

2010 Joint International Conference on Power Electronics, Drives and Energy Systems (PEDES 2010) & 2010 Power India

**New Delhi, India
20 – 23 December 2010**

Pages 1-627



**IEEE Catalog Number: CFP10PED-PRT
ISBN: 978-1-4244-7782-1**

TABLE OF CONTENTS

SESSION 1 (A) POWER ELECTRONIC CONVERTERS

An Improved Two-Diode Photovoltaic (PV) Model for PV System.....	1
<i>Zainal Salam, Kashif Ishaque, Hamed Taheri</i>	
Load Type Effects on the Operation of the High Voltage Pulse Generator Based on DC-DC Converter.....	6
<i>M. Sabaghi, H. Feshki Farahani, H.R. Hafezi</i>	
A Novel Pulse Shift Modulation Technique for Controlling DC-DC Converters.....	11
<i>Prashant Agnihotri, Naima Kaabouch, Hossein Salehfar, Wen-Chen Hu, Akhilesh Upadhyay</i>	
DSP Controlled DC/DC Boost Converter for Renewable/Green Power Applications	16
<i>A. Kirubakaran, Shailendra Jain, R.K. Nema</i>	
Resonant Controller Based Single-Phase Z-source Inverter with LCL-filter.....	22
<i>Chandra Shekar Thelukuntla, Mummadri Veerachary</i>	

SESSION 1 (B) CUSTOM POWER DEVICES

Switching Minimization and Reduction of Power Loss in a Dynamic Voltage Restorer	28
<i>Sandeep Joseph, Mahesh Kumar Mishra, Praveen Kumar, S. Sasitharan</i>	
Instantaneous Power Theory Based Unified Power Quality Conditioner (UPQC)	34
<i>K. Palanisamy, J. Sukumar Mishra, I. Jacob Raglend, D.P. Kothari</i>	
A Comparative Analysis of Three-Phase Four-Wire UPQC Topologies.....	39
<i>Yash Pal, A. Swarup, Bhim Singh</i>	
Performance of UPQC for Power Quality Improvement.....	45
<i>Yash Pal, A. Swarup, Bhim Singh</i>	

SESSION 1 (C) ELECTRICAL DRIVES - 1

Optimization of Starting Performance of Thyristorized Static Switch Fed Three Phase Induction Motor	52
<i>K. Nafeesa, George Saly</i>	
Direct Vector Control of Stand-Alone Self-Excited Induction Generator	57
<i>S.N. Mahato, S.P. Singh, M.P. Sharma</i>	
Intelligent Controllers Applied to SVM-DTC Based Induction Motor Drives: A Comparative Study.....	63
<i>S.V. Jadhav, J. Srikanth, B.N. Chaudhari</i>	
Vector Control Vs Direct Torque Control Comparative Evaluation for PMSM Drive.....	71
<i>Sanjeet Dwivedi, Bhim Singh</i>	

SESSION 1 (D) MODELING AND ANALYSIS

Modeling, Simulation, and Implementation of a Five-Phase Induction Motor Drive System.....	79
<i>Atif Iqbal, Sk. Moin Ahmed, Md. Arif Khan, Mohd. Rizwan Khan, Haitham Abu-Rub</i>	
Digital Simulation of Variable Frequency Transformer	85
<i>M. Rizwan Khan, Atif Iqbal, Farhad Ilahi</i>	
A Simple Lumped Parameter Thermal Model for Electrical Machine of TEFC Design.....	91
<i>S. Kar Chowdhury, Prem Kr. Baski</i>	
State of Art on Condition Monitoring of Induction Motors.....	97
<i>S. Jeevanand, Bhim Singh, B.K. Panigrahi, Vaibhav Negi</i>	
A New Method to Determine Saturated Magnetizing Reactance and Frequency of a Single-phase Self Excited Induction Generator Towards Steady State Analysis	104
<i>S.S. Murthy, G. Bhuvaneswari, Sarsing Gao, Rajesh Kumar Ahuja</i>	

SESSION 2 (A) FACTS

Impacts of FACTS and HVDC Interconnecting Link in a Deregulated Power System with Contingency and Heavily Loaded Condition.....	110
<i>Sawan Sen, Sandip Chanda, S. Sengupta, A. Chakrabarti</i>	
Estimation of Multi-Conductor Underground Cable Parameters from Measurements.....	116
<i>C.S. Indulkar, K. Ramalingam</i>	
Multi-objective Evolutionary Algorithm Based Reactive Power Dispatch with Thyristor Controlled Series Compensator	121
<i>S. Ramesh, S. Kannan, S. Baskar</i>	
A Novel SSR-Damping Scheme Based on a Single-Phase SSSC	128
<i>Xiangning Xiao, Benfeng Gao, Chengyong Zhao</i>	
Adaptive Distance Relaying Scheme in Series Compensated Transmission Lines	133
<i>S.G. Srivani, K. Panduranga Vittal</i>	
An Integrated Model of Modern Power System in the Presence of TCSC and STATCOM Controllers to Assess Global Voltage Stability	140
<i>T. Datta, P. Nagendra, S. Halder Nee Dey</i>	

SESSION 2 (B) DEREGULATION - 1

Study of Loading Status for all Branches in Chronological Order at Different Conditions in a Radial Distribution Systems using Reactive Loading Index Technique	146
<i>Sumit Banerjee, C.K. Chanda, S.C. Konar, P.K. Ghosh</i>	
Transaction Based Power Flow Solution and Transmission Loss Allocation Using Neural Network	151
<i>Mala De, Nalin B. Dev Choudhury, Swapna K. Goswami</i>	
Load Frequency Control of Interconnected Restructured Power System along with DFIG and Coordinated Operation of TCPS-SMES.....	157
<i>Praghmesh Bhatt, S.P. Ghoshal, Ranjit Roy, Sankarsan Ghosal</i>	
A Network Congestion Management Approach Considering the Risk of Cascading Failures	163
<i>J. Hazra, Deva P. Seetharam</i>	
Fuzzy Logic Based Coordinated Voltage Regulation Method for Distribution System with Multiple Synchronous Generators.....	170
<i>J.D.N. Gaonkar, G.N. Pillai</i>	

SESSION 2 (C) PWM CONVERTERS

Parasitic Effect Considerations in Modeling of CIBDC Converter and its Voltage Controller	175
<i>B.L. Narasimharaju, S.P. Dubey, S.P. Singh</i>	
Reduction of Voltage Harmonics in Three-Phase Inverters Using Discrete Observers.....	181
<i>L. Padmavathi, P.A. Janakiraman</i>	
Simulation of Single Phase RMS Controlled Voltage Source Inverter (VSI) for variation in Cdc, Cs and Rs	186
<i>Vinay Kumar Chandna, Z.A. Jaffery, Sunil Kumar Chaudhry</i>	
Eddy Current Loss Modelling in Transformer Iron Losses Operated by PWM Inverter	193
<i>R. Mayuri, Noel R. Sinnou, K. Ilango</i>	
Small Signal Analysis of Current Mode Active-Clamp ZVS DC-DC Converters	198
<i>Md. Masihuzzaman, Syed Khursheed Alam, Haroon Ashfaq</i>	
Space Vector Based Minimum Switching Loss PWM Algorithms for Vector Controlled Induction Motor Drives	203
<i>N. Ravi Sankar Reddy, T. Brahmananda Reddy, J. Amarnath, D. Subba Rayudu</i>	

SESSION 2 (D) AC/DC AND DC/DC CONVERTERS - 1

Dual Loop Push-Pull Feedback Linear Regulator for Embedded DC-DC Converter	209
<i>Biswajit Maity, Gaurav Bhagat, Pradip Mandal</i>	
Improved Inverter Utilisation Using Third Harmonic Injection	214
<i>Joby Jose, G.N. Goyal, M.V. Aware</i>	
Optimization of a Bi-Directional Hybrid Current-Fed-Voltage-Fed Converter Link	220
<i>Dipten Maiti, Nikhil Mondal, Sujit K. Biswas</i>	

Robust Digital Controller For Fourth Order Converter	229
<i>Mummadi Veerachary, M. Vidyasagar Reddy</i>	
Digital Voltage-mode Controller Design for High Gain Soft-Switching Boost Converter.....	234
<i>Mummadi Veerachary, Ruddireddy Sekhar</i>	
Capacitors Voltage Balancing in Half Bridge Inverter for Low Switching Frequency Applications	239
<i>Amit Kumar, Rajesh Gupta</i>	

SESSION 3 (A) PM DRIVES

Comparative Method for Twin-Rotor PM Brushless Motors Applied as In-Wheel Motors.....	246
<i>Pavani Gottipati, Ernest A. Mendrela</i>	
In-Wheel Brushless DC Motor for a Wheel Chair Drive	252
<i>P. Gottipati, O. Dobzhanskyi, E.A. Mendrela</i>	
Magnetic Field Analysis and Performance Assessment of Halbach Array Permanent Magnet Brushless DC Motor for Satellite Payload Drive Mechanism	256
<i>M.H. Ravichandran, V.T. Sadasivan Achari, C.C. Joseph, Robert Devasahayam</i>	
Performance Analysis of Hybrid Energy Storage System Using Hybrid Control Algorithm with BLDC Motor Driving a Vehicle.....	261
<i>Varsha Shah, Ritesh Chaudhari, Prasanta Kundu, Ranjan Maheshwari</i>	
A Carrier-Transposed Modulation Technique for Multilevel Inverters.....	266
<i>D. Sreenivasarao, Pramod Agarwal, B. Das</i>	

SESSION 2 (B) SMART GRID - 1

Analysis and Design of Controller for Two Area Thermal-Hydro-Gas AGC System	273
<i>Kiran Kumar Challa, P.S. Nagendra Rao</i>	
Control of the Matrix Converter Based WECS for Fault Ride-Through Enhancement.....	277
<i>Vinod Kumar, R.R. Joshi, R.C. Bansal</i>	
A Novel Control Scheme to Improve the Transient Response of Fuel Cell.....	284
<i>P.C. Sekhar, S. Mishra, M.H. Naeem</i>	
High-Frequency Current-Fed Fuel Cell Inverter for Residential Use.....	290
<i>A.K. Rathore, A.K.S. Bhat, R. Oruganti</i>	
Robust Control of a Feedback Linearized Induction Motor through Sliding Mode.....	297
<i>K.B. Mohanty, Madhu Singh</i>	

SESSION 3 (C) HARMONIC FILTERS

New Design and Implementation of an External Passive Circuit for Cancelling the Parasitic Capacitance in Filter Inductors.....	304
<i>M.B. Alizadeh, H.P. Khomami, M. Rajabzadeh</i>	
Predictive Current Control of a Multilevel Active Filter for Industrial Installations.....	308
<i>Adolfo E. Paredes, Jose I. Simpson, Jorge Ponnt, Cesar Silva</i>	
An Active Shunt Compensator for Reactive, Unbalanced and Harmonic Loads under Balanced and Unbalanced Grid Voltage Conditions	314
<i>Dipankar De, V. Ramanaaryanan</i>	
Comparison of Control Strategies for Multilevel Inverter Based Active Power Filter used in High Voltage Systems	320
<i>Waware Madhukar, Pramod Agarwal</i>	
Simulation of Three-phase Four-wire Shunt Active Power Filter using Novel Switching Technique	326
<i>Heli Golwala, R. Chudamani</i>	
Steady State Exploration of 3-? SEIG Using Novel Leading VAR Controller and Alleviation of Harmonics with Shunt and Series Active Power Filters.....	333
<i>E. Vargil Kumar, P.V.R.L. Narasimham, A.V.R.S. Sarma</i>	
PIL Based Control Algorithm for Three-Phase Four-Wire Active Filter for Reactive and Harmonic Compensation Under Distorted Supply	341
<i>N. Gupta, S.P. Dubey, S.P. Singh</i>	

SESSION 3 (D) SRM DRIVES

Acoustic Noise, Vibration, Harmonics, Thermal of Three Phase Linear Switched Reluctance Machines.....	347
<i>N.C. Lenin, R. Arumugam</i>	
Dynamic Analysis of Switched Reluctance Motor Using Soft Magnetic Composite Material.....	351
<i>K. Vijayakumar, R. Karthikeyan, S. Kannan, G. Prem Sunder, R. Arumugam</i>	
Unity Power Factor Electronic Ballast for Universal Voltage Applications	357
<i>Ashish Shrivastava, Bhim Singh</i>	
A Hybrid Seven-level Inverter for IM Drive	363
<i>P.P. Rajeevan, K. Sivakumar, Chintan Patel, Rijil Ramchand, K. Gopakumar</i>	
Torque Ripple Minimization of 8/6 Switched Reluctance Motor with Fuzzy Logic Controller for Constant Dwell Angles	369
<i>P. Srinivas, P.V.N. Prasad</i>	

SESSION 4 (A) ELECTRICAL ENGINEERING APPLICATIONS - 1

Comparative Study of Functional Integrity on Major Topologies for Induction Heating Equipment.....	375
<i>Arun Kumar Paul</i>	
Power Electronics Help Reduce Diversity of Arc Welding Process for Optimal Performance.....	381
<i>Arun Kumar Paul</i>	
A Neural Networks Based Controller for Electron Beam Welding Power Supply	388
<i>Pravanjan Malik, Pramod Agrawal</i>	
Study of Effects of Standard and Non-Standard Impulse Waves On Power Transformer.....	393
<i>Kaveri Bhuyan, Saibal Chatterjee</i>	
Novel Design, Optimization and Realization of Axial Flux Motor for Implantable Blood pump	397
<i>S. Neethu, K.S. Shinoy, A.S. Shajilal</i>	
Finite Element Analysis of Thermal Behavior of Ferrite Cores Using ANSYS	403
<i>H. Babaei, H. Feshki Farahani</i>	
Comparison of Results for Eccentric Cage Induction Motor Using Finite Element Method and Modified Winding Function Approach.....	408
<i>T. Ilamparithi, Subhasis Nandi</i>	
Performance Evaluation of Power Converters with Distribution Static Compensator	415
<i>Alka Singh, Bhim Singh</i>	

SESSION 4 (B) MULTILEVEL INVERTERS

A Novel Voltage Clamped CI-BDC Converter and its Control for Battery Storage Applications	420
<i>B.L. Narasimharaju, S.P. Dubey, S.P. Singh</i>	
Look Up Table Based Control of Multi-Level AC/AC Converters with Strategy of DC Link Balancing	427
<i>Mahmoud Samiei Moghaddam, Yousef Khadivi Vanegi</i>	
A Forced Switching Technique for Current Controlled Three-level NPC AC-DC Converter.....	432
<i>Ranjan K. Behera, Shyama P. Das</i>	
Direct Torque Control of Induction Motor: Simulation Results Using Two-level and Diode Clamped Multilevel Inverter.....	438
<i>U.V. Patil, H.M. Suryawanshi, M.M. Renge</i>	
Direct Torque Control Method for Induction Motor Drives Based on Modified Amplitude and Angle Decoupled Control of Stator Flux	443
<i>T. Vinay Kumar, S. Srinivasa Rao</i>	
Performance Comparison Between Fuzzy Logic Based 3*2 and 5*2 Multicell Converter.....	449
<i>P. Ponnambalam, S. Senthilkumar, K. Krishnamurthy</i>	
A Decoupled SVPWM Technique for a Dual Inverter Four-level Open-end Winding Induction Motor Drive with Voltage Balancing of DC-link Capacitors.....	455
<i>B. Venugopal Reddy, V.T. Somasekhar</i>	
PWM Switching Strategy for the Elimination of Common Mode Voltage of a Two-level Inverter Drive with an Open-end Winding Induction Motor Configuration	461
<i>P. Srinivasan, B. Venugopal Reddy, V.T. Somasekhar</i>	

SESSION 4 (C) DEREGULATION - 2

Congestion Management by Optimal Placement of FACTS Device.....	467
<i>Manasrani Mandala, C.P. Gupta</i>	
Genetic Algorithm Based Transmission Loss Optimization Under Deregulated Environment.....	474
<i>Sawan Sen, Priyanka Roy, S. Sengupta, A. Chakrabarti</i>	
Evaluation and Improvement of Total Transfer Capability – A Case Study	479
<i>C. Vyjayanthi, D. Thukaram</i>	
Conundrums Measurement for Market Power.....	485
<i>Kirti Pal, Manjaree Pandit, Laxmi Srivastava</i>	
Spot Pricing of Energy and Reserve Under Market Power	490
<i>Kirti Pal, Manjaree Pandit, Laxmi Srivastava</i>	
Stochastic Model for Natural Gas Portfolio Optimization of a Power Producer	496
<i>N. Vaitheswaran, R. Balasubramanian</i>	
Modified Equivalent Bilateral Exchange of Transmission Pricing Using DIWO.....	501
<i>Aniruddha Basak, Siddharth Pal, A.R. Abhyankar, B.K. Panigrahi</i>	

SESSION 4 (D) ELECTRICAL DRIVES - 2

Voltage Controlled PFC SEPIC Converter Fed PMBLDCM Drive for an Air-Conditioner	507
<i>Sanjeev Singh, Bhim Singh</i>	
Ride-Through Alternatives of Adjustable Speed Drives (ASD's) During Fault Conditions.....	513
<i>S.S. Deswal, Ratna Dahiya, D.K. Jain</i>	
Torque Ripple Minimization in DTC Based Induction Motor Drive Using Carrier Space Vector Modulation Technique	520
<i>Saurabh N. Pandya, J.K. Chatterjee</i>	
Torque Ripple Minimization in Direct Torque Control Based Induction Motor Drive Using Optimal Multirate Sampling Technique	527
<i>Saurabh N. Pandya, J.K. Chatterjee</i>	
Development of Supervisory Control for Distributed Drives System.....	534
<i>Mini Sreejeth, Parmod Kumar, Madhusudan Singh</i>	
Common Mode DC Bus Filter for Active Front-End Converter	538
<i>Anirudh Acharya, John Vinod</i>	
Performance Improvement of an Induction Motor Drive Using Feedback Linearization and Fuzzy Torque Compensator.....	544
<i>K.B. Mohanty, Madhu Singh</i>	
Robust Stabilizing Digital Controller for Soft-Switching Zero Voltage Turn-ON H-Bridge Boost Converter.....	551
<i>Mummadi Veerachary, Sachin Devassy</i>	

SESSION 5 (A) DISTRIBUTION SYSTEM

Distribution Transformer Load Modeling With Interval Type-2 Fuzzy Sets.....	556
<i>M.S. Giridhar, S. Sivanagaraju</i>	
Smart Energy Meters for Energy Conservation & Minimizing Errors	561
<i>Syed Shahbaz Ali, Madiha Maroof, Sidrah Hanif</i>	
Nodal Reliability Evaluation of Impact of Hurricanes on Transmission and Distribution Systems?.....	568
<i>Yong Liu, Chanar Singh</i>	

SESSION 5 (B) ELECTRICAL DRIVES - 3

Selective Harmonics Elimination PWM (SHEPWM) Using Differential Evolution Approach	574
<i>Zainal Salam, N. Bahari</i>	
Voltage Flicker Assessment of Induction Motors Used in the Integrated Water Pumping Station	579
<i>Sanjay A. Deokar, L.M. Waghmare, Ganesh N. Jadhav</i>	
A Power Electronic Transformer for PWM AC Drive with Lossless Commutation and Common-mode Voltage Suppression	586
<i>Kaushik Basu, Ned Mohan Fellow</i>	

Power Electronic Transformer with Reduced Number of Switches: Analysis of Clamp Circuit for Leakage Energy Commutation.....	592
<i>Gysler Castelino, Kaushik Basu, Ned Mohan</i>	

SESSION 5 (C) HVDC AND FACTS

Dynamic Stability Enhancement of a Multi-Area Multi-Terminal DC-AC System with Self-Tuning Static Var Compensator.....	600
<i>Jose P. Therattil, P.C. Panda</i>	
Optimal Reactive Power Flow Control for Voltage Profile Improvement in AC-DC Power Systems.....	606
<i>P. Sreejaya, S. Rama Iyer</i>	
Application of TCSC Power Oscillation Damping Controller to Enhance Power System Dynamic Performance.....	612
<i>D. Padma Subramanian, R.P. Kumudini Devi</i>	
Comparison between Direct and Vector Control Strategy for VSC-HVDC System in EMTP-RV	617
<i>Vijay Sood, Hiteshkumar Patel</i>	
Simulation of Hybrid Power Flow Controller.....	623
<i>V.K. Sood, S.D. Sivadas</i>	

SESSION 5 (D) POWER QUALITY - 1

Enhancing Quality of Power to Sensitive Loads with Microgrid.....	628
<i>Ambarnath Banerji, Sujit K. Biswas, Bhim Singh</i>	
Performance Evaluation of Adjustable Speed Drives with Distribution Static Compensator	635
<i>Alka Singh, Bhim Singh</i>	
Complex Wavelet Based Control Strategy for UPQC	641
<i>N. Karthikeyan, Mahesh K. Mishra, B. Kalyan Kumar</i>	
Voltage Control Scheme Using Fuzzy Logic for Residential Area Networks with PV Generators in Saudi Arabia	647
<i>R.A. Shalwala, J.A.M. Bleijs</i>	
Single-phase, Wide Line Voltage Range, Buck Power Factor Corrector with Lower Harmonic Contents in Compliance with IEC Standard 61000-3-2.....	653
<i>Mahadev S. Patil, Sanjay P. Patil, D.N. Kyatanavar</i>	
TS Fuzzy Based Intelligent Control of a Three Phase Shunt Filter under Balanced and Unbalanced Conditions	661
<i>Stuti Shukla, S. Mishra, Bhim Singh</i>	

SESSION 6 (A) POWER ELECTRONICS

PM Synchronous Motor Drive with Wavelet Controller and Fractional Order Integrator	666
<i>Amit Vilas Sant, K.R. Rajagopal</i>	
Today's Power System Simulation Challenge: High-performance, Scalable, Upgradable and Affordable COTS-Based Real-Time Digital Simulators.....	674
<i>Laurence Snider, Jean Belanger, Girish Nanjundaiah</i>	
Development of External Rotor Single-Phase PM BLDC Motor Based Drive for Ceiling Fan	684
<i>Mohammed Fazil, K.R. Rajagopal</i>	
Computer Aided Design of a Compact Doubly-Fed Induction Generator for Small Wind Power Application	688
<i>Gaurang I. Vakil, K.R. Rajagopal</i>	

SESSION 6 (B) SMART GRID - 2

Genetic Fuzzy PID Controller Based on Adaptive Gain Scheduling for Load Frequency Control.....	692
<i>Amit Kumar, Ashwani Kumar, S. Chanana</i>	
S-Transform Based Cumulative Sum Detector (CUSUM) for Islanding Detection in Distributed Generations	700
<i>S.R. Samantaray, Ankita Samui, B. Chitti Babu</i>	

A Simple Algorithm for Power System Frequency Estimation.....	706
<i>Arghya Sarkar, S. Sengupta</i>	
Review of Battery Storage Optimisation in Distributed Generation.....	711
<i>G. Coppez, S. Chowdhury, S.P. Chowdhury</i>	
Short-Term Load Prediction with a Special Emphasis on Weather Compensation Using a Novel Committee of Wavelet Recurrent Neural Networks and Regression Methods.....	717
<i>Sanjay M. Kelo, Sanjay V. Dudul</i>	
Computational Intelligence Techniques Applied to Real time and off-line Power System Stability Assessment with Distributed Generation -A Review	723
<i>P.K. Olulope, K.A. Folly, S. Chowdhury, S.P. Chowdhury</i>	

SESSION 6 (C) AC/DC AND DC/DC CONVERTERS - 2

High Frequency Link Topology Based Double Conversion UPS System.....	733
<i>Dipankar De, V. Ramanarayanan</i>	
Performance and Simulation Analysis of Single-Phase Grid Connected PV System Based On Z-Source Inverter	739
<i>P.H. Zope, A.J. Patil, Ajay Somkuwar</i>	
High Performance Vector Controlled Induction Motor Drive by Combining the Advanced Hybrid PWM and ANFIS.....	745
<i>N. Ravi Sankar Reddy, T. BrahmaNanda Reddy, J. Amarnath, D. Subba Rayudu</i>	
Three Level Diode Clamped Inverter for DTC-SVM of Induction Motor	751
<i>Jagan Mohana Rao Malla, Siva Ganesh Malla</i>	
FPGA-based PID Controller for DC-DC Converter.....	757
<i>Subhash Chander, Pramod Agarwal, Indra Gupta</i>	
Analysis of Dominant Frequency Ranges for Various Modes of EMI Generated by Switching Converters.....	763
<i>Milind M. Jha, Kunj Behari Naik, Shyama P. Das</i>	

SESSION 6 (D) POWER SYSTEM PLANNING - 1

A New Approach for Studying Power System Design and for Better Operation	771
<i>G. Vamsi Krishna Kartheek</i>	
IED Models for Data Generation in a Transmission Substation	776
<i>Mini S. Thomas, D.P. Kothari, Anupama Prakash</i>	
Knowledge Discovery in Database from Substation for Decision Support	784
<i>Mini S. Thomas, Amira Nisar</i>	
Hybrid GA/SA Based Generation Maintenance Scheduling with Line Flow Constraints in Power Market	790
<i>N. Kumarappan, P. Suriya</i>	
Compatibility of Network Matrices and Possible Application in Power System.....	798
<i>N.K. Sharma, P. Tiwari</i>	
Electricity Price Forecasting: A Hybrid Wavelet Transform and Evolutionary- ANN Approach	803
<i>Ritwik Giri, Aritra Chowdhury, Arnob Ghosh, B.K. Panigrahi, Ankita Mohapatra</i>	

SESSION 7 (A) METAHEURISTIC TECHNIQUES

Identification of Harmonic Sources Using Fuzzy Logic	809
<i>A. Banshwar, A.K. Chandel</i>	
Assessment of SPV System using ANN and VHDL.....	816
<i>M. Rizwan, Majid Jamil, D.P. Kothari</i>	
Determination of Winding Temperature of a Distribution Transformer Using Soft Computing Techniques.....	823
<i>Mabel Ebenezer, P.S. Chandramohan Nair</i>	
A Bacterial Foraging PSO-DE Algorithm for Solving Dynamic Economic Dispatch Problem with Security Constraints	829
<i>P. Praveena, K. Vaisakh, S. Rama Mohana Rao</i>	

Comparison and Application of Swarm Intelligent Techniques to Optimal Power Flow.....	836
<i>S. Surender Reddy, B.K. Panigrahi, P.R. Bijwe, A.R. Abhyankar</i>	

SESSION 7 (B) SMART GRID - 3

Voltage Dip Mitigation with DG Integration: A Comprehensive Review	842
<i>O. Ipinimimo, S. Chowdhury, S.P. Chowdhury</i>	
Bulk Power Energy Storage and Concentrated Solar Power: Is there a Future in USA?.....	852
<i>Michael Newton, P.K. Sen</i>	
A Novel Classical Controller for Automatic Generation Control in Thermal and Hydrothermal Systems	857
<i>J. Nanda, S. Mishra, P.G. Mishra, K.V. Sajith</i>	
Scalable Multi-Agent System (MAS) for Operation of a Microgrid in Islanded Mode	863
<i>T. Logenthiran, D. Srinivasan, A.M. Khambadkone, H.N. Aung</i>	
Control of Reactive Power of Autonomous Wind-Diesel Hybrid Power Systems	869
<i>Pawan Sharma, T.S. Bhatti, K.S.S. Ramakrishna</i>	
Efficient Electricity Grid Management for Distributed Generation Using A Fuzzy Logic-Based Multicasting Technique	875
<i>A.Q. Ansari, V.K. Nangia</i>	
Agent-based Intelligent Control for Real-time Operation of a Microgrid.....	881
<i>H.N. Aung, A.M. Khambadkone, D. Srinivasan, T. Logenthiran</i>	

SESSION 7 (C) POWER QUALITY - 2

PLL with PI, PID and Fuzzy Logic Controllers based Shunt Active Power Line Conditioners	887
<i>P. Karuppanan, Kamala Kanta Mahapatra</i>	
Implementation of Single-phase Synchronous dq Reference Frame Controller for Shunt Active Filter under Distorted Voltage Condition	893
<i>Vinod Khadkikar, Mukhtiar Singh, Ambrish Chandra, Bhim Singh</i>	
Indirect Current Controlled VSC for Reactive Power and Load Control Support to Self-Excited Induction Generator Feeding 3-phase 4-Wire Isolated Power System.....	899
<i>Vishal Verma, Peeyush Pant, Bhim Singh</i>	
Magnetics for Neutral Current Compensation in Three-Phase Four-Wire Distribution System	906
<i>Bhim Singh, P. Jayaprakash, D.P. Kothari</i>	
Modified Power Balance Theory for Control of DSTATCOM	913
<i>Bhim Singh, Sunil Kumar</i>	
Performance Comparison of UPQC and Active Power Filters for a Non-Linear Load	921
<i>Rahul Virmani, Preerna Gaur, Himanshu Santosi, A.P. Mittal, Bhim Singh</i>	
Power Quality Analysis using Complex Wavelet Transform.....	929
<i>B.K. Panigrahi, Anant Baijal, Krishna Chaitanya, Preetam P. Nayak</i>	

SESSION 7 (D) ELECTRICAL DRIVES - 3

Passive Filter Design for a 12-Pulse Converter fed LCI-Synchronous Motor Drive.....	934
<i>Sanjeev Singh, Bhim Singh</i>	
Torque Ripple Reduction in Direct Torque Control based Induction Motor Drive Using Novel Optimal Controller Design Technique	942
<i>Saurabh N. Pandya, J.K. Chatterjee</i>	
Space Vector Based Hybrid PWM Algorithm for Vector Controlled Induction Motor Drives for Reduced Current Ripple and Acoustical Noise	949
<i>K. Satyanarayana, T. Brahmananda Reddy, J. Amarnath, A. Kailasa Rao</i>	
Sensorless Control of a Vector Controlled Three-Phase Induction Motor Drive using Artificial Neural Network	955
<i>Arif Iqbal, M. Rizwan Khan</i>	
Evaluation of Synchronized Operation of Isolated Induction Generator with DSP Based Generalized Impedance Controller	960
<i>J.K. Chatterjee, Priyesh J. Chauhan, Dipankar Sarkar, Haresh Bhere, B.V. Perumal</i>	
Performance Comparison of Sinusoidally-Fed PM BLDC Motors Having Different Rotor Topologies.....	966
<i>Gaurang I. Vakil, K.R. Rajagopal</i>	

Compact Regenerative Braking Scheme for a PM BLDC Motor Driven Electric Two-Wheeler	971
<i>Phaneendra Babu Bobba, K.R. Rajagopal</i>	

SESSION 8 (A) RENEWABLE ENERGY - 1

Performance of a Three-Phase Self-Excited Induction Generator with Static Synchronous Series Compensator	976
<i>Yogesh K. Chauhan, Sanjay K. Jain, Bhim Singh</i>	
Large Scale Wind Energy Conversion System Using DFIG in Sub-Synchronous and Super-Synchronous Speed Ranges.....	982
<i>Hemant Ahuja, G. Bhuvaneswari, R. Balasubramanian</i>	
Battery Energy Storage System for Variable Speed Driven PMSG for Wind Energy Conversion System.....	989
<i>Rajveer Mittal, K.S. Sandhu, D.K. Jain</i>	
Neural Network Theory Based Voltage and Frequency Controller for Standalone Wind Energy Conversion System	994
<i>V. Sheela, P. Jayaprakash, Bhim Singh, R. Uma</i>	
Discrete-Time Modeling of Multi-State DC-DC Converters.....	1000
<i>Mummadi Veerachary, Ramakanth Naidu Gowra, Dileep Ganta</i>	
Voltage and Frequency Control of Wind Diesel Hybrid System with Variable Speed Wind Turbine.....	1006
<i>S.S. Murthy, S. Mishra, G. Mallesham, P.C. Sekhar</i>	

SESSION 8 (B) POWER SYSTEM PLANNING - 2

Artificial Neural Network Based SMES Unit for Transient Stability Improvement	1012
<i>Rintu Khanna, Gurnam Singh, T.K. Nagarkar</i>	
Multi-Area Load Frequency Control in a Power System Using Optimal Output Feedback Method.....	1019
<i>K.P. Singh Parmar, S. Majhi, D.P. Kothari</i>	
Feasibility Study of Fractional Frequency Transmission System.....	1024
<i>Uttam S. Satpute, Suresh H. Jangamshetti, Diwakar R. Joshi</i>	
A New Approach for Fault Detection in Digital Relays-Based Power System Using Petri Nets	1030
<i>A. Ashouri, A. Jalilvand, Reza Noroozian, Amir Bagheri</i>	
Optimal Load Dispatch Using Accelerated Biogeography-Based Optimization	1038
<i>Mohan Lohokare, B.K. Panigrahi, S.S. Pattanaik, S. Devi, Ankita Mohapatra</i>	
Effect of Generator Type on the Participation of Adjacent Synchronous Machines in Electromechanical Oscillations.....	1043
<i>Sudipta Ghosh, Nilanjan Senroy</i>	

SESSION 8 (C) POWER SYSTEM PROTECTION - 1

Wavelet based ANN Approach for Fault Location on a Transmission Line	1046
<i>Abul Kalam, Majid Jamil, A.Q. Ansari</i>	
A Computational Intelligence Approach for Fault Location in Transmission Lines	1052
<i>Sanujit Sahoo, Papia Ray, B.K. Panigrahi, N. Senroy</i>	
Estimation of Supply Side Harmonics by Using Network Impedance Data	1058
<i>Francis M. Fernandez, P.S. Chandramohan Nair</i>	
A Comparative Assessment of Power Swing Detection Techniques	1064
<i>P.K. Nayak, J. Ganeswara Rao, P. Kundu, A.K. Pradhan, P. Bajpai</i>	
Wide Area Measurement based Out-of-Step Detection Technique	1068
<i>Pratim Kundu, J. Ganeswara Rao, P.K. Nayak, A.K. Pradhan</i>	

SESSION 8 (D) AC/DC AND DC/DC CONVERTERS - 3

Harmonic Compensation Using Multilevel Inverter Based Shunt Active Power Filter.....	1073
<i>B. Geethalakshmi, M. Kavitha, K. Delhibabu</i>	
Improved Operation of a Three Phase Matrix Converter using Simple Modulation Strategy	1079
<i>Adapa K. Rao, J.K. Chatterjee, Shankar Subramanian, V. Rajasekhar</i>	

QFT Based Robust Controller Design For Fourth-Order Boost DC-DC Switching Power Converter	1087
<i>Anmol Ratna Saxena, Mummadri Veerachary</i>	
Robust Digital Deadbeat Control For DC-DC Power Converter With Online Parameter Estimation	1093
<i>Anmol Ratna Saxena, Mummadri Veerachary</i>	
An Improved Multiple Output Forward Converter Topology	1098
<i>Lav Kumar Kaushik, Mukesh Kumar Pathak</i>	
Space Vector Modulation Method to Balance the Neutral Voltage for a Three Level Inverter.....	1104
<i>R. Krishna, E.S. Deepak, Sasi K. Kottayil, Mats Leijon</i>	

SESSION 9 (A) POWER SYSTEM PROTECTION - 2

Determining Optimum TMS and PS of Overcurrent Relays Using Big-M Method	1109
<i>Prashant P. Bedekar, Sudhir R. Bhide, Vijay S. Kale</i>	
Waveform Extraction and Information Exchange for Data Warehousing in Power Utilities.....	1114
<i>Mini S. Thomas, Nitin Srivastava, Anupama Prakash</i>	
Islanding Detection Using Decision Tree Approach	1121
<i>Mini S. Thomas, Parveen Poon Terang</i>	
Improved EHV Line Switching Surge Control via Controlled Switching Technique.....	1127
<i>Reza Rohani, Babak Porkar</i>	
Imperialist Competitive Algorithm-Based Design of PSS to Improve the Power System	1131
<i>A. Jalilvand, S. Behzadpoor, M. Hashemi</i>	

SESSION 9 (B) AC/DC AND DC/DC CONVERTERS - 4

Modeling and Performance Analysis of a Generalized Photovoltaic Array in Matlab	1136
<i>Asiful Islam, Nur Mohammad, P.K. Shadhu Khan</i>	
Single Stage Modular Converter with Power Factor Improvement for Telecom Power Supply	1141
<i>G. Bhuvaneswari, R. Kalpana, Bhim Singh</i>	
Design, Modeling, Simulation and Performance of a MOSMPS Fed from a Universal Standard Single-Phase Outlet.....	1147
<i>Shikha Singh, G. Bhuvaneswari, Bhim Singh</i>	
Development of Microcontroller Based Single Phase SPWM Inverter with Remote Control Facility.....	1153
<i>Abhisek Maiti, Sumana Choudhuri, Jitendranath Bera, Tista Banerjee, Shaunak Maitra</i>	

SESSION 9 (C) ELECTRICAL ENGG APPLICATIONS - 2

Analysis and Design of Three-Level, 24-Pulse Double Bridge Voltage Source Converter Based HVDC System for Active and Reactive Power Control	1158
<i>D. Madhan Mohan, Bhim Singh, B.K. Panigrahi</i>	
Least Deviation Methods for location of Partial Discharge in Transformer Windings	1165
<i>V. Jeyabalan</i>	
An Online Core Loss Estimation Technique for Self-excited Induction Generator	1169
<i>Krishna Roy, Debasish Chatterjee, A.K. Ganguli</i>	
Space Time Coding for Data Transmission Over Power Line Channel.....	1173
<i>R.L. Itagi, K.P. Vittal, U. Sripathi</i>	
Modeling and Control of Autonomous Wind Energy Conversion System with Doubly Fed Induction Generator	1177
<i>Puneet K. Goel, Bhim Singh, S.S. Murthy, Navin Kishore</i>	
Analysis of Self Excited Induction Generator Using MATLAB GUI Methodology	1185
<i>S.S. Murthy, G. Bhuvaneswari, Rajesh Kr. Ahuja, Sarsing Gao</i>	

SESSION 9 (D) RENEWABLE ENERGY - 2

Electronic Load Controller Using IcosF Algorithm for Standalone Induction Generator.....	1191
<i>V. Rajagopal, Bhim Singh</i>	
Isolated Wind Energy Conversion with Asynchronous Generator for Rural Electrification	1197
<i>Shailendra Sharma, Bhim Singh</i>	

Control of Hybrid PV/Fuel Cell/Battery Power Systems	1204
<i>Mahmoud Samiei Moghaddam, Amin Hajizadeh</i>	
Dynamic Compensators for Grid Connected Wind Farms.....	1211
<i>J. Ravishankar, M.F. Rahman</i>	
Design and Energy Estimates for Wind Farms	1217
<i>Keun Hyuk Lee, Tarek Medalel Masaud, P.K. Sen, Keith Malmedal</i>	
Wind Energy Conversion System Simulator Using Variable Speed Induction Motor	1223
<i>S.W. Mohod, M.V. Aware</i>	
Analysis of Transient Performance for DFIG Wind Turbines Under the Open Switch Faults	1229
<i>M.K. Das, A.I. Elombo, S. Chowdhury, S.P. Chowdhury</i>	
Author Index	