

# MONDAY, JUNE 16<sup>th</sup>

## PLENARY SESSION

- 08:55 10708 A Novel Control Concept for Reliable Operation of a Three-Phase Three-Switch Buck-Type Unity Power Factor Rectifier with Integrated Boost Output Stage under Heavily Unbalanced Mains Condition  
Baumann, M, Kolar, JW
- 09:20 11185 A High Power Density DC/DC Converter for High Power Distributed Power Systems  
Canales, F, Barbosa, P, Aguilar, C, Lee, F
- 09:45 10852 High-Performance Induction Motor Speed Control Using Exact Feedback Linearization with State and State Derivative Feedback  
Boukas, TKB, Habetler, TGH

## MODELING AND SIMULATION

- 10:40 10216 Semiconductors & power layout: new challenges for the optimization of high power converter  
Pasterczyk, R, Martin, C, Schanen, JL
- 11:05 10907 A NEW TESTING TOOL FOR POWER ELECTRONIC DIGITAL CONTROL  
Lentijo, S., Monti, A., Santi, E., Welch, C., Dougal, R.
- 11:30 11096 Large Time-Scale Electro-Thermal Simulation for Loss and Thermal Management of Power Device  
Lee, J., Cho, Bo

## ENERGY STORAGE

- 10:40 10073 Strategy for Active Power Sharing in a Fuel-Cell-Powered Charging Station for Advanced Technology Batteries  
Jiang, Z, Dougal, R
- 11:05 10882 COMBINING BATTERIES AND ULTRACAPACITORS FOR VEHICLE LOAD LEVELING  
Schupbach, R M, Balda, J C
- 11:30 11027 Multi-modular Current-Source Based Hybrid Converter for SMES  
Li, J, Cheng, KWE, Xu, D, Sutanto, D

**POWER QUALITY ISSUES 1**

- 10:40 10704 Hybrid control in an island-mode multi-inverter system  
Liang, J, Green, T.G, Weiss, G., Zhong, Q.C
- 11:05 10881 Flexible development and test system for 11kW wind turbine  
Teodorescu, R, Iov, F, Blaabjerg, F
- 11:30 11157 Effects of Parasitic Parameters on EMI Filter Performance  
Wang, S, Lee, F.C, Chen, D.Y, Odendaal, W.G

**NEUTRAL-POINT CLAMPED INVERTERS**

- 10:40 10413 Synchronized Overmodulation Techniques for the Neutral-Clamped Inverters  
Oleschuk, V., Bose, B.K
- 11:05 10442 NATURAL BALANCING OF NEUTRAL-POINT-CLAMPED CONVERTERS UNDER POD PULSEWIDTH MODULATION  
Salagae, IM, Mouton, H
- 11:30 10610 Effects of Imbalances and Nonlinear Loads on the Neutral-Point Balance of a Three-Level Converter  
Pou, J., Boroyevich, D., Pindado, R.

**DC/DC AUTOMOTIVE APPLICATIONS**

- 10:40 10222 High-Power Density Bi-directional DC/DC Converter Topology for Future Automobiles  
Walter, J.W, De Doncker, R.W
- 11:05 10605 DC/DC Multi – Input Converter Topologies for Hybrid Vehicles with Fuel Cells  
Consoli, A., De Caro, S., Testa, A., Walsh, M., Scarcella, G.
- 11:30 10791 A Novel Compact DC/DC Converter for 42 V Systems  
Peng, F.Z, Zhang, F., Powell, K.S

**SYNCHRONOUS RECTIFIERS & VRMS**

- 13:30 10116 A low-complexity, high-performance digital control architecture for Voltage Regulator Modules  
Saggini, S., Ghioni, M., Geraci, A.
- 13:55 10571 An Interleaved Three-Level Forward Converter --Suitable For the Application of Voltage Regulator Module(VRM)  
Liang, X, Wei, J, Ruan, X

- 14:20 10789 Multiphase Voltage Regulator Module with Self-Driven Synchronous Rectification  
Visairo, H., Rodríguez, E., Cobos, J.A, Alou, P.
- 14:45 11114 A two stage Voltage Regulator Module with fast transient response capability  
Alou, P., Cobos, J.A, Prieto, R., Garcia, O., Uceda, J.

### **INVERTER MODULATION TECHNIQUES**

- 13:30 10055 Optimal Pulse Width Modulation for Three-Level Inverters  
Brueckner, T, Holmes, D G
- 13:55 10139 Control Techniques of Multilevel Voltage Source Inverters  
Massoud, A.M, Finney, S.J, Williams, B.W
- 14:20 10213 Synchronisation of Distributed PWM Cascaded Multilevel Inverters with Minimal Harmonic Distortion and Common Mode Voltage  
Loh, PC, Holmes, DG, Lipo, TA
- 14:45 10280 EXPERIMENTAL RESULTS OF A THREE-LEVEL VOLTAGE SOURCE INVERTER WITH DOUBLE HYSTERESIS-BAND CURRENT CONTROL AND HYBRID PWM-SVM VOLTAGE CONTROL  
Lafoz, M., Iglesias, I.J, Portillo, S.

### **NEW SEMICONDUCTOR TECHNOLOGIES**

- 13:30 10257 Development and Demonstration of Silicon Carbide (SiC) Motor Drive Inverter Modules  
CHANG, H-R, HANNA, E, RADUN, A.
- 13:55 10617 Silicon Carbide Power MOSFET Model and Parameter Extraction Sequence  
McNutt, T, Hefner, A, Mantoath, A, Berning, D, Ryu, SH
- 14:20 10849 GaN-Based JFETs and Diodes as Power Switching Devices  
Rhee, SH, Park, C, Hong, S, Day, T, Chapman, PL, Krein, PT, Kim, K
- 14:45 10932 Large Area GaN HEMT Power Devices for Power Electronic Applications: Switching and Temperature Characteristics  
Zhang, N.Q, Mehrotra, V, Chandrasekaran, S, Moran, B, Shen, L, Mishra, U, Eitzkorn, E, Clarke, D,

### **PMSM DRIVES**

- 13:30 10485 PMSM Servo System With Speed And Torque Observer  
Xu Dianguo, X, Wang Hong, W, Shi Jingzhuo , Sh
- 13:55 10519 DIRECT STATOR FLUX LINKAGE CONTROL TECHNIQUE FOR A PERMANENT

**MAGNET SYNCHRONOUS MACHINE**

LLOR, A., RETIF, JM., LIN-SHI, X., ARNALTE, S.

- 14:20 10657 Precision Speed Control of PMSM using Disturbance Observer and System Parameter Compensator  
Jongsun, JK
- 14:45 11009 Cancellation of Torque Ripple due to Nonidealities of Permanent Magnet Synchronous Machine Drives  
Wu, AP, Chapman, PL

**PASSIVE COMPONENTS**

- 13:30 10444 Reduced FEA-Based State-Space Modeling of Stationary Magnetic Devices  
Owens, JD, Chapman, PL
- 13:55 10806 Filters with Inductance Cancellation using PCB Transformers  
Neugebauer, T.C, Perreault, D.J
- 14:20 10822 Modeling and Analysis of integrated magnetic components  
Njiende, H. , Froehleke, N., Cronje, W.
- 14:45 10913 Stranded Wire With Uninsulated Strands as a Low-Cost Alternative to Litz Wire  
Tang, Xu, Sullivan, C.R

**PASSIVE COMPONENTS (cont.)**

- 15:40 11066 Integration of EMI Filter for Distributed Power System (DPS) Front-end Converter  
Chen, R, Wang, S, van Wyk, JD, Odendaal, WG
- 16:05 11123 COMPARISON OF DIFFERENT TECHNOLOGIES TO DEVELOP INDUCTORS FOR LOW-POWER, LOW-VOLTAGE DC/DC CONVERTER MODULES  
Prieto, MJ, Pernía, AM, Lopera, JM, Díaz, J, Martín, JA
- 16:30 10409 A New Method to Design Piezoelectric Transformer used in MOSFET & IGBT Gate Drive Circuits  
VASIC, D, COSTA, F, SARRAUTE, E

**DIGITAL TECHNIQUES IN MOTOR DRIVES**

- 15:40 10591 Analysis and Implementation of a New PFC Digital Control Method  
Zhang, W, Feng, G, Liu, Y-F, Wu, B
- 16:05 10728 Compact DSP Application For A 100kW DC Power Supply

GÃ¼ldner, H., Wolf, H., Losansky, J.

- 16:30 10235 Application of Genetic Algorithms in EKF for speed Estimation of an Induction Motor  
cai, L., Zhang, Y.H, zhang, Z.C

### **POWER LINE CONDITIONERS**

- 15:40 10446 Experimental Verification of an Active Power Line Conditioner with a Fuzzy Logic Switch Controller  
Kirawanich, P, O'Connell, R
- 16:05 10674 TRANSFORMERLESS 1-PHASE ACTIVE POWER LINE CONDITIONERS  
Strzelecki, RS, Meckien, GM, Jarnut, MJ, Benysek, GB
- 16:30 11131 An Unified Scheme and Respective Algorithms for the Control of DC-Linked Double Converters in an Universal Power Quality Controller  
Liu, J, He, Y, Ye, Y

### **INVERTER MODULATION TECHNIQUES (cont.)**

- 15:40 10453 A DSP Peripheral for Three-Level Inverter Space Vector PWM Modulation?  
Li, S, Xu, L
- 16:05 10722 Constant frequency current modulation algorithm based on linkage flux  
Carmeli, M.S, Castelli-Dezza, F., Superti-Furga, G.
- 16:30 10770 A NEW CARRIER-BASED DISCONTINUOUS PWM MODULATION METHODOLOGY FOR FOUR-LEG VOLTAGE SOURCE INVERTERS  
Ojo, O, Kshirsagar, P

### **SYNCHRONOUS RECTIFIERS & VRMS (cont.)**

- 15:40 10148 Switching Loss Contributions of Synchronous Rectifiers in VRM applications  
Tolle, T, Duerbaum, T, Elferich, R
- 16:05 10340 New Switching Control for Synchronous Rectifications in Low-Voltage Paralleled Converter System without Voltage and Current Fluctuations  
Shimamori, H.S, Ninomiya, T.N, Kohama, T.K, Yamashita, S.Y, Itakura, K.I
- 16:30 11140 A General Concept to Eliminate Body Diode Loss in Synchronous Rectifiers  
Xu, M, F.C, Lee

## TUESDAY, JUNE 17<sup>th</sup>

### DC/DC CONVERTERS 1

- 08:30 10080 Freewheeling Current in Push-Pull Forward Converter  
Zhang, F, Qin, H, Wang, H, Yan, Y
- 08:55 10101 Analysis of a Hybrid Phase Modulated Converter with a Current Doubler Rectifier in Discontinuous Conduction Mode  
Surend, R, Mohan, Ned, Ayyanar, R, Button, R
- 09:20 10422 A Comparison of AC/DC Piezoelectric Transformer Converters with Current Doubler and Voltage Doubler Rectifiers  
Ivensky, G., Bronstein, S., Ben-Yaakov, S.
- 09:45 11037 HOW THE NEW SPARC TOPOLOGIE CAN REDUCE THE SIZE OF PASSIVE FILTER  
LEQUEU, T., KALVELAGE, G., AUBIN, P.

### FUEL CELL APPLICATIONS

- 08:30 10454 Development And Control Of A 400W Alkaline Fuel Cell Power Conditioner  
Rocco, T, Duke, R, Round, S
- 08:55 10599 Fuel Cell Powered UPS Systems: Design Considerations  
Choi, W, Howze, Jo, Enjeti, P
- 09:20 10956 Structure Optimization of the Fuel Cell Power Electric Drive System  
Yuwen, Y, Zhu, Z, Jiang, J
- 09:45 11142 A Current-Fed High Frequency Link Direct DC/AC Converter with Active Harmonic Filter for Fuel Cell Applications  
Song, Y, Chung, S, Enjeti, P

### SRM DRIVES

- 08:30 10007 Modeling Simulation and Performance Analysis of Switched Reluctance Motor Operating with Optimum Value of Fixed Turn-On and Turn-Off Switching Angles  
Akhter, H E, Chandra, A, Al-Haddad, K, Sharma, V K
- 08:55 10351 Position Sensorless Control of Synchronous Reluctance Motors with Extended Kalman Filter  
Senjyu, S.T, Kinjo, K.K, Urasaki, U.N, Uezato, U.K

09:20 10786 AN AUTO-CALIBRATING MODEL FOR SWITCHED RELUCTANCE MOTOR DRIVES: APPLICATION TO DESIGN AND CONTROL  
Edrington, C S, Fahimi, B

09:45 11016 Precise Analytical Modelling Magnetic Characteristics of Switched Reluctance Motor Drives Using Two-dimensional Least Squares  
Xue, XD, Cheng, KWE, HO, SL

### **INTEGRATION, PACKAGING & MODULES**

08:30 10158 High Temperature, High Power Density Packaging for Automotive Applications  
Gerber, M, Ferreira, J A, Hofsajer, I, Seliger, N

08:55 10833 Integrated Power Electronics Modules for 600V/10A Motor-Drive Applications Using Flip-Chip Flex-Circuit Technology  
Xiao, Y. , Shah, H., Chow, T.P, Rymaszewski , E.J, Gutmann, R.J

09:20 10981 A New Smart Power Module for Very Low Power Drive Applications  
Kim, MK, Chung, DW, Suh, BS, Kim, TH

09:45 11015 High Density Integrated Electromagnetic Power Passives with Vertical Interconnect and Stacked Structure  
Liu, W., van Wyk, J., Odendaal, W.

### **POWER QUALITY ISSUES 2**

08:30 10173 A New On-Line Single-Phase to Three-Phase UPS Topology with Reduced Number of Switches  
Bekiarov, S, Emadi, A

08:55 10221 Buck-Boost Push-Pull High Power Factor Electronic Ballast  
Seidel, AR, Bisogno, FE, Paiva, RCD, Marchesan, TB, Prado, RN

09:20 10757 A New Topology of Fault-current Limiter and Its Parameters Optimization  
LU, Z, JIANG, D, WU, Z

09:45 10767 Bidirectional Switch for a Solid State Tap changer  
Bauer, P, Schoevaars, R

### **POSTER SESSION**

10:40

**BOOST CONVERTERS**

- 13:30 10860 Performance Evaluation of a Boost Converter under Influence of Random Noise  
Sangswang, A, Nwankpa, C.O
- 13:55 10876 A Modular Power Electronics Instructional Laboratory  
Balog, R, Krein, P T
- 14:20 10915 Peak Current-Mode Control for a Boost Converter Using an 8-bit Microcontroller  
Dake, H, Nelms, R
- 14:45 11056 Dual Mode Control of Tri-state Boost Converter  
Viswanathan, K, Oruganti, R, Srinivasan, D

**LAMP & BALLASTS**

- 13:30 10037 Analysis and Design of a HID Lamp Ballast with Sinusoidal Waveform Superposed with 3rd Harmonic  
Alonso, JM, Ribas, J, Rico, M, Garcia, J, Cardesin, J
- 13:55 10440 solution to the warm up problems on HID Sodium Lamp Ballasts controlled by Resonant Current  
Rodriguez, FRV, Avila, JAH
- 14:20 10584 Design Optimization of the LCC Parallel-Series Inverter with Resonant Current Mode Control for 250W HPS Lamp Ballast  
Cardesín, J., Alonso, M., Corominas, E., Calleja, A., Ribas, J., Rico-Secades, M., García, J.
- 14:45 10754 Use of Swinging Inductors to Improve the Dimming Characteristics of Frequency-Controlled Dimmable Electronic Ballasts  
Lee, S, Chung, H, Hui, S

**POWER QUALITY IMPROVEMENT TECHNIQUES.**

- 13:30 10322 A Filter Bank Solution for Active Power Filter Control Algorithms  
Sozanski, K
- 13:55 10393 A Robust Multilevel Hybrid Compensation System for 25kV Electrified Railway Applications  
Tan, P C, Loh , P C, Holmes, D G
- 14:20 10776 Current Regulation for a Series Active Filter Integrated with a Diode Rectifier  
le Roux, AD, Mouton, HdT, Akagi, H



14:45 10809 MULTILEVEL VOLTAGE SOURCE POWER QUALITY CONDITIONER  
Strzelecki, RS, Jarnut, MJ, Benysek, GB

### 3 PHASE AC/DC CONVERTERS

13:30 10060 'Sensorless' Control of 4-Quadrant-Rectifiers for Voltage Source Inverters (VSI)  
Kennel, R, Linke, M, Szczupak, P

13:55 10136 Space Vector Modulation and Control of a Unidirectional Three-Phase/Level/Switch  
VIENNA I Rectifier with LCL-type AC filter  
Viitanen, T, Tuusa, H

14:20 10338 Lagrangian Modeling and Passivity-Based Control of Three-Phase AC/DC  
Voltage-Source Converters  
Lee, T.

14:45 10802 A Three-Phase Three-Switch Two-Level PWM Rectifier  
Devis Borgonovo, DB, Yales Romulo de Novaes, YN, Ivo Barbi, IB

### DIRECT TORQUE CONTROL

13:30 10436 Constant frequency Torque and Flux controllers for Direct Torque Control of  
Induction Machines  
Idris, NRN, Toh, CL, Yatim, AHM, Mohamad, ND

13:55 10474 A Unified Flux and Torque Control Method for DTC-based Induction-Motor Drives  
Ryu, JH, Lee, KW, Lee, JS

14:20 10725 Hysteresis Band Determination of Direct Torque Controlled Induction Motor Drives  
With Torque Ripple and Motor-Inverter Loss Considerations  
Kaboli, Sh, Zolghadri, M

14:45 10753 Hybrid Space Vector Pulse Width Modulation Based Direct Torque Controlled Drive  
for Induction Motor  
Udayar, S M, Fernandes, B G

### BOOST CONVERTERS (cont.)

15:40 10197 Complete Digital Control Method for PWM DCDC boost converter  
Kranz, Ch

16:05 10513 A Zero-Current and Zero-Voltage-Switching PWM Boost Full-Bridge Converter  
ZHOU, L, RUAN, X

- 16:30 10696 A Step-Down Conversion Concept for a PWM-mode Boost Converter  
Schimpfle, C., Kirchner, J.

#### **LAMP & BALLASTS (cont.)**

- 15:40 10759 Low Cost Power Control for LCC Series-Parallel Inverters with Resonant Current Mode Control for HID Lamps  
Cardesín, J., Alonso, M., Corominas, E., Calleja, A., Ribas, J., Rico-Secades, M., García, J.
- 16:05 10194 Difference-Integral Dimming Controller for the Single-Stage Back-Lighting Electronic Ballast  
Lin, L., Pki, P.
- 16:30 10666 A Comparative Study of Random Switching Schemes for Eliminating Visible Striations in Fluorescent Lamps  
Lee, S, Chung, H, Hui, S

#### **POWER QUALITY IMPROVEMENT TECHNIQUES (cont.)**

- 15:40 10916 Digital control of a single-phase shunt active filter  
Griño, R, Costa-Castello, R, Fossas , E
- 16:05 11078 A Novel Comprehensive Compensator for Electrified Railway System  
Wang, Yue, Wang, ZA, Yang, Jun
- 16:30 11079 A New Hybrid Parallel Active Filter  
Wang, Yue, Wang, ZA, Yang, Jun

#### **3 PHASE AC/DC CONVERTERS (cont.)**

- 15:40 10807 Nonlinear Control Technique for three-phase boost AC/DC Power Converter  
Kaletsanos, Ath, Xepapas, F, Xepapas, S, Manias, S
- 16:05 10813 Theoretical and Experimental Analysis of Cascade Control Schemes for a Three-Phase Three-Switch Buck-Type AC-to-DC PWM Converter System  
Nussbaumer, T., Kolar, J.W
- 16:30 10970 A half-power rating improved 3-phase six-switch boost rectifier using two half controlled configurations with a common DC bus  
Panda, D., Lipo, T.A

**EMI & CM CURRENTS**

- 15:40 10561 Suppression of Conducted EMI in Four-Quadrant AC Drive System  
Kempski, A., Strzelecki, R., Smolenski, R.
- 16:05 10596 Minimization and Cancellation of Common-Mode Currents, Shaft Voltages and  
Bearing Currents for Induction Motor Drives  
Mei, C, Balda, J.C, Waite, W.P, Carr, K.
- 16:30 11057 Fast EMI prediction method for three-phase Inverter based on Laplace Transforms  
Revol, B., Roudet, J., Loizelet, P.

## WEDNESDAY, JUNE 18<sup>th</sup>

### CONTROL ISSUES IN DC/DC CONVERTERS

- 08:30 10324 Pulse Train <sup>TM</sup>, a Novel Digital Control Method, Applied to a Discontinuous Conduction Mode Flyback Converter  
Telefus, M, Shteynberg, A, Ferdowsi, M, Emadi, A
- 08:55 10537 A Novel Quasi-Constant Frequency Hysteretic Current Mode Control Approach  
Yang, X, Wang, Z.A
- 09:20 10609 Effects of closed-loop control on HF interactions reduction within Distributed Power Systems  
Alkayal M.Fisal, MFK, Crebier Jean Cristophe, JCC
- 09:45 10741 Fast-Response Load Regulation of DC-DC Converter By means of Reactance Switching  
Senanayake, T, Ninomiya, T

### INVERTERS FOR PV SYSTEMS

- 08:30 10858 Optimized Design of a Single-Phase Inverter for Photovoltaic Applications  
Kjaer, S B, Blaabjerg, F, Pedersen, J K
- 08:55 10866 Synthesis and Modulation of Single Phase DC/AC Converter with High Frequency Isolation in Photovoltaic Energy Applications  
Beristáin, J., Velasco, G., Gilabert, A., Bordonau, J.
- 09:20 10901 A DC/AC Converter For Single-Phase Grid-Connected Photovoltaic Systems  
Souza, K., Castro, M., Antunes, F.
- 09:45 11008 A Sinusoidal Pulse Width Modulated (SPWM) Inverter using Three-Winding High-Frequency Flyback Transformer for Small Scale Solar Photovoltaic Power Conditioner System  
Chandhaket, SC, Konishi, YK, Nakaoka, MN, Ogura, KO

### POWER CIRCUIT MODELING

- 08:30 10427 A Unified SPICE Compatible Model for Large and Small Signal Envelope Simulation of Linear Circuits Excited by Modulated Signals  
Lineykin, S, Ben-Yaakov, S

08:55 10588 Three-Dimensional Animations of Power-Electronics Circuits Visualize Voltage and Current  
Sullivan, CR

09:20 10947 Unified Flyback Switching-Cell Model Including the Leakage Inductance Effects For SPICE Simulation  
Rustom, K., Qiu, W., Batarseh, I.

09:45 10993 Switching Parameter Maps - a new approach to the validity domain of power device models  
Garrab, H., Mi, W., Ammous, K., Allard, B., Morel, H., Bergogne, D.

### AC VOLTAGE REGULATION

08:30 10621 Optimal Control Technique for AC VRM In High Frequency AC Power Distribution Systems  
Qiu, MQ, Jain, PJ

08:55 10658 Adaptive Perceptron Based A Generalized Algorithm for Voltage Disturbance Mitigation in The Distribution System  
Elnady, A, Kazerani, M, M. A. Salama, M.

09:20 10673 An Efficient Control of the Series Compensator for Sag Mitigation and Voltage Regulation  
Marei, M.I, El-Saadany, E.F, Salama, M.M

09:45 10688 Control and Testing of a Dynamic Voltage Restorer (DVR) at Medium Voltage Level  
Nielsen, JG, Newman, MJ, Nielsen, HO, Blaabjerg, F

### MATRIX CONVERTERS

08:30 10695 New Modulation Strategy for a Matrix Converter with a Very Small Mains Filter  
Mueller, SM

08:55 10788 Fast Commutation Processes and Demand of Bidirectional Switches in Matrix Converters  
Adamek, J., Hofmann, W., Ziegler, M.

09:20 10958 Analysis and Comparison of AC-AC Matrix Converter Control Strategies  
Apap, M, Wheeler, PW, Clare, JC, Bradley, KJ

09:45 11031 Investigation of Dual-bridge Matrix Converter Operating under Unbalanced Source Voltages  
Wei, L, Lipo, T.A, Matsushita, Y

**CONTROL ISSUES IN DC/DC CONVERTERS (cont.)**

- 10:40 10639 Digitally controlled converter with dynamic change of control law and power throughput  
Nesgaard, C
- 11:05 10647 A Low-Cost Configurable PWM Controller Using Programmable System-On-Chip  
Li, Q
- 11:30 10887 Stability Analysis of Linear-Non Linear Control (LnLc) Applied To Fast Transient Response DC-DC Converters  
Barrado, A., Vazquez, R., Lazaro, A., Pleite, J., Vazquez, J., Olias, E.

**INVERTER MODELING**

- 10:40 10142 Application of a Sinusoidal Internal Model to Current Control of Three Phase Utility Interface Converters  
Fukuda, SF, Imamura, RI
- 11:05 10517 Natural Balance of Multicell Converters  
Wilkinson, RH, Meynard, TA, Mouton, HdT
- 11:30 10906 Direct Modeling of Envelope Dynamics in Resonant Inverters  
Yin, Y, Zane, R, Erickson, R, Glaser, J

**SNUBBERS & RELATED ISSUES**

- 10:40 10212 Constrained Power Converter Optimization with Improved Core Loss Formulation  
Cooke, PR, Schmidt, S
- 11:05 10370 New Snubbers with Energy Recovery into a Local Power Supply  
Ivensky, G, Zeltser, I, Ben-Yaakov, S
- 11:30 10697 Application of Common-source Active-Clamp Circuit to Various DC-DC Converter Topologies  
Shoyama, M, Li, G, Ninomiya, T

**AC VOLTAGE REGULATION**

- 10:40 10835 PWM Line Voltage Regulator with Integrated PFC  
Rossetto, L., Buso, S.
- 11:05 10912 Application of Zig-Zag Transformers in a three-wire three-phase Dynamic Sag Corrector System  
Bhadkamkar, A, Bendre, A, Schneider, R, Kranz, W, Divan, D

- 11:30 11012 Next Generation Distribution Transformer: To Address Power Quality for Critical Loads  
Aeloíza, E., Enjeti, P., Morán, L., Pitel, I.

### **MONITORING & DIAGNOSTICS**

- 10:40 10169 Parameter Monitoring of High-frequency Electronically Operated Discharge Lamp Systems  
Qiu, DY, Hui, SYR, Chung, SH
- 11:05 10899 Stator Winding Fault Detection for an Induction Motor Drive Using Actuator as Sensor Principle  
Aguayo, J, Claudio, A, Vela, L.G, Lesecq, S, Barraud, A
- 11:30 11081 A MODEL-IN-THE-LOOP INTERFACE TO REPRESENT MACHINE/DRIVE DYNAMICS IN A HARDWARE-BASED DC DISTRIBUTION TESTBED  
Zhu, W, Pekarek, S, Jatskevich, J, Wasynczuk, O

### **DC/DC CONVERTERS**

- 13:30 10151 Negative Output Super-Lift Luo-Converters  
Luo, F.L, Ye, H., Rashid, M.H
- 13:55 10447 A New High Static Gain Non-Isolated DC-DC Converter  
Gules, R., Pfitscher, L., Franco, L.
- 14:20 10480 A NOVEL MULTI-PHASE INTERLEAVING ISOLATED DC/DC CONVERTER  
Zhou, J, Xu, M, Lee, F C
- 14:45 10632 A THREE LEVEL DOUBLE-ENDED FORWARD CONVERTER  
Coelho, KD, Barbi, I

### **INVERTER CONTROL ISSUES**

- 13:30 10306 A New Non-Linear Control Strategy for the Boost Inverter  
Vazquez, N, Cortes, D, Hernandez, C, Alvarez, J, Arau, J, Alvarez, Jq
- 13:55 10583 A Wireless Load Sharing Controller to Improve Dynamic Performance of Parallel-Connected UPS Inverters  
Guerrero, J.M, Garcia de Vicuña, L., Matas, J., Miret, J., Castilla, M.
- 14:20 10592 DYNAMIC DIGITAL CONTROL SCHEMES FOR THREE-PHASE UPS INVERTERS  
Uys, JJ, Beukes, HJ

- 14:45 10694 Optimal Regulator with Integral Action and Gain-Scheduling for the Comprehensive Control of Three-Level VSI  
Alepez, SA, Salaet, JS, Gilabert, AG, Bordonau, JB, Peracaula, JP

### INDUCTION MOTOR CONTROL

- 13:30 10627 Optimal Speed Tracking Control of Induction Motor Using Artificial Intelligence Techniques  
Rahmouni, M, Lachiver, G
- 13:55 10135 Indirect Field Oriented Control for High Performance Induction Motor Drives Using Space Vector Modulation with consideration of Core Loss  
Mohammad Abdul Mannan, , Toshiaki Murata, , Junji Tamura, , Takeshi Tsuchiya,
- 14:20 10160 A Novel Adaptive Observer for Very Fast Estimation of Stator Resistance in Sensorless Induction Motor Drives  
Madadi kojabadi, H., Chang, L., Doraiswami, R.
- 14:45 10493 Speed Sensorless Stator Flux-Oriented Control of Induction Motor in the Field Weakening Region Using Luenberger Observer  
Kuen, T S, Shin, M H, Hyun, D S

### RECTIFIERS & AC/AC CONVERTERS 1

- 13:30 10205 Modulation Method for a Multiple Drive System based on a Two-Stage Direct Power Electronic Conversion Topology with reduced Input Current Ripple  
Klumpner, C., Blaabjerg, F.
- 13:55 10225 A Novel Control Approach to the DC Active Power Filter Used in a Low Ripple and Large Stable/Pulse Power Supply  
Xiao, G.C, Pei, Y.Q, Li, K., Wang, Z.A
- 14:20 10564 Self-Switching and Protected Converters : New Cells Synthesis  
Roux, NR, Richardeau, FR, Foch, HF
- 14:45 10903 Power Factor Correction Using a Series Active Filter  
Pan, Z, Wang, S, Peng, F

### POWER QUALITY ISSUES 3

- 13:30 10880 Application of Compensators for Non-Periodic Currents  
Tolbert, L M, Xu, Y, Chen, J, Peng, F Z, Chiasson, J N
- 13:55 11075 A Novel Control Strategy for Power Active Filter Based on Modal Analysis of



Power distribution system  
Saitou, M, Takeshita, T, Matsui, N

- 14:20 11111 A Novel Technique For Optimising Harmonics And Reactive Power With Load Balancing Under Non-Sinusoidal Supply And Unbalanced Load Conditions  
Agarwal, V, George, S
- 14:45 10312 A New Complementary Method to Instantaneous Inactive Power Compensation  
Tavakoli Bina, M.

### **RECTIFIERS & AC/AC CONVERTERS 1 (cont.)**

- 15:40 10943 Average Modeling of a Hexagon Transformer and Rectifier  
Tinsley, CT, Caire, R, Boroyevich, D
- 16:05 10249 Low Peak Current Class E Resonant Full-Wave Low dv/dt Rectifier Driven by a Square-Wave Voltage Generator  
Birca-Galateanu, S
- 16:30 10431 Analysis of Common Mode EMI for Three-Phase Voltage Source Converters  
Zhang, R, Wu, W, Wang, T

### **INDUCTION MOTOR CONTROL (cont.)**

- 15:40 10733 Sensorless Induction Motor Drive Incorporating Vector Controlled Scheme PWM Inverter-Fed with Auto-Tuning Machine Parameter Estimation Strategy.  
Soshin, KS, Okamura, YO, Tarek, AT, Nakaoka, MN
- 16:05 10844 Digital Synchronous Frame Current Regulation for Dual-Three Phase Induction Motor Drives  
Bojoi, R, Profumo, F, Tenconi, A
- 16:30 10123 MEMBERSHIP FUNCTION DISTRIBUTION EFFECT ON FUZZY LOGIC CONTROLLED INDUCTION MOTOR DRIVE  
Zhao, Jin, Bose, B.K

### **INVERTER CONTROL ISSUES (cont.)**

- 15:40 10507 Control of Single-Phase Parallel-Connected Inverters: Fixed-Frequency Quasi-Sliding Mode Control Approach, and FPGA-based Implementation  
Ramos, R., Biel, D., Fossas, E., Guinjoan, F.
- 16:05 10944 A Novel Load Sharing Control Technique for Paralleled Inverters  
Jingtao, Tan, Jianping, Y

- 16:30 10966 Redundant Parallel Control for Current Regulated Inverters with Instantaneous Current Sharing  
Xing, Y, Huang, L.P, Yan, Y.G

**DC/DC CONVERTERS (cont.)**

- 15:40 10888 The Fast Response Double Buck DC-DC Converter (FRDB)  
Barrado, A., Vazquez, R., Lazaro, A., Pleite, J., Vazquez, J., Olias, E.
- 16:05 10896 A HV Input High Frequency Non-Isolated DC/DC Converter  
Guo, J
- 16:30 10908 A Novel Power Distribution System Using a Central Buck-Based Current Source for Multiple Individually Regulated Outputs  
CHAKRABORTY, S, JAIN, A.K, MOHAN, NED

**ALTERNATIVE ENERGY RESOURCES**

- 15:40 10307 Efficiency Comparison for Microturbine Power Conditioning Systems  
Ye, Z, Wang, C, Sinha, G, Zhang, R
- 16:05 10634 Design of Large Air-Gap Transformers for Wireless Power Transmission  
O'Brien, K, Scheible, G, Gueldner, H
- 16:30 10587 Control of an Optimized Power Flow in Wind Power Plants with Doubly-Fed Induction Generators  
Rabelo, B., Hofmann, W.

## THURSDAY, JUNE 19<sup>th</sup>

### MOTOR DRIVES

- 08:30 10713 Precision Position Control of Brushless DC Motor without Shaft Transducer  
Park, K H, Kim, T S, Ahn, S C, Hyun, D S
- 08:55 10895 Control Design For A High Performance Amplitude/Phase Modulated Digital-To-Synchro Switching Power Converter  
Liu, C. , Smith, C. , Lai, J., Black, J.
- 09:20 11182 Design of a Closed-Loop Controller for Mitigation of Torque Ripple in a Brushless DC Machine  
Beccue, P, Neely, J, Pekarek, S, Benavides, N, Orbals, M, Stutts, D
- 09:45 10864 Fundamental Aspects of Ripple Correlation Control of Electric Machinery  
Wells, JR, Chapman, PL, Krein, PT

### INVERTERS & INVERTER CONTROL TECHNIQUES

- 08:30 10064 A Novel Hysteresis Current Control Inductor-Coupled Bi-Buck Inverter  
Liu, J, Yan, Y
- 08:55 10550 Consideration of A Single-Switch Inverter for Piezo-Electric Transformer with A New Control Method  
Takushi Oyama, TO, Yoichi Ishizuka, YI, Fujio Kurokawa, FK, Hirofumi Matsuo, HM, Nanjo Aoike, NA
- 09:20 10726 A novel cascaded multilevel converter with a single non-isolated DC link  
SOTO, D, PEÑA, R, REYES, L, VASQUEZ, M
- 09:45 10378 A Single-Phase Resonant Snubber Inverter With Fixed Timing Control For A UPS  
Yu, Q, Nelms, R.M

### DC/DC MODELING & ANALYSIS

- 08:30 10150 Negative Output Multiple-Lift Push-Pull Switched-Capacitor Luo-Converters  
Luo, F.L, Ye , H., Rashid, M.H
- 08:55 10162 Stability of Periodic Solutions for Multi-Topology DC-DC Power Converters  
Stas Kriventsov, SK, Jeffrey S. Mayer, JSM

09:20 10445 Analysis and Optimization in Design of Randomized PWM Switching Patterns in DC/DC Converters  
Lev-Ari, H, Stankovic, A.M

09:45 11033 Study on Chaotic Signal in Buck-Boost Circuit Based on Wavelet Transform  
Wang Liqing, AA, Wei Xueye, CC

### **SINGLE PHASE PFC**

08:30 10195 Input Current Distortion of CCM Boost PFC converters operated in DCM  
De Gussemé, K, Van de Sype, DM, Van den Bossche, AA, Melkebeek, JA

08:55 10470 1kW PFC Converter with Compound Active-Clamping  
Feng, B, Xu, D

09:20 10699 Dynamic Limits of a Power Factor Preregulator  
Fernandez, A., Sebastian, J., Villegas, P., Hernando, M.M, Garcia, J.

09:45 10824 Fully digital Control of Power Factor Preregulator using Disturbance Observer for Input Voltage Estimation  
Mattavelli, P., Spiazzi, G.

### **PV SYSTEMS**

08:30 10203 A Simplified Nonlinear Power Source for Simulating PV Panels  
Lopes, L. , Lienhardt, A-M

08:55 10245 Evaluation of Anti-Islanding Schemes Based on Non Detection Zone Concept  
Ye, Z, Du, P, Walling, R, Kolwalkar, A, Zhang, Y

09:20 10283 Harmonic interaction between large number of PV inverters and the distribution network  
Enslin, JHR, Atmadji, A, Hulshorst, W, Heskes, P, Cobben, JFG

09:45 11166 Electronic Converter for the Analysis of Photovoltaic Arrays and Inverters  
Sanchis Gúrpide, P., Echeverría Garro, I., Ursúa Rubio, A., Gubía Villabona, E., Alonso Sádaba, O., Marroyo Palomo, L.

### **DC/DC MODELING & ANALYSIS (cont.)**

10:40 10954 Extension of bandwidth of Two-Stage DC-DC Converter with Low Voltage and High Current Output.  
Abe, S, Yamamoto, J, Zaitso, T, Shoyama, M, Ninomiya, T

11:05 11099 Applying Transformer Concept To Non-isolated Voltage Regulators Significantly Improves The Efficiency And Transient Response  
Wei, J, Yao, K, Xu, M, Lee, F

11:30 11135 Null-Audio Susceptibility of SCM Controlled Buck Converters: small signal and large signal perspectives  
Mossoba, JT, Krein, PT

### **INVERTERS & INVERTER CONTROL TECHNIQUES (cont.)**

10:40 10815 Introducing The Low Switching Frequency Space Vector Modulated Multi-Modular Three-Level Converters For High Power Applications Part I: Switching Strategies  
Saeedifard, M., Bakhshai, A.R, Jain, P.

11:05 10678 Switching Control Strategy based on Output Regulation Subspaces of Induction Motor by using a Three-level Inverter  
Prats, M.M, Escobar, G., Portillo, R., Galván, E., Carrasco, J.M

11:30 10923 A series resonant inverter controlled by pulse density modulation with frequency compensation for wide load range  
Correa, J M, Hutto, E D, Farret, F A, Simoes, M G

### **UTILITY APPLICATIONS**

10:40 10171 CIRCUIT-LEVEL COMPARISON OF STATCOM TECHNOLOGIES  
Lee, CK, Leong, JSK, Hui, SYR, Chung, SH

11:05 10296 VSC-HVDC Station with SSSC Characteristics  
Fawzi AL Jowder, Mr., Boon Teck Ooi, Dr.

11:30 10742 Open Modular Power Electronics Building Blocks for Utility Power System Controller Applications  
Wang, F., Rosado, S., Boroyevich, D.

### **SINGLE PHASE PFC (cont.)**

10:40 10990 Average Small-Signal Analysis of Power Factor Correctors Controlled by Conduction Angle  
Sebastian, J, Fernandez, A, Villegas, P, Garcia, J, Hernando, M

11:05 11017 Single-Switch Power Factor Correction AC/DC Converter with Storage Capacitor Size Reduction  
Lázaro, A, Barrado, A, Pleite, J, Olías, E

- 11:30 11149 An Optimum Design of Boost PFC Converter  
Orabi, M, Ninomiya, T

#### **MOTOR DRIVE DESIGN ASPECTS**

- 10:40 10401 Evaluation of IGBT Multilevel Converters for Transformerless Traction Applications  
Dieckerhoff, S., Bernet, S., Krug, D.
- 11:05 10793 Design of a Back to back Multilevel induction motor drive for Traction Systems  
Dell'Aquila, A, Liserre, M, Monopoli, V G, Cecati, C
- 11:30 10884 An SCR-based Regenerative Converter for VSI Drives  
Raju, N R

#### **DC/DC INDUSTRIAL APPLICATIONS**

- 13:30 10168 Three-Level Converters with Input and Output Sharing the Ground  
Ruan, X, Wei, J, Xue, Y
- 13:55 10288 DESIGN CONSIDERATIONS FOR A 48VDC TO  $\pm 400$ VDC CONVERTER FOR UPS APPLICATIONS  
Hernando, M, Villegas, P, Fernández, A, Sebastián, J
- 14:20 10730 AM Compatible Switch Mode Power Supply For Compact Audio Sets  
Sauerlaender, G., Duerbaum, T.
- 14:45 10933 Comparative Analysis of DC/DC Converter Topologies for Input Voltage Conditioning of a Linear High Power Amplifier  
Gong, GH, Kolar, J.W

#### **MOTOR CONTROL TECHNIQUES**

- 13:30 10070 Independent vector control of a seven-phase three-motor drive system supplied from a single voltage source inverter  
Jones, M, Levi, E, Vukosavic, SN, Toliyat, HA
- 13:55 10349 Position Control of Ultrasonic Motors Using Dead-Zone Compensation with Fuzzy Neural Network  
Senjyu, S.T, Yoshida, Y.T, Uezato, U.K
- 14:20 10909 Modular Control For Electromagnetic Aircraft Launching System  
Monti, A., Patel, K., Patterson, D., Dougal, R.
- 14:45 10653 Investigation of an on-line rotor resistance identification supplemented with a new

stator resistance observer using Artificial Neural Networks for induction motor drive  
Karanayil, B, Rahman, M.F, Grantham, C

### **POWER SEMICONDUCTOR DEVICES**

- 13:30 10448 Power Diodes for Cryogenic Operation  
Ward, RR, Dawson, WJ, Zhu, L, Kirschman, RK, Mueller, O, Patterson, RL,  
Dickman, JE, Hammoud, A
- 13:55 10626 CRYOGENIC STUDY AND MODELING OF IGBTs  
Caiafa, A., Kang, X., Santi, E., Hudgins, J.L
- 14:20 10910 SIMULATION OF THE ACRP CONVERTER WITH PHYSICS-BASED  
DEVICE MODELS  
Kang, X, Caiafa, A, Santi, E, Hudgins, J, Palmer, P
- 14:45 10930 Series Connection of IGBTs Used Multi-level Clamp Circuit and Turn off Timing  
Adjustment Circuit  
Nakatake, H, Iwata, A

### **SOFT SWITCHING INVERTERS**

- 13:30 10337 Three-Phase Two-Amplitude Actively Clamped Resonant DC-Link Inverter  
Zhang, D.H, Ying, J.P, Liu, T.
- 13:55 10868 A Feasible Loss Model for IGBT in Soft-Switching Inverters  
Cavalcanti, M, da Silva, E, Boroyevich, D, Dong, W
- 14:20 10920 A New Soft-Switching Cell Usable in Bridge Converters  
Monteiro, R., Anunciada, A.
- 14:45 10957 Gate Driver based Soft Switching SiC BJT Inverter  
Yu, H, Lai, J, Zhao, J

### **DC/DC SOFT SWITCHING CONFIGURATIONS**

- 13:30 10047 1MHz Self-driven ZVS Full Bridge Converter for 48V Power Pod  
Ren, Y., Xu, M., Sterk, D., Lee, F.
- 13:55 10842 Design and Experimental Analysis of a 5kW High Output Voltage Series-Parallel  
X-ray Imaging Applications  
Cavalcante, FS, Kolar, JW
- 14:20 10875 A NEW SOFT SWITCHED CUK CONVERTER ASSOCIATED WITH A

**NON-DISSIPATIVE SNUBBER**

Gazzoni, FE, Pereira, AA, Barbosa, LR, Treviso, CHG

- 14:45 10972 Transformer Parasitic Parameter Assisted Zero Current Soft Switching DC-DC Converter with Inductive Snubber for Magnetron Drive  
Ishitobi, M, Myoi, T, Fujita, K, Sugimura, H, Nakaoka, M

**DC/DC SOFT SWITCHING CONFIGURATIONS (cont.)**

- 15:40 10569 Full Bridge Soft-Switching Phase-Shifted PWM DC-DC Converter using Tapped Inductor Filter  
Moisseev, S., Hamada, S., Nakaoka, M.
- 16:05 11087 Resonant Power Supply for Magnetic Resonance Imaging Gradient Drivers  
Sabate, J., Schutten, M., Li, Q., Wirth, W.
- 16:30 11097 A precise ZVS range calculation method for Full bridge converter  
Chao, Y, Hongyang, W, Jianhong, Z, Jianping, Y

**INVERTER ISSUES**

- 15:40 10862 Dead-time compensation in the zero-crossing current region  
Oliveira, AC, Lima, AMN, Jacobina, CB
- 16:05 10897 Frequency Selectable Induction Heating Targets  
Rodriguez, JI, He, R, Leeb, SB
- 16:30 10755 Experimental Evaluation of IGBTs for Characterizing and Modeling Conducted EMI Emission Source in PWM Inverters  
Liu, Q., Shen, W., Wang, F., Boroyevich, D., Stefanovic, V.

**INDUSTRIAL APPLICATIONS**

- 15:40 10792 Size and Cost Reduction of Storage Capacitor in AC/DC Converters under Hold-Up Time Requirements  
Lázaro, A, Barrado, A, Pleite, J, Vázquez, R, Olías, E
- 16:05 11122 A simple dc-dc converter for the power supply of a cochlear implant  
Fernandez, C., Garcia, O., Cobos, J.A, Uceda, J.
- 16:30 10209 Power Semiconductor Devices for Hybrid and 42V based Vehicles  
Rajashekara, K, Campbell, R.J



**RECTIFIERS & AC/AC CONVERTERS**

- 15:40 10208 COMPARING Si AND SiC DIODES PERFORMANCE IN A  
COMMERCIAL AC-TO-DC RECTIFIER WITH POWER FACTOR CORRECTION  
Hernando, M, Sebastián, J, Villegas, P, Fernández, A, García, J, Rascón, M
- 16:05 10859 Performance Improvement of Alternators with Switched-Mode Rectifiers  
Rivas, JM, Keim, TA, Perreault, DJ
- 16:30 10894 Design of Dual-Output Alternators with Switched-Mode Rectification.  
Hassan, G., Perreault, D.J, Keim, T.

**HIGH FREQUENCY INVERTERS**

- 15:40 10357 A Novel High-Frequency Current Output Inverter based on an Immittance-Conversion  
Element and a Hybrid MOSFET-SiC Diode Switch  
Shimizu, T, Kinjyo, H, Wada, K
- 16:05 10563 Dynamic Performance of An APWM Resonant Inverter for High Frequency AC  
Power Distribution Systems  
Qiu, MQ, Jain, PJ
- 16:30 10662 Soft-Switching PWM High Frequency Inverter with Minimum Circuit Components  
for Consumer Induction Heater  
Nishida, T., Deguchi, Y., Nakaoka, M., Gamage, L.