

2022 23rd International Conference on Computational Problems of Electrical Engineering (CPEE 2022)

**Zuberec, Slovakia
11-14 September 2022**



**IEEE Catalog Number: CFP22A10-POD
ISBN: 979-8-3503-9626-3**

**Copyright © 2022 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:	CFP22A10-POD
ISBN (Print-On-Demand):	979-8-3503-9626-3
ISBN (Online):	979-8-3503-9625-6

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

Conductometry as an Evaluation Tool in Research into the Impact of Low-Frequency Electromagnetic Field Irradiation on Cells.....	1
<i>Zuzana Judáková, Ladislav Janoušek, Lucia Carnecká, Ivana Švantnerová</i>	
Three-Dimensional Reconstruction of the Kidney	5
<i>Krzysztof Berski, Krzysztof Wilk, Radoslaw Roszczyk</i>	
Melanoma Recognition using Deep Learning and Ensemble of Classifiers.....	9
<i>Fabian Gil, Stanislaw Osowski, Monika Slowinska</i>	
Interactive Visualization of Agent-Based Pandemic Simulation in Web Browser.....	13
<i>Michal Mrozek, Mikhail Sirenko, Anna Foks-Ryznar, Bartosz Sawicki</i>	
Improvement of Insulator Image Processing using Deep Learning Algorithms.....	17
<i>Chinzorig Sunduijav, Zagdkhorol Bayasgalan, Uranchimeg Tudevtagva, Wolfram Hardt, Dashdavaa Bilegt</i>	
Comparative Analysis of Electric Arc by Simulation Tests and Practical Measurements of a Simple Relay.....	21
<i>Piotr Zych, Konrad Sobolewski, Jan Sroka, Radoslaw Roszczyk, Ken Kawamata</i>	
Research on Starting a Group of Induction Motors of Multi-Motor Electric Drives.....	25
<i>Orest Hamola, Vasyl Malyar, Volodymyr Maday, Ivanna Vasylychshyn</i>	
Frequency Symbolic Analysis of Linear Periodically Time-Variable Circuits by Sub-Circuits Method	29
<i>Yuriy Shapovalov, Dariya Bachyk, Ksenia Detsyk, Roman Romaniuk, Ivan Shapovalov</i>	
Exposure Modelling to Child's and Adult's Chest to EMF Inside Shielded Areas	34
<i>Frederika Bacova, Mariana Benova</i>	
Convolutional Neural Networks - Deterministic Systems.....	38
<i>S. Sveleba, V. Brygilevych, I. Kuno, I. Katerynychuk, O. Semotyjuk, Y. Shmyhelsky</i>	
Numerical Adjustment of Ion Parametric Resonance Conditions for Biological Experiments	42
<i>Marek Bajtos, Roman Radil, Ladislav Janoušek, Klaudia Hargasova, Sebastian Student, Olga Kocikowska</i>	
Numerical Investigation of Artificial Notches using Sweep Frequency Eddy Current Testing	46
<i>Filip Vaverka, Milan Smetana, Daniela Gombarska, Ladislav Janousek</i>	
Numerical Model of Realistic Human Head Phantom	51
<i>Daniela Gombarska, Zuzana Psenakova, Andrea Gajdosova</i>	
Personal Fall Detector using MEMS Sensors.....	55
<i>Bogdan Dziadak, Maciej Czumak</i>	
Non-Invasive PD Measurement Method in Air-Insulated Switchgear - Signal Processing.....	59
<i>Pawel Kluge, Andrzej Lasica</i>	
Using Surrogate Model for Shape Optimization of Busbar.....	63
<i>I. Petrášová, P. Karban, I. Doležel</i>	

The Principle of Prediction of Complex Time-Dependent Nonlinear Problems using RNN	67
<i>P. Karban, I. Petrášová, I. Doležel</i>	
Forecasting of Dynamic Processes in Electrical Engineering using Discrete Macromodeling	71
<i>Oksana Hoholyuk, Petro Stakhiv, Nataliia Musykhina</i>	
Design and Construction of a Railgun.....	75
<i>Robert Olczyk</i>	
Adaptive Model of Battery System Behavior for Electromobility	79
<i>Lenka Šroubová, Karel Slobodnik, Ondrej Naxer, Miroslav Blohmann</i>	

Author Index