

2023 11th National Power Electronics Conference (NPEC 2023)

**Guwahati, India
14-16 December 2023**



**IEEE Catalog Number: CFP23M99-POD
ISBN: 979-8-3503-1165-5**

**Copyright © 2023 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:	CFP23M99-POD
ISBN (Print-On-Demand):	979-8-3503-1165-5
ISBN (Online):	979-8-3503-1164-8
ISSN:	2831-4360

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

TABLE OF CONTENTS

A Novel Single Switched High Gain Isolated DC-DC Converter for Electrical Vehicles and Charging Applications	1
<i>M. Sai Harsha Naidu, R. L Josephine, R. Bhanu Prakash</i>	
Analysis of Active Cell Balancing Topologies with Electrical Cell Modeling Techniques.....	6
<i>Kevin Hareshkumar Patel, Pranav B. Darji, Jai Ganesh Thakku Viswanathan</i>	
Transients Analysis of Photovoltaic System with Supercapacitor Participation in Power Management in Dynamic Scenarios	12
<i>Yuvraj Praveen Soni, Eugene Fernandez</i>	
Differential Mode Filter Design with Analytical Model of Single Phase PFC Boost Converter for Avionics Applications.....	17
<i>Rahamadullah, Nishanth Beedu, Rajeev Ranjan</i>	
Wireless Charging of Electric Vehicles Using Class EF ₂ Resonant Inverter	22
<i>Ranjib Kumar Behera, Ranjan Kumar Behera</i>	
Hardware Implementation of Class-D Amplifier Fed Piezo-Electric Load with Third Order Chebyshev Filter.....	28
<i>Kamlesh Mehar, P Parthiban</i>	
Analysis of Radial and Tangential Forces on the Synchronous Reluctance Machine	34
<i>Rachna Panwar, Ragavan K</i>	
Design of Finite State Machine Based PWM Scheme for Current Programmed Multiport Converter	40
<i>Sanchari Hajari, Olive Ray</i>	
Optimal Artificial Neural Network-Based Maximum Torque Control for Permanent Magnet Synchronous Machine in Modular Cascade Machine System.....	46
<i>Sachin Bhati, Shyama P. Das</i>	
Design of Solar Powered Charging Station for Electric Vehicle Applications with MPPT Optimization.....	52
<i>Shivalika Narayan Sharma, Suresh Mikkili</i>	
A Novel One Time Diagonal Sudoku PV Reconfiguration Technique to Soothen the Effect of Partial Shading Conditions	58
<i>Katiki Dileep, Suresh Mikkili</i>	
Model Based SOC Estimation of LiFePO ₄ Battery for Formula Style Electric Vehicle.....	64
<i>Siddhi K. Khasnis, Anisha B. Raut, Prashant K. Aher, Sanjaykumar L. Patil</i>	
Integration of DC Microgrid in Direct AC/AC SST	70
<i>Archit Joshi, Shabari Nath</i>	
Design, Fabrication, Testing and Comparative Analysis of Different Inductors in a High Frequency Synchronous Buck Converter.....	76
<i>Sayan Das, Gourab Banerjee, Mainak Sengupta</i>	
Studies on Electromagnetic and Thermal Performance of GaN MOSFETs in an Isolated DC-DC Converter.....	82
<i>Gourab Banerjee, Sayan Das, Abhishek Kar, Mainak Sengupta</i>	

Ultra-High Voltage Gain Non-isolated DC-DC Converter with Continuous Input Current <i>V. Seshagiri Rao, Ninu Joy, S. Kumaravel</i>	88
Novel Zero-Current Switched Quad-Boost High Gain DC-DC Converter <i>S A Sai Sumukh, Burle Tulasi Rao, Dipankar De</i>	94
Design and Modelling of Solar and Hybrid Power Based EV Charging Station Using ANFIS Controller..... <i>Pankaj Kumar, Bhookeya Nagu, Ramesh Gugulothu</i>	100
A Fuzzy Logic-Based Controlling Battery Charger with Bidirectional Capability for Electric Vehicles <i>Basudeo Kumar Mahto, Ramesh Gugulothu, Nagu Bhookeya</i>	106
A Reconfigurable Power Converter for 6-Phase PMSM for Light Weight Electric Vehicle Application..... <i>Kausik Biswas, Olive Ray, C. N. Bhende</i>	112
Optimal Allocation of Series and Multiple PV-Integrated Shunt Compensators to Minimise Power Loss and Under-voltage Nodes of Radial Distribution Networks <i>Vamsi Priya Goli, Sanjib Ganguly</i>	118
Stability Analysis of Single Prediction Horizon Continuous-Control-Set Model-Predictive-Control of Buck Converter with Voltage and Current Control <i>P V Harisyam, Ankit Nandanwar, Kaushik Basu</i>	124
Voltage and Current Regulation in Cuk DC-DC Converters Having Enhanced Closed-Loop Control Using PID Controller..... <i>Praanshu Srijan Shandilya, Ashutosh Gupta, Dheeraj Joshi</i>	129
Utility-Scale BESS Deployment in Renewable-Rich Northern Region Grid for Enhancing PFR <i>Khwrwmdao Basumatary, Anup Shukla</i>	135
Solar Photovoltaic System for Low-Power Residential Applications <i>Jeet Dutta, Ranjay Das, Adarsh Saha, Rupam Boruah, Rose Deori, Lalit Sunkrang</i>	141
Efficient Core Utilization Methods in Planar Magnetic Components <i>Muhammad Rafi, T. G. Subhash Joshi, Kiran Babu, T. S. Bheemraj</i>	147
A Comparative Study of Different PV Cell Parameter Estimation Techniques by Using an In-House Experimental Setup <i>Sura Chanukya, Chaitanya Dnyaneshwar Shambharkar, Vinay Kumar Kolakaluri, Vaskar Sarkar</i>	152
Deep Convolutional Neural Network Based Fault Detection and Diagnosis Method for Three-Phase T-Type Converter..... <i>Mrutyunjaya Sahani, Marif Daula Siddique, Prasanth Sundararajan, Sanjib Kumar Panda</i>	158
Multilevel Inverters with Reduced Switch Count: A Reality Check <i>Marif Daula Siddique, Prasanth Sundararajan, Mrutyunjaya Sahani, Sanjib Kumar Panda</i>	164
Analysis of Linear Induction Machines with Different Number of Poles Highlighting the Different Indicators for End Effects Estimation..... <i>Angshudeep Majumdar, Tapas Kumar Bhattacharya</i>	170

Analysis of Linear Induction Machines Showing the Invariance of End Effects with Number of Turns in the Primary Winding	176
<i>Angshudeep Majumdar, Tapas Kumar Bhattacharya</i>	
A Review of Wind Energy Optimization Methods.....	182
<i>Ashok Kumar, J G Sreenath, Praveen Tripathy</i>	
An Optimal Shade Dispersion Technique for Dynamic PV Array Reconfiguration to Mitigate the Partial Shading Conditions	188
<i>K. T Swetha, Barry Venugopal Reddy</i>	
Analysis and Control of Energy Efficient Welding Machine Test Bed Employing SiC Based Power Electronic Converter.....	194
<i>Anil Marneni, A. Sai Sivani, S. Senthil Kumar, N. Babu, N. Padmanaban</i>	
Machine Learning Based Fault Diagnosis Method for 3-Phase Passive Rectifiers in a Wind Energy Conversion System.....	200
<i>Laxman Singh, Anurag Singh Chauhan, Tushar Jain</i>	
Design and Implementation of a Solar-Mounted E-rickshaw with an Integrated Converter	206
<i>Ritam Chakraborty, Raushan Kumar, Olive Ray</i>	
Comparative Assessment of Energy Efficiency of Pole-Changing Induction Motor Under Different Driving Conditions	212
<i>Shubham Dabral, Saptarshi Basak</i>	
Characterization of Arc/spark Discharge Phenomena in Low Voltage Distribution Systems in the Presence of Power Electronic Devices	218
<i>Ratnakar Nutenki, Aurobinda Routray, Ashok Kumar Pradhan</i>	
Power Quality Improvement for PV Array Reconfiguration Based Grid Tied System	224
<i>Rohit Kumar Jain, Venugopal Reddy Barry, G Harish Kumar Varma</i>	
Current Stress Minimization in Dual Active Bridge Converter for Ultra-Fast Charging of Electric Vehicles	230
<i>Suwaiba Mateen, Ahteshamul Haque, Fatima Shabir Zehgeer, Farhad Ilahi Bakhsh</i>	
Design and Performance Analysis of an Outer Rotor Brushless DC Motor for Single-Phase Integrated Charger	236
<i>Debarati Dam, Saptarshi Basak</i>	
Advancing Voltage Stability in Half-Bridge Isolated DC-DC Converter Through the Adoption of PI Controller	242
<i>Kumar Gaurav, Dheeraj Joshi, Shreyansh Upadhyaya</i>	
Experiment Based Empirical Model for SMD Fuse Under Pulsed Current Excitation	247
<i>Manish Tathode, Shimul Kumar Dam, P. Baiju, Vinod John</i>	
Enhancing DFIG Performance in Wind Turbine Applications Through POD Integrated Control: RTDS Validation.....	253
<i>Jawaharlal Bhukya, Chandrakant Rathore, Rahul Ravindra Potpalawewar</i>	
A Novel DC-Link Midpoint Switching Scheme for Common-Mode Voltage Mitigation in 3-Phase 2-Level VSI	259
<i>S S Phaniram Musti, Ravikumar Bhimasingu</i>	

Scaling Laws and Empirical Relations Based Initial Sizing of Motor Integrated Electrodynamic Wheel	265
<i>Amarkumar A. Kushwaha, Baylon G. Fernandes</i>	
Modelling and Demonstration of Flywheel Energy Storage System for Micro-Grid Applications.....	271
<i>Santosh Kumar, M. P. Selvan</i>	
SOC Estimation of a Li-Ion Battery Using Deep Learning Method: A Comparative Study of LSTM and GRU Architecture	277
<i>Aditya C. Gole, Prashant K. Aher, Sanjaykumar L. Patil</i>	
Analysis and Design of Transformer Less Single Switch Based High Gain DC-DC Converter for Renewable Energy Applications.....	283
<i>Dharavath Anusha, Srinivasan Pradabane</i>	
An Alternative Analytical Thermal Model of a Laboratory Developed LPMSM Prototype with Its FEM Analysis and Experimental Validation.....	289
<i>Arnab Mahapatra, Monojit Seal, Mainak Sengupta</i>	
Performance Enhancement of a Battery and Grid-Tied Robust Dual-Stage Modular Power Converter.....	295
<i>Promit Chandra Datta, Akshay Chabukswar, Jose Titus, Rupesh Wandhare</i>	
Design of Flyback-Based Multiple Input Multiple Output Auxiliary Power Supply with Input Selecting Methodology.....	301
<i>Tirth Patel, Aniket Nadkarni, Prabhat Kumar, Jenson Joseph, Rajendra Sutar, Govind Haldankar</i>	
Bidirectional Buck-Boost Converter with Improved Voltage Transfer Ratio for V2V Application	305
<i>Sija Gopinathan, N Anfas Rahman, Arjun Vinodkumar, S Kumaravel</i>	
Development of a SiC MOSFET Based Half-Bridge Gate Driver	311
<i>Vihan Shahu, Sumedh Amrutrao Awathare, Vinod John</i>	
A Reduced Stage Dual Active Bridge Based Multiport Converter and Its Control Strategy	317
<i>Chinmay Das, Subhendu Dutta</i>	
Modelling & Implementation of Single Switch Based High Gain DC-DC Converter for PV and Fuel Cell Applications	323
<i>K Manikanta, Ramulu Chinthamalla</i>	
Grid Current Based MPPT in Two Stage Photovoltaic Systems	329
<i>Vikash Kumar Raushan, Sankar Peddapati</i>	
Smart Transformer Based Ship Microgrid System.....	334
<i>Dwijasish Das, Chandan Kumar</i>	
A Self-Adjusting Droop Control Strategy for DC Microgrids.....	340
<i>Jitendra Prajapati, A. S. Vijay, Amod C. Umarikar</i>	
Enhancing Power Sharing in Bipolar DC Microgrids with Impedance Shaping Schemes.....	345
<i>Jitendra Prajapati, A. S. Vijay, Amod C. Umarikar</i>	
Performance Improvement Schemes for Distributed Generators in Single-Phase Islanded AC Microgrids	351
<i>Nisheet Soni, Amod C. Umarikar, A. S. Vijay</i>	

Hardware-In-loop Setup for SoC Estimation of Lithium-Ion Batteries Using Simulink Desktop Real Time	357
<i>N Jesica, P Hema Rani, C Rajesh Kannan, Vasudevan Gandhi</i>	
Imaginary Coordinate System Based Space Vector Pulse Width Modulation of a Cascaded H-Bridge Multilevel Inverter	363
<i>Anuj K Pandey, Irfan Ahmed</i>	
Investigation of Dominant Lower Order Harmonics Elimination Using Space Vector Pulse Width Modulation	369
<i>Kranthi Panuganti, Ravi Teja Arumalla, Rohan Burye, Sheron Figarado</i>	
Quadruple Boosting Nine-Level Inverter	375
<i>Lakshmi Prasanna, T. R. Jyothsna</i>	
A Comprehensive Study on the Closed Loop Performance of a Zeta Converter.....	381
<i>Prashant Singh, Alka Singh, Ankita Arora</i>	
Universal Motor Drive Based Drip Irrigation Using PV Or Grid System.....	387
<i>Ankireddy Narendra, N Venkata Ramana Naik, Anup Kumar Panda, Rajesh Kumar Lenka, Ismail Hossain, T. Dilleswar Rao</i>	
Permanent Magnet AC Machines for LCI-Fed Medium Voltage Applications	393
<i>Shovan Dey, Pramod D'Sa, Amarkumar Kushwaha, B. G. Fernandes</i>	
A Novel Magnetic Geared Switched Reluctance Motor with Reduced Number of Air-Gaps	399
<i>Saptarshi Dey, B. G. Fernandes, Kishore Chatterjee</i>	
Four Quadrant Operation of Switched Reluctance Motor with Online Turn on Angle Control	405
<i>Piyush Ingle, Himanshu Misra</i>	
Design Improvement of a Line-Start Ferrite-Assisted Synchronous Reluctance Motor	410
<i>M. J. Vishal, Amarkumar Kushwaha, B. G. Fernandes</i>	
Designing of Transformer for DC Flyback Converter.....	416
<i>Soumyarupa Saha, Rajanikanta Sahoo, Molay Roy</i>	
Investigation of Induction Motor Rotor Bar Shapes for Energy Efficient Ceiling Fan Application	422
<i>Pramod Antony D'Sa, Kumkum Narang, Amarkumar Kushwaha, B. G. Fernandes</i>	
Revisiting Numerical Integration Methods for Digital Implementation in Power Electronics Applications.....	428
<i>Manas Palmal, P. Roja, Vinod John</i>	
Study of Bridgeless Isolated Zeta-Luo Converter for EV Charging Application	434
<i>Anuja Gaude, Koushik Shit, Soumitra Das</i>	
A Single Phase Zero-Voltage-Transition Type-1 Common Ground PV Inverter.....	440
<i>Manisha Sundar, Raghavendra Bandaru, E S Sreeraj</i>	
Realizing On-Chip Digital Twin for Event Tracking in Squirrel Cage Induction Motors and Drives.....	446
<i>Haraprasad Badajena, Ronit Dutta, Bivash Chakraborty, Aurobinda Routray, Mamata Jenamani</i>	
DC Bus Capacitor Discharge During Standstill and Running Condition in PMSM Based EVs	452
<i>Abhinay Pratap Singh, Rajesh Gupta, Sandeep Ojha, Vinod Kumar Yadav</i>	

A Dual-Active-Bridge Based Four-Port Bidirectional DC-DC Converter for Renewable Energy Integration	458
<i>Ravi Ranjan, Pragya Nand Singh, Srinivas Bhaskar Karanki</i>	
Review of the Isolated Dual Active Bridge Converter Topologies for the Fast and Ultra-Fast Charging of Electric Vehicles	464
<i>Fatima Shabir Zehgeer, Ahteshamul Haque, Suwaiba Mateen, Naila Shah</i>	
Suppressing Synchronization Inrush in a VSI Based 3-Phase Standalone Micro-grid.....	470
<i>Sounavo Ghosh, Parthasarathi Sensarma</i>	
Comparison of Two Different Configurations of Independent Active Power Decoupling Networks in Active-Front-End Impedance Source Inverters	476
<i>Pramit Nandi, Ravindranath Adda</i>	
Reduced-Switch Current-Fed Switched Inverter: Steady-state Analysis and PWM Control	482
<i>Pramit Nandi, Ravindranath Adda</i>	
Single Loop Multiple Second Order Generalized Integrator Based Dq Control for Standalone Inverter Systems	488
<i>Vaishnavvignesh G Iyer, Ravindranath Adda</i>	
Low-Voltage DC Microgrid Utilizing Interleaved MPPT Buck Converter with Hybrid Communication System Based on LoRaWAN and ESPNOW	494
<i>Visweshwar Selvaraj, Arvind T, Jude Prakash J, R Venkateswari, Rajasekar N</i>	
Controlling Voltage Sensitive Loads Using Smart Transformers for Frequency Regulation of a Power System.....	500
<i>Chakka Bapi Ayyappa Raju, Sanjoy Debbarma, Kingshuk Roy, R. Srinivasa Rao</i>	
Comparison of Per-Unit Models of Phase-shifted Full-bridge Converter	505
<i>P. Roja, Vinod John</i>	
A Modified Lookup Table-Based DTC of a 5-Phase Open-End Winding Induction Motor to Reduce Flux Ripple and Torque Ripple.....	511
<i>C Venkata Subba Reddy, Swati Devabhaktuni, Naresh Rayavarapu</i>	
Experimental Analysis of Power Sharing in a Single-Input-Dual-Output-based Quasi-Z Source Resonant Converter	517
<i>Santoshkumar M. Hunachal, G Arunkumar, B S Sudarshan, P R Shankar</i>	
Multifunctional Triple Active Bridge Converter for EV Application	523
<i>Rajat Kumar Shukla, B. G. Fernandes, Dipankar Saha</i>	
Weighting Factor Less Model Predictive Flux Control of Five-Phase Induction Motor with Maximum Torque Per Ampere	529
<i>Naresh Rayavarapu, Swati Devabhaktuni, C. V. Subba Reddy</i>	
Analysis and Utilization of Available Control DoFs to Optimize the Peak Current of DAB Converter.....	535
<i>Nikhil Suresh Patil, Anshuman Shukla</i>	
An Economical Hardware-In-loop Approach for Real-Time Simulation of SST	541
<i>Shantanu Gupt, Archit Joshi, Shabari Nath</i>	

Low Speed Performance Improvement Using Selective Synthetic Voltage Vector in Predictive Direct Torque Control IM Drive	547
<i>Anurag Kammari, Mohan V. Aware, Sudheer Adigintla</i>	
A Two-Loop Feedback Control Strategy for Neutral Point Voltage Balancing of Vienna Rectifier with a Carrier-Based Implementation.....	553
<i>Rishil Kumar Gutha, Sayan Paul, Shamik Basak, Shailesh Ghotgalkar, Kaushik Basu</i>	
Effect of Mismatch in Frequency of Gate Pulses on Inductor Current Ripple in Coupled Inductor SIDO Boost Converter	559
<i>Angan Sarkar, Shabari Nath</i>	
A Review on Active Power Decoupling for Totem-Pole Power Factor Correction Circuit.....	565
<i>Cilaveni Satish Chandra, Ravindranath Adda</i>	
Constant Frequency Duty Cycle Controlled Inverter for Multi-Load Induction Cooking Applications.....	571
<i>Fabia Akbar, K. Harija Rani, P. Sanjana, N Vishwanathan</i>	
Adaptive Feed-Forward Reduced-Order Double-Integral Sliding Mode Control of a Synchronous SEPIC Converter	577
<i>Akshay Chabukswar, Rupesh Wandhare</i>	
Modeling of Three-Level Boost Converter	583
<i>Sachin Dhyani, Shabari Nath</i>	
Design and Analysis of Fuel Cell Fed High Step-Up DC-DC Converter Using Modified Integral Backstepping Controller.....	589
<i>Praveen Vankadari, Sai Ashish Jana, Rupesh Wandhare</i>	
Fault Detection in DC Nanogrid System Using Advanced Signal Processing Techniques	595
<i>Rachita R. Sarangi, Prakash K. Ray, Ajit K. Barisal, Asit Mohanty</i>	
Experimental Vibration Studies of a 10 kW 30,000 RPM High-Speed Switched Reluctance Motor.....	601
<i>Shreyas Srivatsa, Sakshi Narchail, Syed Shahjahan Ahmad, Ashutosh Patel, Pramod Kumar, G. Narayanan</i>	
Impact of Gate Turn-Off Voltage on Body Diode Loss of SiC MOSFET and a Scheme to Improve Light Load Efficiency of SiC Converters	607
<i>Aditya Aman, Abhishek Chanekar, Sandeep Anand, Anant Agarwal</i>	
Distributed Generation and RoCoF Relay Integrated Multi-Stage Under Frequency Load Shedding Scheme in Power Systems.....	613
<i>Sanjoy Debbarma, Kingshuk Roy, Pravendra Pratap Singh, Sikandar Kumar</i>	
Cost Effective Programmable Battery Management System Review, Design and Implementation.....	618
<i>Siddhi K. Khasnis, Anisha B. Raut, Sanket S. Chavan, Prashant K. Aher, Sanjaykumar L. Patil</i>	
EV Battery Charging System Via Reconfigurable Boost Converter with Solar PV and Grid	624
<i>Kumari Priya, Rajesh Gupta, Manas Kumar</i>	
A Review on Frequency Regulation Methods for Grid Connected Large Scale Photovoltaic Systems.....	630
<i>R. Venkatesh, P. C. Sekhar, C. N. Bhende</i>	
A Comparative Analysis of SRF-PLL and EPLL for Grid Connected Converter.....	636
<i>Ashish, Abhishek, Sonam Gupta, Anup Shukla</i>	

Current Tracking Performance of an SiC Power Amplifier for Control of Electromagnetic Bearing with Good Disturbance Rejection.....	642
<i>Kamisetty N V Prasad, G. Narayanan</i>	
Derivation of Isolated Outputs from a Non-Inverting Buck-Boost Topology	648
<i>Debjit Rana, Olive Ray, Santanu K. Mishra</i>	
Analysis of Phase Modulated Series Resonant Converter in Discontinuous Conduction Mode	654
<i>Anirban Dey, Parthasarathi Sensarma</i>	
DSP-Based Design and Implementation of Inductor Current Estimator for DC-DC Converters.....	660
<i>Raj Kamal, Olive Ray</i>	
Individual Current Stress Optimization for Multiple Dual Active Bridges with Common Input Stage	666
<i>Ravi Krishnamurthy Bhat, Dipankar De, Silpashree Sahu, Sujit Kumar</i>	
A Dual Input Single Output Microinverter for Grid Connected PV Application.....	672
<i>Aaqib Ahmad Qureshi, Subhendu Dutta</i>	
Non-Unity Power Factor Operation of a Grid Connected Transformerless PV Inverter Having Capability to Control Two Sub-arrays.....	678
<i>Satyaveer Singh Rawat, Chinmay Das, Subhendu Dutta</i>	
Dual 4-Switch Inverter Fed BLDC Motor Drive with Open-end Stator Windings	684
<i>U Hari Krishna, P P Rajeevan</i>	
Minigrids for Rural Electrification in Ethiopia.....	690
<i>Sanjay K. Chaudhary, Ying Wu, Baseem Khan, Juan C. Vasquez, Josep M. Guerrero</i>	
Control of Bidirectional Inverter in Mixed Energy EV to Home System.....	694
<i>Durgesh Prabhakar Vibhandik, Sonam Acharya, Santanu Kumar Mishra</i>	
Modeling and Control of Parallel-Connected Converters for Electric Drives.....	699
<i>Ramkrishan Maheshwari, Adrian David Valencia, Thomas Ebel, Egon Hansen, Lasse Chr. Larsen</i>	
Power Line EMI Filter Design of Power Converters to Meet the Conducted Emission Specifications of MIL-STD-461G.....	705
<i>Rakesh Kichouliya, Syam Sundar, B Prathap Reddy</i>	
Performance Evaluation of SEIG Employing Certain Optimization Tools in MATLAB Under Various Operating Conditions	711
<i>Hanumanthu Kesari, Kumaresan Natarajan</i>	
State of Charge Based Active Power Sharing Control Between Two Battery Energy Storage Units and Solar PV Array Based Standalone System.....	717
<i>Subhadip Chakraborty, Gaurav Modi, Bhim Singh, B. K. Panigrahi</i>	
An NPC Based Triple Active Bridge Isolated Converter for Fast Onboard Battery Charger for All Electric Ship	723
<i>Somnath Meikap, Chandan Kumar</i>	
An Arduino Based Modular Battery Management System for Protection and Real Time Monitoring of Lithium-Ion Cell.....	729
<i>Somnath Meikap, Nihal Kumar, Chandan Kumar</i>	

Multiport DC Fast EV Charger Based on Modular Multilevel Converter and Quad-Active Bridge.....	735
<i>Hitesh Malviya, Chandan Kumar</i>	
LCL-LCL Topology Based Resonant Inductive Wireless Power Transfer System	741
<i>Sahil Gaurav, Chandan Kumar, Ashish Meena</i>	
Coil Coupling Design for Resonant Inductive Wireless Power Transfer System.....	747
<i>Sahil Gaurav, Chandan Kumar, Ashish Meena</i>	
Implementation of Adaptive Pulse Skipping Modulation Based Quadratic Buck Converter for Light Load Applications.....	753
<i>Ghanshyam Verma, Vijay Kumar Gupta, Bipin Chandra Mandi</i>	
Reactive Power Compensation in Transmission System Using Three Level NPC STATCOM in Real Time Simulation Using HYPERSIM	759
<i>Diptendu Pal, Sameer Singh</i>	
A Finite Control Set Model Predictive Control for Grid Connected Three Phase Inverter with LCL Filter	765
<i>Neetish Kumar Ojha, Sanjib Kumar Mitra, Srinivas Bhaskar Karanki</i>	
Power Management of a Smart Transformer Based Ship Microgrid.....	771
<i>Arunima Dutta, Rampelli Manojkumar, Chandan Kumar</i>	
Effect of Snubber on Switching Times of SiC MOSFET Based 4-Quadrant Switch	777
<i>Nishant Anurag, Shabari Nath</i>	
UPS Operation of Smart Transformer Fed Triple-Active Bridge Converter for Data Centres	783
<i>N Anandh, Dwijasish Das, Chandan Kumar</i>	
Model Predictive Control of Isolated Three-Phase Four-Wire Grid Forming Converter	789
<i>Devendra Kumar, Chandan Kumar</i>	
Operation and Control of Modular Multilevel DC-DC Converter for EV Charging Application	794
<i>Sanjay Kumar Sahu, Shwet Prasoon, Sahil Gaurav, Chandan Kumar</i>	

Author Index