

# **2019 International Conference on Power Electronics Applications and Technology in Present Energy Scenario (PETPES 2019)**

**Mangalore, India  
29 – 31 August 2019**



**IEEE Catalog Number: CFP19U21-POD  
ISBN: 978-1-7281-2656-2**

**Copyright © 2019 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:	CFP19U21-POD
ISBN (Print-On-Demand):	978-1-7281-2656-2
ISBN (Online):	978-1-7281-2655-5

**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](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

**2019 International Conference on Power Electronics  
Applications and Technology in Present Energy Scenario  
(PETPES-2019)**

**Table of Contents**

<b>Message from General Chair</b>	<b>i</b>
<b>Message from the Organizing Chairs</b>	<b>ii</b>
<b>Conference Committee</b>	<b>iii</b>
<b>Reviewers</b>	<b>iv</b>

**Session I: Power converters**

<b>Modified Non-Inverting Buck-Boost PFC Converter with One Cycle Current Control Strategy</b>	<b>01</b>
<i>Nair Syam Sundar S, Hema Rani P, Kuraganti Manikanta, Saly George, Ashok S.</i>	
<b>Analysis of A Dual Input DC-DC Converter Topology Based on SEPIC Configuration</b>	<b>07</b>
<i>Syed Abdul Yasin, Jagadeesh Kumar, Yeswhanth Kumar, Sivaprasad Athikkal, Joseph Peter</i>	
<b>Study and Design of Soft-Switched PWM DC-DC Buck Converter</b>	<b>13</b>
<i>Abhishek Roy Dr. Mukti Barai</i>	
<b>Particle Swarm Optimisation Based Single Switch Multiple Step Gain DC-DC Converter for Solar PV Applications</b>	<b>19</b>
<i>Nikhil Narayanan, Jayaprakash P</i>	
<b>Design and Analysis of Voltage Lift Technique Based Boost DC-DC Converter</b>	<b>25</b>
<i>G. Venkata Ramaiah, Nair Syam Sundar S., P. Ananthkrishnan, K. Manikanta</i>	
<b>Design and Engineering of A Low Cost AC-DC MIL Grade Power Supply Unit</b>	<b>31</b>
<i>Navneet Kumar Diwakar, Venugopal B, Sandhyarani S R</i>	
<b>Development of High Repetition Rate Pulse Generator Based on LCCL Resonant Capacitor Charging Topology and CLCL Resonant Pulse Generating Scheme</b>	<b>36</b>
<i>Anil S. Nayak, S. Mitra, A.S. Patel, T.S. Kolge, Archana Sharma, R.K. Rajawat</i>	

**Session II : Power Quality & Reliability**

<b>Cross Wavelet-SVM for Detection and Classification of Power Quality Problems in Distribution System</b>	<b>42</b>
<i>Mallikarjuna Golla, K. Chandrasekaran</i>	
<b>Control of DVR using Variable Step-size Griffith's LMS with Optimized tuning of Proportional Integrator Gains</b>	<b>47</b>
<i>Talada Appala Naidu, Sabha Raj Arya, and Rakesh Maurya</i>	
<b>Integration of Proactive Hybrid Circuit Breaker with Current Flow Controller for Bipolar HVDC Grid</b>	<b>54</b>
<i>Akshay K. Kale, Mohan P. Thakre</i>	
<b>Seven Level Fault Tolerant Inverter for Photo Voltaic Applications</b>	<b>60</b>
<i>A.Madhukar Rao, V.Srinivas, G.Vishwas, V.Ramaiah</i>	

<b>Analysis And Validation of Low Voltage Ride-Through Capability for DFIG Based Wind Energy Conversion System Under Symmetrical Grid Voltage Sags</b>	65
<i>Tomson Thomas, Prince A.</i>	
<b>Dstatcom for Distribution System Having High PV Penetration</b>	71
<i>Fathimathul Asna M P, Dr. Manoj Kumar M V</i>	
<b>Variable DC Part Voltage of DSTATCOM for Enhancing Power Quality of Microgrid</b>	76
<i>Vimalrose S. Dr. Manoj kumar M V</i>	

### **Session III: Transportation Electrification & Energy Storage**

<b>The Simulation Study of Solar PV Coupled Synchronous Buck Converter with Lead acid Battery Charging</b>	82
<i>Akshay Kumar S, Suneetha M N, Dr.C.Lakshminarayana</i>	
<b>Electro Electrolyte Compatibility For Superior Performance of Super-Capacitor</b>	86
<i>L S Godse, V N Karkaria, M J Bhalerao, Saumyakanta Khatua, P B Karandikar</i>	
<b>Secondary Voltage Control of DC MG with Electric Vehicles and Hybrid Energy Storage Units: Disturbance Observer Approach</b>	91
<i>Bhargavi K.M., Jayalakshmi N.S.</i>	
<b>LFC of Multi Area Power System with Electric Vehicle using VPL Optimized Controller</b>	97
<i>Sariki Murali, Abhineet Prakash, Ravi Shankar</i>	
<b>Vehicle Trajectory Prediction Using Non-linear Input-Output Time Series Neural Network</b>	103
<i>Sushmitha T V Deepika C P Rajesh Uppara Nirupama Sai R</i>	
<b>SOH Algorithm Development of Li-ion Battery Cell for Electric and Hybrid Applications</b>	108
<i>Prasad Jategaonkar, Dhananjay B Talange, Naga C Amancharla, Gaurav Kumar Jha</i>	

### **Session IV : Renewable and Sustainable Energy**

<b>An Interleaved Buck Converter Based Active Power Filter for Photovoltaic Energy Application</b>	114
<i>Narendra Babu P, Prabhat Ranjan Bana, Ranga Babu Peesapati, and Gayadhar Panda</i>	
<b>Performance Comparison of Root-finding Algorithms for Solar Photovoltaic Emulator</b>	120
<i>Hadif Abdul Sahid, K. Vinu Thomas, Kumaravel S, Ashok S.</i>	
<b>Design and Analysis of Axial Flux Permanent Magnet Machine for Wind Power Applications</b>	125
<i>Anitha N, Bharanikumar R</i>	
<b>Multiple Complex Coefficient Filter ISOGI-QSG Based Control For Grid Connected SPV System</b>	129
<i>Anagha Rajendran K P, Dr. Jayaprakash P</i>	
<b>Design of Small Scale Vertical Axis Wind Turbine</b>	135
<i>Chandrashekhar P K, Sachin Managuli, Shashank A</i>	

**Design and implementation of MPPT Based Synchronous Buck Converter for Solar Charge Controller** N/A  
*Priyanka B, Usha A and Jeevan Thomas*

### **Session V : Smart and Micro Grid Technologies**

**Reduction of Frequency Oscillations in Solar PV Microgrid using Virtual Synchronous Machine** 144

*Vinu Thomas, Kumaravel S, Ashok S.*

**Design and Performance of Vehicle to Grid Integration with DG Infrastructure** 149  
*Smitha Joyce Pinto*

**Comparison of Pre-Processing Filters on the Performance of sEMG based Pattern Recognition** 154

*Omkar S Powar, Krishnan Chemmangat*

**Mobile Robot Assistance for Disabled and Senior Citizens Using Hand Gestures** 160

*K.N.V. Sriram Suja Palaniswamy*

**Analysis of Economic Load Dispatch using Mine Blast Algorithm** 166

*Animesh Sen Gupta Koustav Dasgupta Provas Kumar Roy*

**Faulty Phase and Fault Location Identification using Micro-PMU Data** 171

*Sanitha G, J. S. Savier*

**Comparison of Two Data Cleaning Methods as Applied to Volatile Time-Series** 177

*Kumar Gaurav Ranjan,, B Rajanarayan Prusty, Debashisha Jena*

### **Session VI : Industrial Electrical drives**

**Fault-Tolerant Control of BLDC Motor Drive for Electric Vehicle Applications** 183

*Sajitha G, Mayadevi N, Mini V P, Harikumar R*

**Investigations on Space Vector Based Bus Clamping PWM Strategies on Speed Control of Induction Motor Drive** 189

*Dara Sandeep, Pendyala Srikanth, Balam Sai Praneeth, Joseph Peter ,Sivaprasad Athikkal*

**MTPA/MTPF Control of Interior Permanent Magnet Synchronous Machine by Estimating Inductances** 195

*V Vinay Kumar Reddy, A Augustin Gandhiraj, Dr. Rijil Ramchand*

**Analysis of Space vector PWM algorithms on Open End Winding Induction Motor Drive using dSPACE** 201

*Syed. Munvar Ali V. Vijaya Kumar Reddy, M. Surya Kalavathi*

**An Arduino Based Speed and Rotor Position Measurement Technique for Electric Drives** 207

*Neeraja Vijayan, Sandeep J, Dr. Rijil Ramchand*

**Q-MRAS Based Speed Sensorless Vector Controlled Synchronous Reluctance Motor Drive** 212

*Rajnish Kumar, Vimlesh Verma, Yawer Abbas Khan, Badini Sai Shiva*

**Performance Analysis of PMSM Drive with Space Vector PWM and Sinusoidal PWM fed VSI** 218

*Chethan G N, Kodeeswara kumaran G*