

# **2020 IEEE 11th International Symposium on Power Electronics for Distributed Generation Systems (PEDG 2020)**

**Dubrovnik, Croatia  
28 September – 1 October 2020**



**IEEE Catalog Number: CFP20PEG-POD  
ISBN: 978-1-7281-6991-0**

**Copyright © 2020 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:	CFP20PEG-POD
ISBN (Print-On-Demand):	978-1-7281-6991-0
ISBN (Online):	978-1-7281-6990-3
ISSN:	2329-5759

**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

# Table of Contents

- x Foreword
- xi Committees

## Day 1: September 29, 2020

### ***Power Electronics for Sustainable Sources V Virtual Stage 1, 3:50pm-5:20pm, Tuesday***

- 1 Continuous Transient and Steady-State Control for Dual-Active Bridge Converters with Bidirectional Charge Control  
*Remco Bonten, Jan Schellekens, Henk Huisman*
- 7 Fuzzy Mamdani-based Model Predictive Load Frequency Control  
*Mohammad saeid Akbari, Ali Akbar Safavi, Navid Vafamand, Tomislav Dragicevic, Jose Rodriguez*
- 13 Design and Implementation of a Harmonic Elimination Voltage Control Method for the Single-Phase Inverter  
*Bogdan Proca, Mihai Comanescu*

### ***Energy Storage Systems I Virtual Stage 2, 3:50pm-5:20pm, Tuesday***

- 18 Non-Isolated Partial Power Converter for Electric Vehicle Fast Charging Stations  
*Jon Anzola, Iosu Aizpuru, Asier Arruti*
- 23 Cost Effective Operation of a Hybrid Zero-Emission Ferry Ship  
*mohsen banaei, Jalil Boudjadar, Tomislav Dragicevic, Mohammad Khooban*
- 29 Sequential Phase-Shifted Model Predictive Control for a Multilevel Converter with Integrated Battery Energy Storage  
*Sebastián Neira, Pablo Poblete, Rodrigo Cuzmar, Javier Pereda, Ricardo Aguilera*
- 35 Smart Hybrid Inverter: a practical guide  
*Lucas Munaretto, Vitor Zeni, Henrique Chaves, Victor Gruner, Neilor Pont, Rodrigo Kraemer*

### ***Distributed Generation Interacting with Power Transmission and Distribution Systems I Virtual Stage 3, 3:50pm-5:20pm, Tuesday***

- 41 The Correlation of Network Topology and Power System Resilience by Using Neural Network Analysis  
*xiong yu*
- 46 On the Influence of Time Delay Modelling in Grid-Connected Converters for Harmonic Studies  
*Alexander Neufeld, Merlin Joel Alkemper, Nils Schäkel, Lutz Hofmann*
- 51 Microgrid Design and Control of a Hybrid Building Complex  
*Kevin Quigley, Johan Enslin, Moazzam Nazir, Austin Greenwood*
- 57 Grid-Tied Three-Phase Inverter Current Control Considering Low Voltage Ride Through Capability: A Comparison between Stationary and Synchronous Reference Frames

***Power Electronics for Sustainable Sources I***  
***Virtual Stage 1,***  
***5:30pm-7:00pm, Tuesday***

- 63 Control Strategies Overview for Fixed Frequency Operation LLC Resonant Converter  
*Yuqi Wei, Dereje Woldegiorgis, H. Alan Mantooth*
- 69 A Novel Control Algorithm for Small-Scale Wind Generation System using Aerodynamic Torque Estimator  
*Guanhong Song, Bo Cao, Liuchen Chang*
- 77 An Electrical Stall Control Algorithm for Small-Scale Wind Generation System using Aerodynamic Observer  
*Guanhong Song, Bo Cao, Liuchen Chang*
- 85 An Adaptive Backstepping Based Virtual Inertial Control Framework for DC Microgrids  
*Subham Sahoo, Frede Blaabjerg, Tomislav Dragicevic*

***Power Electronics for Sustainable Sources II***  
***Virtual Stage 2,***  
***5:30pm-7:00pm, Tuesday***

- 91 Assessment Methodology for Power-Cell based on High-Current 10 kV SiC MOSFET Half-Bridge Module  
*Slavko Mocevic, Jianghui Yu, Yue Xu, Joshua Stewart, Jun Wang, Igor Cvetkovic, Dong Dong, Rolando Burgos, Dushan Boroyevich*
- 99 Sensor Fault Detection for Line Regulating Converters supplying Constant Power Loads in DC Microgrids  
*Kasper Jessen, Mohsen N. Soltani, Amin Hajizadeh*
- 104 A Novel Three-Port NPC Converter for Grid-Tied Photovoltaic Systems with Integrated Battery Energy Storage  
*Sebastián Neira, Alonso Lizana, Javier Pereda*
- 110 A 3 kW Single-Stage Isolated AC-DC Converter with Individual Regulation of Power Factor and Output Power for Battery Charging Applications  
*Hiroto Mizutani, Ryota Kondo, Takaaki Takahara, Osamu Mori*

***Distributed Generation Interacting with Power Transmission and Distribution Systems II***  
***Virtual Stage 3,***  
***5:30pm-7:00pm, Tuesday***

- 116 Optimal PV Inverter Control for Network Voltage and Power Factor Regulation  
*Chi-Thang Phan-Tan, Martin Hill*
- 122 Virtual-Impedance-Based Droop Control for Grid-Forming Inverters with Fast Response to Unbalanced Grid Faults  
*Malte Eggers, Hendrik Just, Huoming Yang, Sibylle Dieckerhoff*
- 130 Active Power Factor Compensation Based on a Geometric Phase Control Scheme  
*Sorin Ionuț Salcu, Adrian Mihai Iuoras, Norbert Csaba Szekely, Mircea Bojan, Calin Gheorghe Rusu, Gheorghe Ioan Fasolă*
- 136 Tow-step inertia provision with consideration of load type in an islanded wind turbine with grid-supporting voltage control  
*Nastaran Fazli, Sidney Gierschner, Hans-Günter Eckel*

**Day 2: September 30, 2020**

***Power Electronics for Sustainable Sources VI***  
***Virtual Stage 1,***  
***3:40pm-5:10pm, Wednesday***

- 143 On the Direct Voltage Control Concept of Grid Connected Power Converters  
*Nils Schäkel, Alexander Neufeld, Lutz Hofmann*

- 149 Variable Resonant and Magnetizing Inductor Control for LLC Resonant Converter  
*Yuqi Wei, Dereje Woldegiorgis, H. Alan Mantooth*
- 154 Topology and Voltage Balance of Series-Connected T-type Inverter for Medium-Voltage Drive Applications  
*Mokhtar Aly, Samir Kouro, Thierry Meynard*

***Energy Storage Systems II***  
***Virtual Stage 2,***  
***3:40pm-5:10pm, Wednesday***

- 159 Optimizing Operations of Sodium Sulfur (NAS) Large-scale Battery Storage  
*Ali Almarzooqi, Hamad Albeshr, Ashot Mnatsakanyan, Wadhah Alzahmi, Endika Muruaga, Sgouris Sgouridis*
- 164 Active Li-ion Battery Charge Balancing System Based on Flyback Converter  
*Andrej Brandis, Denis Pelin, Danijel Topić, Bernard Tomašević*
- 170 Distributed Finite-time Power Management for Hybrid Energy Storage Systems in DC microgrids  
*Qianwen Xu, Lihua Xie, Tomislav Dragicevic*

***Distributed Generation Interacting with Power Transmission and Distribution Systems III***  
***Virtual Stage 3,***  
***3:40pm-5:10pm, Wednesday***

- 175 Implementation of a power hardware in-the-loop platform using the damping impedance method  
*felipe chaparro, Javier Pereda*
- 181 Determination of the Frequency Dependent Thévenin Equivalent of Inverters Using Differential Impedance Spectroscopy  
*Soenke Rogalla, Sebastian Kaiser, Bruno Burger, Bernd Engel*
- 187 Enhancing Frequency Stability of Weak Grids with Modified Distributed Virtual Inertia Method  
*Meysam Saeedian, Bahram Pournazarian, Bahman Eskandari, Mahdi Shahparasti, Edris Pouresmaeil*
- 193 Microgrid Stability Analysis Considering Current State-Feedback  
*Bahram Pournazarian, Meysam Saeedian, matti lehtonen, Shamsodin Taheri, Edris Pouresmaeil*

***Power Electronics for Sustainable Sources III***  
***Virtual Stage 1,***  
***5:20pm-6:50pm, Wednesday***

- 199 Reliability Analysis and Energy Yield of String-Inverter Considering Monofacial and Bifacial PV Panels  
*Sara Bouguerra, Ariya Sangwongwanich, Frede Blaabjerg, Elizaveta Liivik, Mohamed Rédha Yaiche*
- 205 A New Representation based on Virtual Capacitor for Virtual Synchronous Generators  
*Mohammadreza Miranbeigi, Prasad Kandula, Deepak Divan*
- 211 Design and Configuration of a Suitable Electrical Energy Storage Device for an MMC-STATCOM with Voltage Source Behavior  
*José Manuel Cajigal-Núñez, Pascal Winter, Holger Wrede, Julian Struwe, German Kuhn, Bernd Niemann*
- 219 LLC Resonant Converter Design Based on the Worst Operation Point  
*Yuqi Wei, Quanming Luo, H. Alan Mantooth*

***Power Electronics for Sustainable Sources IV***  
***Virtual Stage 2,***  
***5:20pm-6:50pm, Wednesday***

- 225 Model Predictive Control of a Quasi-Three-Level Inverter Topology Supplying Multiple Solar-Powered Pumps  
*Matias Paredes, Domingo Ruiz, Werner Jara, Ruben Pena, Javier Riedemann*

- 230 Passivity-Based Current Control of a Dual-Active Bridge to Improve the Dynamic Response of a Solid-State Transformer During Power and Voltage Variations  
*Karol Daniela López Rodríguez, Eliana Piedrahita-Echavarría, Walter Gil González, Andrés Escobar-Mejía*
- 236 Set-based Predictive Control of a Grid-tied Inverter with LCL filter Under Variable Grid Inductance Conditions  
*Renato Babojelić, Šandor Ileš, Jadranko Matuško*

***Distributed Generation Interacting with Power Transmission and Distribution Systems IV  
Virtual Stage 3,  
5:20pm-6:50pm, Wednesday***

- 242 Analysis of a diesel-generator-assisted peak power reduction in a production plant  
*Branimir Brkić, Mario Vašak*
- 247 Price-optimal Electrical and Thermal Energy Flow Control within Microgrid – Smart Grid Interaction  
*Marko Kovačević, Danko Marusic, Mario Vašak*
- 253 Grid Forming Energy Router: Investigation of Load Control and Stability Response  
*Sneha Thakur, Ghanshyamsinh Gohil, Poras Balsara*
- 260 A Linear Regression Based Resilient Optimal Operation of AC Microgrids  
*Subham Sahoo, Rubi Rana, Marta Molinas, Frede Blaabjerg, Tomislav Dragicevic, Sukumar Mishra*

**Day 3: October 1, 2020**

***Power Electronics for Sustainable Sources VII  
Virtual Stage 1,  
5:20pm-6:50pm, Wednesday***

- 266 Multi-objective Optimization for Smaller, Efficient and Better Performed Design of Buck-boost Converters  
*Xianmiao Huang, Xin Zhang, Xinze Li*
- 270 Series Resonant DC-DC Converter with Single-Switch Full-Bridge Boost Rectifier Operating at Fixed Switching Frequency  
*Abualkasim Bakeer, Andrii Chub, Dmitri Vinnikov*
- 276 A New Nonlinear Controller for Multilevel DC/DC Boost Converter  
*Milad Andalibi, Mojtaba Hajhosseini, Jalil Boudjadar, Meysam Gheisarnejad, Tomislav Dragicevic, Mohammad Khooban*
- 281 An Adjustable Algorithm for Power Spike Smoothing  
*Zhihao Yu, Yevgen Biletskiy, Liuchen Chang*

***Distributed Generation Interacting with Power Transmission and Distribution Systems V  
Virtual Stage 3,  
5:20pm-6:50pm, Wednesday***

- 285 Analysis of a Microgrid Availability and Resilience with Distributed Energy Storage Embedded in Active Power Distribution Nodes  
*Alexis Kwasinski*
- 291 Generalized Behavioral Models of Three-Phase Converters and Electric Machines for System-Level Study and Stability Assessment  
*Igor Cvetkovic, Dushan Boroyevich, Rolando Burgos, Zeng Liu*
- 297 Modelling and Analysis of the Reliability of a Photo Voltaic (PV) Inverter  
*Amirali Davoodi, Saeed Peyghami, Yongheng Yang, Tomislav Dragicevic, Frede Blaabjerg*
- 304 Economical Secondary Control of DC Microgrids  
*Babak Abdolmaleki, Qobad Shafiee, Mahdieh S. Sadabadi, Tomislav Dragicevic*

***Distributed Generation Interacting with Power Transmission and Distribution Systems VI  
Virtual Stage 3,  
5:20pm-6:50pm, Wednesday***

- 309 Fast Power System Frequency Estimation by Shape Class Approximation for Synthetic Inertia Provision by Battery Energy Storage Systems  
*Christoph Kaufmann, Carlos Cateriano Yáñez, Georg Pangalos*
- 315 Distributed Control of Islanded Series PV-Battery-Hybrid Systems with Low Communication Burden  
*Yiwei Pan, Yongheng Yang, Frede Blaabjerg*
- 322 A Novel DC Microgrid-enabled Metro Traction Power System  
*Haoyuan Yu, Yanbo Wang, Zhe Chen*
- 328 WAMS State Estimation Considering Possible One-Step Delayed Measurements  
*Neda eskandariy, Maryam Dehghani, Mohsen Mohammadi, Navid Vafamand, Tomislav Dragicevic, Jose Rodriguez*

***On demand Oral Session***

- 334 Predictive Power Control of Modular Multilevel Converter for Wind Energy Integration via HVDC  
*Yuanxiang Sun, Zhen Li, Zhenbin Zhang, Tomislav Dragicevic, Jose Rodriguez*
- 340 The Role of Model Predictive Control in Microgrid Power Quality - A Survey  
*Oluleke Babayomi, Zhen Li, Zhenbin Zhang, Yuanxiang Sun, Tomislav Dragicevic, Jose Rodriguez*
- 346 Predictive Control of Two-Stage Grid-Connected Photovoltaic Energy System with Constant Switching Frequency  
*Alexander Dahlmann, Venkata Yaramasu, Apparao Dekka, Samir Kouro, Sanjeevikumar Padmanaban*
- 352 Modulated Model Predictive Torque and Power Control of Gearless PMSG Wind Turbines  
*Kristijan Milev, Venkata Yaramasu, Apparao Dekka, Samir Kouro, Tomislav Dragicevic, Jose Rodriguez*
- 358 Modeling and Control of N-Parallel Virtual Synchronous Machines in Island Mode  
*Adrián González-Cajigas, Javier Roldan Pérez, Emilio José Bueno Peña*
- 364 Passivity-based Design of Capacitor-Current-Feedback Active Damping for LCL-Filtered Inverter Considering Computation Delay Reduction  
*Yixiao Ma, Lin Xu, Xuehua Wang, Yuying He, Xinbo Ruan, Fuxin Liu*
- 370 A Weighted Average Feedforward Scheme for LCL-Type Grid-Connected Inverter with High LCL Resonance Frequency  
*Cheng Wang, Xuehua Wang, Xinbo Ruan, Fuxin Liu*
- 376 Quasi-Notch-Filter-Based Highly Robust Active Damping for LCL-Filtered Grid-Connected Inverter  
*Guoxing Su, Lin Xu, Xuehua Wang, Yuying He, Fuxin Liu*
- 382 Design and Control Optimisation of a Novel Bypass-embedded Multilevel Multicell Inverter for Hybrid Electric Vehicle Drives  
*Jinfeng Li*
- 386 Magnetizing Inductor ON/OFF Control for LLC Resonant Converter with Wide Input Voltage Range  
*Yuqi Wei, H. Alan Mantooth*
- 391 A COMPARATIVE STUDY OF SINGLE-PHASE NON-ISOLATED BIDIRECTIONAL DC-DC CONVERTERS SUITABILITY FOR ENERGY STORAGE APPLICATION IN A DC MICROGRID  
*Polycarp Onyebuchi*

***Poster Session***

- 397 Solar Farm Harmonic Analysis and Operation under DC currents  
*Moazzam Nazir, Johan Enslin, Klaehn Burkes*
- 403 Contribution of Converter-fed Loads to Grid Frequency Control in Islanding Scenarios  
*Sidney Gierschner, Nastaran Fazli, Hans-Günter Eckel*
- 409 Sequential Model Predictive Control of Stand-Alone Voltage Source Inverters  
*Changming Zheng, Tomislav Dragicevic, Minrui Leng, Jose Rodriguez, Frede Blaabjerg*

- 413 Sequence Impedance Characteristics of Grid-Forming Converter Controls  
*Marc Dokus, Axel Mertens*
- 421 Sequence Impedance Modeling of the Matching Control and Comparison with Virtual Synchronous Generator  
*Frederik Stallmann, Axel Mertens*
- 429 Reduction the Dead-Time Effects on the Inverter in Renewable Energy Conversion Systems by Applying Sliding Mode Control  
*Daniel Memije, Oscar Carranza, Jaime Jose Rodriguez, Ruben Ortega, Francisco Emilio Rodarte*
- 435 A Study on Equivalent Circuit Modeling of Wiring Inductance in SiC Power Module for Predicting Conducted EMI of Power Converter  
*Chiharu Kyotani, Takaaki Ibuchi, Tsuyoshi Funaki, Tatsuya Miyazaki, Yuta Okawauchi, Ken Nakahara*
- 441 Dynamic Behaviour and Modelling of Variable-Speed Wind Turbines  
*Niklas Himker, Matthias Wächter, Joachim Peinke, Axel Mertens*
- 447 A Generic Switching State-Space Model for Modular Multilevel Cascade Converters  
*Oliver Kalmbach, Christoph M. Hackl, Felix Rojas*
- 455 Power factor compensation for a single-phase AC-DC Hybrid Micro-Grid  
*Adrian Mihai Iuoras, Sorin Ionuț Salcu, Calin Gheorghe Rusu, Calin Marginean, Petre Dorel Teodosescu*
- 459 Performance Evaluation of Three-Phase Boost-Inverter for Grid-Connected PV System  
*Bahman Eskandari, Jorma Kyyra, Bahram Pournazarian, Meysam Saeedian, Edris Pouresmaei*
- 463 The Impact of Current Imbalance Compensators on Feeder Compensation Equipment Operation  
*Vinson Jones, Juan Balda*
- 470 A study on EMI noise source modeling with voltage source in synchronous DC-DC buck converter  
*Yuya Saito, Takaaki Ibuchi, Tsuyoshi Funaki, Kazuma Kawai, Takahiro Tsuda*
- 476 A Multilevel Hybrid Dual-Active Bridge DC-DC Converter for Energy Storage System in Higher Voltage Applications  
*Jiangtao Xu, Lin Xu, Xuehua Wang, Yuan Xie, Yuying He, Xinbo Ruan*
- 482 Integration of Silicon Carbide devices to increase the AEP (Annual Energy Production) in a PM based wind generation system  
*Antxon Arrizabalaga, Aitor Idarreta, Mikel Mazuela, Unai Iraola, Iosu Aizpuru, José Luis Rodriguez, Daniel Labiano, Ibrahim Alişar*
- 487 Extended Model of Half-Bridge Cell for Open Circuit Fault Detection in Modular Multilevel Converters using Sliding Mode Observers  
*Thomas Kreppel, Felix Rojas, Christoph M. Hackl, Oliver Kalmbach, Matias Diaz, Gustavo Gatica*
- 494 Grid Forming Operation for a High Step Ratio Modular Multilevel DC-DC Converter  
*Carlos Cerda, Felix Rojas, Cristian Pineda, Javier Pereda, Matias Diaz, Gustavo Gatica*
- 499 Integral-Proportional plus Resonant Controller in the Synchronous Reference Frame for Converters in Applications in Wind Power Generation Systems  
*Francisco Emilio Rodarte, Jaime Jose Rodriguez, Oscar Carranza, Ruben Ortega, Daniel Memije*
- 505 Auction-based Peer-to-peer Energy Transaction Model with Prosumer-side Energy Scheduling  
*Gai Hang, Xiaoying Gan, Mahmoud Draz*
- 511 Temperature Dependent Charging Algorithm of Supercapacitor Module  
*Ivan Župan, Željko Ban, Dubravko Krušelj, Viktor Šunde*
- 517 Secure Control of DC Microgrids under Cyber Attacks based on Recurrent Neural Networks  
*Mohammad Reza Habibi, Tomislav Dragicevic, Frede Blaabjerg*
- 522 A New Hybrid Voltage Source Converter with Reduced Device Count for HVDC Applications  
*Dereje Woldegiorgis, Yuqi Wei, Xia Du, H. Alan Mantooth*
- 527 Modulated Model Predictive Control for Dynamic Stabilization of DC Microgrid  
*Minrui Leng, Changming Zheng, Tomislav Dragicevic, guohua zhou, Frede Blaabjerg, Jose Rodriguez*



- 531 Machine Learning Based Capacitor Voltage Ripple Reduction of Modular Multilevel Converters under Unbalanced Grid Conditions with Different Power Factors  
*Songda Wang, Tomislav Dragicevic, Remus Teodorescu*
- 536 Estimation of SOH for Battery Packs: A Real-Time Mixed Algorithm based on Coulomb Counting Method and Parameter-Varying Circuit Modeling  
*Giovanni Nobile, Ester Vasta, Mario Cacciato, Giuseppe Scarcella, Giacomo Scelba*
- 542 Long Short-Term Memory Forecasting in Home Energy Management System  
*Majed Shakir, Yevgen Biletskiy*
- 547 Ultra-Fast Short-Circuit Detection for SiC-MOSFETs Using DC-Link Voltage Monitoring  
*Michael Laumen, Christoph Lüdecke, Rik W. De Doncker*
- 554 Determination of Fault Clearing Time based on Thermal Limits of Power Semiconductor Devices in DC Microgrids  
*Shirazul Islam, Anju Maghwani, Sandeep Anand, Soumya Ranjan Sahoo*
- 560 A Single-Stage Z-source Inverter for Transformer-less Grid Connection with a Proportional-Resonant Controller for DC Current Elimination  
*Asi-Onob Asi, Benjamin Chong, Li Zhang, John Nkanu*
- 566 An Enhanced Primary and Secondary Control Method for Three Phase VSCs  
*Yutong Zhao, Fei Gao, Jiahao Yu, Boshen Zhang*
- 573 The Effect of Non-Ideal Operating Conditions on Reliability of Inverters in Microgrids  
*sondre johan kjellin berg, Fredrik Göthner, Dimosthenis Pefitsis, Vijay Venu Vadlamudi*
- 578 A Status Monitoring Method for Multi-parallel Choppers in Wind Turbine Converters  
*RUI WU, Masoud Parkho*
- 583 Modeling and Characterization of 10-kV SiC MOSFET Modules for Medium-Voltage Distribution Systems  
*German Oggier, Roderick Gomez, Yue Zhao, Juan Balda*
- 591 COMPARATIVE ANALYSIS OF RELIABILITY FOR STRING AND CENTRAL INVERTER PV SYSTEMS IN ACCORDANCE WITH THE FMECA  
*Boris Dumnicevic, Elizaveta LIIVIK, Bane Popadic, Frede Blaabjerg, Dragan Milicevic, Vladimir Katic*
- 597 Step-Up Series-Resonant DC-DC Converter with Switched Mode Rectifier Operating at Fixed Switching Frequency  
*Andrii Chub, Abualkasim Bakeer, Dmitri Vinnikov*
- 602 Control methods for Line-interactive Uninterruptible Power Supply with Shunt Active Power Filter Function  
*Ante Perić, Sandor Iles, Željko Ban, Viktor Šunde*
- 610 Model Predictive Direct Power Control Applied to Grid-Connected Voltage Source Inverters  
*Andrés Escobar-Mejía, Walter Gil González, Oscar Montoya*
- 615 Optimization and Design of Planar Transformer for the High Frequency Link Converter  
*Oleksandr Korkh, Andrei Blinov, Dmitri Vinnikov*
- 621 Optimal parameterization of a PV and battery system add-on for a consumer  
*Filip Rukavina, Mario Vašak*
- 627 Supercapacitor stack active voltage balancing circuit based on Dual Active Full Bridge converter with selective low voltage side  
*Ante Lasić, Željko Ban, Branimir Puškaric, Viktor Šunde*
- 637 **Index of Authors**