

2009 10th International Conference on Electrical Power Quality and Utilisation

(EPQU 2009)

**Lodz, Poland
15 – 17 September 2009**



**IEEE Catalog Number: CFP0930C-PRT
ISBN: 978-1-4244-5171-5**

TABLE OF CONTENTS

An Improved High-Power DC/DC Converter for Distributed Power Generation	1
<i>Dmitri Vinnikov, Indrek Roasto, Tanel Jalakas</i>	
The Apparent Power of Electric Circuits With Switching Elements in Single-Phase Systems	7
<i>Oleksandr Osnach</i>	
Limitation of Short Circuit Current by an I_s - Limiter	12
<i>Karl-Heinz Hartung, Volker Schmidt</i>	
Estimation of the Planning Levels for Flicker in the Dutch Networks	16
<i>Sharmistha Bhattacharyya, Johanna Myrzik, Wil Kling, Sjef Cobben</i>	
Harmonic Current Interaction at a Low Voltage Customer's Installation	22
<i>Sharmishtha Bhattacharyya, Johanna Mtrzik, Wil Kling, Sjef Cobben, Jasper van Casteren</i>	
Hydrogen Fuel Cells as a Part of the System for Accumulation of Electric Energy	28
<i>Petr Moldrik, Robert Sebesta</i>	
The Influence of Model Parameters and Uncertainties on Assessment of Network Wide Costs of Voltage Sags	34
<i>M. Avendano-Mora, J. V. Milanovic, B. Patel, Y. Zhang</i>	
Inverter Interconnection Tests Performed in the LABEIN-Tecnalia Microgrid Involved in the DERlab Round-Robin Testing Activity	41
<i>A. Gil de Muro, J. E. Rodriguez-Seco, E. Zabala, C. Mayr, R. Brundlinger, O. Gehrke, F. Isleifsson</i>	
Selection of Resonant Circuit Elements for the ARCP Inverter	46
<i>Slawomir Karys</i>	
Improvement of Power Quality and Reliability with Multifunctional PV-Inverters in Distributed Energy Systems	52
<i>D. Geibel, T. Degner, C. Hardt, M. Antchev, A. Krusteva</i>	
The Use of the Least Squares Method to Estimate the Model Parameters of a Transformer	58
<i>David Meister, Marco Aurelio Goncalves de Oliveira</i>	
Methodology of Calculating Electric Energy Losses in Distribution Networks for the Needs of Assessment of Operation Effectiveness of Distribution Companies	64
<i>Barbara Kaszowska, Andrzej Wloczyk</i>	
Usage of Multi-Criteria Analysis and Supportive Software for Optimum Location of the Modern Devices within Electrical Distribution Networks	70
<i>Petr Moldrik, Jiri Gurecky, Leopold Paszek</i>	
Analytical Approach to Stochastic Assessment for Balanced Voltage Sags and Duration on Transmission Networks	76
<i>R. Jeya Gopi, V. K. Ramachandaramurthy</i>	
Linear Model of a Three-Phase Circuit Characteristics	82
<i>Wcislik Miroslaw</i>	
Simulation of the Influence of Conductive Disturbances on Accuracy of the Voltage Transformers During Measurements of the Power Quality	88
<i>Michał Kaczmarek, Ryszard Nowicz</i>	
The Influence of the Method of Winding Construction on Metrological Properties of Current Transformers Designed for Systems of Monitoring of Power Quality	93
<i>Michał Kaczmarek, Ryszard Nowicz, Artur Szczesny, Krzysztof Pacholski</i>	
Analysis of Operation of Voltage Transformers During Interruptions and Dips of Primary Voltage	98
<i>Michał Kaczmarek, Dariusz Brodecki, Ryszard Nowicz</i>	
Monitoring and Control Systems for Testing Microgrids Operation on the Example of Laboratory of Distributed Generation at the Technical University of Lodz	103
<i>Rozmyslaw Mienski, Ryszard Pawelek, Irena Wasiak, Piotr Gburczyk</i>	
Key Problems of Polish Electric Power System Reliability	109
<i>Józef Paska</i>	
Technical and Economic Aspects of Electricity Storage Systems Co-operating with Renewable Energy Sources	115
<i>Józef Paska, Piotr Biczel, Mariusz Kłos</i>	
Interharmonics Analysis Using Fourier Transform and Virtual Instrumentation	121
<i>Anca Miron, M. Chindris, A. Cziker</i>	
Power Systems Modeling Using Fuzzy Logic	125
<i>Anca Miron, M. Chindris, A. Cziker</i>	

Electromagnetic Interferences between HV Power Lines and Metallic Pipelines Evaluated with Neural Network Technique	131
<i>Dan D. Micu, Levente Czumbil, Andrei Ceclan, Laura Darabant, Denisa Stet, Georgios Christoforidis</i>	
The Application of Modern Technology in Power Quality Management	136
<i>Tiaan Stander, Johan Rens</i>	
On the Development of a Power Quality Benchmarking Model	142
<i>Johan Rens</i>	
Theoretical Principles of the Power Quality Indices Standardization	147
<i>Igor V. Zhezhelenko, Yuri L. Sayenko, Alexander V. Gorpinich</i>	
Electromagnetic Compatibility in the Industrial Electric Power Supply Systems	149
<i>Igor V. Zhezhelenko, Yuri L. Sayenko, Alexander V. Gorpinich</i>	
Analysis of Resonant Modes in the Single-Phase Industrial AC Electrified Railway Systems	155
<i>Igor V. Zhezhelenko, Yuri L. Sayenko, Alexander V. Gorpinich, Viktor V. Nesterovych, Tatiana K. Baranenko</i>	
Applications of Neural Networks for the Power Quality Factors Measurement – i.e. Voltage Fluctuations	159
<i>Marcin Szlosek, Zbigniew Hanelka</i>	
An Incremental Conductance Method with Variable Step Size for MPPT: Design and Implementation	164
<i>D. Menniti, A. Burgio, N. Sorrentino, A. Pinnarelli, G. Brusco</i>	
Impedance in Voltage-Current Relations Description of the Power System PCC - Experimental Investigations of the Accuracy of the LTI System Model	169
<i>Zbigniew Staroszczyk</i>	
Experimental Investigations of the Quality of Power System Small-Scale Transformer Modeling	175
<i>Zbigniew Staroszczyk, Piotr Figoń</i>	
Measurement of Voltage and Current Harmonics for Frequencies up to 9 kHz According to IEC61000-4-7	181
<i>Petr Bilík</i>	
The Influence of Electromagnetic Interference on Microprocessor Relay Protection and Automatics Functioning Safety	186
<i>Myasoedov Yuriy Victorovich</i>	
The Integrated Assessment of Power Losses in Power Supply Systems Caused by Poor Power Quality	192
<i>Savina Natalia Victorovna</i>	
The Estimation of Hydroelectric Power Station Functioning Efficiency at the Poor Power Quality	198
<i>Savina Natalia Viktorovna, Suhomesov Michail Andreevich</i>	
Optimal Compensation of Reactive Power in Distribution Nets as Means of Voltage Regulation	204
<i>Savina Natalia Victorovna, Myasoedov Yuriy Victorovich, Krivohizha Yana Victorovna</i>	
Electromagnetic Compatibility Evaluation Under Simultaneous Presence of Voltage Unbalance and Harmonics	210
<i>V. Kuznetsov, O. Shpolyansky, N. Iaremchuk</i>	
Capacitor Bank Impact on Harmonic Filters Operation in Power Supply System	214
<i>Yuriy Varetsky, Zbigniew Hanelka</i>	
Development of a Calculating System Using Power Supply Reliability Field Data in Japan	218
<i>Tetsushi Tsumura, Hideyuki Murai, Keiichi Hirose, Mikio Yamasaki</i>	
Power Quality Consideration in the Widespread Use of Compact Fluorescent Lamps	224
<i>Mohsen Abbaspour, Amir Hossein Jahanikia</i>	
Flicker Disturbances in Steel Manufacturing Plant: A Case Study	230
<i>Angelo Baggini, Franco Bua, Francesco Buratti</i>	
Characteristics of Flicker Depending on Network Loads	236
<i>Marta Batkiewicz-Pantula, Antoni Klajn</i>	
Spectral Composition of Input Voltage of the Asynchronous Drive with Valve Cascade Converter	241
<i>T. Baranenko, V. Saravas</i>	
Evaluation of the Interferences in the Interconnection Point between 2x25kVAC High-Speed Railway Lines and 3kVDC Regional System	245
<i>M. Brenna, F. Foiadelli, D. Zaninelli, M. Roscia</i>	
Energy Efficiency and Quality in the European Energy Policy	251
<i>Włodzisław Mielczarski</i>	
Analysis of Electric Energy Quality in Arc Furnace System with Follow-up SVC Compensation	257
<i>Kazimierz Jagiela, Marek Gala, Janusz Rak, Marian Kepinski, Krysztof Szewczyk</i>	
International White Book on the Grid Integration of Static Converters	262
<i>P. Strauss, T. Degner, W. Heckmann, I. Wasiak, P. Gburczyk, Z. Hanelka, N. Hatziargyriou, T. Romanos, E. Zountouridou, A. Dimeas</i>	

Estimation of Zero-Sequence Impedance of Undergrounds Cables for Single-Phase Fault Location in Distribution Systems with Electric Arc.....	268
<i>S. Herranz, J. Melendez, V. A. Barrera, J. Sanchez, M. Castro</i>	
Electrical Vehicles: State of Art and Issues for Their Connection to the Network	272
<i>Eduardo Valsera-Naranjo, Andreas Sumper, Pau Lloret-Gallego, Roberto Villafafila-Robles, Antoni Sudrià-Andreu</i>	
Power Quality Measurements of Wind Energy Converters with Full-Scale Converter According to IEC 61400-21.....	275
<i>Hanna Emanuel, Stephan Adloff, Martin Schellschmidt, Stephan Wachtel</i>	
Power Quality and EMC in Smart Grid.....	282
<i>Magnus Olofsson</i>	
The Resonance Overvoltages in EHV Network.....	288
<i>Yury Tugay</i>	
The Domains of Subharmonic Ferroresonance Occurrence in High-Voltage Substations.....	292
<i>Vladimir Kuznetsov, Iryna Tugai</i>	
Laboratory Tests of a Dynamic Voltage Restorer Model Using Estimation of the Filter Capacitor Current	295
<i>Krzysztof Piatek</i>	
Localization of Harmonic Sources in a Power System with Use of the Generalized Localization Rate	301
<i>Kazimierz Wilkosz</i>	
Application of Neural Method of Voltage Estimation to Evaluation of Influence of Nonlinear Loads on Electric Energy Quality	307
<i>Marek Gala</i>	
In Day-Ahead Electricity Load Forecasting.....	313
<i>Ryszard Klempka, Boguslaw Swiatek</i>	
Intelligent Driven Power Quality Monitoring Using Pseudomeasurement Technique	318
<i>S. R. K. Kanaesalingam, V. K. Ramachandaramurthy</i>	
Grid Modelling for Purposes of Wind Farm Harmonic Voltages Evaluation	324
<i>Bartosz Kedra</i>	
Construction Criteria of a Digital Flickermeter.....	329
<i>Adam Graczyk</i>	
Analysis of Electric Power Quality A Case Study: Kamiensk Wind Power Plant	333
<i>Jan Anuszczyk, Boguslaw Terlecki</i>	
Towards PQ Regulation in Southern Africa	338
<i>Johan Rens</i>	
Author Index	