

**2018 IEEE 3rd International Conference on  
Intelligent Energy and Power Systems  
(IEPS)**

**CONFERENCE  
PROGRAM**



**September 10 - 14, 2018  
Kharkiv, Ukraine**

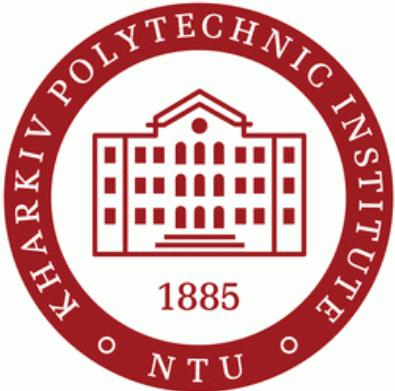
# SCHEDULE OF CONFERENCE

Time	10.09.2018, Monday	11.09.2018, Tuesday	12.09.2018, Wednesday	13.09.2018, Thursday	14.09.2018, Friday
9:00		Conference Registration			
9:30		Opening Ceremony			
10:00		Plenary Session	Oral and Posters Sessions	Oral and Posters Sessions	
10:30				Coffe break	
11:00		Coffe break	Coffe break		
11:30		Plenary Session	Oral and Posters Sessions	Oral and Posters Sessions	
12:00		Lunch	Lunch	Lunch	
12:30					
13:00					
13:30					
14:00		Oral and Posters Sessions	Oral and Posters Sessions	Closing Ceremony	
14:30					
15:00		Coffe break			
15:30		Oral and Posters Sessions			
16:00					
16:30			City Tour		
17:00		Free Time			
19:00		Welcome Party			
20:00					
21:00					
22:00					

Arrival of Participants

Departure of Participants

## ORGANIZERS



**IEEE Estonia Section PE/IE Societies Joint Chapter**

**IEEE Latvia Section IA/IE/PEL Societies Joint Chapter**

**IEEE Ukraine Section IE/PE/PEL Societies Joint Chapter**

**IEEE Ukraine Section PE/IE/IA Societies Joint Chapter**

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Prof. Yevgen Sokol, National Technical University "Kharkiv Polytechnic Institute" (Kharkiv, Ukraine)

### Technical Program Committee Chairpersons

Prof. George Zhemerov, National Technical University "Kharkiv Polytechnic Institute" (Kharkiv, Ukraine)

### Publication Chairperson

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Prof. Victor Rieztsov, Institute of Renewable Energy of NASU (Kyiv, Ukraine)

Prof. Vladimir Rozov, Institute of Technical Problems of Magnetism of NASU (Kharkiv, Ukraine)

Prof. Nataliya Shydlovska, Institute of Electrodynamics of NASU (Kyiv, Ukraine)

Prof. Anatoliy Scherba, Institute of Electrodynamics of NASU (Kyiv, Ukraine)

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Dr. Oksana Dovgaluk, National Technical University "Kharkiv Polytechnic Institute" (Kharkiv, Ukraine)  
Dr. Oleg Shutenko, National Technical University "Kharkiv Polytechnic Institute" (Kharkiv, Ukraine)  
Dr. Roman Zaitsev, National Technical University "Kharkiv Polytechnic Institute" (Kharkiv, Ukraine)

## REVIEWERS LIST

Alexander Balakhontsev, Andrei Blinov, Vladimir Burlaka, Andrii Chub, Dmitry Danylchenko, Oksana Dovgaluk, Dirk Hertem, Volodymyr Ivakhno, Sergei Kovbasa, Viacheslav Kulichenko, Anna Kyselova, Alexsey Larin, Vadym Makarov, Anton Malinovskyi, João Martins, Evgen Melezik, Oleksandr Mokin, Saqib Munawwar, Valerii Mykhalskyi, Valentin Oleschuk, Mykola Ostroverkhov, Sergei Peresada, Thomas Pfeiffenberger, Alexander Podoltsev, Enrique Romero-Cadaval, Anatoly Scherba, Ivan Shapoval, Sergey Shevchenko, Serhii Stepenko, Bohdan Styslo, Roman Tomashevskyi, Volodymyr Turkovskyi, Alexey Tyshko, Eugene Verbitsky, Valery Vodovozov, Vitalii Volokhin, Roman Zaitsev, Volodymyr Zamaruiev

## LOCAL ORGANIZING COMMITTEE

### Local Chairpersons

Dr. Vadym Makarov, National Technical University "Kharkiv Polytechnic Institute" (Kharkiv, Ukraine)  
Mr. Dmytro Danylchenko, National Technical University "Kharkiv Polytechnic Institute" (Kharkiv, Ukraine)

**11.09.2018**

**OPENING CEREMONY**

**Electrotechnical Corps NTU “KhPI”, ROOM #1 (10:00 - 10:30)**

**Prof. Yevgen Sokol**, Rector, Corresponding Member of the National Academy of Sciences of Ukraine, Doctor of Technical Sciences, Professor

**Mr. Yevgen Pichkalov**, IEEE Ukraine Section Chairperson

**GROUP PHOTO**

**PLENARY SESSION**

**Electrotechnical Corps NTU “KhPI”, ROOM #1 (10:30 - 11:30)**

**Prof. Vladimir Rozov**,

Institute of Technical Problems of Magnetism of NASU (Kharkiv, Ukraine)

Topic: **“Electromagnetic ecology of urban power grids”**

**COFFEE BREAK**

**(11:30 - 12:00)**

**PLENARY SESSION**

**Electrotechnical Corps NTU “KhPI”, ROOM #1 (12:00 - 13:00)**

**Prof. Maryna Rezynkina**,

National Technical University “Kharkiv Polytechnic Institute” (Kharkiv, Ukraine)

Topic: **“Mathematical and physical modeling of electrophysical processes for solving electromagnetic compatibility problems”**

**Prof. Olga Tolochko**

National Technical University of Ukraine “Kyiv Polytechnic Institute” (Kyiv, Ukraine)

Topic: **“Energy Efficient Speed Control of Interior Permanent Magnet Synchronous Motor”**

**Oleksandr Plakhtiy**, Design Bureau «OWEN». Ways of development and cooperation.

**LUNCH**

**(13:00 - 14:00)**

# SECTION 1. MODERN ENERGY SYSTEMS AND POWER ELECTRONICS

## ORAL SESSION ROOM # 63 of Science Library (14:00 – 17:00)

1	Bohdan Pakhaliuk, Oleksandr Husev, Ryszard Strzelecki and Kostiantyn Tytelmaier	Optimal components design for modified Z-source based IPT approach
2	Sergey Shevchenko, Dmytro Danylchenko, Stanislav Dryvetskyi and Kseniia Minakova	Influence of Direct Lightning Strikes and Lightning Strikes Near Power Lines with Protected and Non-Insulated Wires
3	Viktor Shevchenko, Oleksandr Husev, Bohdan Pakhaliuk and Ihor Kondratenko	Design and Simulation Verification of Low Power Wireless Charging Battery System for Electric Bicycle
4	Anton Malinovskyi, Volodymyr Turkovskyi, Andrii Muzychak and Yurii Turkovskyi	The efficient power supply scheme of alternating current electric arc furnaces
5	Oleksandr Zhuk, Dmytro Zhuk and Dmytro Kryvoruchko	Voltage Harmonic Distortion In Autonomous Electric Power System With An Adjustable Power Line Conditioner
6	Mykola.M Zablodskiy, Vitaliy Savchenko, Petr Klendiy and Vladyslav Pliuhin	Intensification of biogas fermentation processes in the bioenergy system
7	Oleg Shutenko and Aleksandra Zagaynova	Maximum permissible value correction for dielectric loss tangent of 110 kV air-tight bushing basic insulation subject to operational factors impact
8	Andrey Rusanov, Gennadii Martynenko, Konstantin Avramov and Volodymyr Martynenko	Detection of Accident Causes on Turbine- Generator Sets by Means of Numerical Simulations
9	Wei Huang, Zhaorui Guo, Siqi Liu, Liangliang Hua, Mingchang Liu and Binyu Yan	Demand Response of Active Distribution Network Based on Non-cooperative Game
10	Oleksandr Miroshnyk, Oleksandr Savchenko and Irina Trunova	The incentive scheme for maintaining or improving power supply quality
11	Shahab Karrari, Mathias Noe and Joern Geisbuesch	Real-time Simulation of High-speed Flywheel Energy Storage System (FESS) for Low Voltage Networks
12	Petro Lezhnyuk, Serhii Kravchuk, Iryna Kotylko, Iryna Hunko and Natalia Sobchuk	Modeling Of Electrical Supply Restoration In Local Electrical Systems After Loss Of Centralized Power
13	Andrey Zuev, Oleg Gryb, Vadym Makarov and Sergey Shvets	Evaluating and Ensuring the Cybersecurity of Power Line Remote Monitoring Systems
14	Bohdan Styslo, Vadym Makarov, Mykola Tymchenko, Viktoriia Varvianska and Serhii Kryvosheiev	Cell Equalizer for Series-connected Lithium Batteries
15	Volodymyr Ivakhno, Volodymyr Zamaruiev, Bohdan Styslo and Yevgen Sokol	Full soft switching dual DC/DC converter with four-quadrant switch for systems with battery energy storage system

<b>POSTER SESSION</b> <b>ROOM # 66 of Science Library (14:00 – 17:00)</b>		
1	Dmytro Yarymbash, Mikhaylo Kotsur, Serhiy Yarymbash and Iryna Kylymnyk	An Error Estimation Of The Current Sensors Of The Automated Control System Of The Technological Process Of Graphitation
2	Dmytro Yarymbash, Mikhaylo Kotsur, Yulia Bezverkhnia, Serhiy Yarymbash and Igor Kotsur	Parameters Determination of the Trolley Busbars by Electromagnetic Field Simulation
3	Dmytro Yarymbash, Tetyana Divchuk, Mikhaylo Kotsur and Serhiy Yarymbash	Electromagnetic Parameters Determination of Power Transformers
4	Ruslan Vlasenko, Olexiy Bialobrzheskyi and Andrii Gladyr	Analysis of three-phase parallel active power filter operation mode with arc furnace active power's fluctuations
5	Kostyantyn Pokrovskyy, Olherd Mavrin and Andrii Muzychak	Synchronous mode analysis of an asynchronous generator in the scheme of power bridge "Ukraine–EU"
6	Marina Rezinkina, Yevgen Sokol, Oleg Rezinkin and Svitlana Lytvynenko	Mathematical modelling of the electric field in systems with conductive rods for lightning protection
7	Marina Rezinkina, Oleg Rezinkin, Svitlana Lytvynenko, Boris Kubrik, Elena Svetlichnaya and Elena Sosina	Determination of the conditions of inception of an upward leader from grounded objects in thunderstorm conditions
8	Andriy Kutsyk, Mykola Semeniuk, Taras Galantyi and Vasyl Tutka	A Pulse-Width Regulation of a Compound Excitation System for a Synchronous Generator
9	Gennadiy Pavlov, Irina Vinnichenko and Mikhail Pokrovskiy	Estimation of Energy Efficiency of the Frequency Converter Based on the Resonant Inverter with Pulse-Density Control
10	Volodymyr Chenchevoi, Iurii Zachepa, Oleksii Chornyi, Vita Ogar, Dmytro Shokarov and Nataliia Zachepa	The formed autonomous source for power supply of single-phase consumers on the basis of the three-phase asynchronous generator
11	Dmytro Shokarov, Oleksandr Lazurenko, Halyna Cherkashyna and Viktoria Chorna	The Increase in Efficiency of the Modes Power Resources Consumptions of the Processing Equipment of the Enterprises of Oil-processing Industry
12	Svetlana Podnebennaya, Vladimir Burlaka and Sergey Gulakov	Improvement of the Spectral Composition of the Input Currents of a Three-to-One-Phase Matrix Converter at Sector Boundaries
13	Vladimir Burlaka, Svetlana Podnebennaya and Sergey Gulakov	Residential Uninterruptible Power Supply System with Renewable Energy Sources and Battery Pack
14	Valerii Kyryk and Bohdan Zhuk	Geomagnetic Induction Currents as the Factor of Automatic Disconnections in Trunk Transmission Lines 750 kV
15	Pavlov Gennadiy, Mikhail Pokrovskiy and Irina Vinnichenko	Load Characteristics of the Serial-to-serial Resonant Converter with Pulse-number Regulation for Contactless Inductive Energy Transfer

## WELCOME PARTY

**(19:00 - 23:00)**

**12.09.2018**

**SECTION 2. RENEWABLE ENERGY SYSTEMS AND  
DISTRIBUTED GENERATION**

**ORAL SESSION  
ROOM # 63 of Science Library (10:00 – 13:00)**

1	Stanislav Piriienko, Martin Neuburger, Po-Wen Cheng, Ulrich Ammann, Alexander Balakhontsev and Duleepa J. Thrimawithana	Evaluation of the Small-Scale Wind Turbine Converter's Efficiency Built with Various Types of Semiconducting Devices
2	Olga Pankova, Dmitry Alekseevskiy, Aleksandr Alyeksyeyev, Konstantin Turyshev and Sergey Shmaliy	Investigation of the supernominal power throws factors on the wind turbine with variable speed
3	Petro Lezhnyuk, Vyacheslav Komar, Serhii Kravchuk, Vladislav Lesko and Volodymyr Netrebskiy	Meteorological Parameters Analysis for hourly Forecast of Electricity Generation by Photovoltaic Power Station on the Day Ahead
4	Vadim Bodunov, Tetiana Kulko, Anatoliy Prystupa and Alexander Gai	Topological Task of Distributed Generation Placement Using a Pareto Optimization
5	Alexander Kondratenko, Yana Suchikova, Igor Mishchenko, Gennadiy Chernobay and Yuriy Derkach	Criteria based assessment of the level of ecological safety of exploitation of electric generating power plant that consumes biofuels
6	Oksana Dovgalyuk, Alexander Lazurenko and Sherli Saidov	Participation of small hydropower plants in the regulation of the balance of electric energy in the power system
7	Pavlo Bezcostnyi and Oksana Dovgalyuk	Analysis of Modern Geoinformation Systems for Renewable Energy
8	Eugen Sokol, Alina Khrypunova, Dmitriy Kudii and Maksim Khrypunov	The development of technology CdTe and CdS layers for thin-film solar cells creation
9	Alina Khrypunova, Dmytro Kudii and Irina Khrypunova	The optical and electrical properties ITO thin film
10	Sajad Arab Ansari, Javad Shokrollahi Moghani and Mohammad Mohammadi	A New High Efficiency Flyback Inverter for Photovoltaic AC Module Applications

**POSTER SESSION  
ROOM # 66 of Science Library (10:00 – 13:00)**

1	Kseniya Rezvaya, Evgeniy Krupa, Aleksandr Shudryk, Viktor Drankovskiy and Vadym Makarov	Solving the hydrodynamical tasks using CFD programs
2	Ihor Shchur, Daniel Kulwas and Robert Wielgosz	Combination of Distributed MPPT and Distributed Supercapacitor Energy Storage Based on Cascaded Converter in Photovoltaic Installation
3	Tetiana Kurbatova and Yevgeniy Hyrchenko	Energy co-ops as a driver for bio-energy sector growth in Ukraine
4	Ivan Shapoval, Valerii Mykhalskyi, Volodymyr Sobolev, Vasyl Chopyk and Serhii Polishchuk	Selective Compensation of Current Harmonics in Grid-Connected Doubly-Fed Induction Generator based Wind Energy System

5	Alexander Kondratenko, Yana Suchikova, Igor Mishchenko, Gennadiy Chernobay and Yuriy Derkach	Criteria based assessment of the level of ecological safety of exploitation of electric generating power plant that consumes biofuels
6	Oksana Dovgalyuk, Alexander Lazurenko and Sherali Saidov	Participation of small hydropower plants in the regulation of the balance of electric energy in the power system

## **LUNCH**

**(13:00 - 14:00)**

## **CITY TOUR**

**(16:00 - 19:00)**

**13.09.2018**

**SECTION 3. INTELLIGENT AND ADAPTIVE SYSTEMS IN  
SMART GRID**

<b>ORAL SESSION</b> <b>ROOM # 63 of Science Library (10:00 – 11:00)</b>		
1	Oleksandr Gorobchenko, Oleksiy Fomin, Igor Gritsuk, Victoria Saravas, Yuriy Grytsuk, Mykola Bulgakov, Mykyta Volodarets and Dmitriy Zinchenko	Intelligent Locomotive Decision Support System Structure Development and Operation Quality Assessment
2	Oleksandr Yandulskyi, Anatolii Marchenko and Volodymyr Hulyi	Analysis of Efficiency Of Primary Load-Frequency Control of Integrated Power System of Ukraine
3	Igor Khomenko, Ivan Stasiuk and Sergey Iglin	On the influence of electromagnetic processes of power transformer on parameters of normal regime of electric network operation
4	Oleksandr Plahii and Volodymir Nerubatskyi	ACTIVE VOLTAGE-SOURCE RECTIFIERS WITH INTERLEAVING. ANALYSES OF POWER LOSSES IN SUPPLY GRID CAUSED BY CURRENT HARMONICS.
5	Sabir Ouchen	Improved Direct Power Control Applied to Parallel Active Filtering Based on Fuzzy Logic Controller
6	Valentin Oleschuk and Vladimir Ermuratskii	Six-Phase Multi-Inverter System with Power Balancing and Voltage Waveform Symmetries

<b>POSTER SESSION</b> <b>ROOM # 66 of Science Library (10:00 – 11:00)</b>		
1	Volodymyr Kulyk, Oleksandr Burykin, Juliya Malogulko and Viktor Pirnyak	Optimization of reactive energy flows in the electric grid taking into account allowable voltage fluctuations
2	Andrey Zuev, Oleg Gryb, Vadym Makarov and Sergey Shvets	Evaluating and Ensuring the Cybersecurity of Power Line Remote Monitoring Systems

**COFFEE BREAK**

**(11:00 - 11:30)**

## **SECTION 4. INDUSTRIAL ELECTRONICS AND ELECTRICAL DRIVES**

### **ORAL SESSION ROOM # 63 of Science Library (11:30 – 13:00)**

1	Vladimir F. Bolyukh, Alexander I. Kocherga and Igor S. Schukin	Efficiency of a Linear Pulse Electromechanical Converter of Induction Type with a Two-section Power Capacitor of Energy
2	Sergei Peresada, Yurii Zaichenko, Dmytro Pushnitsyn and Viktor Reshetnik	Adaptive Current Control for Shunt Active Power Filters Under Resistance and Inductance Uncertainty
3	Yuriy Kachan, Viktor Kovalenko and Olesia Lapikova	Efficiency of Application of Electric Fields in Biogas Plants at Different Temperature Modes
4	Volodymyr Zamaruiev, Yurii Voitovych, Olha Butova, Vadym Makarov, Eugene Sokol and Volodymyr Ivakhno	18-Pulse Rectifier With Electronic Phases Shifting And Width-Pulse Modulation

### **POSTER SESSION ROOM # 66 of Science Library (11:30 – 13:00)**

1	Volodymyr Kulyk, Oleksandr Burykin, Juliya Malogulko and Viktor Pirnyak	Optimization of reactive energy flows in the electric grid taking into account allowable voltage fluctuations
2	Maksym Shykhnenko, Leonid Mazurenko, Oleksandr Dzhura and Oleksandr Bilyk	Mathematical model, research and improvement of the switched reluctance generator voltage stabilization methods
3	Sergey Kozyrev and Natalia Nazarova	Adaptive Filter of Input Information Signal for Discharge Pulse Installation Control System
4	Ihor Shchur and Yurii Biletskyi	Robust Passivity-Based Controllers for Fast Output Voltage Regulated, Non-Ideal DC-DC Boost Converter in Hamiltonian Representation
5	Zagirnyak Mykhaylo, Bisikalo Oleg, Chorna Olga and Chornyi Oleksii	A model of the assessment of an induction motor condition and operation life, based on the measurement of the external magnetic field
6	Anton Bukariev, Viktor Liesnoi and Oleksandr Kyslytsyn	Modelling distortions of an optical signal by a recording optoelectronic device
7	Tetiana Serdiuk, Vitaliy Kuznetsov and Yevheniia Kuznetsova	About electromagnetic compatibility of rail circuits with the traction supply system of railway
8	Gennadii Martynenko	Accounting for an Interconnection of Electrical, Magnetic and Mechanical Processes in Modeling the Dynamics of Turbomachines Rotors in Passive and Controlled Active Magnetic Bearings

## **SECTION 5. SPECIAL POWER ELECTRONICS SYSTEMS AND APPLICATIONS**

### **ORAL SESSION ROOM # 63 of Science Library (11:30 – 13:00)**

1	Oleg Shutenko and Ivan Yakovenko	Analysis of Gas Content in High Voltage Equipment With Partial Discharges
2	Mykola Ostroverkhov, Vadim Chumack and Eugene Monakhov	Axial flux permanent magnet controlled generator
3	Yevgen Sokol, Stanislav Lapta, Iurii Karachntsev, Nona Kravchun, Olga Solovyova, Nikolay Mustetsov, Natalya Pichko, Yana Zubova and Olga Goncharova	Automatic Implantable Insulin Pump, adapted to Normal Activity of the Pancreas

### **POSTER SESSION ROOM # 66 of Science Library (11:30 – 13:00)**

1	Gennady Bolotov, Maksym Bolotov and Serhii Stepenko	The Ways of Stabilization of High-Current Glow Discharge in Welding
2	Ievgen Korol and Andrii Kipenskiy	Research of the influence of input voltage deviations on the pulse-width converter with microprocessor control system
3	Boris Gorkunov, Anna Tyshchenko, Sergey Lvov and Abbasi Jabbar	Research of the electromagnetic method for the control rolled steel of the same grade of various manufacturer
4	Kolisnyk Kostyantyn and Zamiatin Petro	Perfection of methods for constructing remote monitoring systems for patients in emergency situations

### **LUNCH**

**(13:00 - 14:00)**

### **CLOSING CEREMONY**

**(14:00 - 16:00)**

### **RULES FOR PARTICIPATION**

Official Language : English.

Size of the poster: A0 or A1.

Duration of oral presentation: 10 min.

Duration of plenary presentation: 30 min.