

2017 International Conference on Electromagnetic Devices and Processes in Environment Protection with Seminar Applications of Superconductors (ELMECO & AoS 2017)

**Naleczow, Poland
3-6 December 2017**



**IEEE Catalog Number: CFP17UWG-POD
ISBN: 978-1-5386-1944-5**

**Copyright © 2017 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:	CFP17UWG-POD
ISBN (Print-On-Demand):	978-1-5386-1944-5
ISBN (Online):	978-1-5386-1943-8

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

Jakub Smolka, Sebastian Zurek, Edyta Lukasik, Maria Skublewska-Paszkowska	
Heart Rate Estimation Using an EMG System Integrated with a Motion Capture System.....	C01
Magdalena Borys, Małgorzata Plechawska-Wojcik, Paweł Krukow, Sara Barakate, Karim Hachmoud	
Using Machine Learning Models to Classify User Performance in the Ruff Figural Fluency Test from Eye-tracking Features	C02
Aleksander Polit, Andrzej Uramek	
Selected Aspects of Designing Power Inductors for Power Electronic Converters	C03
Mikhail Tokovarov, Monika Kaczorowska, Małgorzata Plechawska-Wojcik	
Towards Human Identification Based on SSVEP Response.....	C04
Dariusz Czerwinski, Jaroslaw Nowak	
Field Propagation of Jamming Sources in WiFi Networks	C05
Stanislaw Skulimowski, Marcin Badurowicz	
Wearable Sensors as Feedback Method in Virtual Reality Anti-stress Therapy.....	C06
Monika Kaczorowska	
Comparative Analysis of Measures of Biological Artefacts Identification in the Electroencephalography Signal in the Context of Biological Noise.....	C07
Ryszard Goleman, Henryka D. Stryczewska, Monika Manko, Tomasz Gizewski, Aleksandra Znajewska-Pander, Waldemar Placek, Agnieszka Owczarczyk-Saczonek	
Image Preprocessing Algorithms of Pigmented Skin Lesions and Their Influence on Feature Vector in Classification Using Fractal Parameters.....	C08
Dariusz Czerwinski, Piotr Wojcicki, Tomasz Zientarski	
On Time Blood Pressure Prediction with the Use of PPG Signals	C09
Sebastian Styła, Jacek Majcher	
Using a Rotating Electromagnetic Field to Remove Impurities from Ferromagnetic Elements	E01
Marek B. Horyński	
Energy Management in Households as Part of the Sustainable Development of the Energy Economy.....	E02
Yoshiki Myoen, Tetsuro Baba, Takeshi Kano, Tamiko Ohshima, Yukio Takeuchi, Shin-ichi Aoqui	
Development of a Magnetic-shield Fabric Consisted of Permalloy Wire.....	E04

Mieczyslaw Dziubinski, Ewa Siemionek, Marek Adamiec, Artur Drozd, Slawomir Kolodziej	
Energy Consumption of the Trolleybuses	E05
Mieczyslaw Dziubinski	
Simulation of Maintenance Starting Circuit in Means of Transport	E06
Pawel A. Mazurek, Joanna Pawlat, Michal Kwiatkowski, Piotr Terebun	
Analysis of Electrical and Magnetic Fields in ELF Band from Plasma Reactor Installations	E07
Piotr Makarski, Izabela Kuna-Broniowska, Marek Kuna-Broniowski	
Influence of Magnetron Control on the Quality of the Microwave Processing of the Food Products.....	E08
Artur Boguta, Jacek Majcher	
Using the Physical Parameters of Rape Seeds to Assess Germination Force	E09
Mariusz Stepien, Boguslaw Grzesik, Zygmunt Mikno	
A Comparison of Highly Coupled Step-Down Transformers Dedicated for Resistance Welding Systems	E10
Pawel Wegierek, Piotr Billewicz, Justyna Pietraszek	
Analysis of the Influence of Ambient Conditions on Efficiency of HIT-IBC-Based Photovoltaic System Dedicated for Energy Efficient Buildings	E11
Pawel A. Mazurek, Oleksandr M. Naumchuk	
Electromagnetic Emission Testing in GSM Band.....	E12
Henryka D. Stryczewska, Ryszard Goleman, Magdalena Pietras, Tomasz Gizewski	
Evaluation of the Damages in Three-phase Watt-hour Induction Meters After External High Magnetic Field Exposition	E13
Alexander Nikitin, Diana Suhareva, Egor Mishchenko, Alesya Zubareva, Olga Shurankova, Ruslan Spirov	
Influence of Electromagnetic Radiation of Extremely High Frequency on Sensitivity of Plants to Cold Stress.....	E14
Piotr Warda	
Measurement Data Transmission in the Presence of Electromagnetic Fields.....	E15
Leszek Jaroszynski	
Magnetic Core Model for a Reliable Simulation of Three-phase Transformer in PSPICE	E16
Pawel Surdacki, Mariusz Holuk, Kamil Banka, Kamil Gawkowski	
Investigation of the CHP Generation System with the Stirling Engine	E17

Vera Mazankova, Ivana Manduchova, Jana Mierna, Frantisek Krema, David Trunec	
Study of O ₂ and O ₃ Surface Reactions in Ozonizer.....	P01
Mateusz Tanski, Artur Berendt, Jerzy Mizeraczyk	
Direct and Indirect Studies of the Gaseous Charged Species in Surface Dielectric Barrier Discharge in Plasma Actuator	P02
Marek Kopacki, Agnieszka Starek, Piotr Kiczorowski, Joanna Pawlat, Jaroslaw Diatczyk	
Efficacy of Ozone Fumigation to Control Eupteryx Decemnotata in Rosemary Growing Under Cover	P03
Grzegorz Raniszewski	
Parameters of the Electric Arc in Plasma Systems to Materials Conversion	P04
Kenji Ebihara, Yoshitaka Yamashita, Toshifumi Yamashita, Seiji Baba, Shin-ichi Aoqui, Fumiaki Mitsugi, Tomoaki Ikegami, Henryka D. Stryczewska	
Ozone-mist Sterilisation and Web-based Management for Greenhouse Agriculture.....	P05
Anna Dzimitrowicz, Piotr Jamroz, Pawel Pohl	
Examination of the Interactions Occurring in the Gas and Liquid Phases of Atmospheric Pressure Glow Discharge Generated in Contact with a Liquid Electrode Leading to Production of Size-defined Gold Nanostructures.....	P07
Fumiaki Mitsugi, Kazuhiro Nagahama, Noriko Horibe, Shin-ichi Aoqui	
Ozone Treatment of Soil	P08
Joanna Pawlat, Piotr Terebun, Michal Kwiatkowski, Agnieszka Starek, Piotr Kiczorowski, Dariusz Andrejko, Marek Kopacki	
Effects of Helium-Air RF Plasma Jet on Onion Seeds' Germination	P09
Keita Shuto, Koki Eto, Fumiaki Mitsugi, Hiroharu Kawasaki, Shin-ichi Aoqui	
Electrode Temperature Measurement of Low Temperature Gliding Arc Discharge Device	P11
Joanna Pawlat, Michal Kwiatkowski, Piotr Terebun, Barbara Chudzik, Mariusz Gagos	
Candida Albicans Inactivation with DBD He/O ₂ Plasma Jet	P12
Marek Kopacki, Joanna Pawlat, Piotr Terebun, Michal Kwiatkowski, Agnieszka Starek, Piotr Kiczorowski	
Efficacy of Non-thermal Plasma Fumigation to Control Fungi Occurring on Onion Seeds.....	P13
Oksana Kolomiiets, Olena Prysiazna, Valeriy Chernyak, Denis Hamazin, Andriy Goriachko, Vasyl Lendiel, Anatoliy Trohimchuk, Oleksiy Legenchuk	
Silver Nanoparticles Synthesis in Plasma-liquid Secondary Microdischarge System	P14

Piotr Krupski, Henryka D. Stryczewska	
Gliding Arc Discharge Push-Pull Power Supply.....	P15
Grzegorz Raniszewski	
Arc Discharge Plasma for Effective Carbon Nanotubes Synthesis.....	P16
Joanna Pawlat, Piotr Terebun, Michal Kwiatkowski, Piotr Kiczorowski, Agnieszka Starek, Dariusz Andrejko, Marek Kopacki	
Effects of Helium-Air RF Plasma Jet on Onion Seedling Growth.....	P17
Szymon Malinowski, Justyna Jaroszynska-Wolinska, P. Anthony F. Herbert	
Comparison of the Deposition of Laccase Bio-coatings on Two Carbon Nanomaterials	P18
Justyna Jaroszynska-Wolinska, Szymon Malinowski, P. Anthony F. Herbert, Cecylia Wardak	
Laccase Biosensors from Bio-coatings Deposited by Corona Plasma SPP for Rutin Determination.....	P19
Grzegorz Komarzyniec	
14 kVA Superconducting Transformer with (RE)BCO Windings.....	S01
Bartlomiej A Glowacki	
Microstructurally Determined Electromagnetic Properties of Copper-Sheathed In Situ MgB ₂ Wires	S02
Grzegorz Wojtasiewicz	
Analysis of the Distribution of the Equalizing Current in Superconducting Windings of Transformer.....	S03
Tadeusz Janowski, Grzegorz Wojtasiewicz	
Equalizing Current in the Windings of 2G HTS Transformer with Parallel Tapes Transposed with Clusters of Transpositioners.....	S04
Beata Kondratowicz-Kucewicz	
The Energy and the Magnetic Field in HTS Superconducting Magnetic Energy Storage Model	S05
Anna Kisiel, Leszek Wozny	
Acoustic Emission Testing for BiSrCaCuO Tapes	S07
Aleksandra Dembkowska, Monika Lewandowska, Xabier Sarasola	
Helium Flow and Temperature Distribution in the CS1 module of the DEMO CS coil.....	S08

Dariusz Czerwinski, Mieczyslaw Pcian, Michal Majka	
Model of Low Power Superconducting Generator.....	S09
Michał Lanczont	
Numerical Modeling of Superconducting Devices in OpenModelica.....	S10
Krzysztof Habelok, Paweł Lasek, Mariusz Stepien	
Characterization of the Critical Current in HTS Tape Placed between Halbach Arrays.....	S11
Monika Lewandowska, Aleksandra Dembkowska, Kamil Sedlak	
Thermal-hydraulic Analysis of Different Design Concepts of the LTS TF Coil Winding Pack for EU-DEMO	S12
Paweł Surdacki, Leszek Jaroszynski, Lukasz Wozniak	
Limiting Short-circuit Current with a 10 kVA Superconducting Transformer	S13
Piotr Billewicz, Paweł Wegierek	
Research on Distribution of Energy Levels in Ion Implanted Monocrystalline Silicon in the Aspect of Photovoltaic Applications	X01
Anna Stankiewicz	
Fractional Order RLC Circuits	X02
Marcin Buczaj, Andrzej Sumorek	
Analysis of Changes of Air Velocity in Ventilation Ducts as a Factor Determining the Level of Safety in Buildings.....	X03
Eligiusz Pawłowski, Piotr Warda	
Power Grid Frequency Measurement in LabVIEW Environment Using the Least Mean Squares Method to Signal Phase Approximation in the Presence of Noise	X04
Jerzy Zgraja, Piotr Urbanek, Jacek Kucharski	
Predictive Method of Improvement of the Generators Rated Power Usage in Inductive Heating	X05
Małgorzata Bernat, Henryka D. Stryczewska, Ryszard Goleman, Tomasz Gizewski, Katarzyna Zaborowska-Sapeta, Ireneusz Kowalski, Daniel Janczak	
Static Characteristic Identification of Printed Resistive Pressure Sensors Based on Graphene.....	X06
Miroslaw Wcislik	
Sustainable Development and Ecological Aspects in Electric Steelmaking Process Evolution	X07
Anna Kisiel, Leszek Wozny, Sławomir Debowski	
Measurements of Spatial Charge in Nonhomogeneous Dielectrics with Nanofillers	X08