IEEE
UKRAINE SECTION

IEEE
Advancing Technology
for Humanity

2021 IEEE KhPI Week on Advanced Technology

dedicated to the centenary of Institute of Education and Science in Power Engineering, Electronics and Electromechanics NTU«KhPI»

PROGRAM BOOK
September 13 - 17, 2021
Kharkiv, Ukraine

**National Technical University
"Kharkiv Polytechnic Institute"**

1885

2021 IEEE KhPI Week on Advanced Technology

(KhPI Week)

CONFERENCE PROGRAM

September 13 - 17, 2021

Kharkiv, Ukraine

The Electrical Engineering Faculty was established at Kharkiv Technological Institute (KhTI) on January 21, 1921. This event was a result of the progress of electrical engineering and the ever-increasing demand for electrical specialists from industry and the municipal economy.

The first dean was Pavlo Petrovych Kopnyaev, who had studied electrical engineering at Darmstadt University (Germany). The Faculty consisted of Electrical Machines, Electrical Equipment, General Electrical Engineering and Electric Traction departments. The Faculty was very popular because there was a great need for electrical engineers at that time. The Electrical Engineering Faculty of KhTI and its graduates successfully solved the problems of electrification of mines, steelmaking and development of electric power industry, thanks to which Kharkiv became one of the leading centres of the electrical industry of the country.

In 1930, there was a functionally profiled building for the Electrical Engineering Faculty, meeting modern requirements, equipped with specialised laboratories and providing large workshop spaces. The architectural design of the building was by the architect academician A. N. Beketov.

In 1929 the Kharkiv Technological Institute was renamed the Kharkiv Polytechnic Institute (KhPI), which was reorganised into three institutes of chemical, mechanical and electrical engineering in 1930. The Kharkiv Electrotechnical Institute (KhETI) was established with the Electrical Machine Engineering and the Electrotechnical faculties. The Institute began to educate specialists in the following profiles: power plants, electrical machine engineering, electrical apparatus engineering, electric traction, electricity transmission and distribution.

During wartime many professors and students fought at the battlefield, and some were evacuated by the Kharkiv Electromechanical Plant to different cities of Ural, Volga, Siberia and Central Asia regions. KhETI lecturers and graduates had a great influence on the formation of major electrical engineering centres in the cities of this regions. KhETI renewed its activities in September 1943 after Kharkiv's liberation.

In 1950 the three independent institutes were merged again into the KhPI, which included the Electric Machine Engineering and the Electric Engineering Faculty of KhETI. The pre-existing departments of these faculties became the basis for the creation of new departments to meet the requirements of scientific development.

Over the following years, KhPI has changed its status and name and is now called the National Technical University "Kharkiv Polytechnic Institute" (NTU "KhPI"). During difficult economic situation of the country in the early 90s electrical engineering scientists of NTU "KhPI" became initiators of consolidation and activation of scientists

from other universities, holding international conferences and symposia, which led to the establishment of the Electrical Engineers Association of Ukraine.

In 2018, the departments of the Electrical Engineering and Electromechanical Engineering faculties became part of the newly created Institute of Education and Science in Power Engineering, Electronics and Electromechanics (IES PEEE). Nowadays, more than 2,000 students at three educational and scientific levels - Bachelor's, Master's and Doctoral degrees - study in 19 educational programmes that include 28 specialisations within 5 specialities at the departments which are part of the IES PEEE. More than 300 lecturers, including 75 professors and doctors of science and 120 candidates of science, provide the teaching process for specialist training.

NTU "KhPI" electrical engineers have made significant contributions to the development of science in electrical engineering, electrical machines and apparatus, power plants, electricity transmission and distribution, automation of energy systems, automated electromechanical systems, industrial and biomedical electronics, electrical insulation and cable technology. It has resulted in the establishment of new scientific schools and directions, publication of scientific articles and monographs, defence of over 90 doctoral and over 200 PhD theses, receiving the State Prizes of Ukraine in Science and Technology, Presidential Prizes as well as diplomas of international, state and regional scientific competitions.

For many years, there has been international scientific and teaching cooperation with universities in many countries. Up to now, the IES PEEE has 11 partner institutes, including: Otto von Guericke Technical University Magdeburg (Germany), Uniwersytet Warminsko-Mazurski w Olsztynie (Poland), University of Deusto (Spain), Georgian Technical University and others.

Since the establishment of the Electrotechnical Faculty, its departments have trained more than 30,000 specialists with higher education at various academic and scientific levels on a full-time, evening and extramural course of study, including more than 3,000 for other countries, including India, China, Vietnam, Algeria, Nigeria, Egypt, Morocco, Tajikistan, Turkmenistan, Tunisia and others.

Continuing the tradition of the Faculty of Electrical Engineering, the IES PEEE is now one of the major training centres for highly qualified electrical engineers.

Roman Tomashevskyi,
Director of IES PEEE of NTU "KhPI"

SCHEDULE OF CONFERENCE

Time	13.09.2021, Monday	14.09.2021, Tuesday		15.09.2021, Wednesday		16.09.2021, Thursday	17.09.2021, Friday
9:00	Arrival of Participants	Conference Registration					Departure of Participants
10:00		Opening Ceremony		Oral Section № 1	Oral Section № 6	Oral Section № 2	
10:30		Plenary Section					
11:00							
11:30		Coffee Break					
12:00		Plenary Section					
12:30							
13:00		Lunch		Lunch		Lunch	
13:30							
14:00		Oral Section № 1	Oral Section № 3	Oral Section № 4	Oral Section № 5	Closing Ceremony	
14:30							
15:00							
15:30							
16:00							
16:30							
17:00							

IEEE Ukraine Section IM/CIS Joint Chapter

IEEE Ukraine Section EMB Chapter

IEEE Ukraine Section PE/IE/IA Joint Chapter

IEEE Ukraine Section IE/PE/PEL Joint Chapter

IEEE Ukraine Section NANO Chapter

ORGANIZING COMMITTEE

Honorary Chairman

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

Co-Chairs

Serhii Kryvosheiev, PhD, National Technical University "Kharkiv Polytechnic Institute" (Kharkiv, Ukraine)

Roman Zaitsev, Dr.Sc, National Technical University "Kharkiv Polytechnic Institute" (Kharkiv, Ukraine)

Volodymyr Klepikov, Dr.Sc, National Technical University "Kharkiv Polytechnic Institute" (Kharkiv, Ukraine)

Technical Program Committee Chairs

Dmytro Danylchenko, PhD, National Technical University "Kharkiv Polytechnic Institute" (Kharkiv, Ukraine)

Vadym Makarov, PhD, National Technical University "Kharkiv Polytechnic Institute" (Kharkiv, Ukraine)

Publication Chairs

Kseniia Minakova, PhD, National Technical University "Kharkiv Polytechnic Institute" (Kharkiv, Ukraine)

Financial Chair

Kseniia Rezvaya, PhD, National Technical University "Kharkiv Polytechnic Institute" (Kharkiv, Ukraine)

LOCAL ORGANIZING COMMITTEE

Chairman

Bohdan Styslo, PhD, National Technical University "Kharkiv Polytechnic Institute" (Kharkiv, Ukraine)

Members

Volodymyr Ivakhno, PhD, National Technical University "Kharkiv Polytechnic Institute" (Kharkiv, Ukraine)

Volodymyr Zamaruiev, PhD, National Technical University "Kharkiv Polytechnic Institute" (Kharkiv, Ukraine)

Mykhailo Kirichenko, PhD, National Technical University "Kharkiv Polytechnic Institute" (Kharkiv, Ukraine)

Mykhailo Shyshkin, PhD, National Technical University "Kharkiv Polytechnic Institute" (Kharkiv, Ukraine)

Oleksiy Vodka, PhD, National Technical University "Kharkiv Polytechnic Institute" (Kharkiv, Ukraine)

Vira Shamardina, PhD, National Technical University "Kharkiv Polytechnic Institute" (Kharkiv, Ukraine)

Bohdan Vorobiov, PhD, National Technical University "Kharkiv Polytechnic Institute" (Kharkiv, Ukraine)

Andrii Dobrozhan, PhD, National Technical University "Kharkiv Polytechnic Institute" (Kharkiv, Ukraine)

TECHNICAL ORGANIZING COMMITTEE

Olga Kyselova, Germany

Oleksandr Lazurenko

Serhii Shevchenko

Kostiantyn Makhotilo

Heorhii Melnykov

Dmytro Shokarov

Oksana Dovgaluk

Sergiy Berezka

Alekseii Pirotti

Vira Shamardina

Natalia Rudevich

Ihor Karpaliuk

Sergiy Shvets

Abdelghani Chahmi, Algeria

Viacheslav Kulichenko

Roman Tomashevskii

Oleksiy Larin

Oleksiy Vodka

Dmytro Breslavkiy

Valeriy Uspenskiy

Andii Dashkevich

Svitlana Podnebenna

Dmitry Gapon

Anron Drozdov

Olha Vodoriz

REVIEWERS LIST

Alexander Zakovorotiy, Andrey Kovalev, Bohdan Styslo, Dmitriy Kritskiy, Dmytro Danylchenko, Gennadii Martynenko, Heorhii Melnykov, Kostiantyn Makhotilo, Kseniia Minakova, Marina Chernobryvko, Mykhailo Kirichenko, Mykhailo Shyshkin, Mykola Ostroverkhov, Mykola Makhonin, Natalia Smetankina, Oksana Dovgalyuk, Oleksandr Lazurenko, Oleksandr Miroshnyk, Oleksandr Trushin, Oleksii Chornyi, Olena Rubanenko, Olga Vodorez, Petr Andrienko, Roman Zaitsev, Stanislav Dryvetskyi, Stanislav Fedorchuk, Svitlana Podnebenna, Vladimir Burlaka, Volodymyr Grinchenko

IEEE Conference Mentor:

Ievgen Pichkalov**,** Vice Chair of IEEE Ukraine Section, Ukraine

14.09.2021
OPENING CEREMONY
ROOM #1 of Electrical building (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

Prof. Volodymyr Klepikov, Chairperson, Electrical Engineers Association of Ukraine

Dr. Roman Zaitsev, Co-Chair IEEE KhPIWeek on Advanced Techonology

PLENARY SECTION
ROOM #1 of Electrical building (10:30 – 11:30)

1. CENTENARY OF INSTITUTE OF EDUCATION AND SCIENCE IN POWER ENGINEERING, ELECTRONICS AND ELECTROMECHANICS NTU "KhPI"

Prof. Roman Tomashevskyi
National Technical University "Kharkiv Polytechnic Institute" (Kharkiv, Ukraine)

2. CHOICE OF THE NON-LINEAR POWER FORMING LINES PARAMETERS PROVIDING NANOSECOND ELECTROMAGNETIC IMPULSES FRONTS

Prof. Maryna Rezynkina
National Technical University "Kharkiv Polytechnic Institute" (Kharkiv, Ukraine)

COFFE BREAK
(11:30 - 12:00)

3. COMPARATIVE ANALYSIS OF ENERGY PERFORMANCE OF INDUCTION SINGLE-MOTOR AND MULTI-MOTOR TRACTION ELECTRIC DRIVE

Dr. Vladimir Vodichev
Odessa Polytechnic State University (Odessa, Ukraine)

4. TUNGSTEN DISULFIDE NANOPARTICLES AS A MEDIUM FOR HYDROGEN STORAGE: HYDROGENATION METHODS AND DETERMINATION OF CHEMICAL CONFIGURATION

Dr. Alex Laikhtman,
Holon Institute of Technology (Holon, Israel)

LUNCH
(13:00 - 14:00)

SECTION 1. ENERGY SYSTEMS AND POWER ELECTRONICS

	ORAL SECTION **ROOM #63 of Science Library (14.09.21; 14:00 – 17:00)**	
2	Kuznetsov, Borys; Bovdui, Ihor*; Nikitina, Tatyana; Kobylianskyi, Borys; Kolomiets , Valerij	Computation and Experimental Measurements of the Spatio-Temporal Characteristics of the Magnetic Field of Overhead Power Lines
4	Dashtdar, Masoud; Rubanenko, Olena*; Rubanenko, Olexander; Hosseinimoghadam, Seyed Mohammad Sadegh; Belkhier, Youcef; Bajaj, Mohit	Improving the Differential Protection of Power Transformers Based on Fuzzy Systems
5	Dashtdar, Masoud; Rubanenko, Olena*; Danylchenko, Dmytro; Hosseinimoghadam, Seyed Mohammad Sadegh; Sharma, Naveen Kumar; Bajaj, Mohit	Protection of DC Microgrids Based on Differential Protection Method by Fuzzy Systems Systems
6	Dashtdar, Masoud; Rubanenko, Olena; Sharma, Naveen Kumar; Hunko, Iryna*; Hosseinimoghadam, Seyed Mohammad Sadegh; Bajaj, Mohit	Decaying DC Offset Removal in Fault Current Signals of Digital Relays Based on LMSR Method
11	Petrenko, Andrii; Makarevych, Svitlana*; Omelchuk, Anatolii	Modeling Criteria for Selection of Remote Protection Settings with Remote Starting and Dependent Timer Delay on Lines with Sources Distributed Generation
13	Glushko, Alyona*; Pantielieieva, Iryna; Shmatko, Nataliia; Oliinyk, Yuliia	Identification of parameters of electrical signals in order to control energy facilities
14	Morozov, Andrii*	Dynamics Numerical Prediction for Composite Wide-Chord Fan Blade
15	Bolotov, Maksym*	Ion Heating Energy Efficiency During Diffusion Welding in a Normal DC Glow Discharge
22	Hovorov, Pylyp*; Hovorov, Vladlen; Kindinova, Anastasiia	Mode Control of Urban Electrical Networks Based on the Smart Grid Concept
24	Sulym, Andrii*	Analysis of Management Strategies for Energy Exchange Processes in Electric Rolling Stock with On-Board Capacitive Energy Storages
25	Boiko, Valerii*	Starting Conditions for the Conversion of the Converter to the Compensating Mode of Operation
28	Trunova, Iryna; Miroshnyk, Oleksandr*; Moroz, Oleksandr; Savchenko, Oleksandr; Sereda, Anatolii; Pazyi, Volodymyr; Galko, Sergii; Buinyi, Roman	The Substantiation of Reconstruction of Power Distribution Networks Objects
32	Burlaka, Vladimir; Gulakov, Sergey; Podnebennaya, Svetlana K*; Kudinova, Ekaterina; Plakhtii, Oleksandr; Nerubatskyi, Volodymyr	A Hardware Framework for Three-Phase Converter Physical Modeling

35	Bezprozvannych, Hanna*	Analysis Frequency Response of Dielectric Losses for Diagnostics of Aging Medium Voltage Power Cable with Cross-Link Polyietilen
37	Harford, Aaron*	Efficiency of Electric to Kinetic Energy Conversion of an Electrohydrodynamic Thruster in a Moving Bulk-Fluid
38	Stakhova, Anzhelika*; Kvasnikov, Volodymyr	Determination Measuring Error of Indicators Quality Electric Supply by Correlation Method
39	Lysenko, Viktor*; Syvokobylenko, Vitalii	Use of Higher Harmonics in Currents and Voltages for Phase-To-Ground Fault Protection in Medium Voltage Networks
41	Kryvoboka, Galina*; Silvestrov, Anton; Ostroverkhov, Mykola	The Problem of Identification in the Theory of Identification
44	Shinderuk, Svitlana*; Batygin, Yuriy; Chaplygin, Evgen	Induction Effects in the Flat System "Circular Solenoid – Sheet Metal"
45	Shymaniuk, Pavlo; Miroshnyk, Volodymyr*; Blinov, Ihor; Loskutov, Stepan	Comparison of Deep Learning Neural Network Architectures for Short Term Nodal Electrical Load Forecasting
49	Mysak, Taras*	A Novel Simplified Space Vector Modulator based on Sliding Mode Control for three Phase Shunt Active Power Filter
54	Buryk, Mykola; Boiko, Valerii*; Sotnyk, Mykola I	The Dynamics of the Bridge Converter to the Compensation Mode of Operation

ORAL SECTION
ROOM #63 of Science Library (15.09.21; 10:00 – 13:00)

55	Bezzub, Maksym*; Bialobrzheskyi, Oleksii; Todorov, Oleh; Reva, Ihor	Unified power quality conditioner electrical complex for compensation influence of sharply variable loading
63	Kolosov, Valery*; Yevgen, Sokol; Vasechko, Evgen	Selection Types of Topologies of Isolated Boost DC-DC Converters
70	Kustov, Maksym*; Hapon, Yuliana	Ensuring the Reliability of Nuclear Power Plants by Controlling Corrosion Processes in Fuel Rods
71	Martynov, Dmitriy*; Martynov, Viacheslav; Yurchenko, Oleg	Stability of the Equilibrium Position in Pulse Stabilizers with Pulse Width Modulation
76	Shkarupylo, Vadym*; Blinov, Ihor; Chemeris, Alexander; Dusheba, Valentyna; Alsayaydeh, Jamil; Oliinyk, Andrii	Iterative Approach to TLC Model Checker Application
93	Rudenko, Yurii*	Analysis of DC-DC Converters by Averaging Method Based on Lagrange Theorems
100	Todorov, Oleh*; Bialobrzheskyi, Oleksii; Reva, Ihor; Bezzub, Maksym	Abruptly Changing Load Timediagram Analysis of Transformer Substation Using Wavelet Transform

101	Solodov, Valerii*	Improvement of Steam Inlet of the High Pressure Cylinder For K-220-44-2 Turbine of the LOVIISA NPP
102	Shutenko, Oleg; Kulyk, Oleksii*	Recognition of Mid-Temperature Overheating in High-Voltage Power Transformers by Dissolved Gas Analysis
105	Manaiev, Kyrylo *; Alekseevskiy, Dmitriy	Research of the dynamics of the electromechanical system of a wind power plant with aerodynamic multiplication connected through transformer to the electrical network
106	Plakhtii, Oleksandr*; Nerubatskyi, Volodymyr	Research of Energy Characteristics of Three-Phase Autonomous Voltage Inverters with Modified Pulse Width Modulation
109	Shram, Alexander*; Bratkovska, Kateryna	Improving the Accuracy of Estimating the Power Consumption Efficiency in Industry
111	Markov, Vladyslav*	Induction Generator Excitation by Using a Single Capacitor
114	Shutenko, Oleg*; Aleksandra, Zagaynova	Diagnosis of Partial Discharges in High Voltage Oil-Filled Bushings Based on the Periodic Tests Results
115	Reva, Ihor*; Bialobrzheskyi, Oleksii; Todorov, Oleh; Bezzub, Maksym	Three-Phase Core-Type Transformer Model Investigation Taking into Account Hysteresis Phenomena in Asymmetric Load Mode
116	Shutenko, Oleg; Ponomarenko, Serhii*	Using Statistical Decision Methods to Correct the Maximum Permissible Values of Transformer Oils
117	Plakhtii, Oleksandr*	Analysis of the Energy Characteristics of the Traction Substation Rectifier
120	Voytenko, Igor*	Refinement of the Method for the Vibration Diagnostic Control of the Rotating Stall in a Turbofan Engine Fan in the Open Test Bench
121	Antonov, Mykola*; Krysan, Iurii; Zinovkin, Volodmyr	Multi-Parameter Technological Process Optimization Functional Similarity Criteria
145	Zamaruiev, Volodymyr*; Styslo, Bohdan	Practical Approach to Digital Control System of Cooperative Active Power Filter Design
147	Dovgalyuk, Oksana*; Yakovenko, Ivan; Bondarenko, Roman	Prospects for Gravity Energy Storage Systems in Ukrainian Electric Power Networks
148	Dovgalyuk, Oksana*	Features Analysis of Composite Supports Application for Electric Power Networks in Ukraine
158	Danylchenko, Dmytro; Shevchenko, Sergey; Dryvetskyi*, Stanislav	Protection of Section Parts from Overvoltage
159	Danylchenko, Dmytro*; Shevchenko, Sergey; Kuznetsov, Dmytro	Use of Capacitor Batteries to Improve the Quality of Electrical Energy
160	Danylchenko, Dmytro; Shevchenko, Sergey; Dryvetskyi, Stanislav*; Potryvai, Andrii	Modernization of a Simulation Model of a Photovoltaic Module, by Accounting for the Effect of Snowing of Photovoltaic Panels on System Performance With Correction for Panel Cleaning for Matlab Simulink

SECTION 2. INDUSTRIAL ELECTRONICS AND ELECTRICAL DRIVES

	ORAL SECTION ROOM #63 of Science Library (16.09.21; 10:00 – 13:00)	
3	Danylchenko, Dmytro*; Rubanenko, Olena; Bajaj, Mohit	Performance Assessment of Lyapunov-Function based 3-Phase SAPF in Compensating Harmonics of Industrial Motor Drive
9	Bolotov, Maksym*	Heating Process Control While Welding in the Plasma of Normal DC Glow Discharge
19	Volkov, Volodymyr*	The Influence of Cross-Magnetic Saturation and Iron Losses on the Electromagnetic Characteristics of a Frequency-Regulated Synchronous Reactive Machine
34	Bolyukh, Vladimir*; Kocherga, Oleksandr	Efficiency and Practical Implementation of the Double Armature Linear Pulse Electromechanical Accelerator
56	Kyrylenko, Yaroslav*	Application of Intelligent Control Systems in Electric Drives of Rail Vehicles
83	Kashanskyi, Yurii*	Criteria-Parametric Analysis of the Magnetic Core Geometric Dimensions Influence on the Operating Mode of the Device for Impact Pressing of Ceramic Powders of a New Design
87	Abramov, Fedir*; Andreiev, Oleksandr ; Andreieva, Olga	Scanning Photosensitive Digital Sensor for the Study of Light Fields
90	Dobzhanskyi, Oleksandr; Amiri, Ebrahim; Gottipati, Pavani; Mendrela, Ernest; Duniev, Oleksii*; Yehorov, Andrii; Masliennikov, Andrii	Performance Comparison of BLDC Permanent Magnet Machines with Different Topologies
91	Tsegelnyk, Yevgen*	Numerical Control of Fiberglass Pipe Bends Manufacturing
103	Zakovorotiy, Alexander*; Dmitrienko, Valery; Leonov, Sergey; Mezentsev, Nikolay; Gasanov, Magomediemin	Proactive Control of Rolling Stock with Traction Asynchronous Electric Motors
108	Buryk, Mykola*; Ostroverkhov, Mykola; Boiko, Valerii	Algorithms of Robustly Stable Systems for Synchronous Electric Drive in Field Weakening Mode
113	Osichev, Aleksandr; Tkachenko, Andrii; Kunchenko, Tetiana*; Asmolova, Larysa	Synthesis of the Automatic Speed Control System with Fast Electric Drives in Elastic Mechanical Systems
119	Nozhenko, Viktoriia*; Bialobrzheskyi, Oleksii; Rodkin, Dmytro	Revealing the Impact of Electromechanical Complex Mechanical Vibrations on Electrical Instantaneous Power
122	Antonov, Mykola*; Antonova, Maryna; Vasilieva, Jevgeniia; Maslov, Dmytro	Thyristor Converter Control System
132	Klepikov, Vladimir; Sakun, Yevhenii*	Simulation of the Dynamic Processes in an Electric Vehicle Drive when Shifting Gears
134	Duniev, Oleksii*; Yehorov , Andrii; Masliennikov, Andrii; Stamann, Mario; Dobzhanskyi, Oleksandr	Investigation of the Transverse-Flux Disk-Rotor Generator

141	Shurub, Yuriy*; Vasilenkov, Viktor	Elimination of Self-Oscillation Mode in a Thyristor-Controlled Induction Electric Drive
144	Kotlyarov, Vladimir*	Semantic Networks Based Design of Electric Drives
146	Tyshchenko, Anna; Buryakovskiy, Serhiy*	Influence of Electromagnetic Interference on the Accuracy of Coordinate Control of an Electromechanical System with a Frequency-Controlled Asynchronous Electric Drive

SECTION 3. RENEWABLE ENERGY SYSTEMS AND DISTRIBUTED GENERATION

	ORAL SECTION ROOM #66 of Science Library (14.09.21; 14:00 – 17:00)	
7	Lezhniuk, Petro*; Rubanenko, Olena; Buslavets, Olga	Balancing Electricity Generation and Consumption in a System with Renewable Energy Sources
10	Zaitsev, Roman*; Kirichenko, Mykhailo; Zaitseva, Lilia;	Testing of Solar Station Based on Cooled Photovoltaic Module
27	Kondratiev, Andrii*; Purhina, Svitlana; Shevtsova, Maryna; Tsaritsynskyi, Anton	Thermodynamic Model of Self-Heating Mold for the Energy Efficient Composite Manufacturing
29	Galko, Sergii; Suprun, Olena; Miroshnyk, Oleksandr*	Influence of Temperature on Energy Performance Indicators of Hybrid Solar Panels Using Cylindrical Cogeneration Photovoltaic Modules
30	Savchenko, Oleksandr; Miroshnyk, Oleksandr*; Moroz, Oleksandr; Trunova, Iryna; Kozlovskyi, Oleksandr; Buinyi, Roman; Galko, Sergii; Sereda, Anatolii ; Dudnikov, Sergii	Improving the Efficiency of Solar Power Plants Based on Forecasting the Intensity of Solar Radiation Using Artificial Neural Networks
33	Spodoba, Mykhailo*; Zablodskiy, Mykola	Dynamic Analysis of Energy Consumption During Substrate Fermentation in a Biogas Reactor
50	Tarasova, Victoria; Kuznetsov, Mikhail A*; Ganzha, Mykola; Litvinenko, Maksim	Optimization of the Thermodynamic Cycle of a Combined-Cycle Power Plant
60	Kondratenko, Alexandr*; Andronov, Volodymyr; Koloskov, Volodymyr; Strokov, Alexandr	Development and Use of the Index of Particulate Matter Filter Efficiency in Environmental Protection Technology for Diesel-Generator With Consumption of Biofuels
62	Olcay, Kadir*; Cetinkaya, Nurettin	Solar Power Plant Suggestion for Charging Electric Vehicles and The Effects of The System on The Electric Network and CO2 Emission
64	Blinov, Ihor*; Trach, Igor; Parus, Eugene; Kuchanskyy, Vladislav; Shkarupylo , Vadym	Evaluation of the Efficiency of the Use of Electricity Storage Systems in the Balancing Group and the Small Distribution System
79	Tugay, Dmitry*; Shkurpela, Olexandr	Simulation of Smart Grid System Operating Modes Based on Solar Photovoltaic Station and Electrical Energy Storage Device
82	Minakova, Kseniia; Zaitsev, Roman*	Photovoltaic Thermal PV/T Systems: Increasing Efficiency Method
84	Maizelis, Antonina*; Pilipenko, Alexei	Electrode Materials for Hydrogen Production by Alkaline-Water Electrolysis Powered by Renewable Energy Sources
86	Brin, Pavlo*	Renewable Energy As a Main Factor of Sustainable Development: The Case of African Emerging Economies

96	Dovgalyuk, Oksana*; Yakovenko, Ivan; Bondarenko, Roman	Analysis of the Impact of Wind Power Plants on Electric Networks Operation Modes
97	Vostriakova, Viktoriia*	The Impact of Renewable Energy on Economic Growth and Sustainable Development
107	Savchenko, Kyrylo*; Savchenko, Olena; Zinkovskii, Anatoliy; Derkach, Oleh	Modal Analysis of a Blade H-Type Darrieus Rotor Under the Action of Centrifugal Load and Energy Dissipation in the Material
110	Kalinchyk, Vasyl; Buravliova, Mariia; Pobihailo, Vitalii*; Borychenko, Olena; Kalinchyk, Vitalii	Forecasting of RES generation indicators
118	Ostroverkhov, Mykola; Chumak, Vadym; Monakhov, Yevhen*	Control System of Autonomous Wind Turbine Based upon Hybrid Excited Synchronous Generator
123	Bulhakov, Olexii*; Makhotilo, Kostiantyn	Electricity Consumption Model of Domestic Air-To-Water Heat Pumps in Relative Parameters
129	Derevianko, Denys*; Denysiuk, Serhii	The Cost Based DSM Methods in Microgrids with DG Sources
130	Stefan Zaichenko; Stepan Shevchuk, Roman Kulish, Serhii Denysiuk, Denys Derevianko*, Vitalii Opryshko	Identification of the least reliable elements of autonomous power plant based on internal combustion and diesel engines by the method of the lowest residual entropy
136	Pavlichenko, Mikhail*	Research of the Possibilities Of Compensation of Inrush Currents Using a Supercapacitor with Autonomous Power Supply
138	Lysenkov, Eduard*	Influence of Organomodified Laponite on Ionic Transport in Nanocomposite Polymer Electrolytes Based on Polyethylene Glycol and Liclo4
143	Dobrozhan, Andrii*	Structure and Optical Properties of Thermal CdTe Thin Films After Electron Beam Irradiation
162	Makarov, Vadym*; Rezvaya, Kseniya; Krupa, Evgeniy	Parameter Estimation of Hydraulic Equipment of Hydro-Electric Power Station Based on Numerical Simulation of the Spatial Flow

SECTION 4. BIOMEDICAL ENGINEERING

	ORAL SECTION ROOM #63 of Science Library (15.09.21; 14:00 – 17:00)	
23	Minakova, Kseniia*; Komarchuk, Iegor; Komarchuk, Viktor; Trushin, Oleksandr; Koliushko, Ekaterina ; Korovina, Mariia	Diagnosis of Gastroesophageal Reflux in Patients with Complicated Forms of Peptic Ulcer Disease
36	Tverytnykova, Elena*; Gutnyk, Maryna ; Salata, Halyna ; Bachynska, Nadiia	Scientific Research on Biomedical Engineering in Ukraine: Origins of Development
47	Smirnova, Olha*; Brovin, Aleksandr; Pilipenko, Alexei; Ivashchenko, Maryna; Nikonov, Andrej; Mukhin, Zakhar	Electrochemical Polishing of Silver in Acid Thiourea-Citrate Solutions in the Manufacture of Medical Instruments and Orthopedic Dental Structures
48	Smirnova, Olha*; Pilipenko, Alexei; Zhelavska, Yulia; Babenko, Vladimir; Nikonov, Andrej; Mukhina, Yulia	The Effect of Butanol on the Morphology of the Surface of Brass Orthopedic Implants with Electrochemical Polishing in Phosphoric Acid Solutions
59	Kovalenko, Nataliia*; Borodai, Iryna	Biomedical Engineering in Ukraine: Development of Computer Modeling of Biological Objects
80	Minakova, Kseniia*; Trushin, Oleksandr; Sheptukha, Artem; Seroshtanov, Oleksiy; Bugakov, Igor; Didenko, Oleksandr; Korovina, Mariia	The Use of Low-Frequency Ultrasonic Cavitation in the Treatment of Purulent-Necrotic Soft Tissue Diseases
98	Smirnova, Olha*; Pilipenko, Alexei; Sincheskul, Alexander; Nikonov, Andrej; Mukhina, Yulia; Breslavets, Nataliia	The Obtaining Two-layer Oxide Films on Titanium Medical Implants by Electrochemical Oxidation in Aqueous-organic Electrolytes
99	Kipenskyi, Andrii*; Korol, Ievgen	Selection of Information Parameters of Diadynamic Current Amplitude-Frequency Image for Determining its Therapeutic Effect
104	Minakova, Kseniia*; Trushin, Oleksandr; Seroshtanov, Oleksiy; Sheptukha, Artem; Bugakov, Igor; Didenko, Oleksandr	Quantum Hemotherapy in Treatment of Purulent Wounds in Older Patients
127	Savchenko, Vitaliy; Sinyavsky, Oleksandr; Zablodskiy, Mykola; Dudnyk, Alla*; Nesvidomin, Andriy	Pre-sowing Treatment of Flax Seeds in a Magnetic Field

SECTION 5. MICRO-NANO TECHNOLOGY

	ORAL SECTION **ROOM #66 of Science Library (15.09.21; 14:00 – 17:00)**	
1	Avramov, Konstantin*	Bifurcation Behavior of Self-Sustained Vibrations of Cantilevered Nanotube Conveying Fluid
17	Avramov, Konstantin*	Buckling of Joined Functionally Graded Carbon Nanotube Reinforced Thin-Walled Structure
31	Zaitsev, Roman*	Calculation of the Schematic Solution of FET-transistor Electronic Load
42	Chukhlib, Vitalii; Ashkelianets, Anton; Gubskyi, Sergii; Duvanskyi, Oleksandr; Palienko, Volodymyr; Okun, Anton*; Petrov, Oleksandr	Development of Methods for Predicting the Quality of Forging Pieces
53	Znamenshchykov, Yaroslav*; Kononov, Oleksiy; Pashchenko, Maksym; Schyria, Yriy; Kurbatov, Denys; Opanasyuk, Anatoliy	Surface Morphology, Structural Properties and Chemical Composition of CdZnTeSe Thick Polycrystalline Films
58	Sierikova, Olena*	Calculation Models for Elastic Properties Clarification of Three-dimensional Nanocomposites Based on the Combination of Finite and Limit Element Methods
61	Petrushynets, Lidiia; Falchenko, Iurii; Novomlynets, Oleh; Ustinov, Anatolii; Yushchenko, Svitlana*; Fedorchuk, Viktor	Application of Multilayer Foils Based on Cu-Ti and Ni-Ti Systems in Diffusion Welding of Titanium Aluminide with Nickel Alloy
94	Lyubchenko, Olena*; Gapochenko , Svitlana	Structural Phase Transition in Glasses GexAsySe100-x-y
95	Lyubchenko, Olena*; Kalchenko, Alexander; Marchenko , Yuriy ; Solopikhina, Elena	A Comparative Study on the Structure and Absorption Properties of Thin-Film Hydrogen Storage Materials Based on Mg-N-H and (V0.9Ti0.1)-N-H
125	Diachenko, Oleksii*; Opanasyuk, Anatoliy; Protasova, Tetiana; Kováč Jr., Jaroslav; Novák, Patrik; Kováč, Jaroslav	Fabrication and Characterization of Heterojunction Based on a Copper Oxide Layer
131	Storozhenko, Ihor*	Diode on Based Graded GaInP-GaInAs as High Power Source of Millimeter Wave
133	Kovalchuk, Stanislav*	The Numerical Investigation of Magnetic Properties of Metal-Oxide Based Nanofluid
161	Feodosyev, Sergei; Gospodarev, Igor; Syrkin, Yevgen; Sirenko, Valentyna; Bondar, Ivan; Minakova, Kseniia*	Peculiar Features of Vibrations Propagation and Localization in Graphene Nanostructures

SECTION 6. COMPUTATIONAL INTELLIGENCE

	ORAL SECTION ROOM #66 of Science Library (15.09.21; 10:00 – 13:00)	
8	Lvov, Gennadiy*; Chetverikova, Anastasiya	Numerical Identification of Relaxation Kernels of Orthogonally Reinforced Carbon Fibre/Epoxy Composite
16	Lavinsky, D.V.*	Computer and Computational Modeling of the Biomechanics of Pole Vaults
20	Romasevych, Yuriy*; Loveikin, Viatcheslav; Loveikin, Yuriy	Development of New Rotating Ring Topology of PSO-Algorithm
21	Romasevych, Yuriy*; Loveikin, Viatcheslav; Shevchuk, Oleksandr	Identification and Optimal Control of a Dynamical System via ANN-based Approaches
40	Kostykova, Maryna; Kozachok, Larysa; Levterov, Andrii; Plekhova, Anna; Shevchenko, Viktoriia; Okun, Anton*	The Use of the Heuristic Method for Solving The Knapsack Problem
51	Martynenko, Gennadii*; Martynenko, Volodymyr	Computer Modeling and Simulation Analysis of Linear and Nonlinear Phenomena of Rotor Dynamics in Systems with Magnetic Bearings
57	Martynenko, Volodymyr*	The Closed Cycle of Designing an Industrial Axial Fan Using Modern Engineering Software Tools
69	Khavin, Valeriy; Kyrkach, Oleksiy*; Kyrkach, Borys	An Enhanced Computational Technique for the Static Analysis of Multi-Support Spindle Shafts with Nonlinear Elastic Bearings
74	Chubyk, Roman; Zelinsky, Igor; Cherno, Oleksandr*	Neurocontroller for Vibrodrive Control of Adaptive Vibration Technological Machines
81	Chugay, Andrii*	Computational Model and Software Tools in the Back-End of Nuclear Fuel Cycle: Site Planning
85	Shyriaieva, Natalia*; Uspensky, Valerii; Kuznyetsov, Yuriy	The Location Optimization of the On-Board Measuring System for Moving Objects Accounting Vibration
88	Abramov, Fedir*; Andreiev, Oleksandr; Andreieva, Olga	Implementation of an Algorithm for Searching for Missing Units of a Swarm of Robots, Controlled by an Adapted Ant Algorithm
89	Abramov, Fedir*	Implementation of an Adapted Ant Algorithm in the Presence of Substitute and Complementary Resources. Modeling the Behavior of the Manufacturer
92	Zakovorotiy, Alexander*; Kharchenko, Artem; Gasanov , Magomediemin	Optimal Speed Controller Design With Interval Type-2 Fuzzy Sets
112	Andreev, Yuri; Breslavsky, Dmitry; Larin, Andrew; Mietielov, Volodymyr*	Computer Modelling of UAV Flight

124	Smetankina, Natalia; Merkulova, Alyona; Postnyi, Oleksii*; Merkulov, Dmytro; Misura, Serhii	Optimal Design of Layered Cylindrical Shells with Minimum Weight under Impulse Loading
126	Martynenko, Gennadii*	Processing of Experimental Signals to Assess the Dynamic Behavior of a Model Rotor System with Passive and Active Magnetic Bearings
128	Shapovalova, Mariya*; Vodka, Oleksii	Image Processing Technology to Determine The Parameters of the Internal Structure of Composite Materials
137	Dashkevich, Andriy*	Simulation Tool for the Point Placement with Maximal Coverage
142	Chumachenko, Dmytro*; Bazilevych, Kseniia; Meniailov, Ievgen; Chumachenko, Tetyana	Forecasting of COVID-19 Epidemic Process by Support Vector Machine Method in Ukraine and Neighboring Countries
151	Burlayenko, Vyacheslav*; Altenbach, Holm ; Dimitrova, Svetlana	A Material Model-based Finite Element Free Vibration Analysis of One-, Two- and Three-dimensional Axially FGM Beams
152	Potopalska, Ksenia*; Larin, Oleksiy; Nazarenko, Sergii; Kalynovskyi, Andrii; Polivanov, Oleksandr	Probabilistic Modelling of Container for Discrete Delivery of Extinguishing Agents Based on a Set of Computational Simulations
153	Gutnyk, Maryna; Sklyar, Volodymyr; Radohuz, Serhii*; Volosnikova, Nataliia; Tverytnykova, Elena	The Formation of Computer Science Centers in Ukraine in the Second Half of the XXth Century
154	Fomenko, Nataliia*; Larin, Oleksiy	Computer 3D-Modeling of Viscoelastic Deformation of the Aorta
155	Krasii, Danylo*; Larin, Oleksiy	Computational Modelling of Wind Turbine Lifetime
156	Babudzhan, Ruslan*; Vodka, Oleksii	Comparison of Glyph Visualization Methods for Stress Tensors

16.09.2021

CLOSING CEREMONY

ROOM #63 of Science Library (14:00 – 15:30)

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

Prof. Roman Tomashevskii, Director of the Institute of Power Engineering, Electronic and Electromechanic, Doctor of Technical Sciences