

2016 2nd International Conference on Intelligent Energy and Power Systems (IEPS 2016)

**Kyiv, Ukraine
7-11 June 2016**



IEEE Catalog Number: CFP1605X-POD
ISBN: 978-1-5090-1770-6

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

IEEE Catalog Number:	CFP1605X-POD
ISBN (Print-On-Demand):	978-1-5090-1770-6
ISBN (Online):	978-1-5090-1769-0

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

Modern Energy Systems and Power Electronics

Multi-Physical Processes During Electric Field Disturbance in Solid Dielectric Near Water Micro-Inclusions Connected by Conductive Channels	<i>Maksym Shcherba</i>
Features of The Energy Interchange Between Capacitors in The Circuit Using Unidirectional Commutator or Bidirectional One	<i>Natalia Suprunovska and Anatolii Shcherba</i>
Analyse of Steady-State Process in Circuits with Incommensurable Frequencies of Voltage Sources	<i>Igor Korotyeyev and Marius Klytta</i>
The Formation of a Three-Phase Voltage System Using Digital-to-Analog Converters	<i>Dmitry Makov, Anatolii Shcherba and Oleksandr Antoniuk</i>
Multi-Inverter Split-Phase Traction Drive with Nonlinear Control Modes and Voltage Symmetries	<i>Valentin Oleschuk, Vladimir Ermuratskii and Federico Barrero</i>
The Matrix Converter Input Current Formation in the Case of Unbalanced Load	<i>Valerii Mykhalskyi, Volodymyr Sobolev, Vasyly Chopyk, Serhii Polishchuk and Ivan Shapoval</i>
Reactive Compensation of Non-Active Power in Hybrid Shunt Filter of Three-Phase Four-Wire System at Random Load	<i>Mykhailo Artemenko, Larysa Batrak, Serhii Polishchuk, Valerii Mykhalskyi and Ivan Shapoval</i>
An Improvement of Compensators of Complete Power Non-Active Components in Autonomous Electric Power Systems	<i>Oleksandr Zhuk, Dmytro Zhuk, Dmytro Kryvoruchko and Serhii Stepenko</i>
The Clarification Method of Power Losses Calculation in Wires of Transmission Lines with Climatic Factors	<i>Andrii Galyga, Anatoliy Prystupa and Dmytro Zhuk</i>
Design and Experimental Validation Study on Direct Power Control Applied on Active Power Filter	<i>Sabir Ouchen, Achour Betka, Sabrina Abdeddaim and Rabiaa Mechouma</i>
Analyzing Probabilistic Properties of Electrical Characteristics in The Circuits Containing Stochastic Load	<i>Dmitry Ivashchenko, Anatolii Shcherba and Natalia Suprunovska</i>
The Analysis of Electromagnetic Processes in Semiconductor Converter with Nine-zone Regulation of Initial Voltage	<i>Vladyslav Mykhailenko, Sergiy Karelina, Juliya Kunyk and Roman Dryomov</i>
The Theorem of Minimum Energy Losses in Three-Phase Four-Wire Energy Supply System	<i>George Zhemerov, Natalia Ilina and Dmitry Tugay</i>

Renewable Energy Systems and Distributed Generation

The Stability of Solar Panel-Diesel Generator System	<i>Valery Zhuikov and Kateryna Osypenko</i>
Local Load-Frequency Control in The Power System Considering Impact of The Renewables	<i>Vsevolod Pavlovsky and Anton Steliuk</i>
Modelling of Wind Turbine for Increasing Its Efficiency	<i>Rishikesh Dingari, Sai Kiran Dornala and Vikram Thumma</i>
Modelling Ultraslow Circuits in Real-Time Systems Smart-grid on The Basis of Separation of Motions in Frequency and Sensing	<i>Andrey Nikiforov</i>
Impact of Renewable Sources of Energy on The Level of Active Power Losses in Distribution Networks	<i>Petro Lezhnyuk, Olga Buslavets and Vyacheslav Komar</i>
Optimal Design and Energy Management of Wind-solar Hybrid Generating Systems Using Imperialistic Competitive Algorithm	<i>Davar Mirabbasi, Behnaz Gholipoor and Arman Ghasemi</i>

Comparison of Photovoltaic and Wind Generators as Dynamic Input Sources to Power Processing Interfaces	<i>Sergei Kolesnik, Moshe Sitbon, Grigory Agranovich, Teuvo Suntio and Alon Kuperman</i>
Technical Realization of Energy Transferring in MicroGrid	<i>Tetyana Tereschenko, Julia Yamnenko and Liubov Klepach</i>
Distributed Generation Optimal Placement. Climatic Pattern Consideration	<i>Igor Goncharenko</i>

Intelligent and Adaptive Energy Systems

Simulation and Study of Modes for Full-Scale Mode Simulator for Ukrainian Energy Systems	<i>Viktor Gurieiev and Olga Sanginova</i>
Forecasting Natural Gas Consumption with Hybrid Neural Networks – Artificial Bee Colony	<i>Mustafa Akpinar, Muhammed Fatih Adak and Nejat Yumusak</i>
The Harmonized Role Model of Electricity Market in Ukraine	<i>Ihor Blinov and Serhii Tankevych</i>
Coordinated Control of Power System Stabilizer and FACTS Devices for Dynamic Performance Enhancement- State of Art	<i>Ghazanfar Shahgholian and Jawad Faiz</i>
The Method of Determining Parameters of Single-Phase Fault in Network with Isolated Neutral ...	<i>Nikolay Grebchenko, Vitaliy Maximchuk and Yurii Pylypenko</i>
Locating Single and Double Phase Fault to Ground on a Power Distribution Feeder Using Hybrid Method	<i>Mohammad Daisy, Rahman Dashti and Hamid Reza Shaker</i>
Measuremet of Fault-Loop Impedance in Three-Terminal Line Using Signals of Current Differential Relays	<i>Eugeniusz Rosołowski, Jan Izykowski and Piotr Pierz</i>
Context-Aware Framework for Energy Management System	<i>Anna Kyselova, Ievgen Verbitskyi and Gennadiy Kyselov</i>
Load Control Based on Algebra of Structural Numbers in Smart House	<i>Julia Yamnenko and Artem Morhun</i>

Industrial Electronics and Electrical Drives

Induction Motor Stator Windings Asymmetry Influence on Frequency Converter Autonomous Voltage Inverter	<i>Mykhaylo Zagirnyak, Andrii Kalinov and Anna Kostenko</i>
Harmonic Analysis of Power in an Electrohydraulic Complex with Nonlinear Processes in the Pipeline System	<i>Mykhaylo Zagirnyak, Tetyana Korenkova and Viktoriya Kovalchuk</i>
Simple Delta Voltages Space Vector PWM Algorithm for Voltage Source Multilevel Inverters	<i>Nikolay Lopatkin</i>
Design of a Radial Flux Permanent Magnet Wind Generator with Low Coercive Force Magnets	<i>Jawad Faiz, Zahra Valipour, M. Shokri-Kojour and M. Azeem Khan</i>
Output Feedback Control of Stand-Alone Doubly-Fed Induction Generator	<i>Sergei Peresada, Vitalii Blagodir and Mykola Zhelinskyi</i>
Spectrum Analysis of Bipolar Pulse Frequency Modulation Voltage	<i>Valery Zhuikov and Ievgen Verbytskyi</i>
Test Devices for Experimental Researches of Low Power Electric Drives on The Basis of Permanent Magnet Brushless Machines	<i>Konstantin Akinin and Vladimir Kireyev</i>
Stator Current Spectrum Analysis of Induction Motor Powered by Pulsed Voltage Source	<i>Dmytro Ushakov</i>
Dynamic Output Feedback Linearizing Control of Saturated Induction Motors with Torque per Ampere Ratio Maximization	<i>Sergei Peresada, Serhii Kovbasa, Serhii Dymko and Serhiy Bozhko</i>
Indirect Field Oriented Output Feedback Linearized Control of Induction Generator	<i>Sergei Peresada, Serhii Kovbasa, Serhii Korol, Nikolay Pechenik and Nikolay Zhelinskyi</i>

Special Power Electronic Systems and Applications

- Active Voltage Sensorless Supercapacitor Bank Balancer with Peak Current Protection
Vladimir Yuhimenko, Gal Geula, Grigory Agranovich, Moshe Averbukh and Alon Kuperman
- Robust Closed Loop Control of The Transformerless DC-DC Converters with High Step Up Voltage Gain
Mahdi Salimi and Vadood Hajbani
- Power Losses in MOSFET Switch of Quasi-Resonant Pulse Converter with Series Resonant Circuit
Yuriy Denisov, Viacheslav Gordienko, Alexey Gorodny, Serhii Stepenko, Roman Yershov, Aliona Prokhorova and Oleksandra Kostyrieva
- New Aspects of Magnetic-Pulse Semiconductor Devices Improvement
Dmitro Sholokh, Viktor Zozulev, Volodymyr Kobylchak and Alexander Khrysto
- Input-Parallel Output-Series Cascading Possibilities of Single-Switch Galvanically Isolated Quasi-Z-Source DC-DC Converters
Liisa Liivik, Andrii Chub and Dmitri Vinnikov
- The Linearized Dynamic Model of the Series Resonant Converter for Small Signals
Gennadiy Pavlov, Andrey Obrubov and Irina Vinnichenko
- A Three-Phase Full Soft-Switching Current-Fed Naturally Clamped DC-DC Converter for High-Power Fuel Cell Applications
Roman Kosenko, Andrii Chub and Andrei Blinov
- A Three-Phase Full Soft-Switching Current-Fed Naturally Clamped DC-DC Converter for High-Power Energy Storage Applications
Andrii Chub, Roman Kosenko and Andrei Blinov
- Increase of Efficiency of Electrosurgical Tools for Welding of Live Biological Tissues
Volodymyr Sydorets and Andrey Dubko
- Dependence of Power Quality on Welding Current Regulation Angle
Volodymyr Sydorets, Iuliia Bondarenko and Oleksandr Bondarenko