

**MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE  
LVIV NATIONAL AGRARIAN UNIVERSITY**



Information technologies in energy & agroindustrial complex



**"INFORMATION TECHNOLOGIES IN ENERGY  
AND AGRO-INDUSTRIAL COMPLEX"**

**PROGRAM**

X<sup>th</sup> International Scientific Conference  
dedicated to the 165<sup>th</sup> anniversary of the University,  
120<sup>th</sup> anniversary of conferring the status of the Academy,  
and the 20<sup>th</sup> anniversary of the Department of Power Engineering

October 6-7, 2021  
**LVIV 2021**

## SCIENTIFIC COMMITTEE OF THE CONFERENCE

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Co-chairs:

*V. Boyarchuk*, Lviv National Agrarian University, Ukraine

*M. Medykovskyy*, Lviv Polytechnic National University, Ukraine

Committee members:

*T. Nurek*, Warsaw University of Life Sciences – SGGW (WULS-SGGW), Poland

*A. Chochowski*, Warsaw University of Life Sciences – SGGW (WULS-SGGW), Poland

*B. Drozd*, Warsaw University of Life Sciences – SGGW (WULS-SGGW), Poland

*S. Sosnowski* – President of the Higher School of Engineering and Economics in Rzeszow, Poland

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*N. Kunanets*, Lviv Polytechnic National University, Ukraine

*V. Golovko*, National University "Kyiv Polytechnic Institute", Ukraine

*R. Konieczny*, Academy of Jakub from Paradyż, Poland

*J. Gielżecki*, Hugo Kollantai Agricultural University of Cracow, Poland

*O. Kalakhan*, Lviv National Agrarian University, Ukraine

*R. Krygul*, Lviv National Agrarian University, Ukraine

*M. Babych*, Lviv National Agrarian University, Ukraine

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*A. Chaban*, Lviv National Agrarian University, Ukraine

*I. Shchur*, Lviv Polytechnic National University, Ukraine

*V. Chumakevych*, Lviv Polytechnic National University, Ukraine

*R. Chubyk*, Lviv Polytechnic National University, Ukraine

*V. Lytvynenko*, Kherson National Technical University, Ukraine

*Ya. Marechek*, Mendel Agricultural University in Brno, Czech Republic

## CONFERENCE PROGRAM COMMITTEE

**S. Kovalyshyn**, chair

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**A. Tryhuba**, Lviv National Agrarian University, Ukraine

**S. Syrotyuk**, Lviv National Agrarian University, Ukraine

### Committee members:

**P. Obstawski**, Warsaw University of Life Sciences – SGGW (WULS-SGGW), Poland

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**J. Aleksiejuk-Gawron**, Warsaw University of Life Sciences – SGGW (WULS-SGGW), Poland

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**P. Lub**, Lviv National Agrarian University, Ukraine

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**K. Kolesnikova**, Taras Shevchenko National University of Kyiv, Ukraine

**R. Tkachuk**, Lviv State University of Life Safety, Ukraine

**D. Kobylkin**, Lviv State University of Life Safety, Ukraine

**O. Zachko**, Lviv State University of Life Safety, Ukraine

**N. Burak**, Lviv State University of Life Safety, Ukraine

**O. Smotr**, Lviv State University of Life Safety, Ukraine

**V. Pohrebennyk**, Lviv Polytechnic National University, Ukraine

**A. Radomska-Zalas**, Academy of Jakub from Paradyż, Poland

**Y. Melnik**, State Agrarian University of Moldova, Moldova;

**G. Wałowski**, Institute of Technology and Life Sciences, Poland

**A. Berger**, University of Scranton, USA

**E. Wojciechowska**, Norwegian Institute of Bioeconomy Research (NIBIO), Norway

**V. Kozyrskiy**, National University of Life and Environmental Sciences of Ukraine, Ukraine

**P. Kielbasa**, University of Agriculture in Krakow, Poland

**P. Findura**, Slovak University of Agriculture in Nitra, Slovak Republic

**V. Berzan**, Institute of Power Engineering, Moldova

# CONFERENCE WORK PROGRAM

## October 6, 2021 (Wednesday)

out of 10:00 - arrival, registration of forum participants, acquaintance with the university and laboratories

## October 7, 2021 (Thursday)

from 10:00 to 12:00 - work in sections

from 12:00 – 12:30 - coffee break

from 12:30 to 15:00 - work in sections

from 15:00 - departure of forum participants

### **REGULATIONS:**

reports - up to 15 minutes,

performances - up to 5 minutes,

information messages - up to 3 minutes

## ***Section 1.***

### ***Information technologies in energy systems, including renewable sources.***

Laboratory of Renewable Energy and Energy Saving

Head of the section: Vitaliy Boyarchuk

Secretary: Serhiy Syrotyuk

#### **SUBSTANTIATION OF PARAMETERS OF AIR SOLAR COLLECTOR WITH THE USE OF HARDWARE AND SOFTWARE**

*Boyarchuk V., PhD, Krygul R., PhD, Korobka S., PhD, Babych M., PhD, Lviv National Agrarian University*

#### **MATHEMATICAL MODEL OF A LONG ELECTRIC TRANSMISSION LINE FOR INVESTIGATION OF ELECTROMAGNETIC PROCESSES IN EMERGENCY OPERATING MODES**

*Levonyuk V., PhD, Lviv National Agrarian University*

#### **EVALUATION OF ENERGY ELECTRIC INDUCTION AIR HEATER TO RENEWABLE ENERGY SOURCES**

*Golovko V.<sup>1</sup>, DSc, Kohanievich V.<sup>1</sup>, PhD, Shyhailov M.<sup>2</sup>, Lementariov V.<sup>3</sup>,  
<sup>1</sup>Institute of Renewable Energy of the National Academy of Sciences of Ukraine  
<sup>2</sup>National Technical University of Ukraine "KPI named after Igor Sikorsky"  
<sup>3</sup>SS of NULES of Ukraine "Nizhyn Agrotechnical Institute"*

#### **THE POWER OF THE HEAT PUMP OF MICRO-SOURCES OF ELECTRICITY – THE STAGE OF SIMULATION CALCULATIONS**

*Czekalski D., PhD, Korpysz K., PhD, Awtoniuk M. PhD  
Warsaw University of Life Sciences – SGGW (WULS-SGGW)*

#### **SCIENTIFIC AND DIDACTIC LABORATORIES FOR PHOTOVOLTAICS AT WULS (WARSAW) AND LNAU (LVIV)**

*Aleksiejuk-Gawron J.<sup>1</sup>, PhD, Chochowski A.<sup>1</sup>, DSc, Boyarchuk V.<sup>2</sup>, PhD, Syrotyuk S.<sup>2</sup>, PhD,  
<sup>1</sup>Warsaw University of Life Sciences – SGGW (WULS-SGGW)  
<sup>2</sup>Lviv National Agrarian University*

#### **PROSPECTS FOR THE DEVELOPMENT OF THE HEATING AND COOLING EQUIPMENT MARKET IN TERMS OF TECHNICAL CONDITIONS FOR 2021**

*Bakoń T., PhD, Obstawski P. DSc  
Warsaw University of Life Sciences – SGGW (WULS-SGGW)*

**APPLICATION OF A COGENERATION UNIT FOR A MICRO-  
INSTALLATION PRODUCING AGRICULTURAL BIOGAS FOR  
INDIVIDUAL NEEDS OF A FARM**

*Wałowski G., PhD,*

*Institute of Technology and Life Sciences, Poznan Branch*

**PHOTOVOLTAIC PANELS TYPE MONO, POLY AND CIGS IN  
STATIONARY INSTALLATION AND THEIR CORRECTNESS**

*Gielżecki J., PhD, Jakubowski T., DSc, Brzychczyk B., PhD, Kowalczyk Z. DSc  
University of Agriculture in Krakow*

**DESCRIPTION OF THE DYNAMICS OF WORK OF AMORPHOUS  
PHOTOVOLTAIC PANELS USING PROCESS MODELS**

*Shpak O.<sup>1</sup>, Aleksiejuk-Gawron J.<sup>2</sup>, PhD, Syrotyuk S.<sup>1</sup>, PhD,*

*<sup>1</sup>Lviv National Agrarian University*

*<sup>2</sup>Warsaw University of Life Sciences– SGGW (WULS-SGGW)*

**COCONUT SHELL – CHARACTERISTICS AND APPLICATIONS,  
ESPECIALLY AS A SOURCE OF BIOENERGY IN MICROBIAL FUEL  
CELL**

*Grzeszczak J.<sup>1</sup>, Wróblewska A.<sup>1</sup>, Fajdek-Bieda A.<sup>2</sup>.*

*<sup>1</sup>West Pomeranian University of Technology in Szczecin, Poland.*

*<sup>2</sup>Jakub's from Paradyż Academy in Gorzów Wielkopolski, Poland.*

**EXPERIMENTAL STUDIES OF CHANGE IN TEMPERATURE OF  
PHOTOELECTRIC MODULES DURING SES GENERATION**

*Moroz O., DSc, Mirosznyk O., DSc, Pavlov A., master, Mishyn A., master.*

*State Biotechnological University*

**DEVELOPMENT OF COMPUTER MATHEMATICAL MODEL SPEED  
WIND FLOW IN THE ENVIRONMENT OF LABVIEW**

*Syrotyuk V., PhD, Syrotyuk S., PhD,*

*Lviv National Agrarian University*

**USE OF BIRD DROPPINGS AS A SOLID BIOFUEL**

*Komar A., engineer*

*Dmytro Motorny Tavria state agrotechnological university.*

**BIOGAS DIGESTERS: SMALL OR LARGE? PERSPECTIVES FOR  
UKRAINE**

*Voytovych I., PhD., Valyukh O., PhD.*

*National Forestry University of Ukraine*

**APPLICATION OF LABVIEW FOR INVESTIGATION OF ENERGY PARAMETERS OF THE CRUSHER**

*Sheremeta R., PhD*

*Lviv National Agrarian University*

**PASSIVITY-BASED CONTROL OF STAND-ALONE PHOTOVOLTAIC SYSTEM WITH HYBRID ENERGY STORAGE DEVICES**

*Shchur I., DSc, Biletskyi Y.*

*Lviv Polytechnic National University*

**THE USE OF ALTERNATIVE ENERGY SOURCES IN THE PLANNING OF ECOTOURISM FACILITIES AS ONE OF THE TECHNOLOGICAL METHODS OF ENVIRONMENTAL PROTECTION**

*Kachmar N., PhD, Dydiv A., PhD, Datsko T., PhD, Ivankiv M., PhD*

*Lviv National Agrarian University*

***Section 2.***

***Information technologies in energy efficiency, resource and energy saving.***

Laboratory of Renewable Energy and Energy Saving

Head of the section: Serhiy Korobka

Secretary: Roman Krygul

**RESEARCH ON ENERGY CONSUMPTION IN THE INTERNET OF THINGS MEASUREMENT SYSTEM**

*Awtoniuk M., PhD, Nowakowski T., DSc, Chlebowski J., DSc, Świętochowski A., PhD, Bąk K.*

<sup>1</sup>*Warsaw University of Life Sciences – SGGW (WULS-SGGW)*

**INVESTIGATION OF SWITCHING OVERVOLTAGE IN A Y / YN TRANSFORMER WITH A SYMMIZING DEVICE**

*Protosovitsky I., PhD, Protosovitsky D.*

<sup>2</sup>*Belarusian State Agrarian Technical University*

**THE CONCEPT OF BOTTOM WATER REVITALIZATION WITH THE USE OF A NEW TYPE OF WATER AERATOR**

*Konieczny Ryszard, DSc,*

*AJP, Akademia im. Jakuba z Paradyża*

**COVERAGE OF LOAD SCHEDULE PEAKS USING POWER STORAGE SYSTEMS IN 0,4-10 KV ELECTRICAL DISTRIBUTION NETWORKS**

*Miroshnyk O., DSc, Syvenko M., master*

*State Biotechnological University*

**SIMULATION OF THE PROCESS OF INSTALLATION OF THE HEAT NETWORK WITH OPTIMIZATION OF PARAMETERS OF COMPENSATION OF THE THERMALLY STRESSED STATE OF HEAT CONDUCTORS**

*Sholudko Y, PhD, Sholudko V, PhD., Mykhaliuk M., PhD  
Lviv National Agrarian University*

**RESEARCH OF CHARACTERISTICS OF PHILIPS LED LAMP WITH A POWER OF 10 WATTES**

*Hoshko M., PhD  
Lviv National Agrarian University*

**FEATURES OF MODELING OF ENERGY SUPPLY PROJECTS OF AGRICULTURAL ENTERPRISES ON THE BASIS OF COGENERATION**

*Mykhaliuk M., PhD, Sholudko Y, PhD  
Lviv National Agrarian University*

**PROPERTIES OF FRACTIONAL ORDER REGULATORS AND METHOD OF THEIR IMPLEMENTATION**

*Marushchak Y, DSc., Kopchak B, DSc  
Lviv Polytechnic National University*

**USE OF WIRELESS ELECTRICAL TECHNOLOGIES TO CONTROL ELECTRICAL APPLIANCES**

*Kolodiichuk L., PhD  
SE NULES of Ukraine "Berezhany Agrotechnical Institute"*

**AUTOMATION OF PROGRAMMABLE LABORATORY EQUIPMENT AND DEVELOPMENT OF A VIRTUAL DEVICE FOR MEASURING IMMITTANCE BASED ON THE LABVIEW GRAPHICS PLATFORM**

*Midyk I.<sup>1</sup>, PhD, Lysa O.<sup>2</sup>, PhD.  
<sup>1</sup>National University "Lviv Polytechnica"  
<sup>2</sup>Lviv National Agrarian University*

**ANALYSIS OF DETERMINATION OF ELECTRICITY QUALITY USING THE WAVELET TOOL**

*Kolomiets V., Miroshnyk O. , DSc.  
State Biotechnology University*



**Section 3.**  
***Information technologies in agro-industrial complex.***

Laboratory of computer-integrated technologies, 55m  
Head of the section: Vadym Ptashnyk  
Secretary: Alla Zheleznyak

**PROSPECTS OF IMPLEMENTATION OF THE SMART FARM CONCEPT ON LIVESTOCK FARMS**

*Boltyansky B., PhD, Dereza S., s. teacher*  
*Dmytro Motornyi Tavria state agrotechnological university.*

**RATIONALE FOR ECONOMIC EFFICIENCY OF PRODUCTION OF FUEL BRIQUETTES FROM FRUIT BRANCHES**

*Boltianskyi B., PhD, Boltianska L., PhD.*  
*Dmytro Motornyi Tavria state agrotechnological university.*

**ALTERNATIVE SYSTEM OF FERTILIZATION OF AGRICULTURAL CROPS**

*Boltianskyi B., PhD, Boltianska L., PhD.*  
*Dmytro Motornyi Tavria state agrotechnological university.*

**PROBLEMS OF IMPLEMENTATION OF INFORMATION TECHNOLOGIES IN FEED MANAGEMENT**

*Boltianskyi B., PhD, Boltianska L., PhD, Dereza S., s. teacher,*  
*Dmytro Motornyi Tavria state agrotechnological university.*

**DIGITIZATION OF INDUSTRIAL PROCESSES**

*Aleksandra Radomska-Zalas, PhD,*  
*AJP, Akademia im. Jakuba z Paradyża*

**RESEARCH OF THE BASIC DIAGNOSTIC PARAMETERS OF THE ELECTRONIC CONTROL SYSTEM OF SOWING COMPLEXES OF HORSCH**

*Sukach O, PhD, Shevchuk V. PhD, Gabriel Y.*  
*Lviv National Agrarian University*

**METHOD OF STUDYING SPECTRAL-LUMINESCENCE PROPERTIES OF LINSEED OIL**

*Myagkota S<sup>1</sup>., DSc., Shevchuk R<sup>1</sup>., PhD, Sukach O<sup>1</sup>., PhD, Pushak A<sup>2</sup>., Malyi T<sup>2</sup>.,*  
*Voloshinovskii A<sup>2</sup>., Fulmes M<sup>2</sup>.*

<sup>1</sup>*Lviv National Agrarian University*

<sup>2</sup>*Ivan Franko National University of Lviv*

## **AGROFORESTRY IN GERMANY – EXPERIENCES FROM A 4 YEAR MODEL PROJECT IN BRANDENBURG AND POSSIBILITIES TO TRANSFER FINDINGS TO POST-INDUSTRIAL LANDSCAPES IN THE UKRAINE**

*Cremer, T<sup>1</sup>., DSc., Bloch R<sup>1</sup>., DSc., Bashutska U<sup>2</sup>., PhD,*

*<sup>1</sup>Eberswalde University for Sustainable Development, Germany*

*<sup>2</sup>Ukrainian National Forestry University*

## **OVERVIEW OF SECONDARY RAW MATERIAL PROCESSING TECHNOLOGIES**

*Grigorenko S. ass.*

*Dmytro Motornyi Tavria state agrotechnological university*

## **ANALYSIS OF TECHNOLOGIES OF RESTORATION OF DETAILS LIKE "SHAFT"**

*Viunyk O<sup>1</sup>., assist., Didur V<sup>2</sup>., PhD, Pidlubny N<sup>2</sup>., bac.*

*<sup>1</sup>Dmytro Motornyi Tavria state agrotechnological university.*

*<sup>2</sup>Uman national university of horticulture.*

## **PROBLEMS OF INTRODUCTION OF DIGITAL TECHNOLOGIES IN TECHNICAL SERVICE**

*Panina V., PhD, Dashyvetz G., PhD.*

*Dmytro Motornyi Tavria state agrotechnological university*

## **ANALYSIS OF MODERN INFORMATION SOLUTIONS FOR AUTOMATION OF LIVESTOCK ENTERPRISES**

*Dereza O., PhD, Dereza S., s. teacher*

*Dmytro Motornyi Tavria state agrotechnological university.*

## **AUTOMATION OF DRYING OF SUNFLOWER SEEDS**

*Zhuravel D., DSc.,*

*Dmytro Motornyi Tavria state agrotechnological university.*

## **TRANSITION TO SUSTAINABLE AGRICULTURE THROUGH TECHNOLOGY DIVERSIFICATION**

*Skliar R<sup>1</sup>., PhD, Boltianska N<sup>1</sup>., PhD, Serebryakova N<sup>2</sup>., c.p.s.*

*<sup>1</sup>Dmytro Motornyi Tavria state agrotechnological university.*

*<sup>2</sup>Belarusian State Agrarian Technical University.*

## **INCREASING THE PERFORMANCE OF THE PARK OF EQUIPMENT WITH TELEMATICS**

*Skliar O<sup>1</sup>., PhD, Boltianska N<sup>1</sup>., PhD, Neparko T<sup>2</sup>., PhD,*

*<sup>1</sup>Dmytro Motornyi Tavria state agrotechnological university*

*<sup>2</sup>Belarusian State Agrarian Technical University*

## **THE NEED TO APPLY INFORMATION TECHNOLOGY IN THE AIC**

*Boltianskyi O., PhD, Kolodii O., PhD, Kovalyov O., assistant  
Dmytro Motorny Tavria state agrotechnological university.*

## **PROBLEMS OF IMPLEMENTATION OF DIGITAL TECHNOLOGIES IN ANIMAL HUSBANDRY**

*Boltianska N.<sup>1</sup>, PhD, Podashevskaya H.<sup>2</sup>, s. teacher*

*<sup>1</sup>Dmytro Motorny Tavria state agrotechnological university.*

*<sup>2</sup>Belarusian State Agrarian Technical University.*

## **OPTIMIZATION OF THE CATALYTIC PROCESS BY ORTHOGONAL ARRAY METHOD**

*Fajdek-Bieda A., Perec A., Radomska-Zalas A.*

*The Jacob of Paradies University, Poland*

## **UNLANDLESS AIRCRAFT TO SOLVE THE PROBLEMS OF PRECISE AGRICULTURE**

*Leonovetc Ju.<sup>1</sup>, Ph.D., Kostevich S<sup>1</sup>, Galushko E<sup>2</sup>, Ph.D., Kostyukevich S<sup>3</sup>, Ph.D.,  
Levko S<sup>4</sup>, Krupych O<sup>4</sup>, Ph.D.,*

*<sup>1</sup>General Director of ZAT "Aviasion Technologies and Complexes" (Belarus)*

*<sup>2</sup>Belarusian State Agrarian Technical University*

*<sup>3</sup>Belarusian State University*

*<sup>4</sup>Lviv National Agrarian University*

## **NEW ADAPTED INFORMATION TECHNOLOGIES IN AGRICULTURE**

*Dydiv A., PhD, Kachmar N., PhD, Datsko T., PhD, Ivankiv M., PhD*

*Lviv National Agrarian University, Ukraine*

## **APPLICATION OF THE THEORY OF FUNCTIONAL STABILITY FOR INFORMATION TECHNOLOGIES OF CONTROL OF A GROUP OF UNLIMITED AIRCRAFT**

*Puleko I.<sup>1</sup>, PhD, Chumakevych V.<sup>2</sup>, PhD, Ptashnyk V<sup>3</sup>., PhD, Misin A<sup>4</sup>.*

*<sup>1</sup>Zhytomyr Polytechnic State University*

*<sup>2</sup>National University "Lviv Polytechnica"*

*<sup>3</sup>Lviv National Agrarian University*

*<sup>4</sup>National Land Forces Academy*

## **INFORMATION MODEL FOR FORECASTING PRODUCT LOSSES IN CROP PRODUCTION PROJECTS**

*Padyuka R., PhD, Tymochko V., PhD, Lub P., PhD, Tatomyr A. PhD.*

*Lviv National Agrarian University*

#### ***Section 4. Project management.***

Laboratory of computer-integrated technologies, 55M

Head of the section: Anatoliy Tryguba

Secretary: Pavlo Lub

#### **ARCHITECTURE OF THE INFORMATION SYSTEM OF OPERATIONAL PLANNING OF MILK COLLECTING ON THE TERRITORY OF COMMUNITIES**

*Tryhuba A<sup>1</sup>., DSc., Koval N<sup>2</sup>., Tryhuba I<sup>1</sup>., PhD, Kysil S<sup>1</sup>.,*

*<sup>1</sup>Lviv National Agrarian University*

*<sup>2</sup>Lviv State University of Life Safety*

#### **THE INTELLECTUAL INFORMATION SYSTEM FOR FORMATION OF PROJECTS PORTFOLIO OF THE MOTOR VEHICLE ENTERPRISES**

*Tryhuba A<sup>1</sup>., DSc., Kondysiuk I<sup>2</sup>., Tatomyr A<sup>1</sup>., PhD, Sholudko Я<sup>1</sup>., PhD, Boiarchuk O<sup>1</sup>., PhD*

*<sup>1</sup>Lviv National Agrarian University*

*<sup>2</sup>Lviv State University of Life Safety*

#### **USAGE INFORMATION TECHNOLOGIES TO ASSESS TECHNOLOGICAL RISK IN HARVEST PROJECTS**

*Lub P<sup>1</sup>., PhD, Kosarchyn V.<sup>1</sup>, PhD, Spichak V.<sup>2</sup>, PhD, Bryk O.<sup>3</sup>, Blaga V.<sup>3</sup>, Bucyak R.<sup>3</sup>*

*<sup>1</sup>Lviv National Agrarian University*

*<sup>2</sup>Volodymyr-Volyn Agrotechnical College*

*<sup>3</sup>Stryi College of Lviv National Agrarian University*

#### **INFORMATION-ANALYTICAL SUPPORT OF PROJECT MANAGEMENT PROCESSES WITH THE USE OF SIMULATION MODELING METHODS**

*Lub P<sup>1</sup>., PhD, Berezovetskyi S<sup>1</sup>., PhD, Padyuka R<sup>1</sup>, PhD, Chubyk R<sup>2</sup>., PhD*

*<sup>1</sup>Lviv National Agrarian University*

*<sup>2</sup>Lviv Polytechnic National University*

#### **INFORMATION MODEL FOR FORECASTING PRODUCT LOSSES IN CROP PRODUCTION PROJECTS**

*Padyuka R, PhD, Lub P., PhD, Tymochko V., PhD, Tatomyr A., PhD*

*Lviv National Agrarian University*

#### **MODELING THE ARCHITECTURE OF A PLANNING SYSTEM FOR AGRICULTURAL ENTERPRISES**

*Alla Zhelyeznyak, PhD, Vadym Ptashnyk, PhD*

*Lviv National Agrarian University*

## **Section 5.**

### ***Information technologies of economic and ecological assessment of projects and systems in energy and agro-industrial complex.***

Laboratory of computer-integrated technologies, 55m

Head of the section: Myhailo Babych

Secretary: Oksana Boyarchuk

### **EVALUATION OF ENERGY AND ECONOMIC EFFICIENCY OF A SOLAR DRYER**

*Boyarchuk V., PhD, Krygul R., PhD, Korobka S., PhD, Babych M., PhD,  
Lviv National Agrarian University*

### **ANALYSIS OF ECONOMIC EFFICIENCY OF MODERNIZATION OF TRANSFORMER SUBSTATIONS IN THE CONDITIONS OF UKRAINE**

*Savchenko O., PhD, Miroshnyk O., DSc, Moroz O., DSc., Popadchenko S.  
State Biotechnological University*

### **PROBLEMS AND PROSPECTS OF SOLID WASTE DISPOSAL IN UKRAINE AND BELARUS**

*Gil M.<sup>1</sup>, Kostukevich S.<sup>2</sup>, PhD, Panas N.<sup>3</sup>, PhD, Syrotyuk S.<sup>3</sup>, PhD,  
<sup>1</sup> Tianjin Electric Construction Company Ltd.  
<sup>2</sup> Belarusian State University  
<sup>3</sup> Lviv National Agrarian University*

### **DEVELOPMENT OF BIOENERGY AS A COMPONENT OF ENSURING SUSTAINABILITY OF ENERGY SECURITY**

*Syrotyuk H., PhD, Yankovska K., PhD,  
Lviv National Agrarian University*

### **USE OF JERUSALEM ARTICHOKE IN ENERGY AND IMPROVING THE QUALITY OF THE ENVIRONMENT**

*Kosharuk S.  
Association "Energy Efficient Cities of Ukraine"*

### **USAGE OF PROJECT MANAGEMENT AND SIMULATION MODELING METHODS FOR THE ACCOMPANIMENT OF HARVESTING PROJECTS**

*Lub P.<sup>1</sup>, Mozul Ch.<sup>1</sup>, Drobushar A.<sup>1</sup>, Opeida R.<sup>2</sup>  
Lviv National Agrarian University,  
Volodymyr-Volyn Agrotechnical College<sup>2</sup>*

### **AUTOMATED SYSTEM OF NON-DESTRUCTIVE TESTING OF DEFECTS IN ELECTRICALLY CONDUCTIVE UNITS OF AGRO-INDUSTRIAL UNITS**

*Chaplyha V., DSc, Chaplyha V.V.  
Lviv National Agrarian University, University of Banking*





## ОРГАНІЗАТОРИ ТА ПАРТНЕРИ



WARSAW  
UNIVERSITY  
OF LIFE SCIENCES



University of Agriculture in Krakow



The Jacob of Paradies University



Асоціація «Енергоефективні міста України»



GREEN  
WEST  
NEW AGE OF TECHNOLOGIES

OCHSNER  
The Heat Pump Company



Spline

KRIPTER  
SYSTEM SOLUTION



ТОРГОВИЙ ДІМ УКРЕЛЕКТРОКОМПЛЕКТ, ТОВ (ІЕК УКРАЇНА)