

2016 7th India International Conference on Power Electronics (IICPE 2016)

**Patiala, India
17-19 November 2016**

Pages 1-595



**IEEE Catalog Number: CFP1694B-POD
ISBN: 978-1-5090-4531-0**

**Copyright © 2016 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP1694B-POD
ISBN (Print-On-Demand):	978-1-5090-4531-0
ISBN (Online):	978-1-5090-4530-3
ISSN:	2160-3162

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

TABLE OF CONTENTS

ELECTRICAL, OPTICAL, MORPHOLOGICAL AND GAS SENSING PROPERTIES OF VARIED PRECURSORS BASED ZNO NANOPARTICLES	1
<i>Neha Verma ; Sonik Bhatia ; R. K. Bedi</i>	
ANALYZING POWER TRANSFERRED PHYSICALLY OVER COMMITTED USAGE BY ADDING SERIES COMPENSATION USING BIRDS' INTELLIGENCE	5
<i>Divya Gupta ; Sanjay Jain</i>	
A COMPARATIVE STUDY OF CONTROL STRATEGIES FOR THE FLYBACK SMPS	11
<i>T. Halder</i>	
A FLYBACK CONVERTER TOPOLOGY SELECTION CRITERION FOR THE PRACTICAL ENGINEER.....	17
<i>T. Halder</i>	
POWER QUALITY ENHANCEMENT USING SVPWM Z-SOURCE INVERTER BASED DVR	23
<i>Bussa Vinod Kumar ; R. S. Bhatia ; Parag Nijhawan</i>	
IMPROVED PERFORMANCE OF TEN-PULSE CONVERTER BASED DSTATCOM FOR FLICKER MITIGATION	29
<i>Akanksha Bhagat ; Parag Nijhawan</i>	
A COMPARATIVE STUDY OF PHOTOVOLTAIC (PV) BASED DIODE CLAMPED MULTILEVEL INVERTER (DCMLI).....	35
<i>Mayuresh Dave ; Madhav Bhagdev</i>	
POWER FACTOR CORRECTION IN MODIFIED SEPIC CONVERTER FED SWITCHED RELUCTANCE MOTOR DRIVE	40
<i>Bhim Singh ; Aniket Anand</i>	
ASSESSMENT OF CONGESTION CONDITION IN TRANSMISSION LINE FOR IEEE 14 BUS SYSTEM USING D.C. OPTIMAL POWER FLOW.....	46
<i>Divya Asija ; K. M. Soni ; S. K. Sinha ; Vinod Kumar Yadav</i>	
FREQUENCY AND TIE-LINE POWER CONTROL OF TWO AREA NETWORK WITH MULTI SOURCES OF GENERATORS	52
<i>Gaganprit Singh ; S. K. Sinha</i>	
INTELLIGENT PITCH ANGLE CONTROL FOR WIND-DOUBLY FED INDUCTION GENERATOR SYSTEM	58
<i>Mohammed Ali Khan ; K. V. S. Bharath ; Rupam Singh ; Anjali Gupta ; Sai Swarup Dehury</i>	
MODELING AND SIMULATION OF HYBRID ELECTRIC VEHICLES FOR SPEED CONTROL USING INTELLIGENT TECHNIQUES	64
<i>Mohd Afshan Ansari ; Gaganprit Singh ; Amit Kumar Singh ; Sachin Mishra</i>	
DEVELOPMENT OF MATLAB/SIMULINK BASED MODEL OF PV SYSTEM WITH MPPT	69
<i>Mukesh Kumar ; Mohit Kachhwaya ; Bhavnesh Kumar</i>	
ROBUST CONTROL OF POWER SYSTEM USING SHUNT FACTS CONTROLLERS.....	73
<i>Yogita Dwivedi ; Vijay Kumar Tayal</i>	
ACTIVE AND REACTIVE POWER CONTROL USING DROOP CHARACTERISTICS CONTROLLER IN A MICROGRID	79
<i>Pankaj Verma ; Prasenjit Basak</i>	
OPTIMAL PLACEMENT OF DISTRIBUTED GENERATOR FOR MAXIMUM LOAD ALLOWABILITY AND REDUCED LOSSES MITIGATING CONGESTION OF TRANSMISSION SYSTEM.....	85
<i>Divya Asija ; K. M. Soni ; S. K. Sinha ; Vinod Kumar Yadav</i>	
SINGLE PHASE Z-SOURCE INVERTER FOR PHOTOVOLTAIC SYSTEM	91
<i>Nagendra Singh ; Sanjay K. Jain</i>	
POWER QUALITY ASSESSMENT OF MODERN RESIDENTIAL LOAD	97
<i>Karuna Nikum ; Rakesh Saxena ; Abhay Wagh</i>	
INTELLIGENT CONTROL OF FIXED CAPACITOR - THYRISTOR CONTROLLED REACTOR FOR POWER QUALITY IMPROVEMENT	101
<i>Mohammed Ali Khan ; K. V. Satya Bharath ; Sachin Mishra ; Amit Kumar Singh</i>	
A COST OPTIMAL ALTERNATIVE FOR DISTRICT POWER SUPPLY THROUGH AN INTEGRATED SYSTEM	106
<i>Sumeet Sehwari ; Ankita Srivastava ; Anvita Mishra ; Kanishk Shukla ; Vikranti Saxena ; Kamlesh Pandey</i>	
A REVIEW ON MODULATION TECHNIQUES OF Z-SOURCE NETWORK	112
<i>Nagendra Singh ; Sanjay K. Jain</i>	

STRATEGICAL OPERATIONAL MODES FOR ISOLATED SOLAR PV SYSTEM IN BATTERY POWER MANAGEMENT SCENARIO	118
<i>Alok Agrawal ; Rajesh Gupta</i>	
MITIGATION OF SUBSYNCHRONOUS RESONANCE USING UPFC WITH FUZZY LOGIC CONTROL FOR POWER SYSTEM STABILITY	124
<i>Viqar Yousuf ; Neelesh Yadav ; Navita Chopra</i>	
AN APPROACH TO LOCATE TCSC OPTIMALLY FOR CONGESTION MANAGEMENT IN DEREGULATED ELECTRICITY MARKET	130
<i>Md Sarwar ; Mohd. Tauseef Khan ; Anwar S. Siddiqui ; Imran A. Quadri</i>	
EFFECT OF SUPPLY FREQUENCY AND MAGNITUDE VARIATION ON GENERATION OF SVPWM SWITCHING PULSES FOR THREE PHASE MATRIX CONVERTER	134
<i>Souvick Mukherjee ; Abhinandan Basak ; Kaushik Mukherjee ; Prasad Syam</i>	
SOLAR POWERED SR MOTOR BASED WATER PUMPING USING DUAL OUTPUT BOOST CONVERTER.....	140
<i>Anjanee Kumar Mishra ; Bhim Singh</i>	
ROLE OF DSTATCOM IN DISTRIBUTION NETWORK WITH NON-LINEAR AND ACTIVE LOADS	146
<i>Savreet Kaur ; Parag Nijhawan</i>	
CLASSIFICATION OF FOOT MOVEMENTS USING FUZZY LOGIC TECHNIQUES.....	150
<i>Yadika Jamwal ; Kuldeep Singh</i>	
COMPARISON OF SUPERCONDUCTING FAULT CURRENT LIMITER TOPOLOGIES BASED ON POWER ELECTRONIC DEVICES.....	155
<i>Punit Kumar ; Priyabrata Shaw</i>	
A SOFTWARE APPROACH FOR THE PREDICTION OF EFFICIENCY OF THREE PHASE INDUCTION MOTOR AT OPTIMIZE IRON LOSSES.....	160
<i>Raj Kumar Saini ; Devender Kumar Saini ; Rajeev Gupta ; Piush Verma</i>	
AN ADAPTIVE THIRD ORDER DIGITAL FILTER BASED TECHNIQUE OF SINGLE STAGE 3P4W SPV SYSTEM	167
<i>Shailendra Kumar ; Bhim Singh</i>	
UNADDRESSED THREAT TO POWER GRID INFRASTRUCTURE: ELECTROMAGNETIC PULSE	173
<i>Abhishek Chauhan ; Surya Prakash</i>	
MODELLING AND SIMULATION OF PV-BIOGAS BASED POWER GENERATION SYSTEM AND ITS SCOPES OF INDUSTRIAL APPLICATIONS: A CASE STUDY ON PUNJAB IN INDIA	178
<i>Arshdeep Singh ; Prasenjit Basak</i>	
IMPROVED ADAPTIVE DETECTION BASED CONTROL OF GRID INTEGRATING SOLAR ENERGY SYSTEM.....	184
<i>Yashi Singh ; Ikhlq Hussain ; Bhim Singh ; Sukumar Mishra</i>	
POWER FACTOR CORRECTED BL-MODULAR CONVERTER BASED SMPS FOR ARC WELDING APPLICATIONS	189
<i>Swati Narula ; Bhim Singh ; G. Bhuvaneswari</i>	
AN EV BATTERY CHARGER WITH POWER FACTOR CORRECTED BRIDGELESS ZETA CONVERTER TOPOLOGY	195
<i>Bhim Singh ; Radha Kushwaha</i>	
SIMULATION-BASED PERFORMANCE ANALYSIS OF THREE-LEVEL 48-PULSE STATCOM WITH CONSTANT DC LINK VOLTAGE FOR REACTIVE POWER COMPENSATION.....	201
<i>Gaurav Kumar ; Parag Nijhawan</i>	
THE PERFORMANCE OF DUAL GATE LDMOS DEVICE WITH STI & SINKER.....	207
<i>Suman Chahar ; G. M. Rather</i>	
BEHAVIOR OF FAULT CURRENT IN MICROGRID SYSTEMS.....	212
<i>Manjeet Singh ; Prasenjit Basak</i>	
A PROBABILISTIC LOAD FLOW METHOD WITH WIND AND PHOTOVOLTAIC SYSTEMS INCLUDING CORRELATION	218
<i>Neeraj Gupta</i>	
RELIABILITY EVALUATION OF RADIAL DISTRIBUTION SYSTEM USING ANALYTICAL AND TIME SEQUENTIAL TECHNIQUES.....	224
<i>C. Bhargava ; P. S. R Murty</i>	
INDIA'S RENEWABLE ENERGY PROGRESS	230
<i>Sonia Dhiman ; Anil Kumar Dhaiya</i>	
INFLUENCE OF THREE-PHASE SYMMETRY ON PULSATING TORQUE IN INDUCTION MOTOR DRIVES.....	236
<i>Avanish Tripathi ; G. Narayanan</i>	

GA OPTIMIZED PID CONTROLLER FOR FREQUENCY REGULATION IN STANDALONE AC MICROGRID	242
<i>Amandeep Singh ; Sathans</i>	
SMALL SIGNAL STABILITY ANALYSIS OF A BATTERY CONNECTED STANDALONE PHOTOVOLTAIC SYSTEM.....	247
<i>Priyabrata Shaw ; Punit Kumar</i>	
GRID INTERFACED SOLAR PV POWERED BRUSHLESS DC MOTOR DRIVEN WATER PUMPING SYSTEM.....	253
<i>Rajan Kumar ; Bhim Singh</i>	
SIMULATION OF CURRENT LIMIT CONTROLLER FOR PLUG IN HYBRID ELECTRIC VEHICLE APPLICATIONS.....	259
<i>M. E. Amandeep Singh Ghatara ; Shailesh Kumar Lecturer</i>	
POWER FLOW CONTROL WITH CASCADED TRANSFORMER MULTILEVEL CONVERTER INTEGRATED WITH ENERGY STORAGE.....	263
<i>Shweta Sharma ; Rajesh Gupta</i>	
EXPERIMENTAL STUDY ON THE INFLUENCE OF DEAD-TIME ON IGBT TURN-OFF CHARACTERISTICS IN AN INVERTER LEG AT HIGH AND LOW CURRENTS	269
<i>Kapil Upamanyu ; D. Venkatramanan ; Anil Adapa ; G. Narayanan</i>	
ARDUINO BASED SOLAR POWERED BATTERY CHARGING SYSTEM FOR RURAL SHS.....	274
<i>Tarlochan Kaur ; Jaimala Gambhir ; Sanjay Kumar</i>	
WIND-HYDRO MICROGRID AND ITS CONTROL FOR RURAL ENERGY SYSTEM.....	279
<i>Geeta Pathak ; Bhim Singh ; B. K. Panigrahi</i>	
DAM PARAMETERS MONITORING SYSTEM	284
<i>Nikhil M. Dhandre ; P. D. Kamalasekaran ; Pooja Pandey</i>	
ENERGY MANAGEMENT SYSTEM FOR LOCAL ENERGY MARKET IN MICROGRID CONSISTING FUEL CELL.....	289
<i>Ravinder Singh Karki ; Saurabh Chanana</i>	
DC-DC CONVERSION BASED ON ZSI AND BOOST RECTIFIER USING FUZZY LOGIC CONTROL	295
<i>Rashmi Rai ; R. S. Bhatia ; Parag Nijhawan</i>	
OPTIMIZATION OF RADIAL DISTRIBUTION SYSTEM LOSSES WITH WIND WEIBULL DISTRIBUTION FUNCTION INTEGRATION USING PSO AND GA TECHNIQUE	300
<i>Ajay Bansal ; Anil Kumar ; Naresh Kumar</i>	
ROTODYNAMIC STUDY OF A HIGH SPEED SWITCHED RELUCTANCE GENERATOR.....	306
<i>D. Eshan ; A. Shahjahan ; G. Narayanan ; K. Pramod</i>	
ELECTROMAGNETIC DESIGN OF A 5-KW, 10,000-RPM SWITCHED RELUCTANCE MACHINE	312
<i>S S Ahmad ; Eshan Dhar ; Pramod Kumar ; G. Narayanan</i>	
MODELLING AND ANALYSIS OF A HYBRID ACTIVE POWER FILTER FOR POWER QUALITY IMPROVEMENT USING HYSTERESIS CURRENT CONTROL TECHNIQUE.....	318
<i>P Narendra Babu ; Biwajit Kar ; Biswajit Halder</i>	
SIMULATED PERFORMANCE EVALUATION OF SEIG WITH ELECTRONIC LOAD CONTROLLER USED IN RENEWABLE ENERGY CONVERSION SYSTEM	324
<i>Umesh C. Rathore ; Sanjeev Singh</i>	
SINGLE STAGE SECS INTERFACED WITH GRID USING ISOGI-FLL BASED CONTROL ALGORITHM	330
<i>Priyank Shah ; Ikhlq Hussain ; Bhim Singh</i>	
A SMART SOLAR POWER CULTIVATION USING THE FLYBACK CONVERTER & MULTI-LEVEL INVERTER.....	336
<i>T. Halder</i>	
THE CHOICE OF CONTROLLERS FOR THE FLYBACK CONVERTERS AS REAL TIME OPTIMIZATIONS	342
<i>T. Halder</i>	
AN IMPROVED MODELLING OF THE FLYBACK CONVERTERS BASED ON THE SWITCHING FREQUENCY	348
<i>T. Halder</i>	
A HTF BASED HIGHER ORDER ADAPTIVE CONTROL OF SINGLE STAGE THREE PHASE GRID INTEGRATED SPV SYSTEM	354
<i>Vandana Jain ; Ikhlq Hussain ; Bhim Singh</i>	
ENERGY FORECASTING FOR GRID CONNECTED MW RANGE SOLAR PV SYSTEM	360
<i>Ashwin Kumar Sahoo ; Sarat Kumar Sahoo</i>	

IMPROVING THE PERFORMANCE OF PV BASED WATER PUMPING SYSTEM FOR FLUCTUATIONS IN IRRADIANCE	366
<i>Anuradha Tomar ; Sukumar Mishra ; Chandrashekhar N. Bhende</i>	
DESIGN AND PROTOTYPE OF FLYBACK TRANSFORMER DRIVEN ELECTRO HYDRODYNAMIC THRUSTER.....	372
<i>Gokul Sharma ; Neeraj P Nambisan ; O. Sarath ; T P Vishnu</i>	
A FOKKER-PLANCK ANALYSIS OF A NON-ISOLATED NOISY CUK CONVERTER.....	376
<i>Sandhya Rathore</i>	
A STATIONARY REFERENCE FRAME BASED SIMPLE CONTROL FOR SINGLE STAGE SPV FED WATER PUMPING SYSTEM USING PMSM DRIVE.....	382
<i>Bhim Singh ; Shadab Murshid</i>	
NEURO FUZZY BASED INDIRECT VECTOR CONTROL DOUBLY FED INDUCTION GENERATOR	387
<i>K. Pandu Ranga ; G. Durga Sukumar ; B. Pakkiraiah ; M. Subba Rao</i>	
ENERGY AUDIT OF INDIVIDUAL AIR CONDITIONERS: A CASE STUDY	393
<i>Bhanu Duggal ; Divyesh Pratap Singh</i>	
A REVIEW ON INDUSTRY CHALLENGES IN SMART GRID IMPLEMENTATION	398
<i>Deepak Kumar ; Harvinder Singh ; Reshma</i>	
VOLTAGE STABILITY OF GRID INTEGRATION FOR DISTRIBUTED ENERGY RESOURCES	403
<i>Deepak Kumar ; Harvinder Singh ; Avdhesh Kumar</i>	
PROFIT EARNED BY GENCOS FROM UNSCHEDULED INTERCHANGES.....	409
<i>Amit Kumar ; Arvind Dhingra</i>	
POWER QUALITY IMPROVEMENT IN A VECTOR CONTROLLED PMSM DRIVE USING NON-ISOLATED PFC ZETA CONVERTER.....	416
<i>Saptarshi Pal Chaudhuri ; Sanjeev Singh</i>	
OPTIMAL PLACEMENT AND SIZING OF DISTRIBUTED GENERATION UNIT USING HUMAN OPINION DYNAMICS ALGORITHM	422
<i>Ramanpreet Kaur ; Shivani Mehta</i>	
CONSTANT TORQUE ANGLE CONTROLLED PERMANENT MAGNET SYNCHRONOUS MOTOR DRIVE USING HYSTERESIS BAND CURRENT CONTROLLER.....	426
<i>Kundan Dutta ; P. Pawan Puthra ; Prasanth Kumar Das</i>	
MODIFIED BRIDGELESS LANDSMAN PFC CONVERTER FOR LED DRIVER	431
<i>Aman Jha ; Bhim Singh</i>	
A HYBRID FILTER AS AN INTEGRAL COMPONENT OF HSES FOR ESTABLISHING SMART CITIES	437
<i>Amit Kumar Roy ; Gyan Ranjan Biswal</i>	
ROBUST COMPANSATION FOR VOLTAGE MODE CONTROL OF BOOST CONVERTER USING DISCRETE TIME,1-DOF,2- PERIODIC CONTROLLER.....	443
<i>Gurunayk Nayak ; Om Sekhar ; Sayantan Chakraborty</i>	
STABILITY ANALYSIS AND CONTROL OF HYBRID SOLAR AND WIND SYSTEM THROUGH NI C-RIO	449
<i>Subhendu Bikash Santra ; Sameer Kumar Behera ; Chinmay Kumar Panigrahi</i>	
INITIAL OUTDOOR PERFORMANCE ANALYSIS OF DIFFERENT PV MODULE TECHNOLOGY	455
<i>Aditya Banerjee ; Birinchi Bora ; Ramayan Singh ; O. S. Sastry</i>	
ON ENHANCING INERTIAL CAPABILITIES OF STATIC SOURCES IN REALM OF DISTRIBUTION NETWORK.....	461
<i>Somesh Bhattacharya ; Sukumar Mishra ; Praveen Nirujogi</i>	
DESIGN OF A NOVEL NON-ISOLATED BOOST CONVERTER FOR RENEWABLE ENERGY SYSTEM.....	467
<i>Subhendu Bikash Santra ; Mukesh Kumar Sahu ; Debashis Chatterjee</i>	
REPLACING SILICON IGBTs WITH SIC IGBTs IN MEDIUM VOLTAGE WIND ENERGY CONVERSION SYSTEMS.....	473
<i>Rajdip Dey ; Shabari Nath</i>	
THERMAL AND MECHANICAL DESIGN CONSIDERATIONS FOR A SWITCHED RELUCTANCE MOTOR.....	479
<i>U. G. Udhav ; B. Ashok ; D. Eshan ; A. Shahjahan ; G. Narayanan ; Pramod K.</i>	
REALIZATION OF AN ARDUINO-MEGA BASED SPACE VECTOR MODULATION CONTROLLER.....	485
<i>V. Ansal ; V. K. Remya ; Subhin Antony</i>	
A STATE OF ART REVIEW OF MICROGRID CONTROL AND INTEGRATION ASPECTS	490
<i>Maneesh Kumar ; Barjeev Tyagi</i>	

ANALYSIS OF INDUCTION MOTOR DRIVE USING SPRS BASED ON GTO/IGBT BUCK-BOOST CHOPPER TOPOLOGIES.....	496
<i>Sita Ram ; O. P. Rahi ; Veena Sharma ; Prakash Kumar ; Rishav Choudhary ; Gaurav Vardhan ; Rajat Choudhary</i>	
CURRENT HARMONICS REDUCTION OF THREE PHASE GRID CONNECTED PULSE WIDTH MODULATED VOLTAGE SOURCE INVERTER BY HYSTERESIS CURRENT CONTROLLER WITH OFFSET BAND	502
<i>Satyanarjan Jena ; Chinmoy Kumar Panigrahi ; Swagatika Sahoo ; Sameer Kumar Behera</i>	
LYAPUNOV BASED FREQUENCY INDEPENDENT CURRENT CONTROLLER FOR GRID CONNECTED SINGLE PHASE PV SYSTEMS.....	508
<i>Sukumar Mishra ; Dushyant Sharma ; Yash Kumar ; Deepak Pullaguram</i>	
REVERSE RECOVERY CHARACTERISTICS OF THE IGBT ANTI-PARALLEL DIODE WITH VARIATION IN OPERATING CONDITIONS: AN EXPERIMENTAL STUDY.....	514
<i>Subhas Chandra Das ; G. Narayanan</i>	
CMV SUPPRESSION USING A NEW PREDICTIVE DIRECT TORQUE CONTROL FOR INDUCTION MOTOR	519
<i>Apekshit Bhowate ; Mohan Aware</i>	
A MULTILEVEL INVERTER FED INDUCTION MOTOR DRIVEN WATER PUMPING SYSTEM BASED ON SOLAR PHOTOVOLTAIC.....	525
<i>Vinaya Rana ; Yogesh K. Chauhan ; M. A. Ansari</i>	
INTELLIGENT APPROACH FOR ACTIVE AND REACTIVE POWER CONTROL IN DOUBLY FED INDUCTION GENERATOR WIND TURBINE SYSTEM	530
<i>Kamlesh Pandey ; Kurukuru Varaha Satya Bharath</i>	
A REVIEW ON PROGNOSIS AND DIAGNOSIS OF TRANSFORMER OIL QUALITY USING INTELLIGENT TECHNIQUES BASED ON DISSOLVED GAS ANALYSIS	536
<i>Manjeet Singh Taneja ; Kamlesh Pandey ; Sumeet Sehwari</i>	
DESIGNING AND SIMULATION OF STANDALONE MICRO GRID FOR RURAL AREA USING RENEWABLE ENERGY RESOURCES	542
<i>Priya Banerjee ; Kamlesh Pandey ; Devavrat Mathur</i>	
INTELLIGENT SWITCHING OF ELECTRICAL VEHICLE WITH RENEWABLE SOURCES TO MEET THE LOAD DEMAND.....	547
<i>Manish Kumar Yadav ; Ravi ; D. K. Jain</i>	
ECONOMIC LOAD DISPATCH OF WIND THERMAL INTEGRATED SYSTEM USING DRAGONFLY ALGORITHM	552
<i>Ajay Kumar Pathania ; Shivani Mehta ; Chintu Rza</i>	
A BIDIRECTIONAL SNUBBER LESS SOFT-SWITCHED HIGH FREQUENCY LINK DC/AC CONVERTER.....	558
<i>Anirban Pal ; Kaushik Basu</i>	
PERFORMANCE IMPROVEMENT OF MRAS BASED SPEED SENSORLESS FIELD ORIENTED CONTROLLED INDUCTION MOTOR DRIVES AT LOW SPEED.....	566
<i>Meghraj S. Morey ; Vasudeo B. Virulkar ; Gunwant A. Dhomane</i>	
INVESTIGATIONS ON SINGLE-PHASE TWO WINDING SELF-EXCITED INDUCTION GENERATOR FOR OPTIMAL OPERATION WITH DIFFERENT CAPACITOR TOPOLOGIES	572
<i>Satnam Mahley ; Sanjay Kumar Jain</i>	
PLACEMENT OF DISTRIBUTED GENERATORS FOR LOSS MINIMIZATION AND VOLTAGE IMPROVEMENT USING PARTICLE SWARM OPTIMIZATION	578
<i>Navdeep Kaur ; Sanjay Kumar Jain</i>	
PERFORMANCE COMPARISON OF MOST PREVALENT WIND ENERGY CONVERSION SYSTEMS	583
<i>Hemant Ahuja ; Rahul Virmani ; Arika Ahuja</i>	
MODELING OF NANOCUSTER CARBON DEFECT STATES & THIN FILM TRANSISTOR	589
<i>N. Ramavenkateswaran ; K. Sreelakshmi ; Shounak De ; B. S. Satyanarayana</i>	
FUZZY LOGIC BASED CONTROL OF POWER CONVERTER SYSTEM IN AUTONOMOUS DC MICROGRID	596
<i>Subham Sahoo ; Shatakshi ; Sukumar Mishra ; Bhim Singh</i>	
NORMAL HARMONIC SEARCH ALGORITHM BASED MPPT OF SOLAR PV SYSTEM	601
<i>Nishant Kumar ; Ikhlaz Hussain ; Bhim Singh ; Bijay Ketan Panigrahi</i>	
TRANSFORMER-BASED SEVEN-LEVEL INVERTER WITH SINGLE-DC SUPPLY FOR RENEWABLE ENERGY APPLICATIONS	607
<i>Siva Behara ; N. Sandeep ; R Y Udaykumar</i>	

COMPARATIVE STUDY OF INTEGRATED PV-CAES AND PV -PSH BASED SYSTEM IN MARKET SCENARIO	613
<i>Mohit Bansal ; Javed Dhillon</i>	
PI AND FLC (TRIANGULAR AND GAUSSIAN MF) BASED SHAF UNDER LOAD VARIATION USING SRF METHOD	618
<i>Elavala Satish ; Lavkumar Gupta ; Suresh Mikkili</i>	
A NOVEL FIFTH-ORDER HIGHER BUCKING CONVERTER	624
<i>Shrikant Misal ; M. Veerachary</i>	
CONTROLLER DESIGN AND ANALYSIS FOR FIFTH-ORDER BOOST CONVERTER	629
<i>M. Veerachary ; Priyabrata Shaw</i>	
EFFECT OF FACTS ON LOAD FREQUENCY CONTROL IN DEREGULATED ENVIRONMENT	635
<i>Ankush Dutta ; Surya Prakash</i>	
POWER SYSTEM DESIGN CONCEPTS OF A REUSABLE LAUNCH VEHICLE-TECHNOLOGY DEMONSTRATOR (RLV-TD).....	641
<i>P Aziya Nizin ; P. P. Antony ; Rishi Kumar ; V. Santosh ; D. R. Gurunath ; R. G. Harikumar Warriar ; A. Shooja ; Sandeep Yadav</i>	
SOFT SWITCHING BOOST CONVERTER FOR DC INPUT LED DRIVERS	646
<i>Rayudu Mannam ; Nagesh Vangala</i>	
INVESTIGATION OF SLIDING MODE CONTROL OF HIGHER ORDER DC-DC CONVERTERS	651
<i>Sanjeev Kumar Pandey ; S. L. Patil ; S. B. Phadke ; A. S. Deshpande</i>	
SMART MICRO GRID TEST SYSTEM FOR AGENT BASED ENERGY MANAGEMENT SYSTEM.....	656
<i>A. Sujil ; Rajesh Kumar</i>	
A MODELING AND CONTROL FUNCTIONS OF GRID CONNECTED CONVERTER FOR SOLAR PHOTOVOLTAIC SYSTEM-A REVIEW	662
<i>Kapil Verma ; Bharti ; Akhil Gupta</i>	
CIVILIZED SWARM OPTIMIZATION FOR COMBINED HEAT AND POWER ECONOMIC EMISSION DISPATCH.....	668
<i>Himanshu Anand ; Nitin Narang</i>	
SOLAR PV ARRAY FED SPEED SENSORLESS VECTOR CONTROL OF INDUCTION MOTOR DRIVE FOR WATER PUMPING	674
<i>Saurabh Shukla ; Bhim Singh</i>	
TWELVE-PULSE AC-DC CONVERTER FED THREE-LEVEL NPC BASED FIELD ORIENTED CONTROLLED INDUCTION MOTOR DRIVE.....	680
<i>Piyush Kant ; Bhim Singh</i>	
LOCATING SERIES FACTS DEVICES FOR MANAGING TRANSMISSION CONGESTION IN DEREGULATED POWER MARKET.....	686
<i>Akanksha Sharma ; Sanjay Jain</i>	
SCRUTINIZING MARKET BEHAVIORS FOR INCREASING RELIABILITY IN POWER SYSTEMS	692
<i>Divya Gupta ; Sanjay Jain</i>	
COMPARATIVE ANALYSIS OF DIFFERENT OPTIMIZATION TECHNIQUE: HARMONIC MINIMIZATION IN MULTILEVEL INVERTER	697
<i>A. Kumar ; A. Dasgupta ; D. Chatterjee</i>	
A SIMPLE APPROACH OF FAULT IDENTIFICATION AND LOCALIZATION FOR LOW-VOLTAGE DC MICROGRID	702
<i>R. K. Chauhan ; B. S. Rajpurohit ; L. Wang</i>	
A MAXIMUM POWER POINT TRACKER (MPPT) USING THE INCREMENTAL CONDUCTANCE (INC) TECHNIQUE.....	708
<i>T. Halder</i>	
METAHEURISTIC APPROACH TO INTELLIGENT SOULTION OF MICROGRID WITH STORAGE ELEMENT.....	714
<i>Pooja Chauhan ; Manbir Kaur</i>	
TRANSMISSION LINE EFFICIENCY IMPROVEMENT AND CONGESTION MANAGEMENT UNDER CRITICAL CONTINGENCY CONDITION BY OPTIMAL PLACEMENT OF TCSC	720
<i>Pallavi Choudekar ; S. K. Sinha ; Anwar Siddiqui</i>	
SIMULTANEOUS CHARGING AND DISCHARGING INTEGRATING EV FOR V2G AND G2V	726
<i>Preeti Khata ; Ravi ; D. K. Jain</i>	
A TECHNICAL REVIEW ON SOLAR-NET METERING	731
<i>Harjeet Singh Bedi ; Nirbhawjap Singh ; Mukesh Singh</i>	
REVIEW ON SOLAR AND WIND POWER POTENTIAL IN INDIA	736
<i>Surbhi Aggarwal ; Parag Nijhawan</i>	

PERFORMANCE IMPROVEMENT OF GRID INTEGRATED SOLAR PV SYSTEM USING DNLMS CONTROL ALGORITHM	741
<i>Subarni Pradhan ; Ikhlq Hussain ; B. K. Panigrahi</i>	
OPTIMAL PD-PID CASCADED CONTROLLER BASED AUTOMATIC GENERATION CONTROL OF A MULTISOURCE INTERCONNECTED POWER SYSTEM TUNED BY TEACHING LEARNING BASED OPTIMIZATION	746
<i>Manoj Kumar Debnath ; Nimai Charan Patel ; Ranjan Kumar Mallick</i>	
MITIGATION OF SUBSYNCHRONOUS RESONANCE IN DFIG BASED WIND FARMS USING FUZZY CONTROLLERS	752
<i>Ajitpal Singh ; Sanjay K. Jain</i>	
A MULTIVARIABLE MPPT ALGORITHM FOR GRANULAR CONTROL OF PHOTOVOLTAIC SYSTEM WITH RIPPLE CORRELATION CONTROL	758
<i>Akankshi Trivedi ; Rupendra Kumar Pachauri ; Yogesh K. Chauhan</i>	
AN ACCURATE ELECTRICAL MODEL FOR ATMOSPHERIC PRESSURE DBD PLASMA IN AIR WITH EXPERIMENTAL VALIDATION.....	763
<i>Vishal Jain ; R. Srinivasan ; Vivek Agarwal</i>	
A PROBABILISTIC LOAD FLOW METHOD INCLUDING WIND AND RECONSTRUCTION OF MULTIMODAL DISTRIBUTION FUNCTION	767
<i>Neeraj Gupta ; Novalio Daratha ; Sanjay Kumar Jain ; Gyan Ranjan Biswal</i>	
ACTIVE AND REACTIVE POWER DISPATCH USING PREDATOR PREY OPTIMIZATION APPROACH	773
<i>Harinder Pal Singh ; Yadwinder Singh Brar ; D. P. Kothari</i>	
A CASE STUDY: STILL WATER ELECTRICAL GENERATION: EVALUATION OF HYBRID POWER GENERATION EFFICIENCY OF CASCADE HYDROPOWER PLANTS WITH CLIMATE CHANGE IMPACTS ON RESERVOIR BASED HYDROPOWER GENERATION AND DEMAND CHALLENGES IN WATER SECTOR	779
<i>Bhaskar Chaganti ; Bala Chaganti</i>	
PERFORMANCE ANALYSIS OF 3-PHASE 17-LEVEL INVERTER BASED DSTATCOM FEEDING INDUCTION FURNACE LOAD	785
<i>Parag Nijhawan ; R. S. Bhatia ; D. K Jain</i>	
CONTROLLERS DESIGN FOR HYBRID MICRO GRID, A COMPARING STUDY.....	789
<i>Madhubrata Dash ; Irani Majumder ; Niranjana Nayak</i>	
ANALYSIS OF L-Z SOURCE INVERTER UNDER DIFFERENT MODULATION TECHNIQUES	795
<i>Himanshu ; Rintu Khanna</i>	
ESTIMATION OF AVERAGE YEARLY POWER DEVELOPED BY A SOLAR MICROGRID USING SIMULINK MODEL	799
<i>Pankaj Verma ; Prasenjit Basak</i>	
A SYSTEMATIC APPROACH FOR EMPLOYMENT OF DISTRIBUTED ENERGY RESOURCES USING GENETIC ALGORITHM.....	803
<i>Krishan Kumar ; M. A. Ansari</i>	
LOSS ALLOCATION METHOD INDEPENDENT OF DYNAMIC LOAD VARIATION.....	808
<i>Kamakshi Prashadini Swain ; Mala De</i>	
FUZZY LOGIC CONTROLLER BASED GRID INTEGRATED PV SYSTEM WITH MULTI LEVEL INVERTER.....	814
<i>A. K. Dahiya ; Divyanshu Malhotra</i>	
IMPLEMENTATION OF QUADRILATERAL RELAY FOR THREE ZONE PROTECTION OF TRANSMISSION LINE.....	820
<i>Manish Verma ; Amrita Sinha</i>	
COST ANALYSIS OF DISTRIBUTION NETWORK WITH DISTRIBUTED GENERATION USING LRIC METHOD.....	826
<i>Arka Sengupta ; K. S. Sandhu</i>	
A REVIEW ON COORDINATION AND CONTROL OF HYBRID AC-DC MICROGRID SYSTEM.....	831
<i>Amita Kumari ; Amrita Sinha</i>	
OPTIMIZATION AND COMPARISON OF DISTRIBUTED GENERATOR IN DISTRIBUTION SYSTEM USING BACKWARD AND FORWARD SWEEP METHOD	837
<i>Kulwinder Kaur ; Simerpreet Singh</i>	
A REVIEW ON TECHNIQUES FOR PLACEMENT OF DISTRIBUTED GENERATORS.....	842
<i>Navdeep Kaur ; Sanjay Kumar Jain</i>	
IMPLEMENTATION OF DSTATCOM WITH I-PNLMS BASED CONTROL ALGORITHM UNDER ABNORMAL GRID CONDITIONS.....	848
<i>Neha Beniwal ; Ikhlq Hussain ; Bhim Singh</i>	

SIGN LEAST MEAN KURTOSIS BASED CONTROL OF THREE-PHASE SOLAR-ACTIVE POWER FILTER SYSTEM.....	853
<i>Shuvam Gupta ; Ikhlq Hussain ; Bhim Singh</i>	
DESIGN AND IMPLEMENTATION OF VOLTAGE MODE DIGITAL CONTROLLER FOR FLYBACK CONVERTER OPERATING IN DISCONTINUOUS CONDUCTION MODE (DCM)	858
<i>Aniruddha M Kamath ; Anjana K. G. ; Mukti Barai</i>	
OPTIMUM TILT ANGLES FOR MAXIMUM POWER GENERATION BY PHOTOVOLTAIC SYSTEMS IN WESTERN HIMALAYAN STATE OF HIMACHAL PRADESH, INDIA.....	864
<i>Sunanda Sinha ; S. S. Chandel</i>	
ANALYSIS OF SOIL SUITABLE FOR THERMAL ENERGY STORAGE MEDIA IN RENEWABLE ENERGY APPLICATIONS	870
<i>Sushant Singh Rathee ; Rajneesh Kaushal ; A. Swarup</i>	
PI AND FUZZY LOGIC CONTROL BASED TIP SPEED RATIO CONTROL FOR SMOOTHENING OF OUTPUT POWER FLUCTUATION IN A WIND ENERGY CONVERSION SYSTEM.....	876
<i>Prerna Gaur ; Diwaker Pathak ; Bhavnesh Kumar ; Yogesh K. Chauhan</i>	
ZERO-VOLTAGE ZERO-CURRENT SWITCHING SCHEME FOR HIGH BOOST-UP RATIO CONVERTER.....	882
<i>M. Veerachary ; Jyoti Prakash</i>	
SINGLE PHASE MULTIFUNCTIONAL VSC INTERFACED WITH SOLAR PV AND BIDIRECTIONAL BATTERY CHARGER	888
<i>Nupur Saxena ; Ikhlq Hussain ; Bhim Singh ; A. L. Vyas</i>	
ANALYSIS AND CONTROL OF A STANDALONE PV-BESS-DG BASED MICROGRID.....	894
<i>Seema ; Bhim Singh</i>	
ESTIMATION OF OPTIMAL LI-ION BATTERY PARAMETERS CONSIDERING C-RATE, SOC AND TEMPERATURE.....	900
<i>Venu Sangwan ; Avinash Sharma ; Rajesh Kumar ; A. K. Rathore</i>	
MRAS BASED SPEED ESTIMATION STRATEGIES FOR INDUCTION MOTOR DRIVES: A REVIEW	906
<i>Bhavnesh Kumar ; Yogesh K Chauhan ; S P Singh</i>	
HEXAGON TYPE (H-TYPE) SUB-BLOCK: MULTILEVEL INVERTER WITH REDUCED NUMBER OF DEVICES	910
<i>Shailendra Jain ; Rekha Agrawal</i>	
A SINGLE SOURCE SINGLE PHASE SPV GRID TIED SYSTEM EMPLOYING 9-LEVEL TERNARY CASCADED VSC.....	916
<i>Moksh Mehtani ; Ikhlq Hussain ; Bhim Singh</i>	
SINGLE STAGE THREE-PHASE GRID INTEGRATED SOLAR PV SYSTEM WITH FAST SPARSE NLMF BASED CONTROL ADAPTIVE TECHNIQUE	921
<i>Amresh Kumar Singh ; Ikhlq Hussain ; Bhim Singh</i>	
IMPACT OF FACTS DEVICES IN AUTOMATIC GENERATION CONTROL OF A DEREGULATED POWER SYSTEM	927
<i>Kamlesh Pandey ; S. K. Sinha ; Ashish Shrivastava</i>	
APPLICATION OF PHASOR & FREQUENCY ESTIMATION TECHNIQUES IN PHASOR MEASUREMENT UNIT	932
<i>Mansi Vats ; Sangeeta Kamboj</i>	
SITTING AND SIZING OF CAPACITORS IN DISTRIBUTION SYSTEM USING ADAPTIVE QUANTUM INSPIRED EVOLUTIONARY ALGORITHM	938
<i>G. Manikanta ; Ashish Mani ; H. P. Singh ; D. K. Chaturvedi</i>	
FRACTIONALIZATION OF MICROGRID PROTECTION SYSTEM THROUGH DETECTION OF ZERO SEQUENCE COMPONENT OF FAULT CURRENT	944
<i>Manjeet Singh ; Prasenjit Basak</i>	
CONVENTIONAL INDIAN RAILWAYS AND THE ADVANCED TRANSPORTATION SYSTEMS: A COMPARATIVE REVIEW.....	949
<i>V. Shirish Murty ; Shailendra Jain</i>	
REVIEW OF SOLAR PHOTOVOLTAIC MAXIMUM POWER POINT TRACKING TECHNIQUES.....	954
<i>Shiena Kundu ; Nikita Gupta ; Parmod Kumar</i>	
SOLAR ENERGY ESTIMATION TECHNIQUES: A REVIEW.....	960
<i>Parveen Bhola ; Saurabh Bhardwaj</i>	
GENETIC ALGORITHM BASED OPTIMAL PLACEMENT OF PHASOR MEASUREMENT UNITS FOR HARMONIC SOURCE IDENTIFICATION	965
<i>Anupam Dixit ; Sanjay K. Jain</i>	

A NEW 7-LEVEL ASYMMETRICAL MULTILEVEL INVERTER WITH REDUCED NUMBER OF SOURCES AND SWITCHING COMPONENTS	971
<i>Kamaldeep ; Jagdish Kumar</i>	
A COMPARATIVE ANALYSIS ON WPT SYSTEM USING VARIOUS POWER TRANSFER METHODOLOGIES AND CORE CONFIGURATIONS	976
<i>Merugu Kavitha ; Phaneendra Babu Bobba ; Dinkar Prasad</i>	
REAL TIME IMPLEMENTATION OF MULTILEVEL CONVERTER BASED SHUNT ACTIVE POWER FILTER FOR HARMONIC COMPENSATION IN DISTRIBUTION SYSTEM.....	982
<i>Jitendra Tandekar ; Amit Ojha ; Shailendra Jain</i>	
EARLY DETECTION OF SF₆ GAS IN GAS INSULATED SWITCHGEAR.....	987
<i>Pallavjot Kaur ; Tapas Choudhury</i>	
OPTIMAL OPERATION OF SINGLE-WINDING SELF-EXCITED INDUCTION GENERATOR FOR SINGLE-PHASE POWER GENERATION	993
<i>Satnam Mahley ; Sanjay Kumar Jain</i>	
STUDY AND SIMULATION OF ENERGY EFFICIENT REALISTIC HIT SOLAR CELL DEFECT STATES.....	998
<i>Tapas Chakrabarti ; Neha Sinha ; Rudrarup Sengupta ; Subir Kumar Sarkar</i>	
EXTRACTION OF EFFICIENT ELECTRICAL PARAMETERS OF SOLAR CELL USING FIREFLY AND CUCKOO SEARCH ALGORITHM	1004
<i>Tapas Chakrabarti ; Udit Sharma ; Tyajodeep Chakrabarti ; Subir Kumar Sarkar</i>	
WIND SHEAR ANALYSIS FOR DIFFERENT WIND TURBINE HUB HEIGHTS IN A WESTERN HIMALAYAN TERRAIN	1009
<i>Sunanda Sinha ; S. S. Chandel</i>	
PINE NEEDLE BIOMASS A POTENTIAL ENERGY SOURCE FOR HIMALAYAN REGION	1014
<i>Arvind Singh Bisht ; Narender Singh Thakur</i>	
MARKET BID OPTIMIZATION OF A HYBRID SOLAR-WIND SYSTEM USING CAES	1018
<i>Mohit Bansal ; Javed Dhillon</i>	
SINGLE PHASE AC-AC CONVERTER WITH IMPROVED POWER FACTOR FOR EFFICIENT CONTROL OF FAN MOTORS.....	1022
<i>Komal Ambhorkar ; Ashwani Kumar Rana ; Pragya Jain ; D. R. Tutakne</i>	
APPLICATION OF GENE EXPRESSION PROGRAMMING (GEP) TO INVESTIGATE THE HEALTH CONDITION OF DIRECT-DRIVE WIND TURBINE.....	1027
<i>Hasmat Malik ; Sukumar Mishra</i>	
EXPERIMENTAL INVESTIGATION OF MODIFIED SPACE VECTOR MODULATION FOR NEUTRAL POINT CLAMPED INVERTER USING DSPACE	1033
<i>Rahul Sadhwani</i>	
PERFORMANCE VERIFICATION OF RIPPLE CORRELATION CONTROL FOR SOLAR PV APPLICATION	1039
<i>Amruta S. Deshpande ; S. L. Patil</i>	
A SOLAR PV INTEGRATED CONTOURED KITE AS A HYBRID POWER GENERATING SYSTEM.....	1044
<i>Kuntal Ghosh ; Anirban Guha ; Siddhartha P. Duttagupta ; P. K. Gupta</i>	
SYNTHESIS OF OUTPUT WAVE SHAPES AND CASCADING INVERTER MODULES FOR IMPROVEMENT OF POWER QUALITY IN A H-BRIDGE INVERTER	1051
<i>Arshiah Yusuf Mirza ; Kashiful Huda ; Anil Kumar Puppala</i>	
A REVIEW ON SWITCHING FUNCTION OF MULTI LEVEL INVERTER AND APPLICATIONS.....	1055
<i>Bharti ; Kapil Verma ; Akhil Gupta</i>	
OPERATION AND CONTROL OF SINGLE-PHASE UPQC BASED ON SOGI-PLL.....	1060
<i>Hareesh Kumar Yada ; M. S. R Murthy</i>	
VOLTAGE STABILITY IN IEEE-14 BUS DSSC COMPENSATED SYSTEM.....	1066
<i>S. R. Gaigowal ; M. M. Renge</i>	
PERFORMANCE OF DOUBLY FED MACHINES INFLUENCED TO ELECTRICAL PERTURBATION IN PUMPED STORAGE PLANT - A COMPARATIVE ELECTROMECHANICAL ANALYSIS.....	1072
<i>R. Raja Singh ; Harshit Mohan ; Thanga Raj Chelliah</i>	
MODEL ORDER REDUCTION OF CONTINUOUS TIME SYSTEM USING HYBRID METAHEURISTIC ALGORITHM	1078
<i>Souvik Ganguli ; Gagandeep Kaur ; Prasanta Sarkar</i>	
A TYPICAL LAYOUT OF MICROGRID AND SCOPE OF ITS INDUSTRIAL APPLICATION.....	1083
<i>Jitender Kaushal ; Prasenjit Basak</i>	
FUEL CELL SUPPORTED DVR FOR MITIGATING POWER QUALITY ISSUES	1088
<i>Saranjeet Kaur ; Bharti Dwivedi</i>	

MODEL BASED MPPT ALGORITHM FOR DRIFT-FREE OPERATION IN PV SYSTEMS UNDER RAPIDLY VARYING CLIMATIC CONDITIONS	1092
<i>Johnson Mathew ; S. Shanifa Beevi ; G. Vincent</i>	
DEMODULATION BASED CONTROL ALGORITHM OF GRID INTERFACED PV SYSTEM FOR ROBUST ESTIMATION TO IMPROVE POWER QUALITY	1097
<i>Kanchan Mathuria ; Ikhlq Hussain ; Bhim Singh</i>	
SYNCHRONIZED PMU PLACEMENT INCORPORATING COMMUNICATION INFRASTRUCTURE	1103
<i>Satyendra Pratap Singh ; S. P. Singh</i>	
A HIGH PERFORMANCE INSTANTANEOUS RESISTANCE MAXIMUM POWER POINT TRACKING ALGORITHM	1108
<i>S. Shanifa Beevi ; Johnson Mathew ; G. Vincent</i>	
POWER SYSTEM STATE ESTIMATION COMPARISON OF KALMAN FILTERS WITH A NEW APPROACH	1113
<i>Arpit Khandelwal ; Ankush Tondan</i>	
UNIT COMMITMENT SCHEDULING BY EMPLOYING ARTIFICIAL NEURAL NETWORK BASED LOAD FORECASTING	1119
<i>Isha Arora ; Manbir Kaur</i>	
INVESTIGATION OF OPTIMAL ALLOCATION OF WIND DG IN DISTRIBUTION SYSTEM	1125
<i>Kavita Yadav ; Manbir Kaur</i>	
REAL TIME VALIDATION OF PROPOSED CONTROL SCHEME OF VSI FOR INTEGRATING THREE-PHASE LOADS/GRID TO DC MICROGRID	1131
<i>Mahesh Kumar ; S. K. Aggarwal</i>	
RESEARCH ISSUES RELATED TO CRYPTOGRAPHY ALGORITHMS AND KEY GENERATION FOR SMART GRID: A SURVEY	1137
<i>Ajay Kumar ; Alpana Agarwal</i>	
A STUDY ON MITIGATION OF BLACKOUT RISKS IN SMART GRID	1142
<i>Navpreet Singh ; Akhil Gupta</i>	
INTEGRATED PARTICLE SWARM OPTIMIZATION VARIANTS FOR ECONOMIC LOAD DISPATCH PROBLEM	1146
<i>Nirbhow Jap Singh ; J. S. Dhillon ; D. P. Kothari</i>	
CONTROLLING OF CONSUMER END VOLTAGE VARIATION USING PV POWER GENERATION	1151
<i>Aakriti Sethi ; Shakti Singh ; Mukesh Singh</i>	
FPID BASED SPEED CONTROL OF SEDC MOTOR	1157
<i>Abhishek Ohri</i>	
ANN BASED RESIDENTIAL DEMAND FORECASTING USING WEATHER AND SPECIAL DAY INFORMATION	1161
<i>S. K. Aggarwal ; Mahesh Kumar</i>	
SURVEY ON AUTHENTICATION AND ENCRYPTION TECHNIQUESFOR SMART GRID COMMUNICATION	1166
<i>Mansi Sharma ; Alpana Agarwal</i>	
STUDY OF DOUBLY CLAMPED PIEZOELECTRIC BEAM ENERGY HARVESTERS WITH NON-TRADITIONAL GEOMETRIES	1171
<i>Richik Kashyap ; Trupti Ranjan Lenka ; Srimanta Baishya</i>	
WIND POWER: FUTURE LIES WITHIN	1175
<i>Shakti Singh</i>	
STABILIZATION OF MOBILE INVERTED PENDULUM USING FUZZY PID CONTROLLERS	1180
<i>Sankalp Paliwal ; Vikram Chopra ; Sunil Kumar Singla</i>	
ESSENCE OF VARIABLE DC PWM CONTROL FOR SWITCHED RELUCTANCE MOTOR IN DIRECT PV-FED WATER PUMP	1184
<i>K. Vijay Babu ; B. L. Narasimharaju ; D. M. Vinod Kumar</i>	
MODEL REDUCTION OF LTI SYSTEMS USING SPECTRAL PROJECTION WITH APPLICATION TO POWER SYSTEMS	1190
<i>Sharad Kumar Tiwari ; Gagandeep Kaur</i>	
SOLAR PV BASED SINGLE STAGE CASCADED NINE LEVEL CONVERTER FOR GRID INTERFACED SYSTEMS	1196
<i>Nidhi Mishra ; Bhim Singh</i>	
PERFORMANCE ANALYSIS OF QUANTUM UNITARY GATES IN PRESENCE OF NOISE IN THE FIELD OF QUANTUM COMMUNICATION	1201
<i>Navneet Sharma ; Tarun Kumar Rawat ; Harish Parthasarathy ; Kumar Gautam</i>	

PERFORMANCE EVALUATION OF PHOTOVOLTAIC MODULE AT VARIOUS SOILING CONDITION.....	1204
<i>Arjyadhara Pradhan ; S. M Ali ; Mukesh Kumar Sahu</i>	
POWER QUALITY ISSUES AND THEIR MITIGATION TECHNIQUES IN MICROGRID SYSTEM-A REVIEW	1209
<i>Saranjeet Kaur ; Bharti Dwivedi</i>	
PERFORMANCE ANALYSIS OF SMC CONTROLLED PV FED BOOST CONVERTER.....	1213
<i>Shruti Pandey ; Bharti Dwivedi ; Anurag Tripathi</i>	
A SOLUTION OF SHORT TERM GENERATION SCHEDULING PROBLEM BY USING WODE ALGORITHM	1217
<i>Shiena Kundu ; Nishant Kumar</i>	
UNIT COMMITMENT PROBLEM BY USING JAYADE OPTIMIZATION ALGORITHM.....	1223
<i>Shiena Kundu ; Nishant Kumar</i>	
Author Index	