

Ministry of Education and Science of Ukraine  
Lviv Polytechnic National University



**9<sup>TH</sup> INTERNATIONAL  
YOUTH SCIENCE FORUM  
“LITTERIS ET ARTIBUS”**

**Official Program**

November 21–23, 2019  
Lviv, Ukraine

## ACKNOWLEDGMENTS



*Forum organizers express their appreciation to Lviv City Council and Lviv Convention Bureau for awarding financial support to “Litteris et Artibus 2019” as a winner of social-scientific projects competition within the implementation of “Scientific Lviv” program (2018–2019).*

**SAMSUNG**

**softserve**



*We would like to thank Samsung R&D Institute Ukraine, SoftServe, Inc., T.B. Fruit Ukraine and Unicheck Ukraine for their kind and generous support of our event.*

*Special thanks to Mr. Taras Vervega of SoftServe and Mr. Sukjin Kim of Samsung for their commitment to growing Ukraine’s innovation potential.*

## SCIENCE FORUM IS ORGANIZED BY:

*Lviv Polytechnic  
National University –  
LPNU (Ukraine)*

*Scientific Society of  
Students, Doctoral  
Candidates and Young  
Researchers of LPNU*

*Students and PhD  
Students Board and  
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*Foundation for  
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*Young Scientists Council  
at the Ministry of  
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# General Program



## THURSDAY, NOVEMBER 21, 2019

**09:00**

### **Registration of participants starts**

*Lviv Polytechnic National University, in front of the Assembly hall of the 1<sup>st</sup> academic building, 2/4 Karpinskogo str.*

**10:30–13:00**

### **Ceremonial opening & Plenary session**

*Lviv Polytechnic National University, assembly hall of the 1<sup>st</sup> academic building, 2/4 Karpinskogo str.*

#### **Speakers:**

- **Dr. Olga Radyvonenko**, Head of Laboratory, Samsung R&D Institute Ukraine (Kyiv, Ukraine);
- **Gareth O'Neill**, linguist and expert on Open Science (Amsterdam, the Netherlands);
- **Dr. Tony Ross-Hellauer**, Leader of Open and Reproducible Research Group at Technische Universität Graz, Senior Researcher at Know-Center (Graz, Austria);
- **Dr. Yuriy Khalavka**, Assoc. Prof. at Chernivtsi National University, Founder of "Ukrainian Scientists Worldwide" Social Network (Chernivtsi, Ukraine).

**13:00–14:00**

### **Lunch break**

**14.00–15:30**

### **Panel discussion “Open Science, Transparency and Integrity for Modern Academia: Obstacles and Perspectives in Ukraine”**

*Lviv Polytechnic National University, Room 226 of the main academic building, 12 Bandera str.*

## **Panelists:**

- **Dr. Yuliia Ovchynnykova**, Member of Ukrainian Parliament, Committee on Environmental Policy and Nature Resources Utilization (Kyiv, Ukraine);
- **Gareth O'Neill**, linguist and expert on Open Science (Amsterdam, the Netherlands);
- **Dr. Tony Ross-Hellauer**, Leader of Open and Reproducible Research Group at Technische Universität Graz, Senior Researcher at Know-Center (Graz, Austria);
- **Dr. Artem Artyukhov**, member of National Agency for Quality Assurance in Higher Education of Ukraine, Assoc. Prof. at Sumy State University (Sumy, Ukraine);
- **Andrii Sidliarenko**, Head of Unicheck Ukraine (Kyiv, Ukraine)

**Moderator – Dr. Oleksandr Berezko**, Assoc. Prof. at Lviv Polytechnic National University, Eurodoc Open Science Ambassador in Ukraine (Lviv, Ukraine).

**15:30–16:00**

### **Coffee break**

*Lviv Polytechnic National University, canteen of the main academic building, 2<sup>nd</sup> floor, 12 Bandery str.*

**16:00**

### **Lviv Polytechnic and Lviv city tour starts**

*Lviv Polytechnic National University, in front of the assembly hall of main academic building, 12 Bandery str.*

## **FRIDAY, NOVEMBER 22, 2019**

*All Forum activities of Nov 22 will take place at TechStartUp School, 2 Kolessy Str.*

**10:00–10:15**

### **Presentation of cooperation opportunities with T.B. Fruit company for students, PhD candidates and early-career researchers by**

- **Iryna Barshchovska**, Head of HR and Communications Department at T.B. Fruit Inc.

- 10:15–13:00**      **Forum poster and oral sessions**
- 10:15–11:00**      **Poster sessions of MEMST, CCT and BESD conferences\***
- 11:00–12:00**      **Poster sessions of CSE, GAC and EPECS conferences\***
- 12:00–13:00**      **Poster sessions of HSS, EM and LPS conferences\***
- \* Please find detailed conferences programs below in their specific sections.*
- 13:00–14:00**      **Lunch break**
- 14:00–18:00**      **Half-day workshop «Training the trainers on Open Science» by:**
- *Iryna Kuchma*, Open Access Programme Manager at EIFL, Open Science training coordinator at OpenAIRE (Vilnius, Lithuania).
- 17:00**              **Informal meeting of Forum participants and certificates delivery.**

## **SATURDAY, NOVEMBER 23, 2019**

- 12:00–14:00**      **Round table on summarizing the forum**  
*Location TBA*

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"COMPUTER SCIENCE & ENGINEERING"  
(CSE-2019)**



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# FORUM POSTER AND ORAL SESSIONS

## COMPUTER SCIENCE & ENGINEERING

- Botchkaryov A.* Decentralized Control of Adaptive Measuring and Computing Processes  
Based on the Concept of Balance
- Auzinger W., Stolyarchuk R., Stoliarchuk R.* Strongly Damped Stiff Oscillator Under  
External Force: a Case Study
- Polishchuk D., Polishchuk O.* Centrality Measures in Flow Models of Complex Network  
Systems
- Levitski V., Klym H.* Specialized System to Determining the Level of Radiation Background
- Voronchuk O., Klym H.* Specialized System to Determining Position of a Person Body in  
the Virtual World
- Kupin A., Kuznetsov D., Muzyka I., Kumchenko Yu.* Structure of Intellectual System for  
Optimize Self-consumption of Energy Produced by Solar Panels in Microgrid
- Stets Yu., Marusenkova T.* The Module for Prescribing Motion Scenarios in Hardware-  
software Tools for Inertial Sensors Assessment
- Baskonus H. M., Kumar A., Ercan M., Kayan M.* Dark Solitons to the (2+1)-dimensional  
Nonlinear Electrical Transmission Line Equation
- Belej O.* Developing a Comprehensive Internet Security System
- Masoomzadeh M., Memariani A., Niroumand H., Pedram M. M., Mozafari S. P.* A  
Systematic Literature Review-manual and Intelligent Methods for Reducing Traffic  
Jam
- Domina M., Bilenko V., Hlukhov V.* Validation of Implementation Kalyna Block Cipher  
With the Help of Test Examples
- Erdogan F., Sakar M. G., Saldur O.* Fitted Difference Schemes for Delay Convection-  
diffusion Problems With Small Parameter
- Gizun A., Hriha V., Blidar A., Zakharchuk O.* Information Interference of Russia in the  
Election Process in Ukraine in 2019
- Pstrak K.* Pre-corpus Processing of Texts (on the Material of Vasil Shklar's Work  
«marusia»)
- Lishnievska K., Karamysheva I.* Computer-assisted Translation Systems: Peculiarities of  
Their Usage as Tools for Working on a Linguistic Product

## GEODESY, ARCHITECTURE & CONSTRUCTION

- Shylo Ye., Shylo O.* Modeling Figure and Orientation of the Earth's Lithosphere Based on  
Paleo Dem
- Slonov M., Moldovan V., Khamula S., Korobchynskiy M., Mariliv O.* A Method for  
Determining of the Maximum Possible Pixel Format of Object Image Memorizing  
During Its Photography
- Fatima F., Chauhan R.R., Thakurata A.G.* Calligraphy as an Art in Islamic Architecture and  
Its Significance Today
- Semko P., Gasii G.* Concrete Filled Tubular Elements with Dismountable Joints Bearing  
Capacity Determination



- Zhyrnov P., Sadoviy Yu, Tomchenko O.* Methodology for the Territories' Engineering Construction Assessment with Difficult Geological Conditions
- Holubchak K.* The Architecture of Spiritual Retreat Centers as the Innovation in Spiritual Sphere
- Vivat A., Nazarchuk N., Bigun M.* The Construction of the Solid Model of Sheptytsky's Memorial in Lviv by the Method of Laser Scanning
- Surmai M., Tkach R., Hula V, Kozak R.* Glass as a Material of Bearing Columns
- Turchyn B.* Adaptation of Educational Buildings and Territory of Lviv Polytechnic National University for People with Limited Mobility According to the Conceptual Principles of Universal Design

## **ELECTRIC POWER ENGINEERING AND CONTROL SYSTEMS**

- Rymar T., Ivashchenko M.* Research of Heat Exchange and Hydrodynamic Characteristic of Unified Package of Cold Layer of RAH
- Kuzyk R., Biletskyi Y.* Energy-shaping Control of the Wind-solar Power Plant With a Hybrid Energy Storage System
- Korchak M., Fediv Ye., Sivakova O.* Limitation of Internal Overvoltages in Power Static Converters With Fully Controlled Thyristors
- Lys S., Kovalenko N., Yurasova O.* Research of Wood Fractional Composition Effect on Gasification Process
- Yakymenko I., Lysenko V.* Operating Modes Optimization of Control Systems Using Genetic Algorithm
- Ferensovych R.* Operation Modes of Protection System of Current Transformers Against Secondary Overvoltages
- Polishchuk D., Vitaliy Lysenko V., Hachkovska M.* Recurrent Analysis of Greenhouse Complex Time Series as a Complicated System
- Olenych Yu., Kuno V., Sveleba S., Katerynychuk I., Kuno I., Karpa I.* Features of the Behavior of Lyapunov's Exponents Depending on Symmetry of Thermodynamic Potential, Described by the Lifshitz's Invariant
- Basarab N., Sabat M.* Use of Three-zone Tariff and Battery Capacity as Energy Accumulator
- Kulyk M., Kuznetsova M.* Analysis of the Possibility of Using Heat Accumulators in the Systems of Regulation of the Daily Load of the Grid

## **HUMANITIES & SOCIAL SCIENCES**

- Kulyniak I., Paten I.* Factors Affecting the Choice of a Tutor to Prepare for Eit in Ukraine
- Popravkina J., Gilpert V., Nesterova O., Radchuk D., Chebryachko S.* Developing a Distance Course of Scientific and Technical Translation

## ECONOMICS & MANAGEMENT

- Chyzykova O.* New Profit Allocation Model under BEPS 2.0
- Janiszewski A.* Activities of Knowledge Brokers – Paths and Themes of Analysis
- Kniaz S., Martyniuk V., Prochorenko V., Rusyn-Hrynyk R.* Monitoring of the System Informativity for Evaluating the Economic Efficiency of the Financial Sector Development Strategy
- Kulinich T., Perminova O.* SWOT & GAP as Effective Tools of Strategic Diagnostics in Preparing Management Solutions for Youth NGOs
- Kulyniak I., Demkiv Ya.* Shadow Economy Trends in Ukraine Economy and in the Industry of the Regions
- Mirzoieva D.* Research on Correlation between Nominal Exchange Rate of Ukrainian Hryvnia and Amount of Remittances under Impact of Volumes of Consumption in Ukraine
- Anhelko I., Lekh I., Pasternak O.* Gender Aspects of Employment of the Population of Ukraine in the Modern Economic Conditions
- Bets M., Yabolnyk S.* Standardization of Products for the EU Market as a Tool for Foreign Trade Development in Lviv Region
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