20, 2014 11:30 - 14:00**

**Session Chairs:** Liming Liu, *ABB Inc., Raleigh, NC*  
Jin Wang, *Ohio State University*

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Dan Wu, *Aalborg University, Denmark*  
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Juan C. Vasquez, *Aalborg University, Denmark*  
Guoliang Chen, *ShangHai Solar Energy & Technology, Co., Ltd., China*  
Libing Sun, *ShangHai Solar Energy & Technology, Co., Ltd., China*

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Song Zhang, *State Grid of China Technology College, China*

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Li Peng, <i>Huazhong University of Science and Technology, China</i>	
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Tomislav Dragičević, <i>Aalborg University, Denmark</i>	
Juan C. Vasquez, <i>Aalborg University, Denmark</i>	
Josep M. Guerrero, <i>Aalborg University, Denmark</i>	
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Rolando Burgos, <i>Virginia Polytechnic Institute and State University, United States</i>	
Dushan Boroyevich, <i>Virginia Polytechnic Institute and State University, United States</i>	
Dong Dong, <i>GE Global Research, United States</i>	
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William C. Alexander, <i>Ideal Power Inc., United States</i>	
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Montiê A. Vitorino, <i>Universidade Federal de Campina Grande, Brazil</i>	
Lucas V. Hartmann, <i>Universidade Federal da Paraíba, Brazil</i>	
Darlan A. Fernandes, <i>Universidade Federal da Paraíba, Brazil</i>	
Emanoel L. Silva, <i>Universidade Federal de Campina Grande, Brazil</i>	
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Fei Meng, <i>Xi'an Jiaotong University, China</i>	
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**Session D05: Power Converter Modeling and Design in Grid Application  
March 20, 2014 11:30 - 14:00**

**Session Chairs:** Miaosen Shen, *United Technologies Research Center*  
Yi Huang, *AMETEK*

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**March 20, 2014 11:30 - 14:00**

**Session Chairs:** Liang Zhou, *Transphorm*

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**Session Chairs:** John Vigars, *Fairchild*  
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Khurram Afridi, *University of Colorado Boulder*

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## **Session D19: Power Electronics I**

**March 20, 2014 11:30 - 14:00**

**Session Chairs:** Robert Pilawa, *University of Illinois at Urbana-Champaign*  
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## Session D20: Power Electronics II

March 20, 2014 11:30 - 14:00

Session Chairs: Seungdeog Choi, *University of Akron*  
Daniel Chang, *ActiveSemi Inc.*

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**Session D21: Critical Packaging Topics for Power  
March 20, 2014 11:30 - 14:00**

**Session Chairs:** Ernie Parker, *Crane*  
John Vigars, *Fairchild*

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