FACULTY OF ELECTRICAL ENGINEERING

UNIVERSITY
OF WEST BOHEMIA

Department of Electrical and Computational Engineering

PROGRAM

OF

CPEE 2021

Warsaw University
of Technology

**22th International Conference
"Computational Problems of Electrical Engineering"**

Information for the Participants

The conference will be held online via Google Meet. :)
https://meet.google.com/chd-mjvc-fnu

Information for the Presenters

Online presentations are 10 minutes long and must include a brief introduction to the topic and a description of the work itself. The presentation is followed by a 5-minute discussion.

Thursday, September 16, 2021

08:30 – 09:00	**Opening Ceremony of the Conference CPEE 2021**

09:00 – 09:30	**Plenary Lecture** Chairman: Ivo Doležel ***Modeling of heat transfer and shape of surfaces obtained by additive technique*** *Václav Kotlan, Iveta Petrášová, Roman Hamar, Ivo Doležel*

09:30 – 11:30	**Oral Session 1 – "Industrial Applications"** Chairman: Ivo Doležel, Jacek Starzyński
09:30 – 09:45	***Influence of the static compensator current on the average power flow*** *Jacek Korytkowski, Kazimierz Mikolajuk, Krzysztof Siwek and Andrzej Tobola*
09:45 – 10:00	***Models and Methods of Research of Series Reactive Power Compensation of Induction Motors in Phase Coordinates*** *Vasyl Malyar, Orest Hamola, Volodymyr Maday and Ivanna Vasylchyshyn*
10:00 – 10:15	***An Excitation Control of an Autonomous Synchronous Generator with a Current-Compounding Loop*** *Andriy Kutsyk, Mykola Semeniuk and Valeriy Misiurenko*
10:15 – 10:30	***Mathematical model of analysis of wave electromagnetic processes in three-winding transformers*** *Mykhailo Seheda, Petro Gogoluyk and Yurii Blyznak*
10:30 – 10:45	***Thermal image processing for segmentation of photovoltaic panels*** *Jacek Starzyński*
10:45 – 11:00	***System for the support of the intravenous infusion process continuity*** *Adam Jóśko and Wojciech Romanik*
11:00 – 11:15	***Non-contact Electromagnetic Actuator for a Ball Valve*** *David Šmucr, Martin Vítek, František Mach and Karel Pospíšil*
11:15 – 11:30	***Simulation of heat transfer and air flow inside the switchboard cabinet*** *Jan Kohout and Lenka Sroubova*

11:30 – 13:00	**Break**

13:00 – 15:00　　　**Oral Session 2 – "Software Engineering"**
Chairman: Václav Kotlan, Ladislav Janoušek

13:00 – 13:15　　　***Distributed event queue management system***
Patryk Nowacki, Radosław Roszczyk and Artur Krupa

13:15 – 13:30　　　***Analysis of the sound for recognition of keyboard operations***
Jurczak Marcin and Marcin Kolodziej

13:30 – 13:45　　　***Practical studies of local HTTP cache security***
Janusz Sawicki, Paweł Zych and Bartosz Sawicki

13:45 – 14:00　　　***Computational Problems in Forecasting in Complex Dynamical Systems***
Bohdan Melnyk, Petro Stakhiv, Nataliya Melnyk and Stepan Trokhaniak

14:00 – 14:15　　　***Coilgun Design by Simulation***
Krzysztof Korytkowski and Jacek Starzyński

14:15 – 14:30　　　***Peculiarities of the LPTV circuits optimization in the MATLAB software environment***
Yuriy Shapovalov, Dariya Bachyk and Ksenia Detsyk

14:30 – 14:45　　　***Machine learning algorithms usage for satellites simulation and control***
Natalya Shakhovska, Yurii Bobalo and Bohdan Mytnyk

14:45 – 15:00　　　***U-Net training models for efficient brain tumour segmentation on multi-modality CT and PET images***
Estera Kot, Zuzanna Krawczyk, Krzysztof Siwek, Kacper Pleska, Jakub Rogalski and Piotr Czwarnowski

15:00– 15:15	**Break**

15:15 – 17:00　　　**Oral Session 3 – "Computer Modeling"**
Chairman: Petr Kropík, Milan Smetana

15:15 – 15:30　　　***Design of bioamplifier for educational purposes***
Michal Labuda, Tadeas Bednar and Marek Jarkovsky

15:30 – 15:45　　　***Numerical Integrators on Electrical Circuits' Transient Calculation***
Volodymyr Moroz and Anastasiia Vakarchuk

15:45 – 16:00　　　***Optimization Material Characteristics for Electroheat Model Based on Calibration Material Properties***
Iveta Petrášová, Pavel Karban, Václav Kotlan and Ivo Doležel

16:00 – 16:15　　　***Face detection in a real-time videostream on Raspberry Pi***
Jaroslav Podestát, Petr Kropík and Jan Beneš

16:15 – 16:30　　　***Sweep frequency eddy current testing: numerical simulation of various probe types***
Filip Vaverka, Milan Smetana, Daniela Gombarska and Ladislav Janousek

16:30 – 16:45　　　***Cell-centered, geometric multigrid field solver for Particle-in-Cell simulations***
Bartosz Chaber

16:45 – 17:00　　　***Parallel implementation of a Particle-in-Cell code in Julia programming language***
Wiktor Łodyga and Bartosz Chaber

Friday, September 17, 2021

08:30 – 10:30	**Oral Session 4 – "High Frequency Applications"** Chairman: David Pánek, Zuzana Pšeňáková

08:30 – 08:45	***Real-time Mobile-Based Platform for Determining Level and Location of Radiation Background*** *Roman Diachok, Halyna Klym and Ivanna Vasylchyshyn*
08:45 – 09:00	***Prediction of GNSS Horizontal Navigation System Error (HNSE) using Artificial Neural Networks*** *Krzysztof Paczuski, Mikołaj Kowalczewski and Karolina Krzykowska-Piotrowska*
09:00 – 09:15	***Impact of thermal shielding on heating efficiency of SiC in single mode microwave resonant cavity*** *Stanislav Cichon and Jan Machac*
09:15 – 09:30	***Human exposure to mobile phone EMF inside shielded space*** *Mariana Benova, Milan Smetana and Andrea Cikraiova*
09:30 – 09:45	***Simulations of electromagnetic exposure system for irradiation of biological cultures: comparison of CST Studio Suite and COMSOL Multiphysics*** *Zuzana Judáková, Ladislav Janoušek, Dominika Oreničová and Lucia Čarnecká*
09:45 – 10:00	***Modeling and simulation of biological structures exposition to 5G network*** *Zuzana Pšenáková, Daniela Gombárska, Milan Smetana and Miroslav Janovčík*
10:00 – 10:15	***Modeling and simulation of high frequency electromagnetic field influence to tumor tissue*** *Zuzana Pšenáková, Daniela Gombárska, Zuzana Judáková, Lucia Čarnecká and Frederika Bačová*
10:15 – 10:30	***Amplitude synthesis of linear antenna array byTaguchi method*** *Deubauh Cedrick Gnawa and Pavel Karban*

10:30– 10:45	**Break**

10:45 – 12:00	**Oral Session 5 – "Electromechanical Systems"** Chairman: Pavel Karban, Robert Szmurlo

10:45 – 11:00	***Kinematics of the movement of the pilot of a paraglider simulator*** *Petr Stašek, Pavel Karban and Petr Kropík*
11:00 – 11:15	***Deep CNN ensemble for recognition of face images*** *Robert Szmurlo and Stanislaw Osowski*
11:15 – 11:30	***Definition System of Human Body Position in Virtual Reality*** *Roman Diachok, Halyna Klym, Ivanna Vasylchyshyn and Ivan Karbovnyk*
11:30 – 11:45	***CNN-based character recognition for a contextless text input system in immersive VR*** *Szymon Kuś and Robert Szmurło*
11:45 – 12:00	***Advanced paraglider simulator control system*** *Richard Sivera, Petr Stašek, Jakub Vorlíček, Petr Kropík and Pavel Karban*

12:00– 12:15	**Closing Ceremony of the Conference CPEE 2021**