



Ministry of Education and Science of Ukraine
Lviv Polytechnic National University
Department of Information Systems and Technologies
Taras Shevchenko National University of Kyiv
V. N. Karazin Kharkiv National University
National Forestry University of Ukraine
Academy of Silesia (Poland)
Cracow University of Technology (Poland)
Rowan University (USA)
Graduate School of International Business ISM (Slovakia)
SoftServe
National Erasmus+ office in Ukraine
Department of Ecology and Natural Resources of the Lviv Regional
State Administration (Ukraine)

PROGRAM

1ST INTERNATIONAL CONFERENCE «INFORMATION TECHNOLOGIES IN THE ENVIRONMENTAL PROTECTION»

16-17 May 2024

Lviv, Ukraine

Program Committee

CO-CHAIRMEN OF PROGRAM COMMITTEE:

Joseph Khromyak – Director of the Educational and Research Institute of Spatial Planning and Advanced Technologies, Lviv Polytechnic National University, PhD

Vasil Hnatyshin – Professor, Head of the Computer Science Department, Rowan University, Glassboro, New Jersey, USA (by consent)

MEMBERS OF THE PROGRAM COMMITTEE:

Liudmyla Datsenko – Professor, Head of the Geodesy and Cartography Department, Taras Shevchenko National University of Kyiv (by consent)

Nataliya Hots – Professor of the Measuring Information Technologies Department, Lviv Polytechnic National University

Yurii Hrytsiuk – Professor of the Software Department, Lviv Polytechnic National University

Bohdan Kshivetskyk – Professor, Head of the Environmental Protection Technologies, Wood Protection Techniques and Social Communications Department, Ukrainian National Forestry University (by consent)

Tetyana Nestorenko – Professor, Academy of Silesia, Katowice, Poland (by consent)

Aleksander Ostenda – Professor, Rector of Academy of Silesia, Katowice, Poland (by consent)

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Iveta Sedlakova – Associate Professor, PhD, College of International Business ISM, Slovakia (by consent)

Halyna Striamets – Deputy Director for Scientific Work of the Nature Reserve «Roztochcha», PhD (by consent)

Magdalena Wierzbik-Strońska – Prorektor of Academy of Silesia, Katowice, Poland (by consent)

Petro Zhuk – PhD, Senior Researcher of the State University "M. I. Dolishnyi Institute of Regional Studies, National Academy of Sciences of Ukraine" (by consent)

Organizing Committee

CHAIR OF ORGANIZATIONAL COMMITTEE:

Andrii Lagun – Head of the Information System and Technologies Department, Lviv Polytechnic National University, PhD, Associate Professor

DEPUTY CHAIR OF THE ORGANIZATIONAL COMMITTEE:

Iryna Anhelko – Associate Professor of the Economics and Marketing Department, Lviv Polytechnic National University, PhD, Associate Professor

MEMBERS OF ORGANIZATIONAL COMMITTEE:

Mariana Baran – Associate Professor of the Information System and Technologies Department, Lviv Polytechnic National University, PhD, Associate Professor

Ihor-Roman Kens – Associate Professor of the Information System and Technologies Department, Lviv Polytechnic National University, PhD, Associate Professor

Oksana Mayevska – PhD, Senior Lecturer of the Environmental Protection Technologies, Wood Protection Techniques and Social Communications Department, Ukrainian National Forestry University (by consent)

Mariana Seneta – Associate Professor of the Information System and Technologies Department, Lviv Polytechnic National University, PhD

Lesya Uhryn – Senior Lecturer of the Information System and Technologies Department, Lviv Polytechnic National University

Lukash Walusiak – PhD, Academy of Silesia, Katowice, Poland (by consent)

Mariusz Węgrzyn – PhD, Cracow University of Technology, Cracow, Poland (by consent)

CONFERENCE PROGRAM

Thursday, May 16, 2024

10:00 – 13:00 conference opening, plenary session

Friday, May 17, 2024

10:00 – 12:00 sectional sessions

12:00 – 13:00 summarizing and closing the conference

Regulation

Report: plenary session – up to 15 minutes
sectional session – up to 10 minutes
discussion - up to 5 minutes

CONFERENCE OPENING, PLENARY SESSION

- 09.30 – 10.00 Registration of the Conference participants
- 10.00 – 10.30 ***Conference opening.***
Welcoming speech of Andrii LAGUN, Head of the Information System and Technologies Department, Institute of Spatial Planning and Advanced Technologies, Lviv Polytechnic National University, Erasmus+ Project Manager, Jean Monnet, Modules “Environmental Monitoring with New Information Technologies. European Experience”, Candidate of Technical Sciences, Associate Professor
- Welcoming speech of Oleh MATVIKIV***, First Vice-Rector of Lviv Polytechnic National University, Doctor of Technical Sciences, Professor
- Welcoming speech of Joseph KHROMYAK***, Director of the Institute of Spatial Planning and Advanced Technologies of Lviv Polytechnic National University, Excellence in Education of Ukraine, Honored Worker of Education of Ukraine, PhD in Engineering, Associate Professor
- Welcoming speech of Oksana VIYTYK***, Deputy Director of the Department of Ecology and Natural Resources of the Lviv Regional State Administration
- 10.30 – 10.45 **Ihor KUZMAK**, architect, director of UKRDESIGNGROUP, director of the energy company EEA (Eco Energy Alternative)
Alternative energy and agricultural development to improve environmental protection
- 10.45 – 11.00 **Vasyl HNATYSHYN**, Professor, Head of the Department of Computer Science, Rowan University, Glassboro, New Jersey, USA
Education in the specialty “Computer Science” with the use of innovative information technologies at Rowan University, Glassboro, New Jersey, USA
- 11.00 – 11.15 **Andrii PEREYMYBIDA**, Director of the Talent Development Center in SoftServe, PhD in Physics and Mathematics, Associate Professor
Synergy of higher education institutions and employers in the establishment of a student as a candidate in the labor market
- 11.15 – 11.30 **Hanna OLEKSIUK**, Deputy Director of the Institute of Spatial Planning and Advanced Technologies, Lviv Polytechnic National University, PhD in Economics
Environmental Safety in Coal Mining Regions: Consequences of Operations and Environmental Problems of the Territories (on the

Example of the Lviv-Volyn Coal Basin)

- 11.30 – 11.45 **Svitlana TITOVA**, PhD in Geography, Associate Professor of the Department of Geodesy and Cartography of the Kyiv National Taras Shevchenko University
Marharyta Dubnytska, Doctor of Philosophy (specialty 193 “Geodesy and Land Management”), Associate Professor of the Department of Geodesy and Cartography of the Kyiv National Taras Shevchenko University
Using information technologies for environmental protection in Ukraine: problems and challenges
- 11.45 – 12.00 **Yurii STRUS**, senior researcher at the Nature Reserve “Roztochya”, member of the Frankfurt Zoological Society, PhD in Biology
Using photo traps and acoustic receivers for biodiversity monitoring
- 12.00 – 12.15 **Petro ZHUK**, PhD in Economics, Senior Researcher of the State University "M. I. Dolishnyi Institute of Regional Studies, National Academy of Sciences of Ukraine"
Economic regulators of environmental safety: The European Union and Ukraine
- 12.15 – 12.30 **Mykola HABREL**, Head of the Department of Architectural Design, Institute of Architecture and Design, Lviv Polytechnic National University, Doctor of Technical Sciences, Professor
“Smart” city in the system of environmental policy of the region

SECTIONAL SESSIONS

SECTION 1. WORLD AND NATIONAL PRACTICE OF USING INFORMATION TECHNOLOGIES IN ENVIRONMENTAL RESEARCH

Moderators: **Andrii Lagun** – Head of the Information System and Technologies Department of the Institute of Spatial Planning and Advanced Technologies, Lviv Polytechnic National University, PhD, Associate Professor
Lesya Uhryn – Senior Lecturer of the Information System and Technologies Department of the Institute of Spatial Planning and Advanced Technologies, Lviv Polytechnic National University

Venue:

Lviv, 18, Gorbachevskoho St., room. 504

Time of the event: May 17, 2024 (starting at 10:00 a.m.)

Vitaliy Bashun, Igor-Roman Kens

ANALYTICAL PLATFORM FOR STORING, PROCESSING AND EXCHANGING ENVIRONMENTAL MONITORING DATA

Petro Haranyuk, Volodymyr Romaka, Fruchart D.

FEATURES OF CLIENT IDENTIFICATION METHODS (SSL/TLS Fingerprinting)

Oleh Hetmanets, Mykola Pelikhatyi

NEURAL NETWORKS IN THE TASKS OF ENVIRONMENTAL MONITORING

Lyudmyla Datsenko, Svitlana Titova, Margarita Dubnytska

USING INFORMATION TECHNOLOGIES FOR ENVIRONMENTAL PROTECTION IN UKRAINE: PROBLEMS AND CHALLENGES

Yevheniia Dubova, Volodymyr Sadovenko

DEVELOPMENT OF A MOBILE APPLICATION FOR INTERACTIVE TRAINING IN THE BASICS OF FINANCIAL LITERACY IN PYTHON

Dupak Bohdan, Mashevska Marta

ANALYZING AND DESIGNING SOFTWARE FOR CALCULATING EMISSIONS FROM BULLET SHOTS REGARDING THE WAR IN UKRAINE

Bohdan Zanoz, Tetyana Kryl, Iryna Cherevko

EXPERIENCE IN CREATING A “LAVRA-GEO” DATABASE ON NATURAL AND ANTHROPOGENIC CHARACTERISTICS THE NATIONAL RESERVE “KYIV PECHERSK LAVRA”

Oleksandr Isakov, Stepan Voytusik
TECHNIQUES OF ACTIVE NOISE REDUCTION

Taras Kobylnyk
SOME RECOMMENDATIONS FOR CONDUCTING DISPERSION ANALYSIS

Kuzyk Oleh, Dan'kiv Olesya, Uhryn Lesya
SENSORS BASED ON QUANTUM DOTS FOR DETERMINATION OF AIR
POLLUTION USING ARTIFICIAL NEURAL NETWORKS

Yaroslav Lagun, Roman Stakhiv
FEATURES OF PROCESSING ENVIRONMENTAL MONITORING DATA IN IOT
SYSTEMS

Martha Mashevska, Volodymyr Mruts
IMPLEMENTATION OF THE AIR QUALITY MONITORING SYSTEM IN LVIV
CITY

**Volodymyr Mokryi, Eduard Arustamian, Valeria Bondar, Melnyk Yurii,
Saikevych Nazarii**
APPLICATION OF GIS-TECHNOLOGIES FOR MONITORING FOREST
ECOSYSTEMS OF THE NP "NORTH PODILLYA"

Mukan Andrii
THE IMPACT OF FINANCIAL MARKET REGULATORS ON TRANSFER
PRICING STRATEGIES OF CORPORATIONS

Ozarkiv Taras
TECHNOLOGIES AND TOOLS FOR ANALYTICAL SUPPORT OF FINANCIAL
ECOSYSTEM

Dmytro Okrushko
DIGITAL TECHNOLOGIES IN AGRONOMY

Andriy Pereymybidia, Lesya Klakovych, Maria Rashkevich
MODELS OF DUAL EDUCATION AS A MEANS OF IMPROVING THE
QUALITY OF EDUCATION IN THE FIELD OF INFORMATION TECHNOLOGY

Pirko Ihor, Salapak Volodymyr, Salapak Liubov
INFORMATION SYSTEM FOR WATER QUALITY ANALYSIS

Volodymyr Salapak, Oleh Salapak, Dmytro Ratynchuk
USING MULTIMEDIA TECHNOLOGIES IN STUDYING THE BASICS OF
RADIATION SAFETY

Samotyy Volodymyr, Lagun Andrii

ANALYSIS OPPORTUNITIES FOR RESOLVING THE PROBLEMS OF ENSURING THE ENVIRONMENTAL SAFETY OF MODERN SOCIETY IN THE EUROPEAN UNION

Seneta Mariana

EUROPEAN PRIORITIES IN ACHIEVING THE GOALS OF DIGITAL TRANSFORMATION

Iryna Sereda, Iryna Pryvarnikova

USING NON-VERBAL COMMUNICATION TO PROMOTE ENVIRONMENTAL (GREEN) TECHNOLOGIES (PRODUCTS): EXPERIENCE OF INTERNATIONAL COMPANIES

Kyrylo Skobilev, Tetyana Nestorenko, Oleksandr Nestorenko

THE ROLE OF DISPLACED UNIVERSITIES IN THE RESTORATION OF THE OCCUPIED TERRITORIES OF THE DONETSK REGION

Arsen Slyusarchuk

REDUCING HARMFUL EMISSIONS AND OPTIMIZING ENERGY CONSUMPTION IN CLOUD COMPUTING

Halyna Somar, Diana Kindzera, Ihor Sokolovskyi

COMBINING OF USING WOOD GRINDING WASTE AND ASH AND SLAG FROM THERMAL POWER PLANTS

Halyna Stryamets, Serhii Stryamets

INFORMATION SYSTEMS FOR BIOCECENOTIC MONITORING OF THE "ROZTOCHYA" NATURE RESERVE

Tkachuk Rostyslav, Meltsov Valery, Andriiv Roman

COMPLEX IT-SOLUTIONS FOR SECURITY «MY EXAMPLE PRODUCT»

Volodymyr Yalechko

IMPLEMENTATION OF SMART AND IOT TECHNOLOGIES FOR HEAT AND POWER SUPPLY SYSTEMS

SECTION 2. ENVIRONMENTAL SAFETY IN THE CONDITIONS OF WAR: PROBLEMS OF ENSURING AND NOWADAYS CHALLENGES

Moderators: **Mariana Baran** – Associate Professor of the Information System and Technologies Department of the Institute of Spatial Planning and Advanced Technologies, Lviv Polytechnic National University, PhD, Associate Professor
 Mariana Seneta – Associate Professor of the Information System and Technologies Department of the Institute of Spatial Planning and Advanced Technologies, Lviv Polytechnic National University, PhD,

Venue:

Lviv, 18, Gorbachevskoho St., room. 405

Time of the event: May 17, 2024 (starting at 10:00 a.m.)

Elnara Ayubova, Danylo Shabanov

THE «ASCANIA-NOVA» BIOSPHERE RESERVE IN THE CONTEXT OF A FULL-SCALE WAR

Lukash Valusiak, Mariana Baran

WAR AS AN ECOLOGICAL DISASTER

Mariusz Węgrzyn, Andriana Hariv

THE IMPACT OF MILITARY OPERATIONS ON AIR QUALITY IN UKRAINE

Mykola Gabrel, Natalia Lysiak, Yosyph Khromiak

SMART CITY IN THE ENVIRONMENTAL SAFETY SYSTEM

Maksym Hanchuk, Viktoriia Skyba, Valeriia Olkhovska

USING SATELLITE MONITORING DATA TO DETECT FOREST FIRES AS A RESULT OF WARFARE

Petro Hlukhovetskyi

USE OF IOT (INTERNET OF THINGS) TECHNOLOGIES TO ENSURE ENVIRONMENTAL SAFETY IN TIMES OF WAR

Pavlo Hrytsiuk, Yuriy Hrytsiuk

MATRIX ENCRYPTION OF ENVIRONMENTAL MESSAGES WITH FIBONACCI POLYNOMIALS

Vita Kashtan, Volodymyr Hnatushenko

INFORMATION TECHNOLOGY FOR MODELING THE CONSEQUENCES OF A DAM BREAK

Sergiy Kozhan

ENVIRONMENTAL INSURANCE IN THE CONDITIONS OF WAR

Vladyslav Negrebetskyi

THE POSSIBILITY OF INCREASING THE EFFECTIVENESS OF INFORMATION VIDEO ANALYTICAL SYSTEMS IN LAW ENFORCEMENT USING BIOMETRIC TECHNOLOGIES

Oksana Mayevska, Bohdan Krzywiecki, Viktor Storozhuk

FACTORS OF INFLUENCE ON THE ECOLOGICAL SAFETY OF UKRAINIAN REGIONS IN THE CONDITIONS OF WAR

Bohdan Melnyk, Yuriy Rudyi

THE SYSTEM OF REMOTE DOSIMETRY CONTROL

Hanna Oleksiuk, Nazariy Popadynets

ENVIRONMENTAL SAFETY IN COAL MINING REGIONS: CONSEQUENCES OF ACTIVITY AND ECOLOGICAL PROBLEMS OF THE TERRITORIES (ON THE EXAMPLE OF THE LVIV-VOLYN COAL BASIN)

Oleksandr Ostenda, Lesia Uhryn

ANALYSIS BY INTELLIGENT SYSTEMS OF THE PARAMETERS OF THE STATE OF NATURAL PROTECTED AREAS

Mariana Seneta, Ihor Skolskyi, Zoryana Seneta

DIGITAL TECHNOLOGIES FOR ENVIRONMENTAL RESEARCH USING QUADCOPTERS

SECTION 3. ECOLOGIZATION OF THE ECONOMY TO ENSURE A GREEN FUTURE FOR THE EUROPEAN UNION

Moderators: **Iryna Anhelko** – Associate Professor of the Economics and Marketing Department of the Institute of Spatial Planning and Advanced Technologies, Lviv Polytechnic National University, PhD, Associate Professor
Ihor-Roman Kens – Associate Professor of the Information System and Technologies Department of the Institute of Spatial Planning and Advanced Technologies, Lviv Polytechnic National University, PhD, Associate Professor

Venue:

Lviv, 18, Gorbachevskoho St., room. 302

Time of the event: May 17, 2024 (starting at 10:00 a.m.)

Iryna Anhelko

ECOLOGICAL IMPERATIVES OF POST-WAR RECOVERY AND DEVELOPMENT OF UKRAINE'S ECONOMY

Ruslana Bilyk, Mykola Kitsak

IMPACT OF ECOLOGICAL MANAGEMENT ON THE DEVELOPMENT OF TERRITORIAL COMMUNITIES

Rostyslav Bilyk, Andriy Sarafinchan

ECOLOGICAL COMPONENTS OF THE DEVELOPMENT OF BUSINESS ENTITIES

Andrii Varvus

ECOLOGICAL COMPONENT OF BUSINESS SOCIAL RESPONSIBILITY

Orysia Vasylyna, Oksana Sadura

ENERGY SECURITY IS AN IMPORTANT ELEMENT OF UKRAINE'S ECONOMY

Petro Zhuk

ECONOMIC REGULATORS OF ECOLOGICAL SAFETY IN THE EUROPEAN UNION AND UKRAINE

Olena Kulenko

USING ALTERNATIVE ENERGY SOURCES IN THE CONTEXT OF SHAPING THE GREEN FUTURE OF EUROPE

Bohdan Krzywiecki, Pavlo Skorokhod

OPTIMIZATION OF USING WATER RESOURCES IN SUGAR PRODUCTION IN UKRAINE: PROBLEMS AND PROSPECTS

Natalia Lysiak, Natalia Samotiy

PRIORITIES OF ECOLOGICAL POLICY IN CITIES AND THEIR SOLUTION ON THE BASIS OF “SMART CITY” TECHNOLOGIES

Alina Lytvyn

PRIORITY OF DECARBONIZATION OF THE EU ECONOMY UNDER THE GREEN DEAL

Maria Martyniuk, Ivan Oliyarnyk

DETERMINATION OF ECOLOGICAL ASPECTS OF CARDBOARD PACKAGING BY LIFE CYCLE ASSESSMENT

Maryam Massoud Ahmed, Bijayata Shrestha, Tyler Fewer, Michael Lim, Nikolay Ivanov

REDUCING THE CONSUMPTION OF COMPUTATIONAL RESOURCES BY SMART CONTRACTS

Natalia Nosova

GREEN FUTURE OF UKRAINIAN ORGANIC MARKET DEVELOPMENT IN THE CONTEXT OF THE EUROPEAN GREEN COURSE

Zoryana Seneta

RURAL TOURISM IS A PROMISING AREA FOR THE REVIVAL OF RURAL AREAS IN ACCORDANCE WITH THE CONCEPT OF SUSTAINABLE DEVELOPMENT

Olena Spaska

ASSESSMENT OF VAPORIZATION FLOWS OF VOLATILE HAZARDOUS MATERIALS BASED ON THE VAPORIZATION KINETICS OF PURE LIQUIDS

Onyshkevych Volodymyr, Barabash Galyna

USING OF STOCHASTIC FACTORS IN THE ENVIRONMENTAL ECONOMIC MATHEMATICAL MODELS

Ihor Shcherbakov, Ivanna Pecherytsia

PRACTICE OF ADAPTIVE REUSE OF BUILDINGS IN THE CONTEXT OF THE SUSTAINABLE DEVELOPMENT PARADIGM

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Institute of Spatial Planning and Advanced Technologies

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Lviv

Publishing Department of the Institute of Spatial Planning and Advanced Technologies
Lviv Polytechnic National University