

IECON 2014 – 40th Annual Conference of the IEEE Industrial Electronics Society

**Dallas, Texas, USA
29 October – 1 November 2014**

Pages 1-958



**IEEE Catalog Number: CFP14IEC-POD
ISBN: 978-1-4799-4031-8**

TABLE OF CONTENTS

TITLE PAGE AND WELCOME	1
COMMITTEES LISTS	5
REVIEWERS LISTS	13

PLENARY SESSIONS

APPLIED CONTROL SYSTEMS AND COMPUTATIONAL INTELLIGENCE

A CONTINUOUS SLIDING MODE CONTROLLER FOR THE PMSM SPEED REGULATION BASED ON DISTURBANCE OBSERVER	28
<i>Chaouxu Mu, Wei Xu, Xinghuo Yu, Changyin Sun</i>	
A FUZZY-GENETIC SYSTEM TO PREDICT THE CUTTING FORCE IN MICRODRILLING PROCESSES	34
<i>Gerardo Beruvides, Ramón Quiza, Marcelino Rivas, Fernando Castaño, Rodolfo Haber</i>	
A GENERALIZED PROFILE OPTIMIZATION METHOD FOR CIRCULAR AND VARIABLE RADIUS PULLEYS IN PNEUMATIC MANIPULATORS	38
<i>Shen Yin, Wei Zhan</i>	
A STUDY ON A FLOW DISTRIBUTION CONTROL ALGORITHM OF A TANDEM PUMP FOR EFFICIENT ELECTRIC EXCAVATORS	51
<i>Jihye Lee, Jeeho Lee, Hyeongcheol Lee, Chang Eun Oh</i>	
ADAPTIVE IDENTIFICATION AND PREDICTIVE CONTROL USING AN IMPROVED ON-LINE SEQUENTIAL EXTREME LEARNING MACHINE	58
<i>Tiago Matias, Francisco Souza, Rui Araújo, Saeid Rastegar, Jérôme Mendes</i>	
ADAPTIVE PI CONTROL OF A THREE PHASE AC/DC PWM CONVERTER	65
<i>Rasoul M. Milasi, Mehrdad Moallem</i>	
ALTITUDE STABILIZATION IN UNMANNED VERTICAL TAKE-OFF/LANDING AIRCRAFT	71
<i>Thanakorn Supsukbaworn, Chin E. Lin</i>	
AN MPC FOR AN AGGREGATE ACTUATOR WITH A SELF-TUNING FEEDFORWARD CONTROL	77
<i>Paolo Mercorelli, Nils Werner, Oleg Sergiyenko</i>	
APPLICATIONS OF NON-MARKOVIAN HYBRID PETRI-NETS IN POWER ENGINEERING	84
<i>Pourya Shamsi</i>	
APPROXIMATIONS BASED OPTIMAL CONTROL DESIGN FOR A CLASS OF SWITCHED DYNAMIC SYSTEMS	90
<i>Vadim Azhmyakov, Ruthber Serrezuela, Luz Guzman</i>	
BALANCING A REACTION WHEEL PENDULUM WITH PM SYNCHRONOUS MOTOR ACTUATION	96
<i>Daniel Murdock, David Taylor</i>	
COMPUTING THE ENERGY AND THE MOMENTUM IN SMART GRID	103
<i>Mikhail Simonov</i>	
CONTINUOUS NONSINGULAR TERMINAL SLIDING MODE CONTROL WITH ANTI-WINDUP COMPENSATION	109
<i>Yanmin Wang</i>	
DETERMINATION OF THE MINIMUM-VARIANCE UNBIASED ESTIMATOR FOR DC POWER-FLOW ESTIMATION	114
<i>Mohammadhadi Amini, Arif Sarwat, S.S. Iyengar, Ismail Guvenc</i>	
DYNAMIC STRUCTURE IDENTIFICATION OF BAYESIAN NETWORK MODEL FOR FAULT DIAGNOSIS OF FMS	119
<i>Dang Trinh Nguyen, Quoc Bao Duong, Eric Zamaï, Muhammad Kashif Shahzad</i>	
ELECTRIC MACHINE VS MECHANICAL BRAKES FOR TRACTION CONTROL WITH REAL TIME EXTREMUM SEEKING CONTROL	126
<i>Sandun S. Kuruppu, Kartik B. Ariyur, N. Athula Kulatunga</i>	
EVENT BASED ROBUST STABILIZATION OF LINEAR SYSTEMS	133
<i>Abhisek K. Behera, Bijan Bandyopadhyay</i>	
EVOLUTIONARY LEARNING OF A FUZZY CONTROLLER FOR INDUSTRIAL PROCESSES	139
<i>Jerome Mendes, Rui Araujo, Tiago Matias, Ricardo Seco, Carlos Belchior</i>	
EXPERIMENTAL EVALUATION OF ESTIMATED SWAY ANGLE OF PAYLOAD IN CRANE SYSTEMS	146
<i>Shimpei Ohtomo, Toshiyuki Murakami</i>	
FIFO-LEVEL-BASED POWER MANAGEMENT AND ITS APPLICATION TO AN H.264 ENCODER	158
<i>Ngoc-Mai Nguyen, Warody Lombardi, Edith Begné, Suzanne Lesecq, Xuan-Tu Tran</i>	
H8 FILTERING FOR DISCRETE-TIME PIECEWISE HOMOGENEOUS MARKOV JUMP LUR'E SYSTEMS WITH APPLICATION TO ECONOMIC SYSTEMS	176
<i>Yujie Zhang, Yongsheng Ou, Yimin Zhou, Guoqing Xu</i>	
HIGH PERFORMANCE H8 CONTROL OF NON-MINIMUM PHASE ACTIVE MAGNETIC BEARING SYSTEM	183
<i>Amin Noshadi, Juan Shi, WeeSit Lee, Peng Shi, Akhtar Kalam</i>	

HYBRID CONTINUOUS NONSINGULAR TERMINAL SLIDING MODE CONTROL OF UNCERTAIN FLEXIBLE MANIPULATORS	190
<i>Yanmin Wang</i>	
MAXIMUM POWER POINT TRACKING OF WIND TURBINES WITH NEURAL NETWORKS AND GENETIC ALGORITHMS	197
<i>Hicham Chaoui, Suruz Miah, Amrane Oukaour, Hamid Gualous</i>	
NONLINEAR CONTROL FOR SINGLE-PHASE UNIVERSAL ACTIVE FILTERS	202
<i>Marcos B. Ketzer, Cursino B. Jacobina</i>	
NONLINEAR PATH TRACKING CONTROL OF UNDERACTUATED SURFACE VESSEL BY LSSVM-BASED IDENTIFICATION	209
<i>Zhilin Liu, Lutao Liu, Jun Zhang</i>	
ON THE IMPLEMENTATION OF REFERENCE GOVERNOR	215
<i>Yuzo Ohta, Izumi Masubuchi</i>	
OPTIMAL CONTROL OF ENERGY HUB SYSTEMS BY USE OF SQP ALGORITHM AND ENERGY PREDICTION	221
<i>Konstantinos Kampouropoulos, Fabio Andrade Rengifo, Enric Sala Cardoso, Jose Luis Romeral Martinez</i>	
PARAMETER CALCULATION OF ROUND ROTOR SYNCHRONOUS GENERATORS USING PHASOR MEASUREMENTS SIGNALS	228
<i>Esmail Ghahremani, Wei Li, Luc-Andre Gregoire</i>	
PERFORMANCE ANALYSIS OF A NEW ALGORITHM FOR POWER DISTRIBUTION SYSTEM RECONFIGURATION	234
<i>Awad Eldurssi, Robert O'Connell</i>	
PID-TYPE FUZZY LOGIC CONTROLLER FOR ACTIVE MAGNETIC BEARING SYSTEM	241
<i>Amin Noshadi, Juan Shi, Weesit Lee, Akhtar Kalam</i>	
POWER SYSTEM DYNAMIC STATE ESTIMATION USING PARTICLE FILTER	248
<i>Kianoush Emami, Tyrone Fernando, Brett Nener</i>	
PREDICTIVE ANTENNA TRACKING USING COMPLEX CONTROLLER	254
<i>Ying-Chi Huang, Chin E. Lin</i>	
PREDICTIVE CONTROL RESEARCH AND ITS APPLICATION FOR A CLASS OF UNCERTAIN NONLINEAR SYSTEMS	261
<i>Xiuyan Peng, Shuli Jia, Ruolin Guan</i>	
REDUCING POWER TRANSIENTS IN DIESEL-ELECTRIC DYNAMICALLY POSITIONED SHIPS USING RE-POSITIONING	268
<i>Aleksander Veksler, Tor Arne Johansen, Roger Skjetne, Eirik Mathiesen</i>	
ROBUST OUTPUT FEEDBACK CONTROL OF PMSM USING CASCADED SLIDING MODE AND HIGH GAIN OBSERVERS	274
<i>Syed Ali Asad Rizvi, Attaullah Yousuf Memon</i>	
SELF-ADAPTIVE TAKAGI-SUGENO MODEL IDENTIFICATION METHODOLOGY FOR INDUSTRIAL CONTROL PROCESSES	281
<i>Saeid Rastegar, Rui Araújo, Jérôme Mendes, Tiago Matias, Alireza Emani</i>	
SMART MULTI-MODEL APPROACH BASED ON ADAPTIVE NEURO-FUZZY INFERENCE SYSTEMS AND GENETIC ALGORITHMS	288
<i>Enric Sala Cardoso, Konstantinos Kampouropoulos, Francisco Giacometto Torres, Jose Luis Romeral Martinez</i>	
SMT-BASED BOUNDED MODEL CHECKING OF FIXED-POINT DIGITAL CONTROLLERS	295
<i>Iury Bessa, Lucas Cordeiro, Renato Abreu, João Edgar Chaves Filho</i>	
SYNCHROPHASOR BASED TRACKING OF SYNCHRONOUS GENERATOR DYNAMIC STATES USING A FAST EKF WITH UNKNOWN MECHANICAL TORQUE AND FIELD VOLTAGE	302
<i>Esmail Ghahremani, Innocent Kamwa, Wei Li, Luc-Andre Gregoire</i>	
TRAJECTORY SENSITIVITY AND GENETIC ALGORITHM BASED-METHOD FOR LOAD IDENTIFICATION	309
<i>Elmer Pablo Tito Cari, Luis Fernando Costa Alberto, Fernando Marcos de Oliveira</i>	

ELECTRICAL MACHINES AND DRIVES

A DOUBLE-MANIFOLD SLIDING MODE OBSERVER FOR THE SPEED AND FLUX OF THE INDUCTION MOTOR USING AN ALTERNATIVE STATE-SPACE MODEL	318
<i>Mihai Comanescu</i>	
A FINITE RELUCTANCE APPROACH TO ELECTRICAL MACHINE MODELING AND SIMULATION: MAGNETIC NETWORK-BASED FIELD SOLUTIONS IN MATLAB ENVIRONMENT	323
<i>Claudio Bruzzese, Damiano Zito, Ezio Santini, Alberto Tassarolo</i>	
A NOVEL MULTI-LOOP SELF-TUNNING ADAPTIVE PI CONTROL SCHEME FOR SWITCHED RELUCTANCE MOTORS	337
<i>Rasoul M. Milasi, Mehrdad Moallem</i>	
A PARTICLE SWARM OPTIMIZATION BASED MAXIMUM TORQUE PER AMPERE CONTROL FOR A SWITCHED RELUCTANCE MOTOR	343
<i>Lee A. Griffin, Fletcher Fleming, Chris Edrington</i>	
A PRACTICAL DEMONSTRATION FOR SIMULTANEOUS SUSPENSION AND ROTATION FOR A FERROMAGNETIC OBJECT- AN APPLICATION OF DC ELECTROMAGNETIC LEVITATION.	349
<i>Subrata Banerjee, Mrinal Kanti Sarkar</i>	

A ROTOR INITIAL POSITION ESTIMATION METHOD FOR SENSORLESS CONTROL OF SPMSM	354
<i>Bing Liu, Bo Zhou, Jiadan Wei, Haidong Liu, Jie Li, Long Wang</i>	
A SENSORLESS MATRIX-CONVERTER IPMSM DRIVE BASED ON HIGH FREQUENCY INJECTION METHOD	360
<i>Yi Chen, Tian-Hua Liu, Sheng-Yang Syu, Cuong Nguyen-Manh</i>	
A SENSORLESS VECTOR DRIVE USING SELF-DYNAMICS FOR INTERIOR PERMANENT MAGNET MACHINE WITHOUT EXTERNAL SIGNAL INJECTION	367
<i>Sang-il Kim, Rae-Young Kim</i>	
AC DRIVE SYSTEM FOR TWO MOTORS BASED ON STANDARD THREE-LEG CONVERTER	373
<i>Eisenhawer de M. Fernandes</i>	
AC-DC-AC NINE-PHASE MACHINE DRIVE SYSTEM BASED ON H-BRIDGES AND THREE-LEG CONVERTERS	378
<i>Victor F. M. B. Melo, Cursino B. Jacobina, Edgar R. Braga-Filho, Rodolpho M. Cavalcanti, Isaac S. de Freitas, Roberto S. Macena, Gregory A. Carlos</i>	
AN ADAPTIVE TORQUE CONTROLLER WITH MTPA FOR AN IPMSM USING MODEL BASED SELF-CORRECTION	391
<i>Qian Liu, Kay Hameyer</i>	
AN EXPERIMENTAL STUDY OF POSITION SENSORLESS CONTROL AT LOW SPEED OF IPMSM WITH HEAVY MAGNETIC SATURATION	398
<i>Ting Yuan, Shinji Doki</i>	
AN IMPROVED ROTOR FLUX ESTIMATION STRATEGY FOR POSITION-SENSORLESS CONTROL OF SURFACE-MOUNT PERMANENT MAGNET SYNCHRONOUS MOTOR	404
<i>Rui Gao, Iqbal Husain, Jianyong Su, Guijie Yang</i>	
AN OPEN-END WINDING INDUCTION GENERATION SYSTEM FOR FREQUENCY INSENSITIVE AC LOADS IN MORE ELECTRIC AIRCRAFT	410
<i>Yijiang Jia, Udupi R Prasanna, Kaushik Rajashekara</i>	
ANALYSIS AND CONTROL OF SIX-PHASE INDUCTION MACHINES IN UNBALANCED OPERATING SITUATION DUE TO PHASE OPENING	417
<i>Franck Betin, Sebastien Carriere, Gerard André Capolino</i>	
AXIAL-FLUX-MACHINE WITH AN IRONLESS FRACTIONAL SLOT WINDING	424
<i>Christian Schumann, Tobias Müller, Edgar Stein, Mario Pacas</i>	
CIRCUIT MODELING OF DOUBLE-ARMATURE ROTARY-LINEAR INDUCTION MOTOR	431
<i>Ebrahim Amiri</i>	
CO-SIMULATION OF AN INTERIOR PERMANENT MAGNET SYNCHRONOUS MOTOR WITH SEGMENTED ROTOR STRUCTURE	437
<i>Christoph Schulte, Joachim Böcker</i>	
COMPARATIVE EVALUATION OF SVPWM STRATEGIES FOR A DUAL INVERTER FED OPEN-END WINDING INDUCTION MOTOR DRIVE WITH A SINGLE DC POWER SUPPLY	443
<i>Srinivasa Rao R., Naga Chaitanya B., Saichand N., Somasekhar V.T.</i>	
COMPARISON OF OPERATING CURVES OF THREE PHASE AND FIVE PHASE INDUCTION MACHINES OF SAME SIZE	450
<i>Ricardo S. da Rosa, Luis A. Pereira, Luis F. A. Pereira, Sérgio Haffner</i>	
CONSERVATIVE DC VOLTAGE PREDICTION OF FLOATING CAPACITOR H-BRIDGE CONVERTERS FOR SOFT START OF GRID CONNECTED INDUCTION MOTORS	456
<i>Siyu Leng, Reaz Haque, Nirmana Perera, John Salmon, Andy Knight</i>	
COUPLING TRANSFORMER WITH A VIRTUAL AIR GAP FOR THE PROTECTION OF DYNAMIC VOLTAGE RESTORERS	462
<i>Virginie Majchrzak, Guillaume Parent, Brudny Jean-François, Costan Valentin, Guinic Philippe</i>	
DEMAGNETIZATION CHARACTERISTICS OF PERMANENT MAGNET SYNCHRONOUS MACHINES	469
<i>Gilsu Choi, Thomas Jahms</i>	
DESIGN OPTIMIZATION FOR THE ADOPTION OF BONDED MAGNETS IN PM BLDC MOTORS	476
<i>Luca Ferraris, Emir Poskovic, Diego La Cascia</i>	
DESIGN OPTIMIZATION FOR TORQUE RIPPLE MINIMIZATION AND POLES COST REDUCTION WITH HYBRID PERMANENT MAGNETS	483
<i>Claudio Bianchini, Matteo Davoli, Fabio Immovilli, Emilio Lorenzani</i>	
DESIGN POSSIBILITIES OF MULTIPLE-POLE CYLINDRICAL ROTOR SYNCHRONOUS MACHINE EXCITATION WINDING	490
<i>Karel Hruska, Vladimir Kindl, Roman Pechanek, Pavel Svetlik</i>	
DESIGN STUDIES FOR A 10 MW DIRECT DRIVE SUPERCONDUCTING WIND GENERATOR	497
<i>Haran Karmaker, Mantak Ho, Devdatta Kulkarni, Edward Chen</i>	
DETERMINATION OF CRITICAL THERMAL OPERATION FOR SMALL SQUIRREL CAGE MOTOR	502
<i>Roman Pechanek, Vladimir Kindl, Karel Hruska, Bohumil Skala</i>	
DEVELOPMENT OF A CROSS-COUPLED 2DOF DIRECT DRIVE MOTOR	508
<i>Shodai Tanaka, Tomoyuki Shimono, Yasutaka Fujimoto</i>	
DIRECT ADAPTIVE CURRENT CONTROL - A UNIVERSAL CURRENT CONTROL SCHEME FOR ELECTRICAL MACHINES	514
<i>Andreas Liske, Michael Braun</i>	
DIRECT GRID CONNECTION OF PERMANENT MAGNET SYNCHRONOUS MOTOR USING AUXILIARY INVERTER AND MATRIX CONVERTER WITH TRANSITION CONTROL	521
<i>Tsuyoshi Nagano, Jun-ichi Itoh</i>	

DIRECT TORQUE CONTROL OF INDUCTION MACHINE USING FINITE-TIME CONTROL AND DISTURBANCE COMPENSATION	528
<i>Zhenxing Sun, Shihua Li, Xinghua Zhang</i>	
EFFECT OF MAGNET COVERAGE ON TORQUE, LOSS AND TORQUE RIPPLE IN A PMSM	535
<i>Poopak Roshanfekar Fard, Sonja Lundmark, Torbjörn Thiringer, Mikael Alatalo</i>	
EFFICIENT MULTIPHYSICS MODELLING OF VIBRATION AND ACOUSTIC NOISE IN SWITCHED RELUCTANCE MOTOR DRIVES	542
<i>Chenjie Lin, Shiliang Wang, Babak Fahimi</i>	
ELECTRIC VEHICLE APPLICATION OF ROTATIONAL SPACE VECTOR HYSTERESIS CONTROL WITH DIFFERENT ELECTRIC MOTORS	549
<i>Philip Dost, Michael Schael, Constantinos Sourkounis</i>	
ELECTRICAL MACHINE FIRST ORDER SHORT-TIME THERMAL TRANSIENTS MODEL: MEASUREMENTS AND PARAMETER EVALUATION	555
<i>Aldo Boglietti, Enrico Carpaneto, Marco Cossale, Alex Lucco Borlera, Dave Staton, Mircea Popescu</i>	
ELECTROMAGNETIC - THERMAL COUPLED OPTIMIZATION OF HIGH POWER TRACTION DRIVE INDUCTION MACHINES	562
<i>Markus Vogelsberger, Jan Buschbeck, Erich Schmidt, Alexander Orellano, Martin Bazant</i>	
ELECTROMAGNETIC DESIGN OF ATYPICAL INDUCTION MOTOR	569
<i>Radoslav Cipin, Miroslav Patočka</i>	
EVALUATION OF A SURFACE PERMANENT MAGNET HELICAL MOTOR WITH HIGH PRECISION TEETH	575
<i>Shunsuke Sasaki, Kengo Sawai, Yasutaka Fujimoto</i>	
EXTENDING HORIZON OF FINITE CONTROL SET MPC OF PMSM DRIVE WITH INPUT LC FILTER USING LQ LOOKAHEAD	581
<i>Vaclav Smidl, Stepan Janous, Zdenek Peroutka</i>	
FINITE-TIME CONTROL FOR PERMANENT MAGNET SYNCHRONOUS MOTOR SPEED SERVO SYSTEM VIA A DISTURBANCE OBSERVER	587
<i>Junxiao Wang, Shihua Li, Qi Li</i>	
FPGA FIELD ORIENTED CONTROL OF AN AXIAL FLUX MOTOR-IN-WHEEL	594
<i>Delfim Pedrosa, Hugo Peixoto, Henrique Gonçalves, Júlio S. Martins, Carlos Couto, João L. Afonso</i>	
FREQUENCY CHARACTERISTIC DESIGN OF TORQUE CONTROL SYSTEM BASED ON MODEL PREDICTIVE CONTROL OF PERMANENT MAGNET SYNCHRONOUS MOTOR	601
<i>Fumio Watanabe, Shinji Doki</i>	
HIGH BANDWIDTH CURRENT CONTROL FOR OPEN-END WINDING INDUCTION MOTOR	607
<i>Hajime Kubo, Yasuhiro Yamamoto, Takeshi Kondo, Kaushik Rajashekara, Bohang Zhu</i>	
HIGH-SPEED SCALABILITY OF SYNCHRONOUS RELUCTANCE MACHINES CONSIDERING DIFFERENT LAMINATION MATERIALS	614
<i>Francesco Cupertino, Marco Palmieri, Maurizio Perta, Gianmario Pellegrino</i>	
HYBRID ORIENTATION FOR SENSORLESS VECTOR CONTROL OF NONSINUSOIDAL BACK-EMF PMSM	621
<i>Cassio Luciano Baratieri, Humberto Pinheiro</i>	
IDENTIFICATION OF A NONLINEAR PMSM MODEL USING SYMBOLIC REGRESSION AND ITS APPLICATION TO CURRENT OPTIMIZATION SCENARIOS	628
<i>Gerd Bramerdorfer, Stephan M. Winkler, Michael Affenzeller, Wolfgang Amrhein</i>	
IMPACT OF IRON LOSSES AND PARAMETER ERRORS ON BACK-EMF BASED SENSORLESS CONTROL OF PMSM	634
<i>Markus Seilmeier, Bernhard Piepenbreier</i>	
IMPACT OF VOLTAGE VARIATIONS ON A GRID-CONNECTED SHREDDER SYSTEM	641
<i>Michael Schael, Constantinos Sourkounis</i>	
IMPLEMENTATION OF A NEURO-FUZZY DIRECT TORQUE AND REACTIVE POWER CONTROL FOR DFIM	648
<i>Rogério Vani Jacomini, Carlos Mario Rocha Osorio, Jose Alberto Torrico Altuna, José Luis Azcue Puma, Carlos Eduardo Capovilla, Alfeu Sguarezi</i>	
IMPLEMENTATION OF ON-LINE MAXIMUM EFFICIENCY CONTROL FOR A DUAL-MOTOR DRIVE SYSTEM	655
<i>Shao-Kai Tseng, Tian-Hua Liu, Jing-Wei Hsu, Luiz R. Ramelan, Eka Firmansyah</i>	
IMPROVED PREDICTIVE CURRENT CONTROL WITH STATIC CURRENT ERROR ELIMINATION FOR PERMANENT MAGNET SYNCHRONOUS MACHINE	661
<i>Geng Wang, Ming Yang, Li Niu, Xianguo Gui, Dianguo Xu</i>	
INFINITE SPEED DRIVES CONTROL WITH MTPA AND MTPV FOR INTERIOR PERMANENT MAGNET SYNCHRONOUS MOTOR	668
<i>Ping-Yi Lin, Wei-Ting Lee, Shang-Wei Chen, Jonq-Chin Hwang, Yen-Shin Lai</i>	
INITIAL ROTOR POSITION DETECTION IN SYNCHRONOUS MACHINES USING LOW FREQUENCY PULSES	675
<i>Simon Feuersänger, Mario Pacas</i>	
INTEGRATED RADIAL AND DUAL AXIAL-FLUX VARIABLE-RELUCTANCE VERNIER MACHINE	682
<i>Daisuke Fukai, Shoji Shimomura</i>	
INTERIOR PMSM DOUBLE LAYER ROTOR CORE PARAMETRIC DESIGN STUDY	695
<i>Jae-Bum Park, Matthew Johnson, Hamid A. Toliyat</i>	

INVERTER BASED METHOD FOR MEASUREMENT OF PMSM MACHINE PARAMETERS BASED ON THE ELIMINATION OF POWER STAGE CHARACTERISTICS	702
<i>Florian Senicar, Martin Doepker, Alexander Bartsch, Stefan Soter</i>	
INVESTIGATION OF DUAL-INVERTER-FED DRIVES FOR PERMANENT MAGNET SYNCHRONOUS MOTOR WITH WINDING SWITCHING	709
<i>Bo Tian, Zhuoran Zhang, Jiadan Wei, Thomas Anthony Lipo</i>	
MEASUREMENT OF MAGNETIC PROPERTIES OF STEEL AT HIGH TEMPERATURES	715
<i>Andreas Boehm, Ingo Hahn</i>	
METHODOLOGY FOR THE IPM MOTOR MAGNETIC MODEL COMPUTATION BASED ON FINITE ELEMENT ANALYSIS	722
<i>Radu Bojoi, Andrea Cavagnino, Marco Cossale, Silvio Vaschetto</i>	
MODELING IRON, MECHANICAL AND ROTOR COPPER LOSSES IN INDUCTION MACHINE WITH THE DESIGN OF EXPERIMENTS	729
<i>Phok Chrin, Maria David, Pascal Maussion, Jacques Saint-Michel, Etienne Fournier, Long Bun</i>	
MODELING SINGLE AND DOUBLE STATOR AXIAL EDDY CURRENT BRAKES CONSIDERING CURRENT DISPLACEMENT, MAGNETIC LEAKAGE, FRINGING AND SATURATION USING COUPLED ELECTRIC AND MAGNETIC EQUIVALENT CIRCUITS	736
<i>Stefan Meier, Ingo Hahn</i>	
MULTIPURPOSE PLATFORM FOR CONTROL OF 3-PHASE AND 5-PHASE INDUCTION MACHINES INTEGRATED WITH MATLAB/SIMULINK	743
<i>Renê Augusto Benvenuti, Luís Fernando Alver Pereira, Luís Alberto Pereira, Sérgio Luís Haffner, Marcelo Götz</i>	
NEGATIVE SEQUENCE BASED RELAY OPERATE AREA APPROACH TO DETECT TRANSFORMER INTER-TURN FAULT	749
<i>P. A. Venikar, Makarand. S. Ballal, B. S. Umre</i>	
NEW SERIES OF MRAS FOR SPEED ESTIMATION OF VECTOR CONTROLLED INDUCTION MOTOR DRIVE	755
<i>V Verma, C Chakraborty</i>	
ON THE USE OF CARRIER PHASE JUMPS TO REDUCE SOME PWM SWITCHING EFFECTS	762
<i>Jean-François Brudny, Fabrice Morganti, Jean-Philippe Lecoointe, Guillaume Parent</i>	
ON-LINE PARAMETER ESTIMATION FOR INDIRECT FIELD ORIENTED CONTROL OF INDUCTION MACHINE BASED ON STEADY STATE VOLTAGE MODEL	769
<i>Jie Zhang, Jianyun Chai, Xudong Sun, Haifeng Lu</i>	
OPEN AND CLOSED-LOOP MOTOR CONTROL SYSTEM WITH INCIPIENT BROKEN ROTOR BAR FAULT DETECTION USING CURRENT SIGNATURE	774
<i>Shady Khalil, Haitham Abu-Rub, Mohamed Saad, Atif Iqbal</i>	
OPEN-END MULTI-LEVEL SIX-PHASE MACHINE DRIVE SYSTEM WITH THREE THREE-PHASE DC-LINK CONVERTERS	781
<i>Ayslan Caisson Norões Maia, Cursino Brandão Jacobina, Nayara Brandão Freitas</i>	
PARAMETER IDENTIFICATION AND AUTOMATIC CONTROL LOOP TUNING FOR PMAC SERVO MOTOR DRIVES	788
<i>Sheng-Ming Yang, Jin-De Lin, Kuang-Wei Lin</i>	
PREDICTION OF SLOTTING SALIENCY IN INDUCTION MACHINES WITH RESPECT TO HIGH-FREQUENCY-EXCITATION BASED SENSORLESS CONTROL	794
<i>Matthias A. Samonig, Thomas M. Wolbank</i>	
PREDICTIVE TORQUE CONTROL OF INDUCTION MOTOR FED BY FIVE-TO-THREE DIRECT MATRIX CONVERTER	800
<i>Omar Abdel-Rahim, Omar Ellaban, Haitham Abu-Rub</i>	
PROPOSAL OF POSITION SENSORLESS CONTROL AND TORQUE RIPPLE COMPENSATION BASED ON TORQUE SENSOR FEEDBACK	805
<i>Yoshiyasu Takase, Hiroshi Nakamura, Takashi Mamba, Fei Zhao</i>	
REAL-TIME CAPABLE METHODS TO DETERMINE THE MAGNET TEMPERATURE OF PERMANENT MAGNET SYNCHRONOUS MOTORS - A REVIEW	811
<i>Oliver Wallscheid, Tobias Huber, Wilhelm Peters, Joachim Böcker</i>	
REALIZATION OF IPMSM DRIVE SYSTEMS WITHOUT BOTH AN ELECTROLYTIC CAPACITOR AND AN LINE INDUCTOR	819
<i>Kodai Abe, Kiyoshi Ohishi, Hitoshi Haga</i>	
REDUCED-ORDER KALMAN FILTER IN PHASE COORDINATES FOR IPMSM WITH HIGHER FLUX HARMONICS	825
<i>David Uzel, Vaclav Smidl, Zdenek Peroutka</i>	
SENSORLESS CAPABILITY OF AN INTERIOR PERMANENT MAGNET SYNCHRONOUS MACHINE WITH A SHORT-CIRCUTED ROTOR WINDING	831
<i>Johannes Graus, Ingo Hahn</i>	
SENSORLESS CONTROL OF DOUBLY SALIENT ELECTRO-MAGNETIC MACHINE BASED ON COORDINATE TRANSFORMATION	838
<i>Yao Zhao, HuiZhen Wang, Lan Xiao, Haibo Zhang</i>	
SENSORLESS DECOUPLED IM CURRENT CONTROL BY SLIDING MODE CONTROL AND DISTURBANCE OBSERVER	844
<i>Rodrigo P. Vieira, Thieli S. Gabbi, Hilton A. Gründling</i>	

SENSORLESS PERMANENT MAGNET SYNCHRONOUS DRIVE WITH DTC BASED ON HIGH FREQUENCY INJECTIONS	850
<i>Tomas Glasberger, Vendula Muzikova, Vaclav Smidl, Zdenek Peroutka</i>	
SENSORLESS SPEED ESTIMATION FOR INDUCTIONS MOTORS USING SLOT HARMONICS AND TIME-BASED FREQUENCY ESTIMATION	857
<i>Luiz Roque, Jonas Silva, Luiz Silva</i>	
SHORT CIRCUIT ANALYSIS OF SWITCHED RELUCTANCE MACHINE	863
<i>Wei Wang, Babak Fahimi</i>	
SIMULATION OF A TOROIDAL WOUND FLUX-SWITCHING PERMANENT MAGNET MACHINE	869
<i>Andreas Lindner, Ingo Hahn</i>	
SIMULATION OF THE REMANENCE INFLUENCE ON THE TRANSIENT STATES OF THE SINGLE-PHASE TRANSFORMER INCLUDING FEEDBACK PREISACH MODEL	875
<i>Andrzej Wilk, Michal Michna, Artur Cichowski</i>	
SIX-PHASE INDUCTION MACHINE MODEL FOR SIMULATION AND CONTROL PURPOSES	881
<i>Amine Yazidi, Alin Pantea, Franck Betin, Sebastien Carriere, Humberto Henao, Gerard Capolino</i>	
SIX-PHASE OPEN-END MACHINE CONVERSION SYSTEM WITH REDUCED NUMBER OF CONTROLLED COMPONENTS	888
<i>Victor F. M. B. Melo, Cursino B. Jacobina, Nady Rocha, Nusteniil S. Marinus</i>	
SLIDING MODE OBSERVER COMBINED WITH FUNDAMENTAL PWM EXCITATION FOR SENSORLESS CONTROL OF IPMSM DRIVE	895
<i>Dan Xiao, De Qi Guan, Faz Rahman, John Fletcher</i>	
SPEED SENSORLESS PMSM MOTOR DRIVE SYSTEM BASED ON FOUR-SWITCH THREE-PHASE CONVERTER	902
<i>Eisenhauer de M. Fernandes, Montie A. Vitorino, Welflen R. N. Santos</i>	
SSFR TEST OF SYNCHRONOUS MACHINE FOR DIFFERENT SATURATION LEVELS USING FINITE-ELEMENT METHOD	907
<i>Filip Kutt, Szymon Racewicz, Michal Michna</i>	
STUDY AND IMPLEMENTATION OF SENSORLESS SPEED CONTROL OF INTERIOR PERMANENT MAGNET MOTOR FROM ZERO TO VERY HIGH SPEED	912
<i>Dragos Ovidiu Kisck, Dragos Sorin Anghel, Mariana Kisck, Ji Won Kim</i>	
TEST RIG FOR INDUCTION MOTOR QUASI-STATIC ELECTROMECHANICAL CHARACTERISTIC DETERMINATION	919
<i>Eric Armando, Aldo Boglietti, Radu Bojoi, Andrea Cavagnino, Alberto Tenconi</i>	
TORQUE RIPPLE MINIMIZATION OF PMSM USING PI TYPE ITERATIVE LEARNING CONTROL	925
<i>Yan Yan, Wenshan Li, Weitao Deng, Guozheng Zhang, Changliang Xia</i>	
USE OF HIGHER ORDER SLIDING MODES FOR PARAMETER COMPENSATION IN INDUCTION MOTOR DRIVES	932
<i>A. V. Ravi Teja, C Chakraborty</i>	
VOLTAGE LIMITER FOR IPMSMS DRIVE ON MAXIMUM TORQUE CONTROL FRAME	938
<i>Yuki Makaino, Takumi Ohnuma, Shinji Doki</i>	
VSI LOSS EVALUATION OF DFIM DRIVES FOR ELECTRICAL NAVAL PROPULSION	943
<i>Mustapha Debbou, Maria Pietrzak-David</i>	
WEIGHT OPTIMIZATION OF A MACHINE FOR AIRBORNE WIND TURBINES	950
<i>Christoph Gammeter, Yannick Drapela, Arda Tüysüz, Johann W. Kolar</i>	
WINDING CONCEPTS FOR ULTRA RELIABLE ELECTRICAL MACHINES	959
<i>Puvan Arumugam, Davide Barater, Tahar Hamiti, Chris Gerada</i>	
WOUND-ROTOR IM DIAGNOSIS METHOD BASED ON NEUTRAL VOLTAGE SIGNAL ANALYSIS	965
<i>Dahi Khalid, Elhani Soumia, Guedira Said</i>	
ZERO-SEQUENCE CURRENT SUPPRESSION FOR PARALLEL-CONNECTED OPEN-WINDING PERMANENT MAGNET SYNCHRONOUS GENERATION SYSTEM	972
<i>Qingqing Zheng, Jiadan Wei, Bo Zhou, Jian He, Xianghao Kong, Le Zhang</i>	

POWER ELECTRONICS

13.56MHZ CLASS-E RF POWER AMPLIFIER USING NORMALLY-ON GAN HEMT	982
<i>Masayuki Okamoto, Koyo Matsuzaki, Hiroaki Yamada, Toshihiko Tanaka, Tamotsu Hashizume</i>	
19 LEVEL DODECAGONAL VOLTAGE SPACE VECTOR STRUCTURE FOR MEDIUM VOLTAGE IM DRIVE	988
<i>Gopakumar K, Sudharshan Kaarthik, Istvan Nagy, Carlo Cecati</i>	
A COMPACT POWER CONVERTER FOR HYBRID ENERGY SYSTEMS	995
<i>Jun Cai, Qing-Chang Zhong, David Stone</i>	
A COMPARISON AMONG PID, SLIDING MODE AND INTERNAL MODEL CONTROL FOR A BUCK CONVERTER	1001
<i>Arnab Ghosh, Mangal Prakash, Sourav Pradhan, Subrata Banerjee</i>	
A DETERMINISTIC HARMONICS MITIGATION TECHNIQUE FOR FIVE-LEVEL INVERTERS	1007
<i>Concettina Buccella, Carlo Cecati, Maria Gabriella Cimatori, Kaveh Razi</i>	
A DISTRIBUTED PWM STRATEGY FOR MODULAR MULTILEVEL CONVERTER	1014
<i>Suman Debnath, Jiangchao Qin, Maryam Saeedifard</i>	

A DOUBLE-BAND HYSTERESIS CONTROL APPROACH FOR THREE-PHASE FOUR-SWITCH ACTIVE FILTERS WITH SWITCHING FREQUENCY MITIGATION	1021
<i>Hasan Komurcugil, Osman Kukrer</i>	
A FREQUENCY ADAPTIVE SINGLE-PHASE PHASE-LOCKED LOOP WITH HARMONIC REJECTION	1028
<i>Hossein Sagha, Gerard Ledwich, Arindam Ghosh, Ghavameddin Nourbakhsh</i>	
A HIGH STEP-UP TRANSFORMERLESS DC/DC CONVERTER WITH FLAT EFFICIENCY	1034
<i>Mike Ranjram, Gregor Simeonov, Peter W. Lehn</i>	
A HYBRID CASCADE H-BRIDGE SEVEN-LEVEL CONVERTER FOR ACTIVE POWER FILTER	1041
<i>Zhong Chen, Zhihui Wang, Mengnan Li</i>	
A LOW COST HIGH RELIABLE HYBRID SWITCH SINGLE PHASE GRID-TIED INVERTER	1048
<i>Rajesh S. Farswan, B. G. Fernandes</i>	
A MINIMUM INFINITY NORM BASED PWM MODULATOR FOR FOUR-LEG THREE-PHASE CONVERTERS	1053
<i>Tomas Glasberger, Tomas Komrska, Zdenek Peroutka</i>	
A NEW ACTIVE COMMON-MODE VOLTAGE ELIMINATION METHOD FOR THREE-LEVEL NEUTRAL-POINT CLAMPED INVERTERS	1060
<i>Hadi Alawieh, Kambiz Arab Tehrani, Yacine Azzouz, Brayima Dakyo</i>	
A NEW H-BRIDGE NNPC CONVERTER FOR 10KV CLASS MOTOR DRIVES	1067
<i>Mehdi Narimani, Bin Wu, Kai Tian, Zhongyuan Cheng, Navid Reza Zargari</i>	
A NEW METHOD FOR FAST SHORT CIRCUIT PROTECTION OF IGBTs	1072
<i>Ignacio Lizama, Rodrigo Alvarez, Steffen Bernet, Martin Wagner</i>	
A NEW NINE-LEVEL BOOST PWM RECTIFIER BASED ON STACKED MULTILEVEL CONCEPTS	1077
<i>Dan Floricau, Dragos Ovidiu Kisk</i>	
A NEW STEP-UP DC/DC RESONANT CONVERTER WITH A CAPACITIVE OUTPUT FILTER FOR MEDIUM VOLTAGE (MV) DC GRID IN WIND ENERGY POWER SYSTEMS	1084
<i>John Lam, Praveen Jain</i>	
A NON-LINEAR WIDE BANDWIDTH DIGITAL CURRENT CONTROLLER FOR DC-DC AND DC-AC CONVERTERS	1090
<i>Simone Buso, Tommaso Caldognetto</i>	
A NOVEL CAPACITOR-SWITCHED ACTIVE SNUBBER FOR SINGLE-MODULE AND INTERLEAVED TWO-MODULE BIDIRECTIONAL BUCK-BOOST CONVERTER TOPOLOGIES	1097
<i>Kun Zhuge, Mehrdad Kazerani</i>	
A NOVEL CONTROL METHOD FOR NEUTRAL POINT CLAMPED INVERTERS WITH A SINGLE Z-SOURCE NETWORK	1104
<i>Xing Xiangyang, Chen Alian, Wang Weisheng, Zhang Chenghui, Vahid Najmi</i>	
A NOVEL HIGH POWER DENSITY DUAL-BUCK INVERTER WITH COUPLED FILTER INDUCTORS	1111
<i>Jianghua Xie, Fanghua Zhang, Ren Ren, Xudong Wang, Jinlong Wang</i>	
A NOVEL LEAST NORM-BASED PWM FOR A FOUR-LEG EARTH FAULT COMPENSATOR	1118
<i>Tomas Komrska, Zdenek Peroutka, Ivan Matuljak</i>	
A PCA-MRVM FAULT DIAGNOSIS STRATEGY AND ITS APPLICATION IN CHMLIS	1124
<i>Hao Xu, Tianzhen Wang, Tianhao Tang, M.E.H. Benbouzid</i>	
A PUSH-PULL DC-AC HIGH FREQUENCY POWER ELECTRONICS TRANSFORMER FOR PHOTOVOLTAIC APPLICATIONS	1131
<i>Ruben Otero-De-Leon, Ned Mohan</i>	
A SINGLE-PHASE INTEGRATED BIDIRECTIONAL PLUG-IN HYBRID ELECTRIC VEHICLE BATTERY CHARGER	1137
<i>Seyyedmilad Ebrahimi, Milad Taghavi, Farzad Tahami, Hashem Oraee</i>	
A THREE-PHASE FOUR-WIRE THREE-LEVEL ACTIVE POWER FILTER BASED ON ONE-CYCLE CONTROL	1143
<i>Jian Hu, Zhaohui Sun, Ajmal Farooq, Guozhu Chen</i>	
A TRANSFORMERLESS SINGLE-PHASE PV INVERTER CIRCUIT FOR THIN-FILM OR BACK-SIDE CONTACTED SOLAR MODULES	1148
<i>Mario Gommeringer, Felix Kammerer, Alexander Schmitt, Michael Braun</i>	
A UNIPOLAR PWM STRATEGY FOR HYBRID CASCADED MULTILEVEL CONVERTERS	1154
<i>Zhong Chen, Zhihui Wang, Yayun Liu, Yingpeng Luo</i>	
A VARIABLE-FREQUENCY ONE-CYCLE CONTROL FOR BCM FLYBACK CONVERTER TO ACHIEVE UNIT POWER FACTOR	1161
<i>Hanjing Dong, Xiaogao Xie, Kunsheng Peng, Jiangsong Li, Chen Zhao</i>	
A VOLTAGE REFERENCE DESIGN FOR THREE-PHASE DIFFERENTIAL INVERTERS	1167
<i>Behnam Koushki, S. Ali Khajehoddin, S. Morteza Saghaian-Nejad, Jafar Ghaisari, Praveen Jain, Alireza Bakhshai</i>	
AC-AC MODULAR MULTILEVEL CONVERTER APPLIED TO SOLID-STATE TRANSFORMERS	1174
<i>Sérgio Oliveira, Yales Novaes, Daniel Castellain, Eduardo Brandt, Nilton Cardoso, Murilo Rosa, Iony Pires</i>	
ACTIVE VOLTAGE BALANCING OF REDUCED STACKED MULTICELL CONVERTER AND ITS APPLICATION IN STATIC VAR COMPENSATION	1181
<i>Vahid Dargahi, Arash Khoshkbar Sadig, Soheila Eskandari, Keith Corzine</i>	
ADAPTIVE AC FILTER PARAMETERS IDENTIFICATION OF THREE-PHASE PWM RECTIFIERS	1188
<i>Ali Bechouche, Djaffar Ould Abdeslam, Hamid Seddiki, Koussaila Mesbah</i>	
ADAPTIVE NOTCH FILTERS: COMPARISON AND APPLICATIONS IN POWER CONDITIONING	1194
<i>Silvia Costa Ferreira, Robson Bauwels Gonzatti, Rondineli Rodrigues Pereira, Carlos Henrique da Silva, Luiz Eduardo Borges da Silva, Germano Lambert-Torres</i>	

AN ADVANCED MULTILEVEL CONVERTER TOPOLOGY WITH REDUCED SWITCHING ELEMENTS	1201
<i>Aboubakr Salem, Moataz Elsieid, Joachim Druant, Frederik DeBelie, Amrane Oukaour, Hamied Gualous, Jan Melkebeek</i>	
AN ALTERNATIVE CARRIER BASED IMPLEMENTATION OF SVPWM FOR DUAL MATRIX CONVERTER DRIVE WITH COMMON MODE VOLTAGE ELIMINATION	1208
<i>Rohit Baranwal, Kaushik Basu, Ned Mohan</i>	
AN EFFICIENCY COMPARISON BETWEEN A 18 PULSES DIODE RECTIFIER AND A MULTI-CELL AFE RECTIFIER OPERATING WITH FCS - MPC	1214
<i>Eduardo Espinosa, Jose Espinoza, Jaime Rohten, Roberto Ramirez, Marcelo Reyes, Javier Muñoz, Pedro Melin</i>	
AN EFFICIENT METHOD TO CALCULATE OPTIMAL PULSE PATTERNS FOR MEDIUM VOLTAGE CONVERTERS	1221
<i>Reza Fotouhi, Lukas Leitner, Ralph Kennel, Hendrik du Toit Mouton</i>	
AN H-INFINITY FEEDBACK CONTROL APPROACH FOR THREE-PHASE VOLTAGE SOURCE CONVERTERS	1227
<i>Gerasimos Rigatos, Pierluigi Siano, Carlo Cecati</i>	
AN IMPROVED MODEL PREDICTIVE CONTROL FOR ONLINE PWM SEQUENCE SELECTION APPLIED ON CONVERTER	1233
<i>Martin Gendrin, Jean-Yves Gauthier, Xuefang Lin-Shi</i>	
AN IMPROVED VOLTAGE COMPENSATION METHOD FOR DROOP-CONTROLLED SYSTEM IN DC MICROGRID	1240
<i>Fei Gao, Serhiy Bozhko, Greg Asher, Pat Wheeler</i>	
AN OPTIMIZED MODULATION METHOD FOR FULL-BRIDGE/PUSH-PULL BI-DIRECTIONAL DC-DC CONVERTER WITH WIDE-RANGE ZVS AND REDUCED SPIKE VOLTAGE	1247
<i>Guipeng Chen, Hao Peng</i>	
ANALYSIS AND SYNTHESIS OF RECONFIGURABLE DIGITAL PULSE TRAIN CONTROL IN A DCM BUCK CONVERTER	1254
<i>Santanu Kapat</i>	
ANALYSIS OF AN EFFECTIVE VOLTAGE SHARING METHOD FOR IGBTs CONNECTED IN SERIES	1261
<i>Jin Zhang, Patrick R. Palmer, Xueqiang Zhang, Weiwei He</i>	
BIDIRECTIONAL CASCADED QUASI-Z-SOURCE DC-DC CONVERTER	1270
<i>Takaharu Sato, Takayuki Shimo, Taro Takiguchi, Hirotaka Koizumi</i>	
BRIDGELESS PFC SEPIC RECTIFIER WITH EXTENDED GAIN FOR UNIVERSAL INPUT VOLTAGE APPLICATIONS	1277
<i>Ahmed AlGabri, Abbas Fardoun, Esam Ismail</i>	
CIRCUIT-LEVEL CHARACTERIZATION AND LOSS MODELING OF SIC-BASED POWER ELECTRONIC CONVERTERS	1291
<i>Lakshmi Ravi, Eric L Severson, Saurabh Tewari, Ned Mohan</i>	
CMOS INTEGRATED OPTICAL ISOLATOR FOR POWER TRANSISTOR GATE DRIVER	1298
<i>Thanh-Long Le, Jean Christophe Crebier, Nicolas Rouger</i>	
COMBINED USE OF DOUBLE-BAND HYSTERESIS CURRENT AND PROPORTIONAL RESONANT CONTROL METHODS FOR SINGLE-PHASE UPS INVERTERS	1305
<i>Hasan Komurcugil</i>	
COMMON MODE NOISE GENERATION AND FILTER DESIGN FOR HARD SWITCHED ISOLATED FULL-BRIDGE FORWARD CONVERTER	1312
<i>Ishiyag Ahmed Makda, Morten Nymand</i>	
COMPARATIVE STUDY OF SINGLE-PHASE PLLS BASED ON PI CONTROLLER DESIGN AND A NONLINEAR FUZZY SYNCHRONISM ALGORITHM	1318
<i>Thiago Brasil, Mauricio Aredes, Edson Watanabe</i>	
COMPARISON OF PWM AC CHOPPER TOPOLOGIES	1325
<i>Marc Hagemeyer, Jitendra Solanki, Norbert Fröhleke, Joachim Böcker, Andreas Averborg, Peter Wallmeier</i>	
COMPREHENSIVE DISTORTION COMPENSATION OF GRID-CONNECTED INVERTER CURRENTS	1331
<i>Artur Cichowski, Piotr Banach, Wojciech Sleszynski, Janusz Nieznanski</i>	
COMPARISON OF THREE IMPLEMENTATIONS OF DIGITAL AVERAGE CURRENT CONTROL FOR DC-DC CONVERTERS	1337
<i>Siyu He, Robert Mark Nelms</i>	
CONTROLLED RECTIFIER FIVE-LEVEL FOUR-SWITCH TOPOLOGY	1343
<i>Eduardo De Souza, Omar Nezamuddin, Euzeli Dos Santos, Sally Sajadian</i>	
CURRENT SHARING MODEL OF PARALLEL CONNECTED IGBTs DURING TURN-ON	1350
<i>Yawei Xiao, Qinwei Liu, Yunyu Tang, Li Du, Hao Ma</i>	
DC CAPACITOR VOLTAGE BALANCING CONTROL OF CASCADED STATIC SYNCHRONOUS COMPENSATOR	1356
<i>Gang Yao</i>	
DC MICROGRID DYNAMIC PERFORMANCE ASSESSMENT AND ENHANCEMENT BASED ON VIRTUAL IMPEDANCE METHOD	1363
<i>Dong Chen, Lie Xu</i>	
DESIGN AND CONTROL OF BIDIRECTIONAL RESONANT CONVERTER FOR VEHICLE-TO-GRID (V2G) APPLICATIONS	1370
<i>Zaka Ullah Zahid, Zakariya Dalala, Jih-Sheng Lai</i>	
DESIGN AND IMPLEMENTATION OF THREE PHASE THREE LEVEL SHUNT ACTIVE POWER FILTER FOR HARMONIC REDUCTION	1377
<i>Elango Sundaram, Manikandan Venugopal</i>	

DESIGN CONSIDERATIONS TO REDUCE GAP VARIATION AND MISALIGNMENT EFFECTS FOR INDUCTIVE POWER TRANSFER SYSTEM.....	1384
<i>Cong Zheng, Rui Chen, Jih-Sheng Lai</i>	
DESIGN EQUATIONS FOR SELECTIVE HARMONIC ELIMINATION AND MICROCONTROLLER IMPLEMENTATION.....	1391
<i>Hirak Patangia, Sraddhanjoli Bhadra</i>	
DESIGN METHODOLOGY TO IMPROVE THE CONVERTERS' EFFICIENCY APPLIED TO PHOTOVOLTAIC SYSTEMS.....	1397
<i>Fernando Beltrame, Hamiltom C. Sartori, Fabrício H. Dupont, José Renes Pinheiro</i>	
DESIGN OF A DC-DC CONVERTER WITH HIGH VOLTAGE GAIN FOR PHOTOVOLTAIC-BASED MICROGENERATION.....	1404
<i>Filipe Pereira, Antonio Martins, Adriano Carvalho</i>	
DESIGN OF A SIMPLE MODULAR ACTIVE POWER ELECTRONIC TRANSFORMER.....	1410
<i>Ryszard Strzelecki, Indrek Roasto, Enrique Romero-Cadaval</i>	
DEVELOPMENT OF A MODELING PLATFORM FOR 4.5 KV IGBT POWER MODULES.....	1416
<i>Georgios Sfakianakis, Muhammad Nawaz</i>	
DISTRIBUTION STATCOM INTEGRATED TO A SINGLE-PHASE TO THREE-PHASE CONVERTER.....	1423
<i>Rafael Zanatta Scapini, Leandro Michels, Cassiano Rech, Tiago Bandeira Marchesan, Luciano Schuch, Robinson Figueiredo de Camargo</i>	
EFFICIENCY IMPROVEMENT OF SWITCHED-MODE POWER CONVERTERS UNDER LIGHT-LOAD CONDITIONS.....	1430
<i>Hector Sarnago, Oscar Lucia, Jose M. Burdio</i>	
EFFICIENCY MEASUREMENT OF WHITE LED DEVICE.....	1434
<i>Ahmed Zurf, Dallas Tompkins, Jing Zhang</i>	
ENERGY RECOVERY POWER SUPPLY FOR PIEZOELECTRIC ACTUATOR.....	1440
<i>Dejan Vasic, Francois Costa</i>	
EXPERIMENTAL VERIFICATION OF A MULTI-LEVEL INVERTER WITH H-BRIDGE CLAMP CIRCUIT FOR SINGLE-PHASE THREE-WIRE GRID CONNECTION.....	1446
<i>Jun-ichi Itoh, Takayuki Karaki, Yuichi Noge</i>	
EXPERIMENTAL VERIFICATION OF WIRELESS CHARGING SYSTEM FOR VEHICLE APPLICATION USING EDLCS.....	1453
<i>Jun-ichi Itoh, Kenji Noguchi, Koji Orikawa</i>	
FEED-FORWARD DYNAMIC COMPENSATION CONTROL FOR SINGLE-STAGE PFC LED DRIVER TO ELIMINATE FLICKER TO HUMAN EYES DURING AC INPUT VOLTAGE VARIATION.....	1460
<i>Hanjing Dong, Xiaogao Xie, Kunsheng Peng, Jiangsong Li, Chen Zhao</i>	
FIELD ORIENTED CONTROL OF AN AXIAL FLUX PERMANENT MAGNET SYNCHRONOUS MOTOR FOR TRACTION SOLUTIONS.....	1466
<i>Delfim Pedrosa, Jorge Carvalho, Henrique Gonçalves, Vitor Monteiro, Aparicio Fernandes, João L. Afonso</i>	
FLUX AND WINDING CURRENT BALANCING CONTROL FOR A MEDIUM-FREQUENCY SIX-WINDING TRANSFORMER.....	1473
<i>Arto Sankala, Juhamatti Korhonen, Janne Hannonen, Juha-Pekka Ström, Pertti Silventoinen, Hannu Sarén, Risto Komulainen, Stefan Strandberg, Nicklas Södö</i>	
FPGA BASED CONTROL BOARD DEVELOPMENT FOR MEDIUM-VOLTAGE HIGH-POWER THREE-PHASE DUAL ACTIVE BRIDGE CONVERTER.....	1487
<i>Awneesh K. Tripathi, Mihir Shah, Kamallesh Hatua, Sachin Madhusoodhanan, Subhashish Bhattacharya</i>	
FULL-ORDER OBSERVER BASED IGBT TEMPERATURE ONLINE ESTIMATION.....	1494
<i>Xiang Wang, Alberto Castellazzi, Pericle Zanchetta</i>	
GAN-BASED SINGLE PHASE BRUSHLESS DC MOTOR DRIVE FOR HIGH SPEED APPLICATIONS.....	1499
<i>Woongkul Lee, Di Han, Bulent Sarlioglu</i>	
HYBRID FIVE-LEVEL T-TYPE INVERTER.....	1506
<i>Juhamatti Korhonen, Arto Sankala, Juha-Pekka Ström, Pertti Silventoinen</i>	
IMPACT OF THE MODULARITY ON THE EFFICIENCY OF SMART TRANSFORMER SOLUTIONS.....	1512
<i>Giuseppe Quartarone, Marco Liserre, Friedrich Fuchs, Norma Anglani, Giampaolo Buticchi</i>	
IMPLEMENTATION AND COMPARISON OF DIFFERENT SWITCHING TECHNIQUES FOR SHUNT ACTIVE POWER FILTERS.....	1519
<i>Angelo Araújo, J. G. Pinto, Bruno Exposto, Carlos Couto, João L. Afonso</i>	
IMPLEMENTATION OF AN INTEGRATED BATTERY-CHARGER FOR AN ELECTRIC-PROPULSION SYATEM.....	1526
<i>Tian-Hua Liu, Pei-Heng Yi, Jui-Ling Chen</i>	
IMPROVED SPACE VECTOR MODULATION FOR MATRIX CONVERTER BASED ISOLATED RECTIFIERS.....	1532
<i>Tao Zhao, Xiaoqiang Guo, Jianhui Su, David Xu</i>	
IMPROVING PERFORMANCE OF SINGLE-PHASE SOGI-FLL UNDER DC-OFFSET VOLTAGE CONDITION.....	1537
<i>Tuan Ngo, Quan Nguyen</i>	
INFLUENCE OF BI-DIRECTIONAL POWER FLOW ON IMPEDANCE AND STABILITY OF CASCADED SYSTEMS.....	1542
<i>Yinglai Xia, Ayyanar Raja</i>	

INTEGRATED DC-DC BASED-GAN CONVERTER WITH SCREEN PRINTED CAPACITORS ALLOWING DOUBLE SIDE COOLING	1549
<i>Olivier Goulard, Nicolas Videau, Thierry Meynard, Thi Bang Doan, Thierry Lebey, Vincent Bley, Emmanuel Sarraute</i>	
INTERHARMONIC ANALYSIS AND MITIGATION IN ADJUSTABLE SPEED DRIVES	1556
<i>Hamid Soltani, Poh Chiang Loh, Frede Blaabjerg, Firuz Zare</i>	
INVESTIGATION AND COMPARISON OF CASCADED H-BRIDGE AND MODULAR MULTILEVEL CONVERTER TOPOLOGIES FOR MEDIUM VOLTAGE DRIVE APPLICATION	1562
<i>Alinaghi Marzoughi, Rolando Burgos, Dushan Boroyevich, Yaosuo Xue</i>	
INVESTIGATION OF SENSORLESS CAPACITOR VOLTAGE BALANCING TECHNIQUE FOR MODULAR MULTILEVEL CONVERTERS	1569
<i>Ahmed Elserougi, Mohamed Daoud, Ahmed Massoud, Ayman Abdel-khalik, Shehab Ahmed</i>	
LAYERED ELECTRO-THERMAL MODEL OF HIGH-END INTEGRATED POWER ELECTRONICS MODULES WITH IGBTs	1575
<i>Angelo Raciiti, Davide Cristaldi, Giuseppe Greco, Giovanni Vinci, Gaetano Bazzano</i>	
LOAD CURRENT FEEDFORWARD CONTROL OF BOOST CONVERTER FOR DOWNSIZING OUTPUT FILTER CAPACITOR	1581
<i>Daisuke Takei, Hiroshi Fujimoto, Yoichi Hori</i>	
LOSSES OF CONVERTERS WITH IRON AND AMORPHOUS CORE AC-FILTER INDUCTORS IN LVDC DISTRIBUTION	1587
<i>Jenni Rekola, Juha Jokipii, Teuvo Suntio</i>	
LOW LOSS AND LOW NOISE GATE DRIVER FOR SIC-MOSFET WITH GATE BOOST CIRCUIT	1594
<i>Koji Yamaguchi</i>	
MEDIUM FREQUENCY SOFT SWITCHING DC/DC CONVERTER FOR HVDC TRANSMISSION SYSTEM	1599
<i>Tao Li, Leila Parsa</i>	
MIDDLE-STAGE CURRENT-FED HIGH-FREQUENCY-LINK INVERTER (MSCF-HFLI)	1606
<i>Jiarong Kan, Shaojun Xie, Yu Tang</i>	
MODEL PREDICTIVE CONTROL FOR ASYMMETRICAL CASCADED H-BRIDGE MULTILEVEL GRID-CONNECTED INVERTER WITH FLYING CAPACITOR	1611
<i>Jingang Han, Tengfei Yang, Dongkai Peng, Tianzhen Wang, Gang Yao</i>	
MODULAR MULTILEVEL BTB CONVERTER WITH PARALLEL CELLS	1617
<i>Jorge Almaguer, Victor Cardenas, Homero Miranda, Janeth Alcalá</i>	
NEW OPEN LOOP CONTROL TECHNIQUE OF BOOST CONVERTER TO MITIGATE TEMPERATURE IMPACT FOR LED APPLICATIONS	1624
<i>Hone-Lin Chiang, Yen-Shin Lai</i>	
NOVEL CONTINUOUS SPACE VECTOR MODULATION IN CASCADED MULTILEVEL CONVERTERS	1629
<i>Tomás Durán, Javier Pereda</i>	
ON-BOARD ELECTRIC VEHICLE BATTERY CHARGER WITH ENHANCED V2H OPERATION MODE	1636
<i>Vitor Monteiro, Bruno Exposto, G. P. Pinto, Raul Almeida, João C. Ferreira, Andrés A. Nogueiras Meléndez, João L. Afonso</i>	
OPEN-LOOP SMALL-SIGNAL TRANSFER FUNCTIONS OF THE QUADRATIC BUCK PWM DC-DC CONVERTER IN CCM	1643
<i>Agasthya Ayachit, Marian Kazimierzczuk</i>	
OPERATION OF MODULAR MULTILEVEL MATRIX CONVERTERS WITH FAILED BRANCHES	1650
<i>Dennis Karwatcki, Malte von Hofen, Lennart Baruschka, Axel Mertens</i>	
OPTIMAL DESIGN METHODOLOGY OF BIDIRECTIONAL LLC RESONANT DC/DC CONVERTER FOR SOLID STATE TRANSFORMER APPLICATION	1657
<i>Kai Tan, Ruiyang Yu, Sixuan Guo, Alex Huang</i>	
OPTIMIZATION CONTROLLER DESIGN OF CACZVS THREE PHASE PFC CONVERTER USING PARTICLE SWARM OPTIMIZATION	1665
<i>Hai-Peng Ren, Xin Guo</i>	
OPTIMIZED DESIGN OF A SCALABLE FPGA BASED INVERTER BY IMPLEMENTING AN APPLICATION-SPECIFIC INSTRUCTION-SET PROCESSOR	1672
<i>Alexander Bartsch, Karsten Klitzke, Florian Senicar, Stefan Soter</i>	
OUTPUT IMPEDANCE OF PEAK CURRENT-MODE CONTROLLED PWM DC-DC CONVERTERS WITH ONLY INNER LOOP CLOSED IN CCM	1679
<i>Nisha Kondrath, Marian Kazimierzczuk</i>	
PARALLEL AC-DC SINGLE-PHASE ASYMMETRICAL BOOST RECTIFIERS	1686
<i>Nusteniil Segundo de Moraes Lima Marinus, Cursino Brandão Jacobina, Nady Rocha, Rodolpho Cavalcanti</i>	
PARALLEL INTERLEAVED VSCS: INFLUENCE OF THE PWM SCHEME ON THE DESIGN OF THE COUPLED INDUCTOR	1693
<i>Ghanshyamsinh Gohil, Lorand Bede, RamKrishan Maheshwari, Remus Teodorescu, Tamas Kerekes, Frede Blaabjerg</i>	
PASSIVITY-BASED STABILIZATION OF VOLTAGE-SOURCE CONVERTERS EQUIPPED WITH LCL INPUT FILTERS	1700
<i>Lennart Harnefors, Alejandro Yepes, Ana Vidal, Jesus Doval-Gandoy</i>	
PERFORMANCE EVALUATION OF CONVERTER TOPOLOGIES FOR HIGH SPEED STARTER/GENERATOR IN AIRCRAFT APPLICATIONS	1707
<i>Giovanni Lo Calzo, Pericle Zanchetta, Christopher Gerada, Alessandro Lidozzi, Marco Degano, Fabio Crescimbeni, Luca Solero</i>	
PERFORMANCE IMPROVEMENT OF THREE PHASE RECTIFIER BY EMPLOYING ELECTRONIC SMOOTHING INDUCTOR	1713
<i>Yash Veer Singh, Peter Omand Rasmussen, Torben Ole Andersen</i>	

PREDICTIVE CONTROL OF MODULAR CURRENT SOURCE CONVERTERS	1720
<i>Johan Guzman, Marcelo Perez, Carlos Baier, Pedro Melin, Jose Espinoza</i>	
PULSED CURRENT SOURCE WITH ACTIVE CONTROL OF THE ON-TIME-CURRENT FOR LED LAMP DRIVER APPLICATIONS	1727
<i>Christian Brañas, Francisco Azcondo, Rosario Casanueva, Javier Diaz</i>	
REAL-TIME IMPLEMENTATION OF D-Q CONTROL FOR GRID CONNECTED THREE PHASE VOLTAGE SOURCE CONVERTER	1733
<i>Aziddin M. Razali, M. Azizur Rahman, Abdul Rahim Nasrudin</i>	
REDUCTION OF THERMAL CYCLING TO INCREASE THE LIFETIME OF MOSFET MOTOR DRIVES	1740
<i>Nico H. Baars, Korneel G. E. Wijnands, Jorge L. Duarte</i>	
RESONANT CIRCUIT FOR THE REDUCTION OF THE POWER PULSATION IN THE DC-LINK OF A SINGLE PHASE ZSI	1747
<i>Manuel Steinbring, Mario Pacas</i>	
RESONANT CONTROL FOR MULTI-CELL CASCADED H-BRIDGE TOPOLOGIES BASED ON CURRENT SOURCE INVERTERS	1754
<i>Jaime Rohden, Pedro Melin, Jose Espinoza, Jose Silva, Eduardo Espinosa, Javier Muñoz, Carlos Baier</i>	
ROBUST AND FINE SINUSOIDAL VOLTAGE CONTROL OF SELF-SUSTAINED OPERATION MODE FOR PHOTOVOLTAIC GENERATION SYSTEM	1760
<i>Kenta Sayama, Shohei Anze, Kiyoshi Ohishi, Hitoshi Haga, Takayuki Shimizu</i>	
SELECTIVE HARMONIC ELIMINATION FOR A NPC CONVERTER USING MODIFIED CARRIER SIGNALS	1766
<i>Ines Sanz, Emilio Bueno, Francisco Javier Rodriguez, Miguel Moranchel, Javier Mingo</i>	
SENSORLESS ADAPTIVE CONTROL OF RESONANT SNUBBER INVERTER FOR PHOTOVOLTAIC APPLICATIONS	1772
<i>Eric Faraci, Jih-Sheng Lai</i>	
SIMPLE TIME DOMAIN ANALYSIS OF NATURAL BALANCING IN FLYING CAPACITOR STACKED MULTICELL CONVERTERS	1779
<i>Nursultan Ornov, Alex Ruderman</i>	
SIMULATION AND ANALYSIS OF FAULTS IN HIGH VOLTAGE DC (HVDC) POWER TRANSMISSION	1786
<i>Manickam Karthikeyan, Yew Ming Yeap, Abhisek Ukil</i>	
SOFT SWITCHED COUPLED INDUCTOR BASED HIGH STEP UP CONVERTER FOR DISTRIBUTED ENERGY RESOURCES	1799
<i>Shelas Sathyan, Hiralal Murlidhar Suryawanshi, Amardeep Shitole</i>	
SOFT SWITCHING CELLS FOR HIGH-POWER CONVERTERS	1806
<i>Mathijs Heuvelmans, Tomas Modéer, Staffan Norrga</i>	
SPACE VECTOR MODULATED FOUR-QUADRANT ACTIVE CURRENT-SOURCE RECTIFIER WITH DFT BASED POWER FACTOR CONTROL FOR DC MOTOR DRIVE	1813
<i>Jan Michalik, Jan Molnar, Zdenek Peroutka</i>	
STABILIZATION OF A DISTRIBUTED DC POWER SYSTEM BY SHAPING LOADS INPUT IMPEDANCE: FEEDFORWARD STABILIZATION	1820
<i>Sergio Pulido Casado, Jean-Philippe Martin, Babak Nahid-Mobarakeh, Serge Pierfederici</i>	
STATIC BALANCING OF THE COLLECTOR CURRENT OF IGBTs CONNECTED IN PARALLEL	1827
<i>Ignacio Lizama, Rodrigo Alvarez, Steffen Bernet, Martin Wagner</i>	
STUDY OF FAILURE MECHANISM IN THE MODERN IGBT WITH A HIGHLY DOPED N-BUFFER LAYER	1834
<i>Chunlin Zhu, Ian Deviny, Gary Liu, Andy Dai</i>	
STUDY OF LARGE-SIGNAL STABILITY OF AN INVERTER-BASED GENERATOR USING A LYAPUNOV FUNCTION	1840
<i>Fabio Andrade, Konstantinos Kampouropoulos, Luis Romeral, Juan Carlos Vasquez, Josep Guerrero</i>	
SWITCHING FREQUENCY OPTIMIZATION OF A HIGH-FREQUENCY LINK BASED ENERGY STORAGE SYSTEM	1847
<i>Siddharth Kulasekaran, Raja Ayyanar, Stanley Atcitty</i>	
SWITCHING INVESTIGATIONS ON A SIC MOSFET IN A TO-247 PACKAGE	1854
<i>Alexander Anthon, Juan C. Hernandez, Zhe Zhang, Michael A.E. Andersen</i>	
TEAM-ORIENTED ADAPTIVE DROOP CONTROL FOR AUTONOMOUS AC MICROGRIDS	1861
<i>Qobad Shafiq, Vahidreza Nasirian, Josep M. Guerrero, Frank L. Lewis, Ali Davoudi</i>	
TRANSFORMERLESS SINGLE-PHASE MULTILEVEL INVERTER FOR GRID TIED PHOTOVOLTAIC SYSTEMS	1868
<i>Gerardo Vazquez Guzman, Panfilo Raymundo Martinez Rodriguez, Jose Miguel Sosa Zuñiga, Gerardo Escobar Valderrama, Mario Alberto Juarez Balderas</i>	
VIRTUAL LOAD WITH COMMON MODE ACTIVE FILTERING FOR POWER HARDWARE-IN-THE-LOOP TESTING OF POWER ELECTRONIC CONVERTERS	1875
<i>Radu Bojoi, Eric Armando, Stefan Rosu, Silvio Vaschetto, Pietro Soccio</i>	
WIDE-RANGE ZVS PHASE-SHIFTED FULL-BRIDGE CONVERTER WITH LOW CIRCULATION LOSS	1882
<i>Zhong Chen, Mengnan Li, Yang Wang</i>	
ZERO-RIPPLE ANALYSIS METHODS FOR THREE-PORT BIDIRECTIONAL INTEGRATED MAGNETIC CUK CONVERTERS	1889
<i>Suvankar Biswas, Sairaj Dhople, Ned Mohan</i>	

RENEWABLE ENERGY SYSTEMS

A CASSEGRAIN CONCENTRATOR PHOTOVOLTAIC SYSTEM: COMPARISON BETWEEN DICHROIC AND MULTIJUNCTION PHOTOVOLTAIC CONFIGURATIONS	1900
<i>Alfonso Damiano, Donato Vincenti, Stefano Baricordi, Silvia Calabrese, Maura Musio</i>	
A DEADBEAT DIRECT POWER CONTROL APPLIED TO DOUBLY-FED INDUCTION AEROGENERATOR UNDER NORMAL AND SAG VOLTAGES CONDITIONS	1906
<i>A. J. Sguarezi, R. V. Jacomini, R. Franco, Ce Capovilla</i>	
A LOW COST AND RELIABLE SINGLE STAGE FOUR SWITCH PHOTOVOLTAIC SYSTEM	1912
<i>Rajesh S. Farswan, B. G. Fernandes</i>	
A NEW IRRADIANCE SENSORLESS HYBRID MPPT TECHNIQUE FOR PHOTOVOLTAIC POWER PLANTS	1919
<i>Hadeed Sher, Ali Murtaza, Khaled Addoweesh, Kamal Haddad, Marcello Chiaberge</i>	
A NEW WIND TURBINE INTERFACE TO MVDC GRID WITH HIGH FREQUENCY ISOLATION AND INPUT CURRENT SHAPING	1924
<i>Michael Daniel, Harish Krishnamoorthy, Prasad Enjeti</i>	
A NOVEL METHOD TO REPRESENT SOURCES FOR DYNAMIC STABILITY STUDIES IN MICROGRIDS	1931
<i>Nimish Soni, Suryanarayana Doolla, Mukul Chandorkar</i>	
A SIMPLE BI-DIRECTIONAL BRIDGELESS AC/DC BUCK- BOOST CONVERTER FOR AUTOMOTIVE ENERGY HARVESTING	1937
<i>Chen Yu Hsieh, Mehrdad Moallem, Farid Golnaraghi</i>	
A SUBMODULAR BOOST CONVERTER ASIC FOR OUTPUT ENERGY IMPROVEMENTS IN PHOTOVOLTAIC APPLICATIONS	1944
<i>Sebastian Strache, Jan Henning Mueller, Ralf Wunderlich, Stefan Heinen</i>	
A SUGGESTION OF COMBINING A PV MPPT ALGORITHM BASED ON TEMPERATURE CONTROL WITH A PV COOLING SYSTEM	1950
<i>Nuno M. da Rocha, Roberto Coelho, Júlio Passos, Denizar C. Martins</i>	
ACTIVE DAMPING OF TORSIONAL RESONANCE IN WIND TURBINE DRIVETRAINS	1957
<i>Warren White, Zhichao Yu, Cameron Lucero</i>	
ANALYSIS OF MAXIMUM POWER POINT TRACKING ALGORITHMS IN DC-DC BOOST CONVERTERS FOR GRID-TIED PHOTOVOLTAIC SYSTEMS	1971
<i>Maria Mantilla, Giovanni Quiñones, Carol Castellanos, Johann Petit, Gabriel Ordoñez</i>	
APPLICATION OF A SIMULATED ANNEALING TECHNIQUE FOR GLOBAL MAXIMUM POWER POINT TRACKING OF PV MODULES EXPERIENCING PARTIAL SHADING	1977
<i>Sarah Lyden, Md Enamul Haque, Dan Xiao</i>	
APPLICATION OF ANOMALY TECHNIQUE IN WIND TURBINE BEARING FAULT DETECTION	1984
<i>Afroz Purrajomandlangrudi, Ghavameddin Nourbakhsh, Housman Ghaemmaghami, Andy Tan</i>	
CONSTANT POWER LOADS: A SOLUTION USING SLIDING MODE CONTROL	1989
<i>Suresh Singh, Deepak Fulwani</i>	
CONTROL OF A DOUBLY-FED INDUCTION GENERATOR UNDER GRID FAULTS USING A D-Q HYSTERESIS CURRENT REGULATOR	1996
<i>Pavlos Tourou, Philip Dost, Constantinos Sourkounis</i>	
CONTROL STRATEGY FOR IMPROVING THE POWER FLOW BETWEEN HOME INTEGRATED PHOTOVOLTAIC SYSTEM, PLUG-IN HYBRID ELECTRIC VEHICLE AND DISTRIBUTION NETWORK	2003
<i>Fadoul Souleyman-Tidjani, Hamadi Abdelhamid, Ambrish Chandra, Pragasen Pillay</i>	
DAY-AHEAD MICROGRID OPTIMAL SELF-SCHEDULING. COMPARISON BETWEEN THREE METHODS APPLIED TO ISOLATED DC MICROGRID	2010
<i>Leonardo Trigueiro Dos Santos, Manuela Sechilaru, Fabrice Locment</i>	
DESIGN OF AN INTRA-MODULE DC-DC CONVERTER FOR PV APPLICATION: DESIGN CONSIDERATIONS AND PROTOTYPE	2017
<i>Urmimala Chatterjee, Ratmir Gelagaev, Alex Masolin, Johan Driesen</i>	
DESIGN OF BUILDING INTEGRATED PHOTOVOLTAIC SYSTEM TO THE GRID WITH POWER QUALITY IMPROVEMENT FEATURES FOR CENTRAL AFRICAN COUNTRIES	2023
<i>Fadoul Souleyman-Tidjani, Ambrish Chandra, Pragasen Pillay</i>	
DESIGN OF THE TRAP FILTER FOR THE HIGH POWER CONVERTERS WITH PARALLEL INTERLEAVED VSCS	2030
<i>Ghanshyamsinh Gohil, Lorand Bede, Remus Teodorescu, Tamas Kerekes, Frede Blaabjerg</i>	
DETECTION OF STATOR AND ROTOR FAULTS IN A DFIG BASED ON THE STATOR REACTIVE POWER ANALYSIS	2037
<i>Mohsen B. Abadi, Sérgio M. A. Cruz, André P. Gonçalves, Pedro F. C. Gonçalves, André M. S. Mendes, André Ribeiro, Fernando Silva</i>	
DEVELOPMENT OF A TEST BENCH DEDICATED TO CONDITION MONITORING OF WIND TURBINES	2044
<i>Shahin Hedayati Kia, Humberto Henao, Gérard-André Capolino</i>	
DIRECT ACTIVE AND REACTIVE POWER CONTROL OF DFIG BASED WECS USING PI AND SLIDING MODE CONTROLLERS	2050
<i>Doumbia Mamadou Lamine</i>	
DISTRIBUTED CONSENSUS-BASED CONTROL OF MULTIPLE DC-MICROGRIDS CLUSTERS	2056
<i>Qobad Shafiee, Tomislav Dragicevic, Fabio Andrade, Juan C. Vasquez, Josep M. Guerrero</i>	
DISTRIBUTED CONTROL OF DC MICROGRID CONSIDERING DYNAMIC RESPONSES OF MULTIPLE GENERATION UNITS	2063
<i>Nanfang Yang, Damien Paire, Fei Gao, Abdellatif Miraoui</i>	

DYNAMIC PERFORMANCE ANALYSIS OF A PV CHARGER SYSTEM	2069
<i>Reza Ahmadi, Ali Abushaiba, Saleh Eshtaiwi</i>	
EFFECT OF POWER FLOW CONTROL METHODS ON THE DC FAULT RESPONSE OF MULTI-TERMINAL DC NETWORKS	2075
<i>Epaneiondas Kontos, Rodrigo Teixeira Pinto, Pavol Bauer</i>	
ESTIMATION OF SPEED ROTATION FOR MPPT USED BY SMALL SCALE WIND GENERATOR INTEGRATED IN DC MICROGRID	2082
<i>Hossam Al-Ghossini, Hongliang Liu, Fabrice Locment, Manuela Sechilariu</i>	
EXPERIMENTAL COMPARISON OF PHOTOVOLTAIC PANEL OPERATING CELL TEMPERATURE MODELS	2089
<i>Thibault Denoix, Manuela Sechilariu, Fabrice Locment</i>	
EXPERIMENTAL EVALUATION OF AN INTERLEAVED BOOST TOPOLOGY OPTIMIZED FOR PEAK POWER TRACKING CONTROL	2096
<i>Christopher D. Lute, Marcelo G. Simoes, Danilo Brandao, Ahmed Al Durra, S. M. Muyeen</i>	
FREQUENCY ADAPTIVE PR-CONTROLLER FOR COMPENSATION OF CURRENT HARMONICS	2103
<i>Andreas Uphues, Kilian Nötzold, Ralf Wegener, Stefan Soter</i>	
FUZZY LOGIC FOR STATOR CURRENT HARMONIC CONTROL IN DOUBLY FED INDUCTION GENERATOR	2109
<i>Marcelo Santana, José Monteiro, Geyverson Paula, Thales Almeida, William Pereira, Carlos Oliveira</i>	
IMPLEMENTATION OF A GRID-FORMING CONVERTER BASED ON MODIFIED SYNCHRONOUS REFERENCE FRAME	2116
<i>Robson Bauwelz Gonzatti, Silvia Costa Ferreira, Carlos Henrique da Silva, Luiz Eduardo Borges da Silva, Rondineli Rodrigues Pereira, Germano Lambert-Torres, Rafael Moya Rodrigues Pereira</i>	
IMPLEMENTATION OF CONDITION MONITORING AND CONTROL SYSTEM FOR SMALL-SCALE WIND TURBINES	2122
<i>Keun-Young Kang, Mohamed A. Ahmed, Do-Young Kim, Young-Chon Kim</i>	
IMPROVED FUZZY CONTROLLER DESIGN FOR BATTERY ENERGY MANAGEMENT IN A GRID CONNECTED MICROGRID	2128
<i>Diego Arcos-Aviles, Francesc Guinjoan, Luis Marroyo, Pablo Sanchis, Nikolai Espinosa</i>	
INSTRUMENTATION FOR SURFACE GEOTHERMAL DATA ACQUISITION AIMING AT SUSTAINABLE HEAT EXCHANGERS	2134
<i>Adriano Longo, Felix Alberto Farret, Felipe Teixeira Fernandes, Carlos Roberto De Nardin</i>	
KITE GENERATOR SYSTEM: GRID INTEGRATION AND VALIDATION	2139
<i>Mariam Ahmed, Ahmad Hably, Seddik Bacha</i>	
LOSS MINIMIZING OPERATION OF DOUBLY FED INDUCTION GENERATOR BASED WIND ENERGY SYSTEMS CONSIDERING REACTIVE POWER PROVISION	2146
<i>Baohua Zhang, Weihao Hu, Zhe Chen</i>	
MAXIMIZING POWER HARVEST OF A LARGE PV FARM	2153
<i>Jimia Roy, Olive Ray, Santanu Mishra</i>	
MODEL PREDICTIVE SENSORLESS CONTROL OF STANDALONE DOUBLY FED INDUCTION GENERATOR	2166
<i>Sertac Bayhan, Haiham Abu-Rub</i>	
MODELING AND CONTROL OF A COMBINED WIND-SOLAR MICROGRID	2173
<i>Dan Shen, Afshin Izadian</i>	
MULTIAGENT BASED DISTRIBUTED CONTROL FOR STATE-OF- CHARGE BALANCE OF DISTRIBUTED ENERGY STORAGE IN DC MICROGRIDS	2180
<i>Chendan Li</i>	
NEW VOLTAGE SENSORLESS APPROACH FOR MAXIMUM POWER TRACKING OF WECS BASED ON A CDFIG, WITH CONSTANT POWER GENERATION	2185
<i>Maria El Achkar, Rita Mbayed, Georges Salloum, Sandrine Leballois, Nicolas Patin, Eric Monmasson</i>	
NOVEL METHODE OF STATE-OF-CHARGE ESTIMATION USING IN-SITU IMPEDANCE MEASUREMENT	2192
<i>Hannes Rathmann, Christoph Weber, Wolfgang Benecke, Joerg Eichholz, Dirk Kaehler</i>	
OPERATION OPTIMIZATION OF WIND-THERMAL SYSTEMS CONSIDERING EMISSION PROBLEM	2199
<i>Yang Zhang, Fang Yao, Herbert Iu, Tyrone Fernando, Hieu Trinh</i>	
OPTIMAL SELECTION OF AC CABLES FOR LARGE SCALE OFFSHORE WIND FARMS	2206
<i>Peng Hou, Weihao Hu, Zhe Chen</i>	
OPTIMIZED-FUZZY MPPT CONTROLLER USING GA FOR STAND-ALONE PHOTOVOLTAIC WATER PUMPING SYSTEM	2213
<i>A. A. S. Mohamed, Alberto Berzoy, Osama Mohammed</i>	
REACTIVE POWER REQUIREMENTS FOR CASCADED H-BRIDGE PHOTOVOLTAIC SYSTEMS	2219
<i>Nathan Marks, Terrence Summers, Robert Betz</i>	
RENEWABLE ENERGY SYSTEM FOR AN ISOLATED MICRO GRID	2226
<i>Tiago Rodrigues, J. G. Pinto, Vitor Monteiro, João L. Afonso, Delfim Pedrosa</i>	
RISK ASSESSMENT OF SHORT-TERM HYDROPOWER PLANNING UNDER PRICE UNCERTAINTY CONSIDERING CORRELATION BETWEEN ADJACENT INTERVALS	2233
<i>Li He, Yi Quan, Ming He</i>	
SENSITIVITY ANALYSIS OF TRANSFORMERLESS PV INVERTER TOPOLOGIES TO PHYSICAL VARIATIONS OF POWER DEVICES	2239
<i>Alberto Pigazo, Holger Jettberg, Marco Liserre</i>	

SINGLE PHASE GRID INTEGRATION OF PERMANENT MAGNET GENERATORS ASSOCIATED WITH A WIND TURBINE EMULATOR TEST-RIG	2246
<i>Danilo Llano, Richard McMahon</i>	
SINGLE-PHASE ZVS AC-LINK INVERTER FOR PV-GRID CONNECTION AT MPPT OPERATION	2253
<i>Gamal M. Dousoky, Haitham Abu-Rub</i>	
SINGLE-STAGE DC GENERATING SYSTEM FED BY SIMULATOR OF PMSM WIND TURBINE.....	2259
<i>Hung-Chi Chen, Yu-Wei Kuo</i>	
SINGLE-STAGE GRID-CONNECTED INVERTER WITH BOOST VOLTAGE ABILITY	2265
<i>Jiarong Kan</i>	
SMALL SIGNAL STABILITY IN MICROGRIDS WITH HIGH PENETRATION OF POWER ELECTRONICS INTERFACED SOURCES.....	2272
<i>Dharmendra Dheer, Nimish Soni, Suryanarayana Doolla</i>	
THREE-PHASE SEVEN-SWITCH INVERTER FOR COMMON MODE VOLTAGE REDUCTION OF TRANSFORMERLESS PHOTOVOLTAIC SYSTEM.....	2279
<i>Xiaoqiang Guo, David Xu, Bin Wu</i>	
TRANSIENT ANALYSIS OF INVERTER BASED SOURCE OPERATING IN MICROGRIDS	2285
<i>Nimish Soni, Dharmendra Dheer, Suryanarayana Doolla, Mukul Chandorkar</i>	
VOLTAGE CONTROL OF STAND-ALONE “PHOTOVOLTAIC-DIESEL GENERATOR-BATTERY” SYSTEM.....	2292
<i>Chandrashekhara Bhende</i>	

SENSORS, ACTUATORS AND SYSTEM INTEGRATION

A PDMS MICROCHANNEL SCAFFOLD WITH MICROTUBE ELECTRODES FOR PERIPHERAL NERVE INTERFACING.....	2302
<i>Bongkyun Kim, Everardo Ibarra, Alejandro Reyes, Bernardo Garza, Rosalio Luna, Yoonsu Choi</i>	
A PORTABLE RADIO-ACOUSTIC SOUNDING SYSTEM FOR TEMPERATURE PROFILING WITHIN THE BOUNDARY LAYER	2308
<i>James Randel Kutia, Weiliang Xu</i>	
ANTIBACTERIAL ACTIVITY ENHANCEMENT OF SILVER DEPOSITED ON TiO₂ NANOTUBE ARRAY.....	2314
<i>Parsoua Abedinisohi, Mahmoud Amouzgar, Luc Varin, Mojtaba Kahrizi</i>	
ARCHITECTURE AND IMPLEMENTATION OF AN AFFORDABLE DIFFERENTIAL GPS SYSTEM.....	2321
<i>Benjamin Nizette, Andrew Tridgell, Changbin Yu</i>	
BASIC DEVELOPMENT OF MAGNETIC RESONANCE COUPLING-BASED DISTANCE SENSOR WITH ADJUSTABLE SENSING RANGE USING ACTIVE QUALITY FACTOR CONTROL	2327
<i>Sousuke Nakamura, Masato Namiki, Hideki Hashimoto</i>	
DESIGN OF ULTRASTABLE AND HIGH RESOLUTION EDDY-CURRENT DISPLACEMENT SENSOR SYSTEM.....	2333
<i>Hongbo Wang, Yongbin Liu, Wei Li, Zhihua Feng</i>	
DIMENSIONAL LIMITATION OF POLYMERIC MICROFLUIDIC PLATFORM FOR LIQUID METAL MANIPULATION	2340
<i>Daeyoung Kim, Jun Hyeon Yoo, Wonjae Choi, Koangki Yoo, J.-B. Lee</i>	
FABRICATION, CHARACTERIZATION AND EFFICIENCY ANALYSIS OF A PIEZOELECTRIC (ALN) RING MICRO-RESONATOR ON SI FOR LOW-POWER RESONANT CONVERTERS	2344
<i>Abu Saleh Imtiaz, Faisal Khan, Jeffrey Walling</i>	
IMPROVED TOF DETERMINATION ALGORITHMS FOR ROBUST ULTRASONIC SENSING OF SMART TOOLS.....	2351
<i>Matthew Krenik, Xiong Li, Bilal Akin</i>	
INTEGRATED MEMS ACTUATORS FOR SUB-MICRON PATTERNING ON THIN POLYMER FILMS	2357
<i>Emad Mehdizadeh, Siavash Pourkamali</i>	
MICROFLUIDIC CIRCUIT FOR FLOW RATE AUTO-REGULATION.....	2361
<i>Francisco Perdigones, Antonio Luque, Carmen Aracil, José M. Quero</i>	
MODELING AND DESIGN OF A SIZE AND MASS REDUCED MAGNETICALLY LEVITATED PLANAR POSITIONER	2366
<i>Haiyue Zhu, Chee Khiang Pang, Tat Joo Teo, Lubecki Tomasz Marek</i>	
POLYMER-BASED MICRO-WELLS FOR MAMMALIAN CELL ISOLATION	2372
<i>Ning Xue, Koangki Yoo, Jeong-Bong</i>	
QTH LAMP OPTICAL OUTPUT POWER ANALYSIS FOR SMT COMPONENTS’ INFRARED LIGHT SOLDERING SYSTEMS	2376
<i>Marco Felix, Andres Medel, Alvaro Gonzalez, Heriberto Marquez, David Salazar, Citlalli Anguiano</i>	
SINGLE CHIP, 2-WIRE, 4-20MA CURRENT LOOP RTD TEMPERATURE TRANSMITTER DESIGN	2380
<i>Rafael Mena, Tyler Witt, Evan Cornell</i>	

APPLIED SIGNAL AND IMAGE PROCESSING

A NOVEL VIDEO DENOISING ALGORITHM IN COMMUNICATION BASE STATION MONITORING SYSTEM.....	2394
<i>Sheng Qiang, Zhanmin Zhou</i>	

ACCURACY IMPROVEMENT OF VISION SYSTEM FOR MOBILE ROBOT NAVIGATION BY FINDING THE ENERGETIC CENTER OF LASER SIGNAL	2406
<i>Luis Basaca-Preciado, Julio Rodriguez-Quiñonez, Oleg Sergiyenko, Wendy Flores-Fuentes, Paolo Mercorelli, Fabian Murrieta-Rico</i>	
ESTIMATION OF FILAMENT ORIENTATION IN THREE DIMENSIONAL CT IMAGE OF TEXTILE FABRIC BASED ON PRINCIPAL COMPONENT ANALYSIS.....	2412
<i>Toshihiro Shinohara</i>	
HYBRID RLS-NLMS ALGORITHM FOR REAL-TIME REMOTE ACTIVE NOISE CONTROL USING DIRECTIONAL ULTRASONIC LOUDSPEAKER.....	2418
<i>Sri Hari Krishna Vemuri, Issa Panahi</i>	
NOISE REMOVAL FROM POWER SYSTEM SIGNALS.....	2425
<i>Jesmin F. Khan, Sharif M. Bhuiyan, Gregory Murphy</i>	
PARALLEL FEEDBACK ACTIVE NOISE CONTROL USING DECOMPOSITION OF NOISE SIGNAL	2432
<i>Anshuman Ganguly, Issa Panahi</i>	
PMU DATA ANALYSIS IN SMART GRID USING WPD	2438
<i>Jesmin F. Khan, Sharif M. Bhuiyan, Gregory Murphy, Johnathan Williams</i>	
REAL-TIME REMOTE CANCELLATION OF MULTI-TONES IN AN EXTENDED ACOUSTIC CAVITY USING DIRECTIONAL ULTRASONIC LOUDSPEAKER	2445
<i>Anshuman Ganguly, Sri Hari Krishna Vemuri, Issa Panahi</i>	
S-TRANSFORM AND SHANNON ENERGY FOR ELECTRICAL DISTURBANCES DETECTION	2452
<i>Ahmed Amirou, Djaffar Ould Abdeslam, Zahia Zidelmal, Mohamed Aiden, Jean Merckle</i>	
TOWARDS NATURAL INTERFACES TO INTERACT WITH PHYSICAL SYSTEMS USING SMART MOBILE DEVICES.....	2458
<i>Jared Alan Frank, Vikram Kapila</i>	
WATER LEAKAGE MONITORING EDUCATION:CROSS CORRELATION STUDY VIA SPECTRAL WHITENING.....	2465
<i>Raul Ionel, Sabin Ionel, Pavol Bauer, Franz Quint</i>	
WAVELET BASED FAULT ANALYSIS IN HVDC SYSTEM	2472
<i>Yew Ming Yeap, Abhisek Ukil</i>	
WRIST PULSE SIGNAL CLASSIFICATION FOR INFLAMMATION OF APPENDIX, PANCREAS, AND DUODENUM	2479
<i>Wai Hei Chow, Chung Kit Wu, Kim Fung Tsang, Benjamin Yee Shing Li, Kwok Tai Chui</i>	
ZERO-CROSS SWITCH CONTROL WITH HIGH PRECISION OVER WIDE OPERATING RANGE	2484
<i>Ryuji Nakamoto, Akihiko Yoneya</i>	

INDUSTRIAL INFORMATICS AND FACTORY AUTOMATION

A CONFIGURABLE CLOUD-BASED TESTING INFRASTRUCTURE FOR INTEROPERABLE DISTRIBUTED AUTOMATION SYSTEMS	2492
<i>Wenbin Dai, Laurynas Riliskis, Valeriy Vyatkin, Evgeny Osipov, Jerker Delsing</i>	
A DISTRIBUTED COMPUTING FRAMEWORK FOR ALL-TO-ALL COMPARISON PROBLEMS.....	2499
<i>Yi-Fan Zhang, Yu-Chu Tian, Wayne Kelly, Colin Fidge</i>	
A ZIGBEE WIRELESS DOMOTIC SYSTEM WITH BLUETOOTH INTERFACE	2506
<i>Eurico Leite, Luis Varela, Vitor Fernão Pires, Armando Pires, João Martins, Filipe Cardoso</i>	
ADAPTABLE SOFTWARE COMPONENTS: TOWARDS DIGITAL ECOSYSTEMS AND SOFTWARE EVOLUTION IN THE INDUSTRIAL AUTOMATION DOMAIN	2512
<i>Jeffrey Yan, Cheng Pang, Chen-Wei Yang, Valeriy Vyatkin</i>	
CO-EVOLUTION AND REUSE OF AUTOMATION CONTROL AND SIMULATION SOFTWARE: IDENTIFICATION AND DEFINITION OF MODIFICATION ACTIONS AND STRATEGIES	2525
<i>Christoph Legat, Frank Steden, Stefan Feldmann, Michael Weyrich, Birgit Vogel-Heuser</i>	
CONSISTENT ENGINEERING INFORMATION MODEL FOR MECHATRONIC COMPONENTS IN PRODUCTION AUTOMATION ENGINEERING	2532
<i>Thomas Aicher, Daniel Schuetz, Birgit Vogel-Heuser</i>	
COOPERATION MECHANISMS IN MULTI-AGENT ROBOTIC SYSTEMS AND THEIR USE IN DISTRIBUTED MANUFACTURING CONTROL : ISSUES AND LITERATURE	2538
<i>Guillaume Demesure, Michael Defoort, Abdelghani Bekrar, Damien Trentesaux, Mohamed Djemai</i>	
EARLY AND EFFICIENT QUALITY ASSURANCE OF RISKY TECHNICAL PARAMETERS IN A MECHATRONIC DESIGN PROCESS.....	2544
<i>Stefan Biffl, Arndt Lüder, Nicole Schmidt, Dietmar Winkler</i>	
EVALUATION OF THE EXTREME LEARNING MACHINE FOR AUTOMATIC FAULT DIAGNOSIS OF THE TENNESSEE EASTMAN CHEMICAL PROCESS.....	2551
<i>Francisco de Assis Boldt, Thomas W. Rauber, Flávio M. Varejão</i>	
HYBRID EYE-TO-HAND AND EYE-IN-HAND VISUAL SERVO SYSTEM FOR PARALLEL ROBOT CONVEYOR OBJECT TRACKING AND FETCHING	2558
<i>Ren C Luo, Shih Che Chou, Xin Yi Yang, Norman Peng</i>	
INTEGRATED VIRTUAL COMMISSIONING AN ESSENTIAL ACTIVITY IN THE AUTOMATION ENGINEERING PROCESS.....	2564
<i>Mathias Oppelt, Leon Urbas</i>	

INTERACTION OF MODEL-DRIVEN ENGINEERING AND SIGNAL-BASED ONLINE MONITORING OF PRODUCTION SYSTEMS	2571
<i>Christopher Haubeck, Jan Ladiges, Julia Fuchs, Christoph Legat, Winfried Lamersdorf, Alexander Fay, Birgit Vogel-Heuser</i>	
LIFE-CYCLE-MANAGEMENT IN AUTOMATION - MODELS AND STRATEGIES	2578
<i>Martin Wollschlaeger, Reinhard Schrieber, Manfred Ullemeyer</i>	
MERGED PHYSICAL AND VIRTUAL REALITY IN COLLABORATIVE VIRTUAL WORKSPACES: THE VIRCA APPROACH	2585
<i>Péter Galambos, Imre Rudas, Péter Baranyi</i>	
MODELING AND SIMULATION OF EVOLVABLE PRODUCTION SYSTEMS USING SIMULINK/SIMEVENTS	2591
<i>Ajifa Rahatulain, Tahir Naseer Qureshi, Mauro Onori</i>	
NETWORK DELAY ANALYSIS OF ETHERCAT AND PROFINET IRT PROTOCOLS	2597
<i>Xuepei Wu, Lihua Xie, Freddy Lim</i>	
RESOURCE ALLOCATION OPTIMIZATION IN A DATA CENTER WITH ENERGY STORAGE DEVICES	2604
<i>Shuang Chen, Yanzhi Wang, Massoud Pedram</i>	
SETPOINTS COMPENSATION FOR NONLINEAR INDUSTRIAL PROCESSES WITH DISTURBANCES BASED ON FUZZY LOGIC CONTROL	2611
<i>Huijun Gao, Fangzhou Liu, Tong Wang, Shen Yin</i>	
SOFTWARE CHANGES IN FACTORY AUTOMATION - TOWARDS AUTOMATIC CHANGE BASED REGRESSION TESTING	2617
<i>Sebastian Ulewicz, Daniel Schuetz, Birgit Vogel-Heuser</i>	
STATISTICAL MODELS OF HORIZONTAL AND VERTICAL STOCHASTIC NOISE FOR THE KINECT SENSOR	2624
<i>Benjamin Choo, Michael DeVore, Peter Beling</i>	
THE ARROWHEAD APPROACH FOR SOA APPLICATION DEVELOPMENT AND DOCUMENTATION	2631
<i>Fredrik Blomstedt, Luis Lino Ferreira, Markus Markus Klisics, Christos Chrysoulas, Iker Martinez de Soria, Brice Morin, Anatolij Zabasta, Jens Eliasson, Mats Johansson, Pal Varga</i>	
TOWARDS INDUSTRIAL APPLICATION OF MODEL-DRIVEN PLATFORM-INDEPENDENT PLC PROGRAMMING USING UML	2638
<i>Dmitry Tikhonov, Daniel Schuetz, Sebastian Ulewicz, Birgit Vogel-Heuser</i>	
TOWARDS MEDICAL DEVICE CERTIFICATION: A COLORED PETRI NETS MODEL OF A SURFACE ELECTROCARDIOGRAPHY DEVICE	2645
<i>Álvaro Sobrinho, Paulo Cunha, Leandro Dias da Silva, Angelo Perkusich, Thiago Cordeiro, Joilson Rêgo</i>	

MECHATRONICS AND ROBOTICS

A REALIZATION OF HIGH-PERFORMANCE MOTION CONTROL SYSTEMS BY APPLYING MULTI-LEVEL CONVERTERS	2656
<i>Hidemine Obara, Tatsuhiro Saito, Kenji Natori, Yukihiko Sato</i>	
A REDUCTION METHOD OF STOCHASTIC DISTURBANCE BASED ON RESONANT FILTER IN MACRO-MICRO BILATERAL CONTROL SYSTEM	2663
<i>Masaki Takeya, Seiichiro Katsura</i>	
ADAPTIVE COOPERATIVE CONTROL OF MULTI-MOBILE MANIPULATORS	2669
<i>Victor H. Andaluz, Jessica S. Ortiz, Maria G. Pérez, Flavio Roberti, Ricardo Carelli</i>	
AESTHETIC MARKER DECODING SYSTEM FOR INDOOR ROBOT NAVIGATION	2676
<i>Zita V. Farkas, Kornel Szekeres, Peter Korondi</i>	
AIRSPPEED CONTROL OF ELECTRIC AIRPLANE BASED ON 2-QUADRANT THRUST CONTROL AND VERIFICATION WITH TOWING TEST USING ELECTRIC VEHICLE	2682
<i>Kenichiro Takahashi, Hiroshi Fujimoto, Yoichi Hori, Hiroshi Kobayashi, Akira Nishizawa</i>	
AN H-INFINITY FEEDBACK CONTROL APPROACH TO AUTONOMOUS ROBOT NAVIGATION	2689
<i>Gerasimos Rigatos, Pierluigi Siano</i>	
ANALYSIS AND COMPENSATION IN SPECIFIC FREQUENCY BASED ON COMPOSITE FILTER FOR NANOSCALE MOTION CONTROL	2695
<i>Fumito Nishi, Seiichiro Katsura</i>	
ANALYTICAL MODELLING OF THE MULTICELL PIEZOELECTRIC MOTOR BASED ON THREE RESONANCE ACTUATORS	2701
<i>Roland Ryndzionek, Michal Michna, Jean-François Rouchon, Mieczyslaw Ronkowski</i>	
AUTOMATED TUBE INSERTION ON TYMPANIC MEMBRANE BASED ON VISION-SERVO AND TACTILE SENSING	2706
<i>Wenchao Gao, Wenyu Liang, Kok Kiong Tan</i>	
BEST FIT SENSORLESS FORCE CONTROL SYSTEM CONSIDERING ENVIRONMENTAL STIFFNESS VARIATION	2712
<i>Yuki Yokokura, Kiyoshi Ohishi</i>	
CONSIDERING TRANSMISSION PERIOD VIA NETWORK FOR TELE-HAPTICS	2718
<i>Yusuke Kawamura, Seiichiro Katsura</i>	
COOPERATIVE LEARNING MODEL BASED ON MULTI-AGENT ARCHITECTURE FOR EMBEDDED INTELLIGENT SYSTEMS	2724
<i>Mónica Villaverde San José, David Pérez Daza, Félix Moreno González</i>	

DESIGN AND IMPLEMENTATION OF A LOW-COST ROBOTIC LOAD CARRIER	2731
<i>Leonardo Adolpho Silva, Fabrício Pujatti, Julio Justino, Braz Cardoso</i>	
DEVELOPMENT OF A TRACKED MOBILE ROBOT EQUIPPED WITH TWO ARMS.....	2738
<i>Toyomi Fujita, Yuichi Tsuchiya</i>	
DIRECT CLOSED-LOOP IDENTIFICATION OF MECHANICAL RESONANCES ABOVE THE NYQUIST FREQUENCY WITHOUT ANY EXTERNAL PERSISTENTLY EXCITING SIGNALS	2750
<i>Weili Yan, Chunling Du, Chee Khiang Pang</i>	
ESTIMATION OF PEDALING TORQUE FOR ELECTRIC POWER ASSISTED BICYCLES.....	2756
<i>Takumi Kurosawa, Yasutaka Fujimoto, Takeji Tokumaru</i>	
EVALUATION OF REPRODUCTION SPEED CHANGER BASED ON DELTA-SIGMA MODULATOR FOR HIGH SPEED MOTION-REPRODUCTION.....	2762
<i>Naotaka Fujii, Seiichiro Katsura</i>	
EXAMINATION OF A CONTROL METHOD FOR A WALKING ASSISTANCE ROBOTICS CANE.....	2768
<i>Kyohei Shimizu, Issam Smadi, Yasutaka Fujimoto</i>	
FORCE CONTROLLER TUNING FOR A MASTER-SLAVE SYSTEM WITH PROXIMITY BASED HAPTIC FEEDBACK	2774
<i>Riccardo Antonello, Roberto Oboe</i>	
IMPULSE-BASED DISCRETE FEEDBACK CONTROL OF MOTION WITH DAMPING UNCERTAINTIES	2780
<i>Michael Ruderman, Makoto Iwasaki</i>	
INTEGRATION OF DISTURBANCE OBSERVER AND FEEDBACK MODULATOR FOR DEAD ZONE COMPENSATION OF HYDRAULIC ACTUATOR	2786
<i>Sho Sakaino, Toshiaki Tsuji</i>	
ITERATIVE OVERLAP-PART ESTIMATION METHOD FOR LOCALIZATION AND GENERATION OF RELIABLE TERRAIN MAPS	2792
<i>Yasuharu Kunii, Naoki Hashimoto, Noriaki Mizukami</i>	
LOCALIZATION OF UNKNOWN ODOR SOURCE BASED ON SHANNON'S ENTROPY USING MULTIPLE MOBILE ROBOTS	2798
<i>Qiang Lu, Yang He, Jian Wang</i>	
MECHANICAL RESONANCE SUPPRESSION AND SHAFT TORQUE LIMITATION OF TWO-MASS DRIVE SYSTEM BASED ON MODEL PREDICTIVE CONTROL	2804
<i>Can Wang, Ming Yang, Geng Wang, Dianguo Xu</i>	
MOTION CONTROL DESIGN FOR FORCE-TRAJECTORY INTEGRATED CONTROL TO UNKNOWN ENVIRONMENT	2810
<i>Takami Miyagi, Seiichiro Katsura</i>	
MOTION CONTROLLER DESIGN FOR A BIOMIMETIC ROBOTIC FISH	2816
<i>Qinyuan Ren</i>	
MULTIPURPOSE OPTIMIZATION OF CAMERA POSITION FOR ROBOT VISION BY CONSIDERING CALIBRATION ACCURACY	2822
<i>Akihito Ito, Nobutaka Tsujiuchi, Yusuke Okada, Ryo Kojima</i>	
ON IDENTIFICATION AND SENSORLESS CONTROL OF NONLINEAR TORSION IN ELASTIC ROBOTIC JOINTS.....	2828
<i>Michael Ruderman, Makoto Iwasaki</i>	
POINT-TO-POINT MOTION CONTROL BASED ON REPRODUCTION OF RECORDED HUMAN MOTIONS WITH TIME SCALING.....	2834
<i>Naoki Motoi, Ryogo Kubo, Tomoyuki Shimono</i>	
POLYNOMIAL-METHOD-BASED SIMO CONTROLLER DESIGN FOR A DOUBLE INVERTED PENDULUM	2840
<i>Yue Qiao, Lin Zhou, Chengbin Ma</i>	
RANGE EXTENSION CONTROL SYSTEM FOR ELECTRIC AIRPLANE WITH MULTIPLE MOTORS BY OPTIMIZATION OF THRUST DISTRIBUTION CONSIDERING PROPELLERS EFFICIENCY	2847
<i>Nobukatsu Konishi, Hiroshi Fujimoto, Hiroshi Kobayashi, Akira Nishizawa</i>	
REPRODUCTION CONTROL OF RUBBING MOTION TAKING FRICTION VARIATION INTO ACCOUNT	2853
<i>Ryutaro Honjo, Seiichiro Katsura</i>	
SETTLING TIME SHORTENING METHOD USING FINAL STATE CONTROL FOR HIGH-PRECISION STAGE WITH DECOUPLABLE STRUCTURE OF FINE AND COARSE PARTS	2859
<i>Yuma Yazaki, Hiroshi Fujimoto, Koichi Sakata, Atsushi Hara, Kazuaki Saiki</i>	
SPATIAL SHAPING OF MOTION-DATA BASED ON MOTION-COPYING SYSTEM USING VARIABLE TEMPORAL SCALING.....	2866
<i>Ko Igarashi, Seiichiro Katsura</i>	
STABILIZATION OF TRIPLE FURUTA PENDULUM BY SLIDING MODE CONTROL.....	2872
<i>Ken Sugawara</i>	
SWING-UP AND STABILIZATION CONTROL OF TWIN FURUTA PENDULUM BY ENERGY CONTROL	2878
<i>Yuuki Fujita, Masaki Izutsu, Shoshiro Hatakeyama</i>	
TRANSPARENCY IMPROVEMENT IN A BILATERAL MOTION-SCALING CONTROL USING KALMAN- FILTER-BASED DISTURBANCE OBSERVER.....	2884
<i>Chowarit Mitsantisuk, Kiyoshi Ohishi</i>	
VIBRATION CONTROL OF A FLEXIBLE SINGLE-LINK ROBOT: A BACKSTEPPING CONTROLLER FOR DISTRIBUTED PARAMETER SYSTEMS.....	2890
<i>Peter Mueller, Steven Liu</i>	

VIBRATION SUPPRESSION CONTROL FOR A TWO-INERTIA SYSTEM USING LOAD-SIDE HIGH-ORDER STATE VARIABLES OBTAINED BY A HIGH-RESOLUTION ENCODER	2897
<i>Shota Yamada, Hiroshi Fujimoto</i>	

ZERO-POWER CONTROL OF DOUBLE PARALLEL MAGNETIC SUSPENSION SYSTEM WITH MIXED POLARITY	2904
<i>Takeshi Mizuno, Yuji Ishino, Masaya Takasaki</i>	

AUTOMOTIVE ELECTRONICS

A COMPREHENSIVE EVALUATION OF BIDIRECTIONAL BOOST CONVERTER TOPOLOGIES FOR ELECTRIFIED VEHICLE APPLICATIONS	2914
<i>Haizhong Ye, Magne Pierre, Bilgin Berker, Wirasingha Sanjaka, Ali Emadi</i>	

A LOW POWER HIGH-SIDE CURRENT SENSE SAR ADC FOR AUTOMOTIVE APPLICATIONS	2921
<i>Stefan Dietrich, Sebastian Strache, Jan Henning Mueller, Lukas Lohaus, Ralf Wunderlich, Stefan Heinen</i>	

A NOVEL APPROACH TO THE DESIGN OF CONTROLLERS IN AN AUTOMOTIVE CRUISE-CONTROL	2927
<i>Narayani Vedam, Ivan Diaz-Rodriguez, Shankar Bhattacharyya</i>	

A NOVEL BATTERY CELL BALANCING CIRCUIT USING AN AUXILIARY CIRCUIT FOR FAST EQUALIZATION	2933
<i>Dong-Jin Park, See-Young Choi, Rae-Young Kim, Deuk-Soo Kim</i>	

A NOVEL DC-LINK VOLTAGE BALANCING ALGORITHM FOR A 3-LEVEL NEUTRAL POINT CLAMPED (NPC) TRACTION INVERTER FOR AN ELECTRIC VEHICLE IPMSM DRIVE	2939
<i>Abhijit Choudhury, Pragasen Pillay, Sheldon Williamson</i>	

A PHASE SHIFTED FULL BRIDGE CONVERTER WITH ZCS SYNCHRONOUS RECTIFIER FOR AUXILIARY POWER UNITS	2945
<i>Zhe Sun, Fei Peng, Pierre Magne, Ali Emadi</i>	

A STUDY ON ENERGY MANAGEMENT CONTROLLER OF EDLC FOR BATTERIES AND CAPACITORS HYBRID ELECTRIC VEHICLE	2952
<i>Yuki Noumi, Tatsuhito Saito, Keiichiro Kondo</i>	

AIRCRAFT STARTER-GENERATOR SYSTEM BASED ON PERMANENT-MAGNET MACHINE FED BY ACTIVE FRONT-END RECTIFIER	2958
<i>Serhiy Bozhko, Seang Shen Yeoh, Fei Gao, Christopher Hill</i>	

ANALYSIS OF IMPEDANCE MATCHED CIRCUIT FOR WIRELESS POWER TRANSFER	2965
<i>Andrew Ong, J. Prasad K. Sampath, Gilbert Hock Beng Foo, Yen Kheng Tan, D. Mahinda Vilathgamuwa, Nguyen Xuan Bac</i>	

ASYMMETRICAL VOLTAGE-CANCELLATION CONTROL FOR A SERIES-SERIES FIXED-FREQUENCY INDUCTIVE POWER TRANSFER SYSTEM	2971
<i>Bernardo Peschiera, Kunwar Aditya, Sheldon Williamson</i>	

COIL ENHANCEMENTS FOR HIGH EFFICIENCY WIRELESS POWER TRANSFER APPLICATIONS	2978
<i>J. Prasad K. Sampath, Arokiaswami Alphones, D. Mahinda Vilathgamuwa, Andrew Ong, Nguyen Xuan Bac</i>	

COMPARISON OF RECUPERATION STRATEGIES FOR ELECTRIC VEHICLES REGARDING ENERGY EFFICIENCY	2984
<i>Philipp Spichartz, Lukas Bußmann, Constantinos Sourkounis</i>	

DOUBLE STAR CHOPPER CELL CONVERTER FOR BATTERY ELECTRIC VEHICLES WITH INTER-MODULE SOC BALANCING AND FAULT TOLERANT CONTROL	2991
<i>Karthik Kandasamy, Mahinda D. Vilathgamuwa, King-Jet Tseng</i>	

EMULATING ELECTRIC VEHICLE REGENERATIVE AND FRICTION BRAKING EFFECT USING A HARDWARE-IN-THE-LOOP (HIL) MOTOR/DYNAMOMETER TEST BENCH	2997
<i>Poria Fajri, Venkata Anand Prabhala, Nima Lotfi, Mehdi Ferdowsi, Pourya Shamsi</i>	

FUNDAMENTAL RESEARCH OF POWER CONVERSION CIRCUIT CONTROL FOR WIRELESS IN-WHEEL MOTOR USING MAGNETIC RESONANCE COUPLING	3004
<i>Daisuke Gunji, Takehiro Imura, Hiroshi Fujimoto</i>	

HIGH-POWER FAULT-TOLERANT AND MULTIPLE INDEPENDENT LOADS LED DRIVER	3010
<i>Michael Njoroge Gitau, Ahmed Sayyid</i>	

INFLUENCE OF THE DIMENSIONED ELECTRIC RANGE ON THE PRACTICALITY OF EXTENDED RANGE ELECTRIC VEHICLES IN METROPOLITAN AREAS BASED ON A FIELD TEST	3017
<i>Philipp Spichartz, Philip Dost, Constantinos Sourkounis</i>	

INVESTIGATION OF REGENERATIVE BRAKING ON THE ENERGY CONSUMPTION OF AN ELECTRIC TAXIING SYSTEM FOR A SINGLE AISLE MIDSIZE AIRCRAFT	3023
<i>Maximilian T. E. Heinrich, Fabian Kelch, Pierre Magne, Ali Emadi</i>	

MODIFIED DC-BUS VOLTAGE BALANCING ALGORITHM BASED THREE-LEVEL NEUTRAL POINT CLAMPED (NPC) IPMSM DRIVE FOR ELECTRIC VEHICLE APPLICATION	3030
<i>Abhijit Choudhury, Pragasen Pillay, Sheldon Williamson</i>	

ON EXAMINATION AND MEASUREMENT FOR RECUPERATION MODES TARGETING RANGE EXTENSION IN ELECTRIC VEHICLES	3036
<i>Philipp Spichartz, Philip Dost, Constantinos Sourkounis</i>	

POSITION ERROR COMPENSATION IN QUADRATURE ANALOG MAGNETIC ENCODERS THROUGH AN ITERATIVE OPTIMIZATION ALGORITHM	3043
<i>Jorge Lara Cardoso, Ambrish Chandra</i>	

PREDICTIVE DEADBEAT CURRENT CONTROL OF FIVE-PHASE BLDC MACHINES	3049
<i>Ramin Salehi Arashloo, Jose Luis Romeral Martinez, Mehdi Salehifar, Fabio Andrade</i>	

SPEED FOLLOWING CONTROL FOR DIFFERENTIAL STEERING OF 4WID ELECTRIC VEHICLE	3054
<i>Xiaodong Wu, Li Yang, Min Xu</i>	
SYSTEMATIC APPROACH TO THE MODELING AND CONTROL OF HYBRID ELECTRIC VEHICLE POWERTRAINS.....	3060
<i>David Taylor</i>	
TRIPOLAR PAD FOR INDUCTIVE POWER TRANSFER SYSTEMS	3066
<i>Seho Kim, Adeel Zaheer, Grant A. Covic, John T. Boys</i>	

ENERGY STORAGE SYSTEMS

A QUANTITATIVE COMPARATIVE STUDY OF EFFICIENCY FOR BATTERY-ULTRACAPACITOR HYBRID SYSTEMS	3076
<i>Chen Zhao, He Yin, Zhongping Yang, Chengbin Ma</i>	
A TIME-DOMAIN APPROACH FOR MONITORING BATTERY STATE OF HEALTH (SOH) AND REMAINING USEFUL LIFE (RUL)	3083
<i>Anthony Harris, Robert Cox, Peter O'Connor</i>	
AN INTEGRATED POWER MANAGEMENT STRATEGY OF HYBRID ENERGY STORAGE FOR RENEWABLE APPLICATION	3088
<i>Yanzhu Ye, Pawan Garg, Ratnesh Sharma</i>	
ANALYSIS OF VEHICLE TO GRID AND ENERGY STORAGE INTEGRATION IN A VIRTUAL POWER PLANT	3094
<i>Alfonso Damiano, Maura Musio</i>	
ASPECTS OF THE OPERATION OF REGULAR ULTRA FAST CHARGING E-BUS IN HIGH GRADE BRT ROUTES	3101
<i>Julio Justino, Leonardo Silva, Anderson Rocha, Braz Cardoso Filho</i>	
CONTROL OF A GENERATOR-BATTERY-ULTRACAPACITOR HYBRID ENERGY SYSTEM USING GAME THEORY	3115
<i>He Yin, Chen Zhao, Zhongping Yang, Mian Li, Chengbin Ma</i>	
IMPACT OF CURRENT RATE AND TEMPERATURE ON STATE-OF-CHARGE ESTIMATION OF LI-ION BATTERIES BASED ON THE EXTENDED KALMAN FILTER	3122
<i>James Issac, Jiangchao Qin, Maryam Saeedifard, Oleg Wasynczuk</i>	
LIFE CYCLE TEST ON A LITHIUM BATTERY SYSTEM	3129
<i>Francesco Vellucci, Vincenzo Sglavo, Giovanni Pede, Emanuele Pasca, Veronica Malvaldi, Sandra Scalari</i>	
MAXIMUM POWER TRANSFER OF PV-FED INVERTER-BASED DISTRIBUTED GENERATION WITH IMPROVED VOLTAGE REGULATION USING FLYWHEEL ENERGY STORAGE SYSTEMS	3135
<i>Hisham Deeb, Mohamed Daoud, Ahmed Massoud, Ayman Abdel-Khalik, Shehab Ahmed, Ahmed Elserougi</i>	
MODEL-FREE LEARNING-BASED ONLINE MANAGEMENT OF HYBRID ELECTRICAL ENERGY STORAGE SYSTEMS IN ELECTRIC VEHICLES	3142
<i>Siyu Yue, Yanzhi Wang, Qing Xie, Di Zhu, Naehyuck Chang, Massoud Pedram</i>	
MODELLING OF TEMPERATURE DEPENDENT IMPEDANCE IN LITHIUM ION POLYMER BATTERIES AND IMPACT ANALYSIS ON ELECTRIC VEHICLES	3149
<i>Andishe Moshirvaziri, Jacky Liu, Yajnesvar Arunugam, Olivier Trescases</i>	
MODULARIZED LC RESONANT SWITCHED CAPACITOR CELL VOLTAGE EQUALIZER	3156
<i>Takuya Ohno, Takahumi Suzuki, Hirotaka Koizumi</i>	
PRE-STORED SUPERCAPACITOR ENERGY AS A SOLUTION FOR BURST ENERGY REQUIREMENTS IN DOMESTIC IN-LINE FAST WATER HEATING SYSTEMS	3163
<i>Nihal Kularatna, Alessandro Gattuso, Nicoloy Gurusinghe, Tanya Jayasuriya, Johann du Toit</i>	
STUDY ON THE CELL CHANGE CYCLE FOR CELL VOLTAGE EQUALIZATION CIRCUIT USING AN LC SERIES CIRCUIT	3168
<i>Daiki Satou, Nobukazu Hoshi</i>	

MULTIPHASE ELECTRIC TRACTION DRIVES FOR ROAD VEHICLES

A PERMANENT-MAGNET MACHINE WITH IMPROVED TORQUE DENSITY BASED ON A SINGLE LAYER WINDING LAYOUT FOR ELECTRIC VEHICLE APPLICATIONS	3178
<i>Ayman Abdel-Khalik, Shady Gadoue, Shehab Ahmed, Ahmed Massoud</i>	
AN INTEGRATED MULTI-PORT POWER CONVERTER WITH SMALL CAPACITANCE REQUIREMENT FOR SWITCHED RELUCTANCE MACHINE	3183
<i>Wen Cai, Lei Gu, Fan Yi, Babak Fahimi</i>	
ANALYTICAL MODELING OF SPLIT-PHASE SYNCHRONOUS RELUCTANCE MACHINES	3190
<i>Alberto Tassarolo, Claudio Bruzese, Michele Degano, Lorenzo Branz</i>	
ANALYTICAL OPTIMAL CURRENTS FOR MULTIPHASE PMSMS UNDER FAULT CONDITIONS AND SATURATION	3197
<i>Ngac Ky Nguyen, Damien Flieller, Xavier Kestelyn, Tiago José dos Santos Moraes, Eric Semail</i>	

COMMUTATION EFFECTS ON MOTOR CURRENT AND TORQUE IN FIVE-PHASE PM BLDC DRIVES	3204
<i>Syamnaresh Garlapati, Giuseppe Buja, Ritesh Keshri, Manuele Bertoluzzo</i>	
SINGLE-PHASE ON-BOARD INTEGRATED BATTERY CHARGER BASED ON A NINE-PHASE MACHINE	3210
<i>Nandor Bodo, Ivan Subotic, Emil Levi, Martin Jones</i>	

INDUCTION HEATING SYSTEMS

A POWER CONTROL OF THREE-PHASE CONVERTER WITH AVFSVC CONTROL FOR HIGH-POWER INDUCTION HEATING APPLICATIONS	3220
<i>Sayan Kleangsin, Anawach Sangswang, Sumate Naetiladdanon, Chayant Koompai</i>	
EXPERIMENTAL EVALUATION OF DYNAMIC LOAD CHANGES IN FLEXIBLE INDUCTION HEATING APPLIANCES	3227
<i>Eduardo Laloja, Oscar Lucia, Javier Concha, José M. Burdío</i>	
INDUCTION HEATING OF ROTATING CYLINDRICAL NONMAGNETIC BILLETS WITH PRESCRIBED TEMPERATURE PROFILE	3233
<i>Karel Slobodnik, Frantisek Mach, Pavel Karban, Ivo Dolezel</i>	
MODEL-BASED DETERMINATION OF NONLINEAR MATERIAL PARAMETERS OF METALS WITH LOW MELTING POINTS	3240
<i>Frantisek Mach, Jana Kuthanova, Katka Mizerova, Pavel Karban, Pavel Kus, Ivo Dolezel, Radek Polansky</i>	
MODELLING OF LASER HEATING WITH INDUCTION PRE-HEATING AND POST-HEATING AND ITS EXPERIMENTAL VERIFICATION	3246
<i>Vaclav Kotlan, David Panek, Roman Hamar, Dolezel Ivo</i>	
MULTI ROTORS PERMANENT MAGNET HEATER FOR CONTROLLING TEMPERATURE DISTRIBUTION IN ALUMINUM BILLETS	3252
<i>Michele Forzan, Fabrizio Dughiero, Marcello Zerbetto</i>	
OPEN-LOOP CONTROL OF FULL-BRIDGE RESONANT INVERTER FOR INDUCTION METAL SURFACE HEATING	3258
<i>Houcine Zeroug, Bilel Meziane</i>	
RADIATION HEAT MEASUREMENT MODEL FOR TEMPERATURE ESTIMATION IN INDUCTION HEATING APPLIANCES	3265
<i>Claudio Carretero, Rafael Alonso, Javier Lasobras, Enrique Carretero, Eduardo Imaz</i>	
SIMPLIFIED MODEL OF RESONANT INVERTERS FOR THE MODELISATION OF INDUCTION HEATING OF BILLET	3270
<i>Bernard Paya</i>	
SMALL-SIGNAL MODEL OF DUAL HALF-BRIDGE SERIES RESONANT INVERTER SHARING RESONANT CAPACITOR FOR DOMESTIC INDUCTION HEATING	3277
<i>Alberto Dominguez, Luis Angel Barragan, Aranzazu Otin, Jose Ignacio Artigas, Isidro Urriza, Denis Navarro</i>	
SOFT-STOP OPTIMAL TRAJECTORY CONTROL FOR IMPROVED OPERATION OF THE SERIES RESONANT MULTI-INVERTER	3283
<i>Oscar Lucia, Hector Sarnago, José M. Burdío</i>	

NEW MATRIX CONVERTER TOPOLOGIES

A VOLTAGE REGULATOR/CONDITIONER BASED ON A HYBRID TRANSFORMER WITH MATRIX CONVERTER	3292
<i>Pawel Szczesniak, Jacek Kaniewski</i>	
GENERALIZED CARRIER BASED PULSE WIDTH MODULATION TECHNIQUE FOR A THREE TO N-PHASE DUAL MATRIX CONVERTER	3298
<i>Sk Moin Ahmed, Haitham Abu-Rub, Zainal Salam, Marco Rivera, Omar Ellabban</i>	
INVESTIGATION OF SPACE VECTOR MODULATED DUAL MATRIX CONVERTERS FEEDING A SEVEN PHASE OPEN-END WINDING DRIVE	3305
<i>Sk Moin Ahmed, Haitham Abu-Rub, Zainal Salam</i>	
MODEL PREDICTIVE CONTROL OF A CAPACITOR-LESS VAR COMPENSATOR BASED ON A MATRIX CONVERTER	3311
<i>Mohammad B. Shadmand, Robert S. Balog, Haitham Abu-Rub</i>	
MULTILEVEL INDIRECT MATRIX CONVERTER WITH CARRIER-BASED PULSE WIDTH MODULATION	3318
<i>Tuyen D. Nguyen, Hong Hee Lee</i>	
NOVEL SWITCHING SCHEME FOR MATRIX BASED ISOLATED THREE PHASE AC TO DC CONVERSION	3324
<i>Amit Singh, Pritam Das, Sanjib Panda</i>	
OVERMODULATION TECHNIQUES FOR THE THREE-TO-FIVE PHASE INDIRECT MATRIX CONVERTER WITH SPACE VECTOR PWM	3330
<i>Merlin Chai, Dan Xiao, Rukmi Dutta, John Fletcher</i>	
POWER DECOUPLING METHOD FOR ISOLATED DC TO SINGLE-PHASE AC CONVERTER USING MATRIX CONVERTER	3337
<i>Hiroki Takahashi, Nagisa Takaoka, Raul Roberto Rodriguez Gutierrez, Jun-ichi Itoh</i>	

RELIABILITY OF ENERGY CONVERSION DEVICES IN INDUSTRIAL FACILITIES AND POWER PLANTS

A GENERIC DIAGNOSIS PROTOCOL FOR THE MONITORING OF INDUCTION MOTORS BASED ON MULTIPLE STATISTICAL REFERENCES IN THE TORQUE-SPEED PLANE	3348
<i>Etienne Fournier, Antoine Picot, Jérémi Régnier, Jean-Marie Andréjak, Mathias TientcheuYamdeu, Pascal Maussion</i>	
A LONGITUDINAL-STANDARDIZATION MULTI-PERIOD PCA FAULT DETECTION STRATEGY BASED-ON ADAPTIVE CONFIDENCE LIMIT	3355
<i>Hao Wu, Tianzhen Wang, Mengqi Ni, M.E.H. Benbouzid, Jingang Han, Lan Liu</i>	
EVALUATION OF STARTUP-BASED ROTOR FAULT SEVERITY INDICATORS UNDER DIFFERENT STARTING METHODS	3361
<i>Jose Antonino-Daviu, Joan Pons-Llinares, Vicente Climente-Alarcon, Hubert Razik</i>	
INVESTIGATION ON THE SHORT-CIRCUIT BEHAVIOR OF AN AGED IGBT MODULE THROUGH A 6 KA/1.1 KV NON-DESTRUCTIVE TESTING EQUIPMENT	3367
<i>Rui Wu, Liudmila Smirnova, Francesco Iannuzzo, Huai Wang, Frede Blaabjerg</i>	
ONLINE MONITORING OF MARINE TURBINE INSULATION CONDITION BASED ON HIGH FREQUENCY MODELS	3374
<i>Esseddik Ferdjallah Kherkhachi, Emmanuel Schaeffer, Luc Loron, Mohamed.E.H Benbouzid</i>	
RELIABLE METHODOLOGY FOR GEARBOX WEAR MONITORING BASED ON VIBRATION ANALYSIS	3381
<i>Juan J. Saucedo-Dorantes, Armando G. Garcia-Ramirez, Juan C. Jauregui-Correa, Roque A. Osornio-Rios, Arturo Garcia-Perez, Rene de J. Romero-Troncoso</i>	
TRANSIENT DETECTION OF CLOSE COMPONENTS THROUGH THE CHIRPLET TRANSFORM: ROTOR FAULTS IN INVERTER-FED INDUCTION MOTORS	3386
<i>Joan Pons-Llinares, Daniel Morinigo-Sotelo, Oscar Duque-Perez, Jose A. Antonino-Daviu, Marcelo Perez-Alonso</i>	

SIGNAL AND IMAGE PROCESSING TECHNIQUES AND PATTERN RECOGNITION ALGORITHMS FOR ELECTRIC MACHINE FAULT DIAGNOSIS AND PROGNOSIS

AN AUTOMATED THERMOGRAPHIC IMAGE SEGMENTATION METHOD FOR INDUCTION MOTOR FAULT DIAGNOSIS	3396
<i>Petros Karvelis, George Georgoulas, Chrysostomos Stylios, Ioannis Tsoumas, Jose Alfonso Antonino-Daviu, María José Picazo Ródenas, Vicente Climente-Alarcón</i>	
ANALYSIS OF PARTIALLY BROKEN ROTOR BAR BY USING A NOVEL EMPIRICAL MODE DECOMPOSITION METHOD	3403
<i>Arturo Garcia-Perez, Oscar Ibarra-Manzano, Rene Romero-Troncoso</i>	
AUTOMATIC CRASH DETECTION FOR MOTOR CYCLES	3409
<i>Jussi Parviainen, Jussi Collin, Timo Pihlström, Jarmo Takala, Kari Hanski, Aki Lumiaho</i>	
AUTOMATIC READING SYSTEM BASED ON AUTOMATIC ALIGNMENT CONTROL FOR POINTER METER	3414
<i>Qi Li, Yanjun Fang, Yao He, Fei Yang, Qi Li</i>	
CAMERA AND LRF FUSION FOR REAL-TIME CAR DETECTION	3419
<i>Laksono Kurnianggoro, Wahyono Wahyono, Danilo Cáceres Hernández, Kang-Hyun Jo</i>	
DESIGN OF FREQUENCY-SELECTIVE DIGITAL DIFFERENTIATORS WITHOUT FREQUENCY SAMPLING AND ITERATIVE OPTIMIZATION	3425
<i>Masayoshi Nakamoto, Toru Yamamoto</i>	
DIRICHLET PROCESS CRESCENT-SIGNAL MIXTURE MODEL FOR GROUND-PENETRATING RADAR SIGNAL	3431
<i>Makoto Kobayashi, Kazushi Nakano</i>	
DISCOVERING THE HIDDEN HEALTH STATES IN BEARING VIBRATION SIGNALS FOR FAULT PROGNOSIS	3438
<i>Rodney Singleton, Elias Strangas, Selin Aviyente</i>	
EFFICACY OF STATISTICAL MODEL-BASED POSE ESTIMATION OF RIGID OBJECTS WITH CORRESPONDING CAD MODELS USING COMMODITY DEPTH SENSORS	3445
<i>Michael J. Landau, Peter A. Beling, Michael D. DeVore</i>	
OPTIMUM FEATURE EXTRACTION AND SELECTION FOR AUTOMATIC FAULT DIAGNOSIS OF RELUCTANCE MOTORS	3456
<i>Ilhem Bouchareb, Ammar Bentounsi, Abdeslam Lebaroud</i>	
PRINCIPAL COMPONENT ANALYSIS ANOMALY DETECTOR FOR ROTOR BROKEN BARS	3462
<i>Mohammed Obaid Mustafa, Georgoulas George, George Nikolakopoulos</i>	
ROTATION ESTIMATION FOR PRINTED CIRCUIT BOARD RECYCLING	3468
<i>Mathias Breier, Wei Li, Marcel Marcel Bosling, Thomas Pretz, Dorit Merhof</i>	
TEXT RECOGNITION FOR INFORMATION RETRIEVAL IN IMAGES OF PRINTED CIRCUIT BOARDS	3487
<i>Wei Li, Stefan Neullens, Matthias Breier, Marcel Bosling, Thomas Pretz, Dorit Merhof</i>	
THE USE OF THE HILBERT-HUANG TRANSFORM IN THE ANALYSIS OF MACHINING VIBRATIONS IN MACHINE TOOLS	3494
<i>Jose Roberto Marques, Izabel Fernanda Machado, Jose Roberto Cardoso, Patricia Alves Barbosa</i>	

INFORMATION TECHNOLOGIES FOR SMART GRIDS

A LOCAL VOLTAGE CONTROL MECHANISM FOR LV DISTRIBUTION NETWORKS USING SMART APPLIANCES: EXPERIMENTAL TESTS AND VALIDATION	3504
<i>Reinhilde D'hulst, Koen Vanthourmout, Felix Hoornaert, Johan Driesen</i>	
AN INTELLIGENT RELATIONAL PATTERN MATCHING SYSTEM FOR ELECTRICITY DEMAND PREDICTION	3510
<i>Jiangxia Zhong, Xinghuo Yu, Miguel Combariza, Jinjian Wang</i>	
ANALYSIS OF FINGERPRINTS OF ELECTRIC APPLIANCES AS STARTING POINT FOR AN APPLIANCE CHARACTERISTICS CATALOG	3517
<i>Philipp Klein, Dirk Benyoucef, Jean Mercklé, Djaffar Ould Abdeslam</i>	
CHARGING STRATEGIES TO MINIMIZE THE PEAK LOAD FOR AN ELECTRIC VEHICLE FLEET	3522
<i>Van-Linh Nguyen, Tuan Tran-Quoc, Seddik Bacha, Be Nguyen</i>	
HYBRID INCREMENTAL COST CONSENSUS ALGORITHM FOR SMART GRID DISTRIBUTED ENERGY MANAGEMENT UNDER PACKET LOSS ENVIRONMENT	3529
<i>Yuan Zhang, Mo-Yuen Chow</i>	
HYBRID PSO-TABU SEARCH FOR OPTIMAL REACTIVE POWER DISPATCH PROBLEM	3536
<i>Zahir Sahlí, Abdelghani Bekrar, Damien Trentesaux, Abdelatif Hamouda</i>	
IDENTIFYING LINE VULNERABILITY IN POWER SYSTEM USING MAXIMUM FLOW BASED COMPLEX NETWORK THEORY	3543
<i>Jinjian Wang, Xinghuo Yu, Brendan Mcgrath, Jiangxia Zhong</i>	
INTELLIGENT AGENT FRAMEWORK FOR DEMAND RESPONSE AGGREGATION IN SMART MICROGRIDS	3549
<i>Anudeep Sesetti, Swathi Battula, HSVS Kumar Nunna, Suryanarayana Doolla</i>	
INTERACTIVE ENERGY: AN APPROACH FOR THE DYNAMIC PRICING AND DISPATCHING OF EV CHARGING SERVICE	3556
<i>Danilo A. Sbordone, Maria C. Falvo, Michael Devetsikiotis, Luigi Martirano, Biagio Di Pietra</i>	
MODEL-DRIVEN DEVELOPMENT OF SMART GRID SERVICES USING SOAML	3563
<i>Anna M. Kosek, Oliver Gehrke</i>	
MULTI-LAYER AGENT-BASED ARCHITECTURE FOR SMART GRID RECONFIGURATION	3570
<i>Ines Sanz, Susel Fernandez, Francisco Javier Rodriguez, Miguel Moranchel, Carlos Giron, Cesar Mataix, Emilio Jose Bueno, Rocio Martin</i>	
PRACTICAL DECISION MAKING FOR INDUSTRIAL AGENTS IN SMART GRID APPLICATIONS	3584
<i>Gulnara Zhabelova, Valeriy Vyatkin, Victor Dubinin</i>	
RAPID PROTOTYPING OF DISTRIBUTED ENERGY RESOURCES INTEGRATING ICT AND POWER ELECTRONICS DESIGN	3591
<i>Peter Jonke, Biswas Sumanta, Filip Andrén, Johannes Stöckl, Thomas Strasser</i>	
THE SCHEME OF A NOVEL METHODOLOGY FOR ZONAL DIVISION BASED ON POWER TRANSFER DISTRIBUTION FACTORS	3598
<i>Michal Klos, Karol Wawrzyniak, Marcin Jakubek, Grzegorz Orynczak</i>	
TOWARDS A PROCESS FOR INTEGRATED IEC 61850 AND OPC UA COMMUNICATION: USING THE EXAMPLE OF SMART GRID PROTECTION EQUIPMENT	3605
<i>Martin Büscher, Matthias Kube, Sebastian Lehnhoff, Klaus Piech, Sebastian Rohjans, Jörn Trefke</i>	
VULNERABILITY IDENTIFICATION AND CLASSIFICATION VIA TEXT MINING BUG DATABASES	3612
<i>Dumidu Wijayasekara, Milos Manic, Miles McQueen</i>	

CONTROL AND FILTERING FOR DISTRIBUTED NETWORKED SYSTEMS

ADAPTIVE MULTIPLICATIVE GENERAL PARAMETER FIR FILTERS COMPARISON	3632
<i>Jakub Talla, Zdenek Peroutka, Vojtech Blahnik</i>	
CO-DESIGN OF EVENT-TRIGGERING SCHEME AND DISTRIBUTED H-INFINITY FILTERS FOR NETWORKED SYSTEMS WITH SENSOR NETWORKS	3638
<i>Bo Liu, Qing-Long Han, Xian-Ming Zhang</i>	
CONTROL AND SYNCHRONIZATION OF DISTRIBUTED CONTROLLERS IN MODULAR CONVERTERS	3644
<i>Ali Azidehak, Nima Yousefpoor, Subhashish Bhattacharya</i>	
CONTROL OF SAMPLED-DATA SYSTEMS USING A SATURATED QUANTIZER	3651
<i>Hanyong Shao, Qing-Long Han, Zhengqiang Zhang, Xunlin Zhu</i>	
DECENTRALIZED CONTROL OF COUPLED NONLINEAR DYNAMIC SYSTEMS	3657
<i>Saroj Biswas, Frank Ferrese, Qing Dong, Jason Batcho</i>	
EVENT-TRIGGERED PREDICTIVE CONTROL FOR NETWORKED SYSTEMS WITH COMMUNICATION DELAYS COMPENSATION	3662
<i>Dong Yue, Xiuxia Yin, Songlin Hu</i>	
HAMILTONIAN-BASED BINOCULAR VISUAL SERVOING OF CAMERA-IN-HAND ROBOTIC SYSTEMS	3669
<i>Bo Yang, Huiguang Li, Xinchun Jia, Dawei Zhang</i>	
MULTI-ROBOT COALITION FORMATION BASED ON CREDIT MECHANISM	3675
<i>Chaoliang Zhong, Fan Yang, Fei Liu, Botao Zhang, Qiang Lu, Shirong Liu</i>	
NETWORKED-BASED H_{∞} CONTROL FOR A CLASS OF DUAL-RATE SAMPLED-DATA SYSTEMS	3682
<i>Weiwei Ma, Yanping Yang, Xinchun Jia, Dawei Zhang</i>	
NONLINEAR PREDICTIVE CONTROL OF NETWORKED SYSTEMS WITH DELAYS AND PACKET DROPOUTS	3687
<i>Hai-Hong Wang, Xian-Li Chen, Ying Guo</i>	

PMQFLOW: DESIGN OF PROPAGATION TIME MEASURING QOS SYSTEM WITH OPENFLOW FOR PROCESS AUTOMATION	3693
<i>Hiroshi Miyata, Mitaro Namiki, Mikiko Sato</i>	
QUANTIZED H INFINITY CONTROL FOR NETWORKED SYSTEMS WITH RANDOMLY MULTI-STEP TRANSMISSION DELAYS	3700
<i>Yilian Zhang, Fuwen Yang</i>	
STABILIZATION AND ENERGY MANAGEMENT IN A DC NETWORK BY SWITCHING BETWEEN “REGULAR” AND “SINGULARLY PERTURBED” CONTROLLERS	3706
<i>Akram Fayaz</i>	
SYNCHRONIZATION OF HETEROGENEOUS DYNAMICAL NETWORKS VIA DISTRIBUTED IMPULSIVE CONTROL	3713
<i>Wangli He, Qing-Long Han, Feng Qian</i>	
UNBIASED MINIMUM-VARIANCE FILTERING FOR SYSTEMS WITH RANDOMLY MULTI-STEP SENSOR DELAYS	3720
<i>Yilian Zhang, Fuwen Yang, Qing-Long Han</i>	

REAL-TIME SIMULATION AND HARDWARE-IN-THE-LOOP VALIDATION METHODS FOR POWER AND ENERGY SYSTEMS

A HIGH-FIDELITY INTEGRATED PLATFORM FOR RAPID PROTOTYPING OF AC MOTOR DRIVES	3730
<i>Zhuangyao Tang, Xiong Li, Bilal Akin, Hua Jin</i>	
COMPARATIVE STUDY OF DC CIRCUIT BREAKERS USING REALTIME SIMULATIONS	3736
<i>Maziar Mobarrez, Mahsa Ghapandar Kashani, Subhashish Bhattacharya, Rambabu Adapa</i>	
CONVERSION OF PSS@E MODELS INTO RSCAD MODELS: LESSONS LEARNED	3743
<i>Harsha Ravindra, M. Omar Faruque, Mischa Steurer, Michael Andrus, Md Kamrul Hasan Pulok</i>	
DESIGN ASPECTS OF A POWER HARDWARE IN LOOP SIMULATOR	3750
<i>Kapil Jha, Nalin Lochan Gupta, Santanu Mishra, Avinash Joshi</i>	
EXPERIMENTAL PERFORMANCE ASSESSMENT OF A GENERATOR’S EXCITATION CONTROL SYSTEM USING REAL-TIME HARDWARE-IN-THE-LOOP SIMULATION	3756
<i>Muhammad Shoaib Almas, Luigi Vanfretti</i>	
FPGA-BASED REAL-TIME SIMULATION OF NONLINEAR PERMANENT MAGNET SYNCHRONOUS MACHINES FOR POWER HARDWARE-IN-THE-LOOP EMULATION SYSTEMS	3763
<i>Alexander Schmitt, Jan Richter, Uli Jurkewitz, Michael Braun</i>	
IMPLEMENTATION OF CONVENTIONAL AND PHASOR BASED POWER SYSTEM STABILIZING CONTROLS FOR REAL-TIME SIMULATION	3770
<i>Muhammad Shoaib Almas, Luigi Vanfretti</i>	
IMPLEMENTATION OF DIFFERENTIAL RELAY FOR MVDC DISTRIBUTION SYSTEMS USING REAL TIME SIMULATION AND HARDWARE-IN-THE-LOOP	3777
<i>Mehdi Monadi, Cosmin Koch-Ciobotaru, Alvaro Luna, Jose Ignacio Candela, Pedro Rodriguez</i>	
MODELING THREE-PHASE SATURABLE TRANSFORMERS FOR REAL-TIME SIMULATION	3783
<i>Xinhua Ke, Roxana Ionutiu</i>	
REAL-TIME POWER-HARDWARE-IN-THE-LOOP DISCRETE MODELING OF PMSM WIND TURBINES	3790
<i>Francisco Huerta, Milan Prodanovic, Pablo Matatagui</i>	
REAL-TIME SIMULATION OF MODULAR MULTILEVEL CONVERTER ON FPGA WITH SUB-MICROSECOND TIME-STEP	3797
<i>Luc-Andre Gregoire, Handy Fortin-Blanchette, Wei Li, Jean Belanger, Kamal Al-Haddad</i>	
UTILIZATION OF ADAPTIVE PHIL INTERFACES FOR HARMONIC LOAD CASES	3803
<i>Sanaz Paran, Fletcher Fleming, Dan Li, Chris Edrington</i>	

ELECTRICAL MACHINE DESIGN FOR DRIVES AND GENERATORS IN AUTOMOTIVE AND RENEWABLE ENERGY APPLICATIONS

A COMPARATIVE STUDY OF SYNCHRONOUS RELUCTANCE MACHINE PERFORMANCE WITH DIFFERENT POLE NUMBERS FOR AUTOMOTIVE APPLICATIONS	3812
<i>Syedmorteza Taghavi, Pragasen Pillay</i>	
BASIC OPERATING CHARACTERISTICS OF WIRELESS POWER TRANSFER SYSTEM FOR SMALL PORTABLE DEVICES	3819
<i>Vladimir Kindl, Tomas Kavalir, Roman Pechanek, Karel Hruska</i>	
CASCADED PREDICTIVE SPEED CONTROL	3824
<i>Cristian Garcia, Jose Rodriguez, Cesar Silva, Christian Rojas, Pericle Zanchetta, Haitham Abu-Rub</i>	
HIGH SPEED GENERATOR IN A CHP UNIT	3831
<i>Jan Chysky, Martin Novak, Jaroslav Novak</i>	
IMPROVEMENTS IN PERMANENT MAGNET SYNCHRONOUS MACHINES WITH DELTA-CONNECTED WINDING	3837
<i>Ronggang Ni, Xianguo Gui, Gaolin Wang, Guoqiang Zhang, Dianguo Xu</i>	
INVERTER-FED INDUCTION MACHINES IN TRACTION APPLICATIONS - EXTRACTION OF EQUIVALENT CIRCUIT PARAMETERS FROM SYNCHRONOUS SPEED AND LOCKED ROTOR TESTS	3843
<i>Mircea Popescu, Martin Hafner, David Dorrell</i>	

MACHINE DESIGN CONSIDERATIONS FOR AN MHF/SPB-CONVERTER BASED ELECTRIC DRIVE	3849
<i>Hui Zhang, Oskar Wallmark, Mats Lekslil, Staffan Norrga, Mojgan Nikouei Harnefors, Lebing Jin</i>	
MODELING OF A PERMANENT-MAGNET EXCITED SYNCHRONOUS MACHINE WITH BEARING DAMAGE	3855
<i>Piantsop Mbo'o Christelle, Hameyer Kay</i>	
MOTOR PARAMETER AUTO-IDENTIFICATION BASED ON SENSORLESS STARTUP PROCEDURE FOR PMSM DRIVES	3861
<i>Wen-Chun Chi, Ming-Yang Cheng, Cheng-Lin Li, Ke-Han Su, Wen-Hong Li</i>	
RESEARCH ON WOUND FIELD DOUBLY SALIENT GENERATOR WITH SERIAL COMPENSATION CAPACITORS	3867
<i>Zhituo Ni, Zhihui Chen, Xiaofei Yu</i>	

WIRELESS COMMUNICATION SYSTEMS FOR INDUSTRIAL APPLICATIONS

A SAFETY FUNCTION RESPONSE TIME MODEL FOR WIRELESS INDUSTRIAL CONTROL	3878
<i>Victoria Pimentel, Bradford G. Nickerson</i>	
AN EFFICIENT TECHNIQUE OF SCHEDULING MOBILE SINKS IN HYBRID WSN	3885
<i>Chu Du, Zhangbing Zhou, Lei Shu</i>	
AN IMPROVED ONLINE LEARNING ALGORITHM AND ITS APPLICATIONS ON LEAK POINTS PREDICTION OF GAS PIPE IN PETROCHEMICAL INDUSTRIES	3892
<i>Linchao Zhuo, Kun Wang, Lei Shu, Chunsheng Zhu, Zhiyou Ouyang</i>	
ENERGY CONSUMPTION AUDIT SYSTEM FOR SMART BUILDING	3897
<i>R. Pieterse, Anuj Kumar, Gerhard Hancke</i>	
IMPLEMENTATION ANALYSIS OF GPRS COMMUNICATION FOR PRECISION AGRICULTURE	3903
<i>Jorge Salas, Humberto Vega, Julio Ortiz, Raime Bustos, Camilo Lozoya</i>	
PERFORMANCE ANALYSIS OF DOWNHOLE ACOUSTIC COMMUNICATION IN MULTIPHASE FLOW	3909
<i>Talha Ahmad, Mohamed Noui-Mehidi, Muhammad Arsalan</i>	
PLACE-&-PLAY INDUSTRIAL ROUTER ADDRESSING POTENTIAL EXPLOSIVE ATMOSPHERES	3914
<i>José Oliveira, Sónia Semedo, Duarte Raposo, Francisco Cardoso</i>	
POSITIONING INFRASTRUCTURE FOR INDUSTRIAL AUTOMATION SYSTEMS BASED ON UWB WIRELESS COMMUNICATION	3919
<i>Bruno Silva, Zhibo Pang, Johan ÅKerberg, Jonas Neander, Gerhard Hancke</i>	
SENSORS POSITIONING IN OUTDOOR ENVIRONMENT WITH SIGNAL STRENGTH	3926
<i>Faan Hei Hung, Hao Ran Chi, Benjamin Yee Shing Li, Kim Fung Tsang</i>	

ENERGY MANAGEMENT AND CONTROL FOR FUEL CELL VEHICLES

A ROBUST FLYBACK CONVERTER BASED ON HIGH ORDER SLIDING MODE CONTROL FOR FUEL CELL	3936
<i>Yigeng Huangfu, Yu Wu</i>	
A SHORT REVIEW OF AGING MECHANISM MODELING OF PROTON EXCHANGE MEMBRANE FUEL CELL IN TRANSPORTATION APPLICATIONS	3941
<i>Elena Breaz, Fei Gao, Abdellatif Miraoui, Radu Tirnovan</i>	
DESIGN OF A FUEL CELL-BASED BATTERY EXTENDER AUXILIARY POWER UNIT FOR A VEHICULAR MICROGRID	3948
<i>Saleh Ziaenejad, Younes Sangsefidi, Ramon Zamora, Ali Mehrizi-Sani, Anurag Srivastava</i>	
ENERGY MANAGEMENT FOR A FUEL CELL HYBRID ELECTRICAL VEHICLE	3955
<i>Mona Ibrahim, Samir Jemei, Genevieve Wimmer, Daniel Hissel</i>	
ENERGY MANAGEMENT OF FUEL CELL ELECTRIC VEHICLE WITH HYDRIDE TANKS	3962
<i>Alexandre Ravey, Sebastien Faivre, Charles Higel, Harel Fabien, Abdesslem Djerdir</i>	
HARDWARE-IN-THE-LOOP VALIDATION OF AN AIR SUPPLY METHOD FOR VEHICULAR FUEL CELL APPLICATIONS	3968
<i>Dongdong Zhao, Yigeng Huangfu, Manfeng Dou, Fei Gao</i>	
START-STOP SYSTEM OF A CITY BUS BASED ON MODEL PREDICTIVE CONTROL	3973
<i>Radim Dudek, Vaclav Smidl, Zdenek Peroutka</i>	

HUMAN SUPPORT TECHNOLOGY ON HUMAN FACTORS

A DRIVING ASSISTANCE FOR A POWERD WHEELCHAIR ON A PEDESTRIAN FLOWS	3982
<i>Daisuke Chugo, Zhaoyu Liu, Satoshi Muramatsu, Yuki Sakaida, Sho Yokota, Hiroshi Hashimoto</i>	
A SMARTPHONE CENTERED SYSTEM FOR HOME APPLIANCES	3988
<i>Wataru Toriumi, Seiichi Shin, Kenji Sawada</i>	
APPLICATION OF GAIT ANALYSIS FOR HEMIPLEGIC PATIENTS USING SIX-AXIS WEARABLE INERTIA SENSORS	3993
<i>Qiang Fang, Zhe Zhang, Yinjun Tu</i>	
DYNAMIC FUZZY FORCE FIELD BASED FORCE-FEEDBACK FOR COLLISION AVOIDANCE IN ROBOT MANIPULATORS	3997
<i>Dumidu Wijayasekara, Milos Manic</i>	

EXTRACTION OF TRAINEE FORCE BASED ON MOTION-COPYING SYSTEM FOR TRAINING SYSTEM	4004
<i>Hiroki Onoyama, Seiichiro Katsura</i>	
HAND MODEL WITH SOFT SKIN FOR EVALUATION OF HUMAN HAND MOTION	4010
<i>Akinori Sasaki, Hiroshi Hashimoto</i>	
HUMAN RESPONSE TIME ANALYSIS BY USING A WIRELESS EMG MEASURING INSTRUMENT WITH HIGH VOLTAGE STIMULATION	4016
<i>Hiroyuki Kobayashi, Yasuhiro Tatsukami</i>	
IMPROVEMENT IN MUTUAL INTERACTION BETWEEN ROBOT AND PERSON FOR ATTACHMENT BEHAVIOR OF ROBOT	4022
<i>Mihoko Niitsuma, Yohei Takahashi, So Takahashi</i>	
LOCAL PATH PLANNING STRATEGY: A PRACTICAL IMPLEMENTATION FOR VERSATILE DISTANCE	4028
<i>Danilo Cáceres Hernández, Van-Dung Hoang, Alexander Filonenko, Kang-Hyun Jo</i>	
MIRROR THERAPY SYSTEM BASED VIRTUAL REALITY FOR CHRONIC PAIN IN HOME USE	4034
<i>Satoshi Fukumori, Kenji Isatake, Akio Gofuku, Kenji Sato</i>	
MOBILE ROBOT LOCALIZATION TECHNIQUE USING ROAD SURFACE IMAGES	4040
<i>Satoshi Muramatsu</i>	
MOTION DESIGN OF SERVICE ROBOT - IMPLEMENTATION TO THE ROBOT -	4046
<i>Sho Yokota, Daisuke Chugo, Hiroshi Hashimoto, Kuniaki Kawabata</i>	
OBJECT RECOGNITION BASED ON HUMAN DESCRIPTION ONTOLOGY FOR SERVICE ROBOTS	4051
<i>Hisato Fukuda, Satoshi Mori, Yoshinori Kobayashi, Yoshinori Kuno, Daisuke Kachi</i>	
RECOGNITION OF SURFACES BASED ON HAPTIC INFORMATION USING SELF-ORGANIZING MAPS	4057
<i>Tomohiro Nakano, Rolf Johansson, Kouhei Ohnishi</i>	
SMOKE DETECTION ON ROADS FOR AUTONOMOUS VEHICLES	4063
<i>Alexander Filonenko, Van-Dung Hoang, Kang-Hyun Jo</i>	
THE GUIDANCE METHOD OF A MOBILE ROBOT IN CONSIDERATION OF HUMAN WALKING CHARACTERISTICS -1ST REPORT: INVESTIGATION OF HUMAN WALKING CHARACTERISTICS-	4067
<i>Shinpei Nakamoto, Satoshi Muramatsu, Daisuke Chugo, Sho Yokota, Hiroshi Hashimoto</i>	
TOWARD OBJECT RECOGNITION AND MANIPULATION BY HUMAN MOTION DATA WITH VISION AND TACTILE SENSATION	4074
<i>Seinan Kyo, Kohei Ohnishi</i>	
TRAFFIC SIGN RECOGNITION SYSTEM FOR AUTONOMOUS VEHICLE USING CASCADE SVM CLASSIFIER	4081
<i>Wahyono Wahyono, Laksano Kurnianggoro, Joko Hariyono, Kang-Hyun Jo</i>	

POWER CONVERTERS, CONTROL, AND ENERGY MANAGEMENT FOR DISTRIBUTED GENERATION

A DISCRETE-TIME SLIDING MODE CURRENT OBSERVER APPLIED TO A DSTATCOM-BASED VOLTAGE REGULATOR FOR A SELF EXCITED INDUCTION GENERATOR	4090
<i>Mauricio Mendes Silva, Robinson Figueiredo de Camargo, Hilton Abilio Grundling</i>	
A HYBRID FUEL CELL-BATTERY POWER SYSTEM	4096
<i>Lan-Rong Dung, Hsiang-Fu Yuan</i>	
A METHOD OF OPTIMIZING THE SWITCHING FREQUENCY BASED ON THE LOSS ANALYSIS MODEL	4103
<i>Lei Zhao, Haoyu Li, Chao Wang, Yuan Liu</i>	
A MODIFIED MODULATION STRATEGY FOR AN ACTIVE RECTIFIER STAGE STRUCTURALLY BASED ON THE TOPOLOGY OF AN INDIRECT MATRIX CONVERTER	4110
<i>Philip Dost, Kamil Korotkiewicz, Constantinos Sourkounis</i>	
A NEW HYBRID SVPWM STRATEGY TO MINIMIZE THE NEUTRAL POINT VOLTAGE RIPPLE OF A THREE-LEVEL T-TYPE CONVERTER	4115
<i>Xiong Li, Bilal Akin, Kaushik Rajashekara</i>	
A NEW SINGLE INDUCTOR BIPOLAR MULTIPLE OUTPUT (SIBMO) ON-CHIP BOOST CONVERTER USING RIPPLE-BASED CONSTANT ON-TIME CONTROL FOR LCD DRIVERS	4122
<i>Chun-Kai Chang, Chung-Hsin Su, Paul C.-P. Chao</i>	
A NONISOLATED MULTIPLE-INPUT MULTIPLE-OUTPUT DC-DC CONVERTER FOR DC DISTRIBUTION OF FUTURE ENERGY EFFICIENT HOMES	4126
<i>Yajian Tong, Zhenyu Shan, Juri Jatskevich, Ali Davoudi</i>	
A NOVEL CONVERTER SYSTEM FOR DFIG BASED ON DC TRANSMISSION	4133
<i>Shaomin Yan, Hang Zhang, Aimin Zhang, Jianhua Wang</i>	
A NOVEL DUAL-PHASE-SHIFT CONTROL STRATEGY FOR DUAL-ACTIVE-BRIDGE DC-DC CONVERTER	4140
<i>Bo Feng, Yubin Wang, Jingbin Man</i>	
A STUDY OF CIRCULATING CURRENT IN MMC BASED HVDC SYSTEM UNDER AN UNBALANCED GRID CONDITION	4146
<i>Won-Seok Do, Si-Hwan Kim, Tae-Jin Kim, Rae-Young Kim</i>	
A TUTORIAL ON IMPLEMENTATION OF SLIDING MODE OBSERVER FOR DC/DC POWER CONVERTERS USING FPGA	4153
<i>Priyanka Bhartiya, Nupur Rathore, Deepakkumar Fulwani</i>	

AN ACTIVE DAMPING CONTROL METHOD FOR A BI-DIRECTIONAL FLYBACK CONVERTER DRIVING A PIEZOELECTRIC TRANSDUCER	4160
<i>Li-Chen Cheng, Chern-Lin Chen</i>	
AN IMPROVED SELF-DRIVEN SYNCHRONOUS RECTIFIER FOR HIGH EFFICIENCY DIMMABLE LED LIGHTING APPLICATIONS	4166
<i>Ekkachai Mujjalinvimut, Piyasawat Navaratana Na Ayudhya, Anawach Sangswang</i>	
AN INDUCTOR CURRENT SENSING TECHNIQUE FOR DIGITAL CONTROLLERS	4171
<i>Nalin Lochan Gupta, Santanu Mishra, Kapil Jha</i>	
ANALYSIS AND DESIGN OF ELECTRONIC BALLAST FOR STABILIZATION OF HID LAMPS WITH LOW FREQUENCY SQUARE WAVEFORM	4178
<i>Mario Juarez, Panfilo Martinez, Gerardo Vazquez, Miguel Sosa, Mario Ponce</i>	
ANALYSIS AND DESIGN OF LLC BALLAST IN GM MODE FOR PHOTOVOLTAIC ENERGY BACKUP LED STREETLIGHT	4185
<i>Hung-I Hsieh, Yi-Chieh Syu, Guan-Chyun Hsieh</i>	
ANALYSIS AND SUPPRESSION OF THE INPUT SECOND HARMONIC CURRENT IN TWO-STAGE INVERTER	4192
<i>Lei Ren, Yao Zhao, Chunying Gong, Xiang Deng, Zheng Wei</i>	
ASYMMETRICAL HALF-BRIDGE CONVERTER WITH ADAPTIVE FEEDBACK COMPENSATION FOR DIMMABLE LED LIGHTING APPLICATIONS	4198
<i>Ekkachai Mujjalinvimut, Piyasawat Navaratana Na Ayudhya, Anawach Sangswang</i>	
COMPARATIVE ANALYSIS OF ENERGY CONTROL TECHNIQUES FOR DC MICROGRID AND PULSED POWER LOAD APPLICATIONS	4204
<i>Mustafa Farhadi, Ali Mazloomzadeh, Osama Mohammed</i>	
COMPARISON OF CURRENT CONTROL METHODS FOR GRID-CONNECTED LOW-POWER SINGLE-PHASE CONVERTERS	4211
<i>Antonio Martins, Sandro Vale, Vitor Sobrado, Adriano Carvalho</i>	
CONTROL OF A REGENERATIVE SUSPENSION SYSTEM UTILIZING A THREE-PHASE BIDIRECTIONAL CONVERTER	4218
<i>Yaser M. Roshan, Mehrdad Moallem</i>	
CONTROL STRUCTURES FOR THE UNIFIED POWER FLOW CONTROLLER	4224
<i>Saman Babaei, Govind Chavan, Subhashish Bhattacharya</i>	
CURRENT-FED THREE-PHASE SOFT-SWITCHING DC/DC CONVERTER WITH NATURAL DEVICE COMMUTATION AND VOLTAGE CLAMPING	4231
<i>Akshay K Rathore, Pan Xuwei</i>	
DESIGN AND OPTIMIZATIONS OF A DIRECT TORQUE HYSTERESIS CONTROLLER	4243
<i>Philip Dost, Marcel Scheuer, Constantinos Sourkounis</i>	
DESIGN OF 2MW/10KV CASCADED POWER CONVERSION SYSTEM	4250
<i>Zhi-Bin Ling, Yang Cao, Qin-Dong Ma, Hai-Feng Guo, Bai-hua Zhang, Zhi-Gang Lu</i>	
DESIGN OF A COMPACT, ULTRA HIGH EFFICIENT ISOLATED DC-DC CONVERTER UTILIZING GAN DEVICES	4256
<i>Rakesh Ramachandran, Morten Nymand, Niels H. Petersen</i>	
DISCONTINUOUS CONDUCTION MODE OF A THREE-LEVEL BOOST DC-DC CONVERTER AND ITS MERITS AND LIMITS FOR VOLTAGE CROSS REGULATION APPLICATIONS	4268
<i>Deepak Elamalayil Soman, Lais A. Vitoi, Kasthuri Vikram, Sanjay Santhosh Kumar, Janaina G. Oliveira, Remya Krishna, Sasi K. Kottayil, Mats Leijon</i>	
DISCRETE-TIME SUPER TWISTING SLIDING-MODE CONTROL APPLIED TO A DSTATCOM-BASED VOLTAGE REGULATOR FOR A SELF EXCITED INDUCTION GENERATOR	4273
<i>Mauricio Mendes Silva, Thales G. Kenne, Rodrigo Vieira, Robinson Figueiredo de Camargo, Fernando Botteron, José Pinheiro</i>	
EFFICIENCY OPTIMIZATION OF A SINGLE-PHASE BOOST DC-DC CONVERTER FOR ELECTRIC VEHICLE APPLICATIONS	4279
<i>Wilmar Hernan Martinez Martinez, Masayoshi Yamamoto, Petar Grbovic, Camilo Andres Cortes Guerrero</i>	
ENERGY-BASED CONTROLLED MODEL FOR AUTONOMOUS LIFTS	4286
<i>Thanh Hung Pham, Laurent Lefevre, Denis Genon-Catalot, Van Thang Pham</i>	
HIGH-FREQUENCY SOFT-SWITCHING LCC RESONANT CURRENT-FED DC/DC CONVERTER WITH HIGH VOLTAGE GAIN FOR DC MICROGRID APPLICATION	4293
<i>Akshay K. Rathore, Devendra M. Patil, Dipti Srinivasan, Sanjib Panda</i>	
IMPROVED DIGITAL AVERAGE CURRENT SHARING CONTROL STRATEGY FOR DC MICROGRIDS	4300
<i>Po-Chun Liu, Po-Hsu Huang, Weidong Xiao, Hatem Zeineldin, Mohamed Elmoursi</i>	
INCREASING RESOLUTION IN THREE-PHASE CASCADED ASYMMETRICAL MULTILEVEL INVERTERS	4306
<i>Sumit K. Chattopadhyay, Chandan Chakraborty</i>	
INTELLIGENT CONTROL OF A HYBRID ELECTRIC ENERGY SOURCE	4312
<i>Alireza Payman, Brayima Dakyo</i>	
MODIFIED HYBRID MULTI-CARRIER PWM TECHNIQUE FOR CASCADED H-BRIDGE MULTILEVEL INVERTER	4318
<i>Indrajit Sarkar, B. G. Fernandes</i>	
MULTI-FREQUENCY POWER TRANSFER IN A SMART TRANSFORMER BASED DISTRIBUTION GRID	4325
<i>Sebastian Brüske, Giovanni De Carne, Marco Liserre</i>	

NON-ISOLATED HIGH-FREQUENCY-LINK TO FEED AUXILIARY BRIDGES OF ASYMMETRICAL CASCADED MULTILEVEL INVERTER	4332
<i>Sumit K. Chattopadhyay, Puspendu Jana, Chandan Chakraborty</i>	
NUMERICAL ALGORITHM FOR DISTRIBUTION-MAP DERIVATIONS OF SWITCHING CONVERTERS	4338
<i>Yuta Yamada, Tomoharu Nagashima, Yoshifumi Ibuki, Yoshiki Fukumoto, Hiroo Sekiya</i>	
ON INFLUENCE OF VARIOUS MODULATION SCHEMES ON A PMSM WITHIN AN ELECTRIC VEHICLE	4345
<i>Philip Dost, Constantinos Sourkounis</i>	
ONLINE FREQUENCY ESTIMATION IN POWER SYSTEMS: A COMPARATIVE STUDY OF ADAPTIVE METHODS	4352
<i>Anh Tuan Phan, Gilles Hermann, Patrice Wira</i>	
PERTURBATION REJECTION CONTROL STRATEGY OF BATTERIES/SUPERCAPACITORS HYBRID POWER SOURCES FOR HYBRID ELECTRIC VEHICLES	4358
<i>Ping Dai, Sebastien Cauet, Patrick Coirault</i>	
POWER MANAGEMENT CONTROL FOR SOLAR PHOTOVOLTAIC BASED DC SYSTEM	4365
<i>Sandeep Anand, B. G. Fernandes</i>	
RCD SNUBBER CIRCUIT DESIGN FOR 5-LEVEL 4-SWITCH DC-AC CONVERTER	4371
<i>Sally Sajadian, Euzeli dos Santos</i>	
SINGLE-STAGE THREE-PHASE AC TO DC CONVERSION WITH ISOLATION AND BI-DIRECTIONAL POWER FLOW	4378
<i>Bas Vermulst, Jorge Duarte, Korneel Wijnands, Elena Lomonova</i>	
SLIDING MODE CONTROL IN A MULTI-LOOP FRAMEWORK FOR CURRENT CONTROL OF A GRID-TIED INVERTER VIA LCL-FILTER	4384
<i>Rodrigo P. Vieira, Márcio Stefanello, Rodrigo V. Tambara, Hilton A. Gründling</i>	
SLIDING MODE CONTROL OF DSP BASED POWER CONVERTERS FOR ELECTRIC VEHICLES AND ENERGY APPLICATIONS	4390
<i>Woonki Na, Basheer Qattum, Andy Pybles</i>	
SYNCHRONVERTER-BASED TRANSFORMERLESS PV INVERTERS	4396
<i>Wen-Long Ming, Qing-Chang Zhong</i>	
TESTING A COMPLETE CONTROL AND PROTECTION SYSTEM FOR MULTI-TERMINAL MMC HVDC LINKS USING HARDWARE-IN-THE-LOOP SIMULATION	4402
<i>Zhe Zhu, Xiaolin Li, Hong Rao, Weihua Wang, Wei Li</i>	
UNDERSTANDING AND MODELING OF MATRIX CONVERTERS FOR APPLICATION IN RENEWABLE ENERGY AND MICRO GRID APPLICATIONS	4409
<i>David Dorrell</i>	
UNIFIED POWER FLOW CONTROLLER OPERATIONAL LIMIT IMPROVEMENT	4416
<i>Saman Babaei, Govind Chavan, Subhashish Bhattacharya</i>	
VOLTAGE BALANCING NETWORKS FOR FLOATING VOLTAGE SOURCE CONVERTERS USING TRANSFORMER COUPLED ASYMMETRICAL BRIDGES	4423
<i>Reaz Ul Haque, Siyu Leng, Nirmana Perera, John Salmon</i>	
VOLTAGE SUPPORT BY OPTIMAL INTEGRATION OF PLUG-IN HYBRID ELECTRIC VEHICLES TO A RESIDENTIAL GRID	4430
<i>Andres Ovalle, Seddik Bacha, Ahmad Hably, Mariam Ahmed</i>	
<u>FAULT DIAGNOSTICS AND FAULT TOLERANCE IN POWER ELECTRONICS AND DRIVES</u>	
A NEW FAULT TOLERANT SVPWM STRATEGY FOR MULTILEVEL CONVERTERS	4440
<i>Xiong Li, Serkan Dusmez, Bilal Akin, Kaushik Rajashekara</i>	
ENABLING TECHNOLOGIES FOR A FAULT TOLERANT LINEAR ACTUATION DRIVE	4446
<i>Giampaolo Buticchi, Michael Galea, Lee Empringham, Liliana De Lillo, Chris Gerada, Claudio Bianchini</i>	
FAST DETECTION OF SEQUENCE COMPONENTS USING SAVITZKY-GOLAY FILTERS	4453
<i>Jose Restrepo, Julio Viola, Flavio Quizhpi, Antonio Ginart</i>	
FAULT DIAGNOSIS IN NON-ISOLATED BIDIRECTIONAL HALF-BRIDGE DC-DC CONVERTERS	4458
<i>Eunice Ribeiro, Antonio J. Marques Cardoso, Chiara Boccaletti</i>	
FAULT TOLERANT OPERATION OF 5L-ANPC CONVERTERS	4464
<i>Jun Li, Jing Xu, Lisa Qi, Rolando Burgos</i>	
FAULT-TOLERANT MEDIUM-VOLTAGE POWER CONVERTERS FOR HIGH-CAPACITY BELT CONVEYOR SYSTEMS	4471
<i>Anderson Rocha, Braz Cardoso, Igor Pires, Helder De Paula</i>	
NEAR REAL-TIME INCIPIENT FAULT DETECTION IN IGBT SWITCHES	4484
<i>Robert Cox, Jason Anderson, Paul O'Connor</i>	
ON ANALYSIS OF ELECTRIC VEHICLES DC-QUICK-CHARGERS BASED ON THE CHADEMO PROTOCOL REGARDING THE CONNECTED SYSTEMS AND SECURITY BEHAVIOUR	4492
<i>Philip Dost, Abdoukarim Bouabana, Constantinos Sourkounis</i>	
SEPARATION OF FUNDAMENTAL WAVE AND TRANSIENT COMPONENTS OF THE CURRENT SIGNAL FOR MACHINE INSULATION STATE MONITORING	4498
<i>Clemens Zoeller, Markus Vogelsberger, Thomas Winter, Martin Bazant, Thomas Wolbank</i>	

MULTILEVEL CONVERTERS: TOPOLOGIES, CONTROL, MODULATION AND APPLICATIONS

A HARMONIC ELIMINATION APPROACH BASED ON MOVING AVERAGE FILTER FOR CASCADED DSTATCOM	4508
<i>Yue Wang, Kun Yang, Chao He, Guozhu Chen</i>	
A MODULATION STRATEGY FOR WIDE VOLTAGE OUTPUT IN DAB BASED DC-DC MODULAR MULTILEVEL CONVERTER	4514
<i>Todor Todorovic, Pavol Bauer, Jan Abraham Ferreira, Rick van Kessel</i>	
A NOVEL DC-LINK VOLTAGE AND CURRENT CONTROL ALGORITHM FOR NEUTRAL-POINT-CLAMPED CONVERTERS	4521
<i>Mario Porru, Alessandro Serpi, Ignazio Marongiu, Alfonso Damiano</i>	
A NOVEL NINE-ARM MODULAR MULTILEVEL CONVERTER	4528
<i>Jian Fu, Bo Zhang, Dongyuan Qiu</i>	
A NOVEL SUBMODULE CAPACITOR VOLTAGE BALANCING SCHEME FOR HYBRID CASCADED MULTILEVEL CONVERTER BY INJECTION OF ZERO SEQUENCE CURRENT	4534
<i>Ebin Cherian Mathew, Anshuman Shukla</i>	
A SPACE VECTOR MODULATION METHOD FOR COMMON-MODE VOLTAGE REDUCTION IN NESTED NEUTRAL POINT CLAMPED INVERTER	4541
<i>Kai Tian, Bin Wu, Mehdi Narimani, Dewei Xu, Zhongyuan Cheng, Navid Reza Zargari</i>	
ADVANCED CONTROL OF A MULTILEVEL CASCADED H-BRIDGE CONVERTER FOR PV APPLICATIONS	4548
<i>Abraham Marquez, Jose I. Leon, Sergio Vazquez, Leopoldo G. Franquelo</i>	
ALGORITHM FOR ON-LINE DEFINITION OF SWITCHING SEQUENCES FOR SPACE VECTOR MODULATION OF ASYMMETRICAL CASCADED MULTILEVEL CONVERTERS	4554
<i>Fernanda Carnielutti, Humberto Pinheiro</i>	
CASCADED H-BRIDGE TOPOLOGIES COMPARISON FOR MULTI-CELL CURRENT-SOURCE INVERTERS UNDER DIFFERENT DC INDUCTOR SIZE REDUCTION METHODS	4568
<i>Pedro Melín, José Espinosa, Jaime Rothen, Eduardo Espinosa, Carlos Baier, Johan Guzman</i>	
CONTROL AND PERFORMANCE OF MODULAR MULTILEVEL CONVERTERS CURRENTS USING RESONANT CONTROLLER	4575
<i>Mohamed Moez Belhaouane, Hani Saad, Xavier Guillaud</i>	
CONTROL OF A SERIES INPUT BOOST PRE-REGULATOR WITH UNBALANCED LOAD	4582
<i>Arun Sankar Uma Sankar, Santanu Mishra, Viswanathan Kankasabai, Rajendra Naik</i>	
CONTROL OF CASCADED H-BRIDGE ACTIVE RECTIFIER PROVIDING ACTIVE VOLTAGE BALANCING	4589
<i>Vojtech Blahnik, Zdenek Peroutka, Jakub Talla</i>	
CONTROL OF MODULAR MULTILEVEL CONVERTER BASED HVDC SYSTEMS DURING ASYMMETRICAL GRID FAULTS	4595
<i>Ghazal Falahi, Alex Huang</i>	
CONTROL OF MODULAR MULTILEVEL CONVERTERS BASED ON TIME-SCALE ANALYSIS AND ORTHOGONAL FUNCTIONS	4601
<i>Luca Zarri, Angelo Tani, Michele Mengoni, Giovanni Serra, Domenico Casadei, Remus Teodorescu, Marco Bonavoglia</i>	
CURRENT CONTROL OF THREE LEVEL NEUTRAL POINT CLAMPED VOLTAGE SOURCE RECTIFIERS USING SELECTIVE HARMONIC ELIMINATION	4608
<i>Thiago Morais Parreiras, Braz J. Cardoso Filho</i>	
D-Q-DC REFERENCE FRAME CONTROL STRATEGY FOR SINGLE-PHASE CURRENT SOURCE CASCADED INVERTERS	4615
<i>Carlos Baier, Miguel Torres, Javier Muñoz, Johan Guzman, Pedro Melin, Jaime Rothen, Marco Rivera</i>	
FIVE-LEVEL H-BRIDGE NPC CENTRAL PHOTOVOLTAIC INVERTER WITH OPEN-END WINDING GRID CONNECTION	4622
<i>Christian Rojas, Samir Kouro, Daniel Edwards, Bin Wu, Sebastian Rivera</i>	
FPGA BASED ONE-CYCLE CONTROL OF MULTILEVEL CASCADED H-BRIDGE INVERTER	4628
<i>Azhar Ul-Haq, Carlo Cecati, Hassan Abdullah Khalid</i>	
GAIN SCHEDULING SCHEME ASSISTING THE CONTROL STRATEGY FOR THREE-LEVEL NPC VSC-HVDC TRANSMISSION SYSTEM	4635
<i>Isaac Gonzalez, Homero Miranda, Victor Cardenas, Ricardo Alvarez</i>	
HIGH FREQUENCY LINK MULTI-WINDING POWER ELECTRONIC TRANSFORMER USING MODULAR MULTILEVEL CONVERTER FOR RENEWABLE ENERGY INTEGRATION	4642
<i>Ashish Kumar Sahoo, Ned Mohan</i>	
HYBRID SPACE VECTOR PWM STRATEGY FOR THREE-LEVEL NPC INVERTERS WITH OPTIMAL EXTENSION MODE	4649
<i>Changliang Xia, Guozheng Zhang, Hongjun Shao, Yun Zhang</i>	
INTEGRATED CURRENT-ENERGY MODELING AND NONLINEAR FEEDBACK CONTROL OF MODULAR MULTILEVEL STATCOMINTEGRATED CURRENT-ENERGY MODELING AND NONLINEAR FEEDBACK CONTROL OF MODULAR MULTILEVEL STATCOM	4656
<i>Hengyi Wang, Jiancheng Tong, Yun Wan, Steven Liu</i>	
LOW VOLTAGE RIDE THROUGH CONTROL OF MODULAR MULTILEVEL CONVERTER BASED HVDC SYSTEMS	4663
<i>Ghazal Falahi, Alex Huang</i>	
MODEL-BASED NPC CONVERTER REGULATION FOR SYNCHRONOUS RECTIFIER APPLICATIONS	4669
<i>Francisco Umbria, Francisco Gordillo, Francisco Salas</i>	

MODIFIED HALF-BRIDGE MODULAR MULTILEVEL CONVERTER FOR HVDC SYSTEMS WITH DC FAULT RIDE-THROUGH CAPABILITY	4676
<i>Khaled Ahmed, Ahmed Aboudshady</i>	
MULTI-LEVEL CONVERTER TO INTERFACE LOW VOLTAGE DC TO 3-PHASE HIGH VOLTAGE GRID WITH MEDIUM FREQUENCY TRANSFORMER ISOLATION	4683
<i>Kartik Iyer, Ned Mohan</i>	
MULTILEVEL MODULAR MATRIX CONVERTER FOR HIGH VOLTAGE APPLICATIONS -CONTROL, DESIGN AND EXPERIMENTAL CHARACTERISTICS-	4690
<i>Yushi Miura, Keiji Inubushi, Mitsutaka Ito, Toshifumi Ise</i>	
NOVEL CAPACITOR VOLTAGE BALANCING ALGORITHM FOR MODULAR MULTILEVEL CONVERTER	4697
<i>Miguel Moranchel Pérez, Emilio Bueno Peña, Francisco Javier Rodriguez Sanchez, Inés Sanz Alonso</i>	
SEVEN-LEVEL REDUCED FLYING CAPACITOR INVERTER WITH IMPROVED HARMONIC DISTORTION USING HYBRID PHASE-SHIFTED CARRIER PHASE-DISPOSITION PWM	4702
<i>Ziyou Lim, Ali Iftekhar Maswood, Heo Peng Gabriel Ooi, Moreddy Abhinava Chaitanya</i>	
SIMPLE AND ROBUST MULTI-OBJECTIVE PREDICTIVE CONTROL METHOD FOR A SINGLE-PHASE THREE-LEVEL NPC CONVERTER BASED ACTIVE POWER FILTER	4708
<i>Pablo Acuña, Luis Morán, Marco Rivera, Vassilios Agelidis</i>	
SPACE VECTOR MODULATION METHOD FOR MODULAR MULTILEVEL CONVERTERS	4715
<i>Yi Deng, Yebin Wang, Koon Hoo Teo, Ronald G. Harley</i>	
SWITCHING PULSE PATTERN OPTIMISATION FOR MODULAR MULTILEVEL CONVERTERS	4722
<i>Arman Hassanpoor, Staffan Norrga, Markus Lindgren</i>	

NETWORK BASED CONTROL SYSTEMS AND APPLICATIONS

A PROBABILISTIC APPROACH TO DESIGN OF REAL-TIME PRICING SYSTEMS OVER COMMUNICATION NETWORKS	4732
<i>Koichi Kobayashi, Kunihiko Hiraishi</i>	
A SOFT SENSOR FOR ENERGY EFFICIENT APPLICATION OF WIRELESS NETWORKED CONTROL SYSTEMS	4738
<i>Raul Mansano, Eliane Rodrigues, Thiago Oliveira, Eduardo Godoy</i>	
BILATERAL CONTROL SYSTEM WITH CDOB AND BAND ELIMINATE FILTER UNDER TIME DELAY	4745
<i>Ryohei Kozuki, Kouhei Ohnishi</i>	
DYNAMIC POWER MANAGEMENT IN A WIRELESS SENSOR NETWORK USING PREDICTIVE CONTROL	4756
<i>Olesia Mokrenko, Suzanne Leseq, Warody Lombardi, Diego Puschini, Carolina Albea, Olivier Debicki</i>	
INTERNET-BASED CONTROL OF A BALL-AND-PLATE SYSTEM: A CASE STUDY OF MODELING AND AUTOMATIC CODE GENERATION FOR NETWORKED CONTROL SYSTEMS	4762
<i>Gina Torres, Enric X. Martín, Manel Velasco, Pau Martí, Antonio Camacho</i>	
NETWORK-BASED \$H_{\infty}\$ CONTROL FOR OFFSHORE STEEL JACKET PLATFORMS	4768
<i>Bao-Lin Zhang, Li Wei, Qing-Long Han</i>	
OBSERVER-BASED CONTROL FOR NETWORKED SYSTEMS WITH EVENT-TRIGGERING PREDICTIVE SCHEME	4774
<i>Xiuxia Yin, Dong Yue, Songlin Hu</i>	
ONLINE CALCULATION OF OPERATIONAL FORCE IN BILATERAL CONTROL SYSTEM UNDER TIME-DELAY	4781
<i>Yoshiki Ohno, Nobuto Yoshimura, Kouhei Ohnishi</i>	
OPERATIONAL FORCE REDUCTION METHOD IN BILATERAL CONTROL SYSTEM AND EVALUATION UNDER TIME DELAY	4787
<i>Shuhei Shimizu, Yoshiki Ohno, Kouhei Ohnishi</i>	
PERFORMANCE ENHANCEMENT METHOD FOR BILATERAL TELECOMMUNICATION SYSTEM UTILIZING BUFFERED INFORMATION	4793
<i>Satoshi Nishimura, Seiichiro Katsura</i>	
STABILIZING CONTROLLER DESIGN OF SYSTEM WITH TIME-VARYING DELAY BASED ON THE COMPLETE QUADRATIC LYAPUNOV-KRASOVSKII FUNCTIONAL	4806
<i>Yutaka Uchimura, Daiki Minagawa</i>	
TOWARD NEW CONTROLLER DESIGN PARADIGMS IN NETWORKED CONTROL SYSTEMS	4812
<i>Gina Torres, Manel Velasco, Pau Martí, Josep M. Fuertes</i>	
TRACKING CONTROL OF OPTIMAL QUANTIZATION FEEDBACK CONTROL SYSTEMS WITH VARIABLE DISCRETE QUANTIZER	4818
<i>Takumi Shiratori, Tadanao Zanna, Kang-Zhi Liu</i>	

NEW CONTROL AND MODULATION METHODS FOR MATRIX CONVERTERS AND APPLICATIONS

A CARRIER-BASED MODULATION METHOD TO REDUCE SWITCHING LOSSES FOR INDIRECT MATRIX CONVERTERS	4828
<i>Quoc-Hoan Tran, Nho-Van Nguyen, Hong-Hee Lee</i>	

A WAVEFORM CONTROL STRATEGY FOR SINGLE-PHASE HIGH-FREQUENCY LINK MATRIX INVERTER	4834
<i>Zhaoyang Yan, Shuchao Xu, Xingyue Han, Xiaoqiang Guo, Chunjiang Zhang</i>	
AIRCRAFT STARTER/GENERATOR SYSTEM BASED ON INDIRECT MATRIX CONVERTER	4840
<i>Jiaxing Lei, Bo Zhou, Jiadan Wei, Xianhui Qin, Jinliang Bian</i>	
AN IMPROVED MODULATION STRATEGY TO REDUCE COMMON-MODE VOLTAGE FOR TWO-STAGE MATRIX CONVERTER	4847
<i>Song Weizhang, Li Xi, Zhong Yanru, Li Minyuan</i>	
INPUT FILTER DESIGN FOR TWO-STAGE MATRIX CONVERTER APPLIED IN AERO VARIABLE-FREQUENCY POWER SYSTEM	4852
<i>Xian-hui Qin, Bo Zhou, Jia-xing Lei, Na Han, Jia-dan Wei</i>	
NEUTRAL CURRENT HARMONIC ANALYSIS AND INHIBITION FOR TWO-STAGE FOUR-LEG MATRIX CONVERTER	4859
<i>Na Han, Bo Zhou, Xianhui Qin, Ying Liang, Jiaxing Lei, Zhuoran Zhang</i>	
OPERATION PRINCIPLES OF BIDIRECTIONAL ISOLATED AC/DC CONVERTER WITH NATURAL CLAMPING SOFT SWITCHING SCHEME	4866
<i>Suxuan Guo, Xijun Ni, Kai Tan, Alex Huang</i>	
VECTOR CONTROL OF TWO INDUCTION MOTOR DRIVES FED BY MATRIX CONVERTER	4873
<i>Akitoshi Nakajima, Kiyoya Sakaki, Kentarou Sakashita, Hisao Kubota, Kouki Matsuse</i>	

ENGINEERING PARADIGMS FOR AUTOMATED FACILITIES

A READINESS CHECK FOR REGIONALIZATION OF ENGINEERING	4882
<i>Thomas Schaeffler, Rudolf Kodes, Matthias Foehr, Arndt Lüder, Johannes Goetz, Jörg Franke</i>	
AN APPROACH FOR DISCOVERING AND ANALYZING IMPLICIT ARCHITECTURAL DESIGNS IN FIELD LEVEL AUTOMATION SOFTWARE	4889
<i>Christoph Legat, Ulrich T. Bühner, Stefan Feldmann, Birgit Vogel-Heuser</i>	
APPLICATION OF OPTIMAL CONTROL THEORY TO MILLING PROCESS	4896
<i>Paolo Bosetti, Francesco Biral</i>	
AUTOMATIONML FOR USER REQUIREMENTS FULFILMENT RELATED TO ENGINEERING PROCESS EFFICIENCY	4902
<i>Nicole Schmidt, Arndt Lüder, Heinrich Steininger, Stefan Biff</i>	
FUNCTION BASED ENGINEERING FRAMEWORK FOR THE STANDARDIZATION OF INDUSTRIAL PLANTS	4909
<i>Florian Himmler, Michael Gepp, Jan Vollmar, Michael Amberg, Tobias Jäger</i>	
TOWARDS ROBUSTNESS AND SELF-ORGANIZATION OF ESB-BASED SOLUTIONS USING SERVICE LIFE-CYCLE MANAGEMENT	4916
<i>Paulo Leitão, José Barbosa, Arnaldo Pereira</i>	

CONTROL APPLICATIONS IN DISTRIBUTED POWER GENERATION SYSTEM

COMPENSATION OF VARIABLE FRACTIONAL DELAYS IN REPETITIVE CONTROLLERS	4926
<i>Gerardo Escobar, Glendy A. Catzin-Contreras, Michael Hernandez-Gomez, Panfilo R. Martinez-Rodriguez, Andres A. Valdez-Fernandez</i>	
DESIGN AND IMPLEMENTATION OF A MICROGRID CONTROLLER FOR BUMPLESS TRANSITIONS BETWEEN GRID-CONNECTED AND ISLAND OPERATION	4933
<i>Andrew Moore, Jin Jiang</i>	
DISCRET ADAPTIVE CONTROL APPLIED TO VOLTAGE REGULATION OF INDUCTION GENERATOR BASED SYSTEMS	4940
<i>Lucas Scherer, Rodrigo Tambara, Fernando Botterón, Robinson Camargo, Hilton Gründling</i>	
DISCRETE PHASE-LOCKED LOOP FOR THREE-PHASE SYSTEMS	4947
<i>Gerardo Escobar, Carl N.M. Ho, Sami Pettersson, Gerardo Vazquez, Eduardo E. Ordóñez-López</i>	
DISTRIBUTED AND AUTONOMOUS CONTROL OF THE FREEDM SYSTEM: A POWER ELECTRONICS BASED DISTRIBUTION SYSTEM	4954
<i>Dong Chen, Alex Q. Huang, Yizhe Xu, Fei Wang, Wensong Yu</i>	
MODELING AND GRID IMPEDANCE VARIATION ANALYSIS OF PARALLEL CONNECTED GRID CONNECTED INVERTER BASED ON IMPEDANCE BASED HARMONIC ANALYSIS	4967
<i>JunBum Kwon, Xiongfei Wang, Claus Leth Bak, Frede Blaabjerg</i>	
MULTI-SAMPLING MAXIMUM POWER POINT TRACKER (MS-MPPT) TO COMPENSATE IRRADIATION AND TEMPERATURE CHANGES	4974
<i>Gerardo Escobar, Sami Pettersson, Carl N.M. Ho, Roberto E. Quintal-Palomo, Ignacio E. Yanez-Caballero</i>	
PERFORMANCE ANALYSIS OF A GRID-TIED INVERTER FOR RENEWABLE ENERGY APPLICATIONS	4981
<i>Ahmed Al-Durra, Alex Reznik, Marcelo Simoes, S.M. Muyeen</i>	
SINGLE PHASE DQ FRAME GLOVER MCFARLANE H INFINITY ROBUST DROOP CONTROLLER DESIGN	4988
<i>Tong Yao, Youyuan Jiang, Raja Ayyanar</i>	

STABILITY ANALYSIS FOR COOPERATIVE DISTRIBUTED GENERATION DISPATCH IN A CYBER- PHYSICAL ENVIRONMENT	5002
<i>Navid Rahbari-Asr, Yuan Zhang, Mo-Yuen Chow</i>	

POWER SUPPLIES FOR SPECIAL APPLICATIONS

A HIGH EFFICIENT AND RELIABLE DC-DC CONVERTER FOR ELECTRONICALLY CONTROLLED PNEUMATIC BRAKE SYSTEM APPLICATIONS	5012
<i>Zhiwu Huang, Xiaohui Qu, Weirong Liu, Kai Gao, Jiangan Liu</i>	
A NOVEL ZVZCS PHASE-SHIFTED FULL-BRIDGE CONVERTER WITH SECONDARY-SIDE ENERGY STORAGE INDUCTOR USED FOR ELECTRIC VEHICLES	5019
<i>Zhong Chen, Yang Wang, Xiaoting Ma, Tao Yuan</i>	
CIRCULAR BEAM SCANNING POWER SYSTEM FOR ISOTOPE PRODUCTION UPGRADE	5026
<i>Robert Lambiase, Zeynep Altinbas</i>	
DC CONVERTER CONTROL USING DEADBEAT CONTROL OF HIGH SWITCHING FREQUENCY FOR TWO-TYPE OPERATION MODES	5029
<i>Seiya Mizushima, Atsuo Kawamura, Itsuo Yuzurihara, Atsushi Takayanagi, Ryosuke Ohma</i>	
DESIGN AND IMPLEMENTATION OF FOUR 20 KA, 5 KV HYBRID SWITCHING NETWORKS FOR PLASMA IGNITION IN THE INTERNATIONAL TOKAMAK JT-60SA	5035
<i>Filippo Burini, Yannick Kuate Fone, Giuseppe Taddia, Sandro Maria Tenconi, Alessandro Lampasi, Pietro Zito, Makoto Matsukawa, Katsuhiro Shimada, Alberto Coletti, Luca Novello</i>	
HYBRID CONTROL APPROACH OF CLL RESONANT CONVERTER FOR EV BATTERY CHARGERS	5041
<i>Kerim Colak, Erdem Asa, Mariusz Bojarski, Dariusz Czarkowski</i>	
MULTIRESONANT LCL2C2 TANK CONVERTER	5047
<i>Michal Frivaldsky, Branislav Dobrucký, Juraj Koscelník, Michal Prazenica</i>	
MULTISTAGE CLASS DE CURRENT DRIVEN LOW DI/DT RECTIFIER	5053
<i>Yutaro Minami, Hirotaka Koizumi</i>	
PERFORMANCE ASSESSMENT OF THE NEW REMOTE POWER SUPPLY CONTROLLER FOR THE ELETTRA STORAGE RING MAGNETS.	5059
<i>Stefano Cleva, Marco Cautero, Tomasz Ciesla, Roberto Visintini, Maria Teresa Outeiro</i>	
RESONANT CONVERTERS FOR ELECTRIC EQUIPMENT POWER SUPPLY	5065
<i>Maria Teresa Outeiro, Giuseppe Buja, Adriano Carvalho</i>	
STATE-OF-THE-ART PIEZOELECTRIC TRANSFORMER-BASED SWITCH MODE POWER SUPPLIES	5072
<i>Marzieh Ekhtiari, Zhe Zhang, Michael A. E. Andersen</i>	

MODELING AND FEEDBACK CONTROL OF SWITCH-MODE CONVERTERS

A NEW VOLTAGE BALANCING CONTROLLER APPLIED ON 7-LEVEL PUC INVERTER	5082
<i>Hani Vahedi, Kamal Al-Haddad, Hadi Kanaan</i>	
ACTIVE CAPACITOR IMPLEMENTATION USING NONLINEAR STATE-SPACE MODEL OF BIDIRECTIONAL BUCK AND BOOST CONVERTER	5088
<i>Ali Shagerdmootaab, Mehrdad Moallem</i>	
DESIGNING CONTROL LOOP FOR PWM CONVERTERS IN DC-TO-DC POWER CONVERSION SYSTEMS	5094
<i>Syam Kumar Pidaparthi, Byungcho Choi</i>	
ENHANCED MODELING OF DC-DC POWER CONVERTERS BY MEANS OF AVERAGING TECHNIQUE	5101
<i>Andrea Mocchi, Alessandro Serpi, Ignazio Marongiu, Gianluca Gatto</i>	
HYBRID FUZZY AND ROBUST CONTROLLER APPLIED TO A DC-DC BOOST CONVERTER	5108
<i>João Teixeira Carvalho Neto, Andrés Ortiz Salazar, Fábio Meneghetti Araújo, Anderson Luiz Cavalcanti</i>	
MODELING AND ANALYSIS OF A SINGLE PHASE INVERTER SYSTEM WITH PWM SWITCH MODEL	5115
<i>Jianhua Wang</i>	
MODIFIED MAXIMUM POWER POINT TRACKING ALGORITHM BASED ON FIXED FREQUENCY MODEL PREDICTIVE CONTROL FOR PV APPLICATIONS	5120
<i>Omar Abdel-Rahim, Hirohito Funato</i>	
PIECEWISE HYSTERESIS-TYPE CONTROL OF A SINGLE PHASE ACTIVE THREE-LEVEL RECTIFIER WITH LOW THD.	5125
<i>Omar Fernando Ruiz-Martínez, Ruby Angélica Mendoza-Torres, Ilse Cervantes-Camacho</i>	

ADVANCED POWER ELECTRONICS FOR POWER QUALITY IMPROVEMENT IN DISTRIBUTED GENERATION SYSTEMS

A CURRENT BASED OCC TECHNIQUE IMPLEMENTED BY DSP FOR A THREE-PHASE OCC RECTIFIER	5136
<i>Alberto Lock, Darlan Fernandes, Edison Silva, Daiana Lucena, Malik Elbuluk</i>	
A DYNAMIC VOLTAGE RESTORER BASED INTERFACE SCHEME FOR MICROGRIDS	5143
<i>Imran Syed, Vinod Khadkikar</i>	

A MODEL-BASED CONTROLLER FOR A SINGLE-PHASE ACTIVE FILTER USING A FULL BRIDGE NPC	5150
<i>P. Raymundo Martinez- Rodriguez, Gerardo Escobar, Jose Miguel Sosa, Gerardo Vazquez, Andres Alejandro Valdez-Fernandez, Mario Alberto Juarez- Balderas</i>	
A NOVEL CONTROL STRATEGY TO OPERATE INVERTER BASED DISTRIBUTION GENERATION UNIT AS SHUNT APF IN AN ISLANDED MICROGRID	5157
<i>Preetha Sreekumar, Vinod Khadkikar</i>	
CONTROL ALGORITHMS FOR A TRANSFORMERLESS HYBRID ACTIVE FILTER WITHOUT CURRENT SENSORS	5163
<i>Caroline Nascimento, Maria Bellar, Luis Monteiro</i>	
DEVELOPMENT OF MEDIUM VOLTAGE SOLID-STATE FAULT ISOLATION DEVICES FOR ULTRA-FAST PROTECTION OF DISTRIBUTION SYSTEMS	5169
<i>Chang Peng, Xiaoqing Song, Mohammad Ali Rezaei, Xing Huang, Chris Widener, Alex Q. Huang, Michael Steurer</i>	
DISTRIBUTED CONTROL FOR THE PARALLEL DC LINKED MODULAR SHUNT ACTIVE POWER FILTERS UNDER DISTORTED UTILITY VOLTAGE CONDITION	5177
<i>Samet Biricik, Adil Salman, Soydan Redif, Malabika Basu</i>	
FOUR-WIRE SHUNT COMPENSATOR BASED ON H-BRIDGE Y-CONNECTED CONVERTERS	5184
<i>Edgard Luiz Lopes Fabricio, Cursino Brandão Jacobina, Vagner Fonseca Nóbrega</i>	
IMPLEMENTATION OF THE SUPERCAPACITOR-ASSISTED SURGE ABSORBER (SCASA) TECHNIQUE IN A PRACTICAL SURGE PROTECTOR	5191
<i>Jayathu Fernando, Nihal Kularatna, Howell Round, Sadhana Talele</i>	
MODIFIED SELECTIVE HARMONIC ELIMINATION EMPLOYED IN FOUR-LEG NPC INVERTERS	5196
<i>Mohammad Sharifzade, Hani Vahedi, Abdolreza Sheikholeslami, Hoda Ghoreishy, Kamal Al-Haddad</i>	
POWER QUALITY ENHANCEMENT FOR NONLINEAR UNBALANCED LOADS THROUGH IMPROVED ACTIVE POWER FILTER CONTROL	5202
<i>Tarek Youssef, Ahmed Elsayed, Alberto Berzoy, Osama Mohammed</i>	
ROBUST ADAPTIVE VARIABLE STRUCTURE CONTROLLER FOR SHUNT ACTIVE POWER FILTERS	5208
<i>Márcio Stefanello, Hilton Gründling</i>	
SAPF WITH TWO DC-LINKS AND SERIES CONVERTERS FEEDING OEW TRANSFORMERS FOR 3P4W SYSTEMS	5214
<i>Gregory de Almeida Carlos, Cursino Jacobina, Euzeli dos Santos Junior</i>	
STANDALONE OPERATION OF A SINGLE PHASE MEDIUM VOLTAGE SOLID STATE TRANSFORMER IN DISTRIBUTION GRID	5221
<i>Fei Wang, Gangyao Wang, Alex Huang, Xijun Ni, Wensong Yu, Dong Chen</i>	

VISION SENSING AND DATA PROCESSING FOR HUMAN ASSISTIVE SYSTEMS

A STUDY ON COLOR INFORMATION CORRECTED IN HUMAN BRAIN -MEASUREMENT AND EVALUATION OF COLOR PROPAGATION-	5230
<i>Sota Shimizu</i>	
AN APPROACH TO WALKING ASSIST CONTROL BY A MULTI-LEGGED SYSTEM IN HUMAN GAIT MOTION	5236
<i>Chuan Yang, Toshiyuki Murakami</i>	
AN ESTIMATION METHOD OF ANTAGONISTIC RATIOS OF FUNCTIONAL EFFECTIVE MUSCLES OF UPPER LIMB BASED ON MAXIMUM FORCE DISTRIBUTION AT END-EFFECTOR	5242
<i>Naoya Tojo, Tomoyuki Shimono</i>	
DEVELOPMENT OF A DESK-TYPE TACTILE INTERFACE USING FORCE SENSORS	5248
<i>Toshiaki Tsuji, Naoyuki Kurita, Sho Sakaino</i>	
FOOT ADAPTATION TO OBSTACLE WITH VISION-BASED LANDING ANGLE ESTIMATION FOR BIPED ROBOT	5254
<i>Mina Yamazaki, Naoki Oda</i>	
MULTI-PURPOSE WIDE-ANGLE VISION SYSTEM FOR REMOTE CONTROL OF PLANETARY EXPLORING ROVER	5260
<i>Sota Shimizu</i>	
POSITION AND POSE RECOGNITION OF RANDOMLY STACKED OBJECTS USING HIGHLY OBSERVABLE 3D VECTOR PAIRS	5266
<i>Shuichi Akizuki, Manabu Hashimoto</i>	
SPORT SKILL CLASSIFICATION USING TIME SERIES MOTION PICTURE DATA	5272
<i>Toshiyuki Maeda, Masanori Fujii, Isao Hayashi, Tokio Tasaka</i>	
TRAVELING CONTROL OF TWO-WHEEL WHEELCHAIR USING VARIABLE COMMAND	5278
<i>Miyuki Kamatani, Toshiyuki Murakami</i>	

WIRELESS SENSORS

ACTIVE SAFETY SYSTEM WITH RF ENERGY HARVESTING CAPABILITIES FOR INDUSTRIAL APPLICATIONS USING INTERCHANGEABLE IMPLEMENTS	5286
<i>Alessandro Bertacchini, Giacomantonio Napoletano, Stefano Scorcioni, Luca Larcher, Paolo Pavan</i>	
AN AUTHENTICATION AND ACCESS CONTROL FRAMEWORK FOR COAP-BASED INTERNET OF THINGS	5293
<i>Pablo Puñal Pereira, Jens Eliasson, Jerker Delsing</i>	

DESIGN OF WEIGHTED TYPE ENERGY HARVESTER BASED ON ANALYSIS OF A WIRELESS TIRE PRESSURE MONITOR SYSTEM	5300
<i>Wang Yu-Jen, Lin Hao-Yu</i>	
IMPROVEMENT OF SOFTWARE DEFINED RADIO BASED TDOA SOURCE LOCALIZATION	5307
<i>Junming Wei, Changbin Yu</i>	
LOW POWER HYDROMETRY FOR OPEN CHANNEL FLOWS	5314
<i>Zahoor Ahmad, Abubakr Muhammad</i>	

BUILDING ENERGY MANAGEMENT TECHNOLOGIES

“OWLRACTLE” - PREDICTING THE IMPACT OF INTERDISCIPLINARY ENERGY EFFICIENCY METHODS AT GERMAN UNIVERSITIES USING BCVTB	5324
<i>Philipp Bauer, Christian Stegwart, Felix Felgner, Georg Frey</i>	
AN ENHANCED PROCESS MODEL FOR THE SEMI-AUTOMATED DEPLOYMENT OF SIMULATION-AIDED BUILDING CONTROLS	5331
<i>Sergio Leal, Stefan Hauer, Florian Judex, Gerhard Zucker</i>	
CONSTRUCTION OF HEMS IN JAPANESE COLD DISTRICT FOR REDUCTION OF CARBON DIOXIDE EMISSIONS	5338
<i>Mio Fukuta, MInako Ito, Fumito Yamaguchi, Hiroaki Nishi</i>	
COST-EFFECTIVE AIR CONDITIONING CONTROL CONSIDERING COMFORT LEVEL AND USER LOCATION	5344
<i>Sachio Godo, Kanae Matsui, Hiroaki Nishi</i>	
ENERGY EFFICIENT BUILDING AUTOMATION - A SURVEY PAPER ON APPROACHES AND TECHNOLOGIES FOR OPTIMIZED BUILDING OPERATION	5350
<i>Jan Haase, Gerhard Zucker, Mahmoud Alahmad</i>	
ENERGY EFFICIENT HOME WITH PRICE SENSITIVE STOCHASTICALLY PROGRAMMABLE TCAS	5357
<i>Cynthujah Vivekananthan, Yateendra Mishra, Kaushik Rajashekara</i>	
ENERGY NODE LOCATOR - A PATHWAY TO TRACK ENERGY AT THE POINT OF USE, REMOTELY, IN BUILDINGS	5363
<i>Sameena Khan, Muhammad Zulfiqar, Mahmoud Alahmad, Lim Nguyen, Hamid Sharif, Nasser Aljuhaishi, Ahmed Gaouda, Khaled Shuaib, Mohammed Abdel-Hafez</i>	
ENVIRONMENTAL SENSING BY WEARABLE DEVICE FOR INDOOR ACTIVITY AND LOCATION ESTIMATION	5369
<i>Ming Jin, Han Zou, Kevin Weekly, Ruoxi Jia, Alexandre Bayen, Costas Spanos</i>	
LOAD-SIDE DEMAND MANAGEMENT IN BUILDINGS USING CONTROLLED ELECTRIC SPRINGS	5376
<i>Jayantika Soni, Krishnanand Kaippilly Radhakrishnan, Sanjib Kumar Panda</i>	
MODELING OF END-USE ENERGY PROFILE: AN APPLIANCE-DATA-DRIVEN STOCHASTIC APPROACH	5382
<i>Zhaoyi Kang, Ming Jin, Costas Spanos</i>	
ON THE IMPROVEMENT OF STEAM POWER PLANT SYSTEM RELIABILITY	5389
<i>Bernard Tonderayi Mangara, Maxim Finkelstein</i>	
OPTIMAL APPLIANCE SCHEDULING IN BUILDING OPERATING SYSTEMS FOR COST-EFFECTIVE ENERGY MANAGEMENT	5394
<i>Krishnanand K.R., Duc Chinh Hoang, Sanjib Kumar Panda, Rui Zhang</i>	
PROFILING: AN APPLICATION ASSIGNMENT APPROACH FOR GREEN DATA CENTERS	5400
<i>Meera Vasudevan, Yu-Chu Tian, Maolin Tang, Erhan Kozan</i>	
SYSTEM DESIGN FOR THE BUILDING-INTEGRATED MICROGRID TEST-BED - A CASE STUDY	5414
<i>Guang Yu Jin, King Jet Tseng</i>	
TRAINING-FREE NON-INTRUSIVE LOAD MONITORING OF ELECTRIC VEHICLE CHARGING WITH LOW SAMPLING RATE	5419
<i>Zhilin Zhang, Jae Hyun Son, Ying Li, Mark Trayer, Zhouyue Pi, Dong Yoon Hwang, Joong Ki Moon</i>	

RENEWABLE ENERGY SOURCES AND THEIR INTEGRATION TO GRID POWER SUPPLY

A COORDINATED CONTROL STRATEGY OF SMES BASED ON COMMON DC BUS	5430
<i>Jinhong Liu, Hui Zhang, Jie Li, Binhan Yang, Yang Min, Kai Yang</i>	
A NOVEL SINGLE-STAGE SOLAR INVERTER USING HYBRID ACTIVE FILTER WITH POWER QUALITY IMPROVEMENT	5443
<i>Mariappan Balasubramanian, Baylon Fernandes, Ramamoorthy Mylavarapu</i>	
ACTIVE POWER DISPATCH METHOD FOR A WIND FARM CENTRAL CONTROLLER CONSIDERING WAKE EFFECT	5450
<i>Jie Tian, Chi Su, Mohsen Soltani, Zhe Chen</i>	
ADAPTIVE NOTCH FILTER BASED SYNCHRONIZATION TECHNIQUE FOR INTEGRATION OF DISTRIBUTED GENERATION SYSTEMS TO UTILITY GRID	5457
<i>A. B. Shitole, H. M. Suryawanshi, Shelas Sathyan, M. M. Renge</i>	
AN EFFICIENT ROBUST MPPT CONTROL FOR GRID-CONNECTED PHOTOVOLTAIC SYSTEMS WITH REDUCED DC LINK CAPACITANCE	5462
<i>Radhakrishna Kotti, Wajiha Shireen</i>	

ANALYSIS OF A 4-PHASE TAPPED-INDUCTOR DC-DC CONVERTER FOR HIGH BOOST RATIO WIDE INPUT VOLTAGE RANGE APPLICATIONS	5468
<i>Michael Njoroge Gitau, Ivan Hofsjajer</i>	
ANTI-ISLANDING APPLIED ON A SINGLE-STAGE MICROINVERTER BASED ON ZETA CONVERTER FOR DISTRIBUTED MICROGENERATION	5475
<i>Igor Luiz Guisso, Fernando Soares dos Reis, Guilherme Pedrollo, Henrique Lopez</i>	
ARCHITECTURE AND CONTROL OF FULLY-DISPATCHABLE MICROGRIDS	5482
<i>Tommaso Caldognetto, Simone Buso, Paolo Tenti</i>	
CASCADE THREE-PHASE PLL FOR UNBALANCE AND HARMONIC DISTORTION OPERATION (CSRF-PLL)	5489
<i>Gerardo Escobar, Carl N.M. Ho, Sami Pettersson, Manuel J. Lopez-Sanchez, Andres A. Valdez-Fernandez</i>	
CONTROL TECHNIQUE TO SOLVE THE IMBALANCE PROBLEM IN PHOTOVOLTAIC GRID CONNECTED POWER SYSTEMS	5494
<i>Vagner Nobrega, Mauricio Correa, Marcus Oliveira, Montie Vitorino</i>	
COORDINATION OF VOLTAGE AND FREQUENCY FEEDBACK IN LOAD-FREQUENCY CONTROL CAPABILITY OF WIND TURBINE	5501
<i>Bakhtyar Hoseinzadeh, Filipe Faria Da Silva, Claus Leth Bak</i>	
DEVELOPMENT OF HIGH PERFORMANCE IMPROVED TECHNIQUE FOR GRID SYNCHRONIZATION OF WECS	5508
<i>Tarek Youssef, Mahmoud Amin, Osama Mohammed</i>	
FIVE-LEVEL BIDIRECTIONAL CONVERTER FOR RENEWABLE POWER GENERATION SYSTEM	5514
<i>Yizhe Xu, Yen-Mo Chen, Alex Q. Huang</i>	
GROUND-BASED STEP-DOWN AC-AC POWER ELECTRONIC CONVERTER FOR HIGH ALTITUDE WIND ENERGY HARVESTING SYSTEM	5520
<i>Jeevan Adhikari, Sanjib K Panda</i>	
GROUNDING AND SAFETY CONSIDERATIONS FOR RESIDENTIAL DC MICROGRIDS	5526
<i>Thiago Ribeiro Oliveira, Aécio Silva Bolzon, Pedro Francisco Donoso-Garcia</i>	
HYBRID AC-DC STANDALONE SYSTEM BASED ON PV ARRAY AND WIND TURBINE	5533
<i>Miloud Rezkallah, Abdelhamid Hamadi, Ambrish Chandra, Bhim Singh</i>	
IMPROVED MPPT ADAPTIVE INCREMENTAL CONDUCTANCE ALGORITHM	5540
<i>Arturo Morales-Acevedo, Jose Luis Diaz-Bernabe, Ruben Garrido-Moctezuma</i>	
IMPROVING PERFORMANCE OF THE P&O MPPT USING DERIVATIVE OF PHOTOVOLTAIC PANEL VOLTAGE	5546
<i>Carlos E. B. Rambo, Fernando S. dos Reis, Fernando B. dos Reis, Guilherme R. Pedrollo</i>	
INVERTER-SIDE CURRENT CONTROL OF A SINGLE-PHASE INVERTER GRID CONNECTED THROUGH AN LCL FILTER	5552
<i>Gerardo Escobar, Manuel J. Lopez-Sanchez, David F. Balam-Tamayo, Josue Alonso-Chavarria, Jose M. Sosa</i>	
MODELING THE DYNAMICS OF A DC DISTRIBUTION GRID INTEGRATED OF RENEWABLE ENERGY SOURCES	5559
<i>Tuan Dat Mai, Giel Van den Broeck, Johan Driesen</i>	
ON THE CONTROL OF A GRID-CONNECTED PHOTOVOLTAIC PLANT UNDER NON-UNIFORM INSOLATION	5565
<i>Miguel Torres, Carlos Baier, Jose Silva, Jose Espinoza</i>	
OVERVOLTAGE AND OVERLOADING PREVENTION USING COORDINATED PV INVERTERS IN DISTRIBUTION NETWORK	5571
<i>Ghassem Mokhtari, Ghavam Nourbakhsh, Gerard Ledwich, Arindam Ghosh</i>	
PASSIVITY NON-SINGULAR HIGHER-ORDER SLIDING MODE CONTROL FOR DIRECT-DRIVEN PMSG	5575
<i>Xuemei Zheng</i>	
RESIDENTIAL BATTERY ENERGY STORAGE SYSTEM WITH 3KWH LI-ION BATTERY PACK	5582
<i>Seong-Jun Hong, Geun-Hie Rim, Hyung-Suk Kim, Moiz Masood Syed</i>	
SOFT-SWITCHING SINGLE INDUCTOR CURRENT-FED PUSH-PULL CONVERTER FOR PV APPLICATIONS	5589
<i>Dulika Nayanastiri, Mahinda Vilathgamuwa, Douglas Maskell, Gilbert Foo</i>	
SUN POSITION ALGORITHM FOR SUN TRACKING APPLICATIONS	5595
<i>Syed Arslan Abbas Rizvi, Khaled Addoweesh, Abdelrehman El-Leathy, Hany Al-Ansary</i>	
SUPPLEMENTARY CONTROL OF DFIG FOR INTER-AREA OSCILLATION DAMPING	5599
<i>Xiao-rong Zhu, Jian-chao Zhang, Yi Wang</i>	
SWITCHED INDUCTOR QUADRATIC BOOSTING RATIO INVERTER WITH PROPORTIONAL RESONANT CONTROLLER FOR GRID-TIE PV APPLICATIONS	5606
<i>Omar Abdel-Rahim, Hirohito Funato</i>	
VARIABLE INTERLEAVING TECHNIQUE FOR PHOTOVOLTAIC CASCADED DC-DC CONVERTERS	5612
<i>Mahsa Ghapandar Kashani, Maziar Mobarrez, Subhashish Bhattacharya</i>	

EMERGING TECHNOLOGIES ON SMART BATTERY AND FUEL CELL

BATTERY AGING ESTIMATION FOR ECO-DRIVING STRATEGY AND ELECTRIC VEHICLES SUSTAINABILITY	5622
<i>Rhea Valentina, Alexander Viehl, Oliver Bringmann, Wolfgang Rosenstiel</i>	

BIG-DATA FRAMEWORK FOR ELECTRIC VEHICLE RANGE ESTIMATION	5628
<i>Habiballah Rahimi-Eichi, Mo-Yuen Chow</i>	
COMPARING OPEN-CIRCUIT VOLTAGE HYSTERESIS MODELS FOR LITHIUM-IRON-PHOSPHATE BATTERIES	5635
<i>Walter Zamboni, Federico Baronti, Nicola Femia, Roberto Saletti</i>	
FPGA IMPLEMENTATION OF THE MIX ALGORITHM FOR STATE-OF-CHARGE ESTIMATION OF LITHIUM-ION BATTERIES	5641
<i>Federico Baronti, Roberto Roncella, Roberto Saletti, Walter Zamboni</i>	
FREQUENTIAL IDENTIFICATION OF PROTON EXCHANGE MEMBRANE FUEL CELL FRACTIONAL ORDER MODEL	5647
<i>Miassa Amira Taleb, Emmanuel Godoy, Olivier Bethoux</i>	
INVESTIGATION OF GAS SENSING IN LARGE LITHIUM-ION BATTERY SYSTEMS FOR EARLY FAULT DETECTION AND SAFETY IMPROVEMENT	5654
<i>Martin Wenger, Reinhold Waller, Vincent Lorentz, Martin März, Martin Herold</i>	
SENSITIVITY OF LUMPED PARAMETER BATTERY MODELS TO CONSTITUENT PARALLEL-RC ELEMENT PARAMETERISATION ERROR	5660
<i>Shahab Nejad, Daniel Gladwin, David Stone</i>	
STUDY OF THE OPERATION OF A MICROGRID IN THE PRESENCE OF COMMUNICATION DELAYS	5666
<i>Alireza Shapoury, Venkatesh Venkataramanan, Arvind Mallikeswaran, Ali Mehrizi-Sani, Martin Lopez</i>	
Author Index	