



**22<sup>nd</sup> INTERNATIONAL SYMPOSIUM on  
POWER ELECTRONICS - Ee 2023**

**NOVI SAD, SERBIA, October 25<sup>th</sup> – 28<sup>th</sup>, 2023**

**List of accepted papers  
Lista prihvaćenih radova**



***22<sup>nd</sup> International Symposium on  
Power Electronics - Ee2023***



# CONTENT

Session-Paper No. Authors surname & name	Country	Session name or Paper/Lecture Title
<b>KN</b>		<b>KEYNOTE LECTURES</b>
<b>KN1.1</b> Lorenz Leo	Germany	Power Semiconductor Development Trend - Challenges in Automotive and Railway Applications -
<b>KN1.2</b> Blaabjerg Frede	Denmark	Power Electronics Technology - Quo Vadis
<b>KN2.1</b> Boldeaa Ion	Romania	MAGLEVs: an overview in 2023
<b>KN2.2</b> Perreault David	United States	Advances in High-Frequency Power Conversion for Industrial Applications
<b>KN2.3</b> Vukosavić Slobodan	Serbia	Power electronic solution to hardware and control issues of inverter-dominated power systems
<b>KN3.1</b> Ma Ke	China	Mission profile emulation and reliability testing for power electronics
<b>KN3.2</b> Ladoux Philippe	France	Railway traction Power Supply from the state of the art to future trends
<b>IP</b>		<b>INVITED PAPERS</b>
<b>IP0.1</b> Katic Vladimir	Serbia	50 years of the Ee symposium (1973-2023)
<b>IP1.1</b> Cvetanovic Ruzica Petric Ivan Mattavelli Paolo Buso Simone	Italy United States Italy Italy	High Performance Multi-sampled Control for Power Electronics Converters
<b>IP1.2</b> Procopio Renato Bonfiglio Andrea Rosini Alessandro Petronijević Milutin Filipović Filip Incremona Gian Paolo Ferrara Antonella	Italy Italy Italy Serbia Serbia Italy Italy	A Sliding Mode based Controller for No Inertia Islanded Microgrids
<b>IP2.1</b> Vračar Darko	Germany	Modern Solution of Inductive Charging System for 800 V Batteries of Electric Vehicles
<b>IP2.2</b> Pacini Alex Kasper Matthias Pevere Alessandro Deboy Gerald	Austria Austria Austria Austria	Next Generation of High Power Density On-board Chargers for Electric Vehicle Systems

<b>IL</b>		<b>INVITED LECTURES</b>
<b>IL1.1</b> Lazarević Vladan	Switzerland	Steps Towards Widespread Use of DC Microgrids: Opportunities and Challenges
<b>IL1.2</b> Mišković Goran	Austria	Next Generation of High Power Density On-board Chargers for Electric Vehicle Systems
<b>T1</b>		<b>POWER CONVERTERS AND DEVICES</b>
<b>T1.1-1</b> Dankov Dobroslav Marinov Petko Prodanov Prodan	Bulgaria Bulgaria Bulgaria	Study of the application of wide-band transistors in inverter arc welders
<b>T1.1-2</b> Abbas Khizra Nee Hans-Peter Kostov Konstantin	Sweden Sweden Sweden	Autonomously Modulating Gate Drivers For Triangular-Current Mode (TCM) Zero-Voltage Switching (ZVS) Buck Converter
<b>T1.1-3</b> Vračar Darko	Germany	Active-Clamped Flyback Converter: Dynamic Load and Cross-Regulation Aspects
<b>T1.1-4</b> Stanić Luka Despotović Željko V. Pajnić Milan Skender Miodrag	Serbia Serbia Austria Serbia	Digital control challenges in a single-phase CCM totem-pole PFC rectifier with GaN devices
<b>T1.1-5</b> Despotovic Zeljko V. Vijatovic Petrovic Mirjana Bobic Jelena	Serbia Serbia Serbia	A Realization of Synchronous Buck Power Converter for Energy Harvesting from Vibrations
<b>T1.1-6</b> Katzenburg Niklas Kuhlmann Kai Leister Lars Stefanski Lukas Teigelkötter Johannes Hiller Marc	Germany Germany Germany Germany Germany Germany	Design of a Modular Multilevel Converter with 400 kWh of Integrated Batteries
<b>T1.2-1</b> Brandis Andrej Knol Kristian Pelin Denis Topić Danijel	Croatia Croatia Croatia Croatia	Prototype Proposal of an 18 kW Non-Isolated Bidirectional Converter for Battery Energy Storage System
<b>T1.2-2</b> Kuraj Ivan Gluščević Jovana Kovačević Nikola Ninković Predrag	Serbia Serbia Serbia Serbia	Design of modular 110V / 370V 10kW Front-End Converter for High-Power Single-Phase Inverter
<b>T1.2-3</b> Bašić Mateo Vukadinović Dinko Grgić Ivan Vekić Marko Strinić Ivan	Croatia Croatia Croatia Serbia Croatia	Design and Operation of a Three-Phase Split-Source Inverter with a Saturable Inductor

<b>T1.2-4</b> Lopusina Igor Stanojevic Aleksandra Bouvier Yann E. Grbovic Petar J.	Austria Austria Austria Austria	Comparison between ZVS and ZCS Series Resonant Balancing Converters
<b>T1.2-5</b> Nag Kumar Joy Prodic Aleksandar	Canada Canada	Review of Fully Soft-Switching Flying Capacitor Based Quasi-Resonant Converters
<b>T1.2-6</b> Tanasic Mihailo Brkovic Bogdan Majstorovic Milovan Ristic Leposava	Serbia Serbia Serbia Serbia	Hardware-in-the-Loop Simulation of a Virtual Synchronous Motor
<b>T1.3-1</b> Saafan Ahmed Iurich Mattia Fan Boran Dong Dong Burgos Rolando	United States Italy United States United States United States	Multi-objective Design Optimization and Selection of Bidirectional DC-DC Converters for Solid Oxide Fuel Cells
<b>T1.3-2</b> Zhao Tianyu Burgos Rolando Wen Bo McLean Andrew Mattos Rodrigo	United States United States United States United Kingdom United Kingdom	Hardware Design Considerations for a 100 W USB Type-C Power Delivery in Aircraft Application
<b>T1.3-3</b> Pop Gabriela-Madalina Jurca Lucia-Daniela Pop-Calimanu Ioana-Monica Lascu Dan	Romania Romania Romania Romania	A New Highly Step-Down Quadratic Converter
<b>T1.3-4</b> Rodríguez Fuentes Álvaro Jiménez Carrizosa Miguel Ramos Regina Delgado Alberto	Spain Spain Spain Spain	Optimized inductance method based on neural networks for wireless power transfer applications in implantable medical devices
<b>T1.3-5</b> Bouvier Yann E. Salinas Guillermo Stanojevic Aleksandra Grbovic Petar J.	Austria Spain Austria Austria	Optimization of custom Ferrite E-core-shaped transformers for power loss and volume reduction using Pareto front analysis
<b>T2</b>		<b>AUTOMOTIVE AND INDUSTRIAL ELECTRICAL DRIVES</b>
<b>T2.1-1</b> Lashkevich Maxim Ali Yousef Stolyarov Evgeniy Fedorova Ksenia Kulik Egor Anuchin Alecksey	Russian Federation Russian Federation Russian Federation Russian Federation Russian Federation Russian Federation	Current Regulation in Multiphase Open-end Winding Machines under Open Circuit Fault
<b>T2.1-2</b> Gulyaeva Maria Fedorova Ksenia Lashkevich Maxim Kulik Egor Aliamkin Dmitry Anuchin Alecksey	Russian Federation Russian Federation Russian Federation Russian Federation Russian Federation Russian Federation	Induction Motor State Observer with Online Tuning of Main Parameters

<b>T2.1-3</b> Stojić Djordje Veinović Slavko Ivanović Luka	Serbia Serbia Serbia	Improved Stator Flux Estimation in Sensorless AC Motor Drives Using Extended SOGI
<b>T2.1-4</b> Banović Milica Despotović Željko Jerkan Dejan	Serbia Serbia Serbia	Increase in Efficiency of PMSM Drive Using Supercapacitor Storage
<b>T2.1-5</b> Pang Yuebin Knezevic Jovan Glose Daniel Hackl Christoph	Germany Germany Germany Germany	Sensorless Control of Electrically Excited Synchronous Machines Using Moving Horizon Estimation Considering Nonlinear Flux Linkage
<b>T3</b>		<b>ELECTRICAL MACHINES</b>
<b>T3.1-1</b> Boldea Ion Torac Ileana Tutelea Lucian	Romania Romania Romania	ALA-rotor RSG 10MW, 480rpm-preliminary design with 2Dkey FEM validations
<b>T3.1-2</b> Moș Marțian Greconici Marian Biriescu Marius Madescu Gheorghe	Romania Romania Romania Romania	Experimental determination of equivalent parameters of the cage rotor as slip functions
<b>T3.2-1</b> Banović Milica Iričanin Bratislav Reljić Dejan Jerkan Dejan	Serbia Serbia Serbia Serbia	Hybrid Iron Loss Model for IPMSMs in Wide-Speed Range Applications
<b>T3.2-2</b> Jaric Milica Popovic Vladimir Vuckovic Mladen Marcetic Darko Jerkan Dejan	Serbia Serbia Serbia Serbia Serbia	Comparison of optimal control trajectories of IPMSMs with different saliency ratios
<b>T3.2-3</b> Yan Wenju Hu Jiangpeng Chen Hao Li Hailong Yu Fengyuan Wang Qing	China China China China China China	Design of Novel hybrid Excitation Segmented-rotor Switched Reluctance Motor for Electric Vehicle
<b>T3.2-4</b> Khodabux Kaleem Martin Adrian Daniel Vitan Liviu - Dănuț Tutelea Lucian - Nicolae Busawon Krishna Boldea Ion	Mauritius Romania Romania Romania Mauritius Romania	Three-phase Biaxial Excitation Synchronous Generator (BEGA) intern-fault experimental characterisation
<b>T3.2-5</b> Liu Jinfu Chen Hao Yan Wenju Do Ton Duc Shamiev Murat Tairov Yokub Aguirre Miguel Pablo	China China China Kazakhstan Uzbekistan Uzbekistan Argentina	An Adaptive Electromagnetic Force Distribution Method Based on a Double-sided Switched Reluctance Linear Motor



<b>T4</b>		<b>ADVANCED CONTROL SYSTEMS AND MEASUREMENT</b>
<b>T4.1-1</b> Zerdali Emrah Rivera Marco Zanchetta Pericle Wheeler Patrick Ristić Leposava	Turkey United Kingdom United Kingdom United Kingdom Serbia	Encoderless Predictive Speed and Torque Control of an Induction Motor
<b>T4.1-2</b> Rata Mihai Graur Adrian Rata Gabriela	Romania Romania Romania	4-Axis Control Application with Simatic S7-1500T and Sinamics S210
<b>T4.1-3</b> Mitrovic Vladimir Fan Boran Cao Yuliang Bai Yijie Burgos Rolando Boroyevich Dushan	United States United States United States United States United States United States	Phase Current Reconstruction, DC Link Voltage and Rds-on Measurement Using Sensors Integrated on Gate Drivers for SiC MOSFET
<b>T4.1-4</b> Ninkovic Predrag	Serbia	A Novel Quadrature-Signal-Generator based on Sliding-Mode Discrete Fourier Transform
<b>T4.1-5</b> Mandić Zorana Kukrić Nikola Lale Srđan Popović Božidar Jokić Dejan Lubura Slobodan	Bosnia and Herzegovina Bosnia and Herzegovina Bosnia and Herzegovina Bosnia and Herzegovina Bosnia and Herzegovina Bosnia and Herzegovina	Power Calculations by Using Enhanced Frequency-Locked Loops
<b>T5</b>		<b>SMART POWER ELECTRONICS, SMART GRIDS, AND ENERGY STORAGE</b>
<b>T5.1-1</b> Jesaher Erwin Bouvier Yann Hanschek Andreas Stanojevic Aleksandra Grbovic Petar	Austria Austria Austria Austria Austria	Review on the state-of-the-art of hybrid energy storage systems for Electric Transportation systems and their applicability to mobile robots
<b>T5.1-2</b> Glušćević Jovana Janda Žarko Dragosavac Jasna Ristić Leposava	Serbia Serbia Serbia Serbia	Enhancing stability of Grid-Following inverter for renewables
<b>T5.2-1</b> Arbuzina Arina Arkharova Margarita Politsinsky Alexander Demidova Galina Garg Akhil Poliakov Nikolai	Russian Federation Russian Federation Russian Federation Russian Federation China Russian Federation	Research and Simulation of Step-up Converter of Battery Power Supply for DC Drive System
<b>T5.2-2</b> Ivanović Luka Stojić Đorđe Veinović Slavko Joksimović Dušan Klasnić Ilija Milić Saša Rakić Aleksandar	Serbia Serbia Serbia Serbia Serbia Serbia Serbia	Black-Box Modeling of Synchronous Generators Using Feedforward Neural Networks

<b>T5.2-3</b> Vekic Marko Isakov Ivana Rapaić Milan Todorović Ivan Grabić Stevan Bašić Mateo	Serbia Serbia Serbia Serbia Serbia Croatia	Secondary and Primary Goal-Function-Based Control in Inverter-Interfaced Microgrids
<b>T5.2-4</b> Bojovic Petar D. Bojovic Zivko	Serbia Serbia	Design and development of an intelligent energy management system for a microgrid application
<b>T5.2-5</b> Turudić Slađana Selakov Aleksandar Janković Zoran	Serbia Serbia Serbia	Short-term load forecasting through the identification of similar hour series
<b>T6</b>		<b>POWER QUALITY</b>
<b>T6.1-1</b> Mirchevski Slobodan Rafajlovski Goran Vidanovski Dragan	North Macedonia North Macedonia North Macedonia	How to Improve Operation of Coal Power Plant?
<b>T6.1-2</b> Miletic Zoran Tarraso Andres Tremmel Werner Banjac Anja Stöckl Johannes Grbović Petar	Austria Spain Austria Austria Austria Austria	Modeling of the output admittance for the grid connected three-level T-type power converter with LCL filter
<b>T6.1-3</b> Brestovacki Lenka Stanisavljevic Aleksandar Vasiljevic Toskic Marko Turovic Radovan Katic Vladimir Dragan Dinu	Serbia Serbia Serbia Serbia Serbia Serbia	Test bench for evaluation of machine learning algorithms applied to PQ parameters classification
<b>T6.1-4</b> Damnjanović Mirjana Babković Kalman Kisić Milica	Serbia Serbia Serbia	EMI and EMC in Electronics Course at the FTS, University of Novi Sad
<b>T7</b>		<b>RENEWABLE &amp; DISTRIBUTED ENERGY SOURCES</b>
<b>T7.1-1</b> Becker Marcus Stefanski Lukas Hiller Marc	Germany Germany Germany	High Efficient Maximum Power Point Tracking for Multiple Solar Strings with GaN-Based HiLEM Circuit
<b>T7.1-2</b> Lukin Aleksandr Demidova Galina Poliakov Nikolai Rezaeva Maria Zhdanov Ivan Lukichev Dmitry	Russian Federation Russian Federation Russian Federation Russian Federation Russian Federation Russian Federation	Small Magnus Wind Turbine Control System Based on MPPT Approaches
<b>T7.1-3</b> Akın Ercan Şahin Mustafa Ergin	Turkey Turkey	Investigation of Incremental Conductance MPPT Algorithm in MATLAB/Simulink Using Photovoltaic Powered DC-DC Boost Converter
<b>T7.1-4</b> Milad Sulaiman Milićević Srđan Katić Vladimir A. Stanisavljević Aleksandar M.	Serbia Serbia Serbia Serbia	Wind Turbine Modeling Using Wind Speed Measurement Data

# **XXII Savetovanje Energetska elektronika - Ee2023**



## SADRŽAJ

Sesija-Oznaka rada Prezime i ime autora	Država	Naziv sesije ili Naziv rada/predavanja
<b>S1</b>		<b>ENERGETSKA ELEKTRONIKA I SRODNE OBLASTI</b>
<b>S1-1</b> Katić Vladimir Nikolić Dragomir Čorba Zoltan Stanisavljević Aleksandar Cvetičanin Stevan Gerić Ljubinka Galić Jadranka	Srbija Srbija Srbija Srbija Srbija Srbija Srbija	50 GODINA SKUPOVA ENERGETSKA ELEKTRONIKA
<b>S1-2</b> Katić Vladimir Nikolić Dragomir Čorba Zoltan Stanisavljević Aleksandar Cvetičanin Stevan Gerić Ljubinka Galić Jadranka	Srbija Srbija Srbija Srbija Srbija Srbija Srbija	ZNAČAJ I UTICAJ SKUPOVA ENERGETSKA ELEKTRONIKA
<b>S1-3</b> Damnjanović Mirjana Kisić Milica	Srbija Srbija	KARAKTERIZACIJA POTISKIVAČA ZAJEDNIČKIH SMETNJI KORIŠĆENJEM ANALIZATORA SPEKTRA
<b>S1-4</b> Čorba Zoltan Milićević Dragan Popadić Bane Dumnić Boris Cvetičanin Stevan	Srbija Srbija Srbija Srbija Srbija	PROJEKTANT KAO BALANS IZMEĐU ŽELJA INVESTITORA I TEHNIČKIH MOGUĆNOSTI IZGRADNJE FOTONAPONSKIH ELEKTRANA
<b>S1-5</b> Milanković Filip	Srbija	PRELAZNI REŽIMI PRILIKOM ENERGIZACIJE TRANSFORMATORA I KABLA
<b>S1-6</b> Katić Vladimir	Srbija	NAUČNI SKUPOVI I INDIKATORI PRAĆENJA NJIHOVOG UTICAJA
		<b>INDEKS AUTORA</b>