2018 Conference on Electrotechnology: Processes, Models, Control and Computer Science (EPMCCS 2018)

Kielce, Poland 12 – 14 November 2018



IEEE Catalog Number: ISBN:

CFP18R34-POD 978-1-5386-8256-2

Copyright © 2018 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:
 CFP18R34-POD

 ISBN (Print-On-Demand):
 978-1-5386-8256-2

 ISBN (Online):
 978-1-5386-8255-5

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 Web: www.proceedings.com



Table of Contents

Session: Modelling and simulation of electrotechnological appliances and processes

Roman Przyłucki

Numerical determination of equivalent resistivity for an automotive catalyst with a steel core

Wciślik Mirosław

Modelling of Single-phase AC Circuit with Non-linear Load and Power Measurement Systems

Aleksander Skala, Zbigniew Waradzyn

Investigation and Determination of Efficiency of the Waste Heat Recovery System Using Peltier Modules

Wciślik Mirosław, Strząbała Paweł

Equivalent Diagram of Bridge Rectifier in a Circuit with Inductance

Antoni Sawicki

Improvements of Hybrid models of the Electric Arc of Variable Geometrical Parameters

Michal S. Laskawski, Robert Kazala

Identification of Parameters of Inertial Models Using the Levenberg-Marquardt Method

Session: Power engineering of electrotechnological processes

Kazimierz Jagieła, Marek Gała, Janusz Rak, Marian Kepiński

Influence of Harmonic Filters on the Operation of AC Arc Furnace Power Installation

Paweł Surdacki, Leszek Jaroszyński, Łukasz Woźniak

Modeling of the Power Losses and the Efficiency of a 21 MVA Superconducting Transformer

Michał Aftyka, Grzegorz Komarzyniec and Henryka Stryczewska

Cooperation of the AC/DC/AC power converter with a GlidArc multi-electrode plasma reactor

Ludomir Tuszyński

Maintenance Policy for Multistate Electrical Systems

Zbigniew Waradzyn, Adam Penczek, Aleksander Skala

Analysis of the Load Current Harmonics Content in a Series Resonant Inverter for Induction Heating Controlled Using Various Cases of the AVC Control Strategy

Jerzy Zgraja

Susceptibility of the LLC Resonance Generator for Induction Heating on Changes in Load Parameters Caused by Heating the Charge

Session: Applying electrotechnology (part 1)

Piotr Urbanek, Andrzej Frączyk, Jacek Kucharski

Semi-industrial laboratory setup for measuring and control of humidity of moving cotton band dried by induction-heated rotating steel cylinder

Andrzej Fraczyk, Piotr Urbanek, Jacek Kucharski

Dryness control of a moving cotton ribbon by induction heating of rotating steel cylinder

Wciślik Mirosław, Karol Suchenia

Analysis of the Influance of Material Parameters on Efficiency of Switched Reluctance Motor

Katarzyna Nowak, Kamil Paduszyński

Short Circuits in the Power System and the Location of the Faults on the Example of the Seismic – Acoustic Method

Piotr Kurp and Zygmunt Mucha, Włodzimierz Zowczak

Bending of tubes heated locally by a laser beam

Monika Krzywicka, Bogdan Antoszewski, Krzysztof Pałka, Szymon Tofil

Ti6Al7Nb alloy laser micromachining – surface properties

Session: Applying electrotechnology (part 2)

Robert Kazala, Pawel Straczynski, Albena Taneva, Stoicho Penkov

The use of IoT Technologies for the Monitoring of Electrotechnological Systems

Grzegorz Komarzyniec

The risk of Thermal Damage to the HTS Transformer's Coils During the Inrush Current

Sebastian Różowicz, Mariusz Deląg

Approval of Special Warning Lights for the Power-Driven Vehicles in Free Market

Kamil Paduszyński, Zbigniew Goryca

Relationship Between Asymmetrical Distribution of the Magnets and Cogging Torque of BLDC Motor with External Rotor

Pawel Straczynski, Mirosław Wciślik

Higher Harmonics and Power in Circuits with LED Light Sources

Mariusz Holuk

The Efficiency Analysis of Stirling Engine with Linear Generator Used in CHP Unit

Session: Computer science in electrotechnology

Grzegorz Łukawski, Mariusz Bedla, Adam Krechowicz

An Efficient Storage Management for SD2DS

Katarzyna Poczeta, Elpiniki I. Papageorgiou, Alexander Yastrebov

Application of Fuzzy Cognitive Maps to Multi-step Ahead Prediction of Electricity Consumption

Stanisław Deniziak, Leszek Ciopiński

Design for Self-Adaptivity of Real-Time Embedded Systems using Developmental Genetic Programming

Dariusz Czerwinski, Pawel Powroznik

Human emotions recognition with the use of speech signal of Polish language

Stanisław Skulimowski, Arkadiusz Sugier

Impact of Database Connection Security on Response Time: Case Study