



CADMD 2020

Conference Programme

**XXVIII International Ukrainian-Polish
Scientific and Technical Conference**

**CAD IN MACHINERY DESIGN:
IMPLEMENTATION AND EDUCATIONAL ISSUES**

Lviv, Ukraine, 26-27 November 2020

<http://cadmd.lpnu.ua>

cadmd@lpnu.ua

In connection with the quarantine restrictions caused by the spread of coronavirus infection 2019-nCoV in Ukraine and around the world the CADMD 2020 conference is holding in online mode

ORGANIZED BY



**Department of Computer
Aided Design Systems,
Lviv Polytechnic National University**



**Faculty of Electrical Engineering,
Bialystok University of Technology**



**Mechanical Engineering and Robotics,
AGH University of Science and Technology**



**Institute of Machine Design Fundamentals,
Warsaw University of Technology**

OFFICIAL PARTNER



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Remote Participation Instructions

In this conference, we will use the Cisco Webex Video Conferencing system:

<https://www.webex.com/video-conferencing>

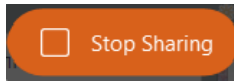
The short video instruction how to use the system:

<https://www.youtube.com/watch?v=fE5FnEUKtaE>

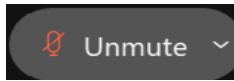
The key steps:

1. Click the provided link under session title.
2. You will be redirected – now you may enter to the video conference room directly in your browser or download special desktop application for that purpose.

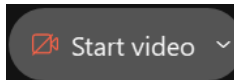
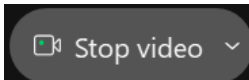
During the conference session you may interact with other participants:



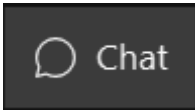
Share your screen so participants can see your presentation.



Mute or unmute your microphone.



Turn on or off your camera



You can use the Chat tool to send a text question to all participants or privately to certain members.

According to the conference programme, we recommend you to connect 10-15 minutes before the section begins.

You may practice at the "Test Connection Session" on Wednesday 25.11.2020, 16⁰⁰–17³⁰

The live online translation of the conference will be available on YouTube: <https://youtu.be/A4e6BuuNOII>

If you have any trouble, please contact cadmd@lpnu.ua

CADMD 2020 Timetable

Wednesday 25.11.2020, (UTC+02:00, Kyiv)

16⁰⁰ – 17³⁰	Test connection Session
Meeting ID: 175 679 4901, link to connect: https://lvivpolytechnicnationaluniversity.my.webex.com/lvivpolytechnicnationaluniversity.my/j.php?MTID=m15e3ec67a2445cbe0c541f53946cdf2	

Thursday 26.11.2020, (UTC+02:00, Kyiv)

10⁰⁰ – 10²⁰	Conference opening
10²⁰ – 11³⁰	Session A
Meeting ID: 175 049 9226, link to connect: https://lvivpolytechnicnationaluniversity.my.webex.com/lvivpolytechnicnationaluniversity.my/j.php?MTID=mf0c1845df7529d50689f8a1e1efaf60d	
11³⁰ – 11⁴⁵	coffee break
11⁴⁵ – 13¹⁵	Session B
Meeting ID: 175 136 8192, link to connect: https://lvivpolytechnicnationaluniversity.my.webex.com/lvivpolytechnicnationaluniversity.my/j.php?MTID=m0b4642c12faf2c77b34545b78fb66c38	
13¹⁵ – 14³⁰	Lunch
14³⁰ – 16⁰⁰	Session C
Meeting ID: 175 094 5561, link to connect: https://lvivpolytechnicnationaluniversity.my.webex.com/lvivpolytechnicnationaluniversity.my/j.php?MTID=m825433578d7b8183d1e67ef51ee3061e	
16⁰⁰ – 16¹⁵	coffee break
16¹⁵ – 17⁴⁵	Session D
17⁴⁵ – 18⁰⁰	Conference Closing
Meeting ID: 175 544 6697, link to connect: https://lvivpolytechnicnationaluniversity.my.webex.com/lvivpolytechnicnationaluniversity.my/j.php?MTID=m7b7ab92a4d62bfb54e10913c1a67eda	

Time of presentations

Paper presentation – up to 10 min.
Discussion, questions – up to 5 min.

International Organizing Committee

Chairmen:

prof. Mykhailo Lobur

Lviv Polytechnic National University, Ukraine

prof. Roman Kaczyński

Technical University of Białystok, Poland

prof. Robert Zalewski

Warsaw University of Technology, Poland

prof. Marian Banaś

AGH University of Science and Technology

Conference Secretary:

dr. Nazariy Jaworski

Lviv Polytechnic National University, Ukraine

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dr. Mykhaylo Melnyk

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Test Connection Session

Wednesday 25.11.2020, (UTC+02:00, Kyiv)

16⁰⁰–17³⁰

Meeting ID: 175 679 4901, link to connect:

<https://lvivpolytechnicnationaluniversity.my.webex.com/lvivpolytechnicnationaluniversity/my/j.php?MTID=m15e3ec67a2445cbe0c541f53946cdf2>

Conference opening

Thursday 26.11.2020, (UTC+02:00, Kyiv) $10^{00} - 10^{20}$

Meeting ID: 175 049 9226, link to connect:

<https://lvivpolytechnicnationaluniversity.my.webex.com/lvivpolytechnicnationaluniversity.my/j.php?MTID=mf0c1845df7529d50689f8a1e1efaf60d>

Chairman: prof. Mykhailo Lobur

Secretary: dr. Nazariy Jaworski

1. **Speech of the Conference's Co-Chairman – Prof. Mykhailo Lobur, Head of CAD Systems Department of Lviv Polytechnic National University**
2. **Presentation of the conference official partner – Katowice Special Economic Zone**

Session A

Thursday 26.11.2020, (UTC+02:00, Kyiv) $10^{20} - 11^{30}$

Meeting ID: 175 049 9226, link to connect:

<https://lvivpolytechnicnationaluniversity.my.webex.com/lvivpolytechnicnationaluniversity.my/j.php?MTID=mf0c1845df7529d50689f8a1e1efaf60d>

Chairman: prof. Mykhailo Lobur

Secretary: dr. Nazariy Jaworski

1. **The role of special economic zones in establishing lasting cooperation in the field of engineering education between entrepreneurs and the educational sector on the example of the Katowice Special Economic Zone**
Janusz Michałek, Mirosław Pachucki, Mateusz Rzeszowski
2. **Lesson learned from semester of online teaching of automation using simulators**
Igor Ostrowski, Jakub Możaryn, Jikun Wang, Damian Cukier
3. **Diagnostics of the thermal condition of the cable gear used in the drive of a wood chipper**
P. Krawiec, Ł. Warguła, L. Różański
4. **Use of methods and technologies of additive production for optimization of parameters of designs**
A. Zdobytskyi, M. Lobur, T. Klymkovych, R. Kaczynski, A. Vaisliev

Session B

Thursday 26.11.2020, (UTC+02:00, Kyiv)

11⁴⁵ – 13¹⁵

Meeting ID: 175 136 8192, link to connect:

<https://livpolytechnicnationaluniversity.my.webex.com/lvivpolytechnicnationaluniversity.my/j.php?MTID=m0b4642c12faf2c77b34545b78fb66c38>

Chairman: prof. Pavlo Tymoshchuk

Secretary: dr. Andriy Zdobytskyi

1. **Mathematical modeling of boundary stress state of orthotropic material**

Sofia Holovata, Andriy Holovatyy

2. **Design model determine the strength fiber-reinforced concrete**

Viktor Sylovanyuk, Andriy Lisnichuk,
Kostiantyn Kolesnyk, Roman Panchak

3. **Mathematical model of rheological behavior of wood plate taking into account the zone of evaporation of moisture**

Ya. Sokolovskyy, I. Boretska, I. Kroshnyy,
S. Yatsyshyn, O. Storozhuk

4. **The use of cellular automata in the study of heat and mass transfer processes in particular during wood drying**

Ya. Sokolovskyy, O. Sinkevych, M. Levkovych,
V. Shymanskyi, V. Yarkun

5. **Modeling issues in problems of the elasticity and viscoelasticity theory**

T. Kagadiy, A. Shporta, I. Scherbina, O. Onopriienko

6. **Simulation of the Processes in Electrical Engineering Systems via the Two-Point Problem for Telegraph Equation**

Z. Nytrebych, O. Malanchuk

7. **Simulation and Analysis of the IDT SAW Generation and Propagation in Acoustophoretic Lab-chip**

O. Matviykyv, T. Klymkovych, N. Bokla

Session C

Thursday 26.11.2020, (UTC+02:00, Kyiv)

$14^{30} - 16^{00}$

Meeting ID: 175 094 5561, link to connect:

<https://lvivpolytechnicnationaluniversity.my.webex.com/lvivpolytechnicnationaluniversity.my/j.php?MTID=m825433578d7b8183d1e67ef51ee3061e>

Chairman: prof. Yaroslav Sokolovskyy

Secretary: dr. Natalia Bokla

1. **Methods of determining trajectory for wheelchair with manual pushrims drive**

B. Wieczorek

2. **Experimental model of a mobile platform for moving on orthogonal routes**

V. Mazur, S. Panchak

3. **A unit for inflating and maintaining a constant pressure of pneumatic wheels during the movement of a slow-moving vehicle**

K. J. Waluś, M. Kozłowski

4. **Information technology of robotic prosthesis computer-aided design based on parametric modeling**

A. V. Parkhomenko, O. M. Gladkova,
Y. I. Zalyubovskiy, A. V. Parkhomenko

5. **Issues with belt guidance and device controls in the automated conveyor and drive belt perforation process**

D. Wojtkowiak, K. Talaśka, G. Domek, D. Wilczyński, J. Górecki

6. **The Use of Information Systems for Regulation of Gas Engine Operating Parameters**

A. Kalwar, F. Kurdziel, K. Pytel, S. Gumula, M. Lobur, M. Melnyk

7. **Analysis of the Possibilities of Using Automatic Control Systems for Operating Gas Engines for a Chilled Water Production**

F. Kurdziel, A. Kalwar, K. Pytel, S. Gumula,
U. Marikutsa, D. Korpyljov

Session D

Thursday 26.11.2020, (UTC+02:00, Kyiv) $16^{15} - 17^{45}$

Meeting ID: 175 544 6697, link to connect:

<https://lvivpolytechnicnationaluniversity.my.webex.com/lvivpolytechnicnationaluniversity.my/j.php?MTID=m7b7ab92a4d62bfc54e10913c1a67eda>

Chairman: prof. prof. Krzysztof Pytel

Secretary: dr. Tamara Klymkovych

1. **Development and Modeling of Remote Laboratory works for Engineering Education**
B. B. Sus, S. P. Zagorodnyuk, O. S. Bauzha, A. Kozinetz
2. **Design of parallel sorting system using discrete-time neural circuit model**
Pavlo Tymoshchuk
3. **PCB Open, Short and Shift Defects Detection by Logical Comparison of Mask Images**
R. A. Melnyk, Yu. V. Havrylko, Ya. V. Repa
4. **The Golden Ratio Regularities of Decayed Oscillations**
P. Kosobutskyy, N. Jaworski, I. Farmaha, U. Marikutsa, M. Iwaniec
5. **Development of IoT weather monitoring system based on Arduino and ESP8266 Wi-Fi module**
Andriy Holovatyy
6. **Experimental study of the time of reverberation of a sacred building having a cruciform architecture**
M. Melnyk, A. Kernyskyy, Y. Mykhalyna

Conference Closing

Thursday 26.11.2020, (UTC+02:00, Kyiv) $17^{45} - 18^{00}$

Meeting ID: 175 544 6697, link to connect:

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Chairman: prof. Mykhailo Lobur

Secretary: dr. Nazariy Jaworski

1. **Concluding reports of Section's Chairmen**
2. **Discussion**
3. **Conference summary**

