



**CADMD 2021**

## **Conference Programme**

**XXIX International  
Polish-Ukrainian Conference**

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


**UNDER THE PATRONAGE OF PROFESSOR JERZY LIS  
AGH UST RECTOR**

*Krakow, Poland, 9 - 10 December 2021*

<http://cadmd.lpnu.ua>

[cadmd@lpnu.ua](mailto: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 2021 conference is holding in online mode***



## ORGANIZED BY



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



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



**Faculty of Mechanical Engineering  
Bialystok University of Technology**



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

# Remote Participation Instructions

In this conference, we will use the Zoom Video Conferencing system:  
<https://www.youtube.com/watch?v=3VebiA5pGq0>

1. Install the App here:





<https://otago.zoom.us/client/latest/ZoomInstaller.exe>

Go to <https://otago.zoom.us/join> and Enter the Meeting ID that you have been provided with in the appropriate field and click 'Join' (the Meeting ID will be a 9 or 10 digit number)

Join a Meeting



2 According to the conference program, we recommend that you connect 10-15 minutes before the section begins

2	 Share Screen	<b>Share Screen:</b> Start <a href="#">sharing your screen</a> so participants can see your presentation.
3	 Chat	Using chat. You can use the Chat tool to send a text question to all participants or privately to certain members.
3	 Start Video	<b>Audio only.</b> It is possible that during the conference participants will be ask to turn off their cameras and move to audio only, particularly if there are problems with the available bandwidth. To do this simply click on the camera icon at the bottom of the Zoom window.
4	 Unmute	<b>Mute/Unmute:</b> This allows you to mute or unmute your microphone. Please mute the microphone if you are not the speaker.
		If you have any trouble, please contact <a href="mailto:cadmd@lpnu.ua">cadmd@lpnu.ua</a>

# CADMD 2021 Timetable

*Thursday 09.12.2021, (UTC+01:00, Warszawa)*

**16<sup>00</sup>–17<sup>30</sup>**

**Test connection Session**

Meeting ID: 495 461 6536, link to connect: CADMD

<https://us02web.zoom.us/j/4954616536?pwd=Sk9ITEJGVURyR20xc1Y2dHNteEhsdz09>

*Friday 10.12.2021, (UTC+01:00, Warszawa)*

**11<sup>00</sup> – 11<sup>20</sup>**

**Conference opening**

**11<sup>20</sup> – 13<sup>40</sup>**

**Session A**

Meeting ID: 495 461 6536, link to connect: CADMD

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**13<sup>40</sup> – 14<sup>40</sup>**

**Lunch**

**14<sup>40</sup> – 16<sup>45</sup>**

**Session B**

Meeting ID: 495 461 6536, link to connect: CADMD

<https://us02web.zoom.us/j/4954616536?pwd=Sk9ITEJGVURyR20xc1Y2dHNteEhsdz09>

**16<sup>45</sup> – 17<sup>00</sup>**

**Conference Closing**

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## *Time of presentations*

Paper presentation – up to 10 min.

Discussion, questions – up to 5 min.

# International Organizing Committee

## **Conference Chairman:**

**prof. Jerzy Lis**  
AGH UST Rector, Poland,

**prof. Krzysztof Mendrok**  
AGH University of Science and Technology, Poland

**prof. Mykhailo Lobur**  
Lviv Polytechnic National University, Ukraine

**prof. Marian Banaś**  
AGH University of Science and Technology, Poland

**prof. Roman Kaczyński**  
Białystok University of Technology, Poland

## ***Conference Secretary:***

**dr hab. inż. Krzysztof Pytel**  
AGH University of Science and Technology, Poland

**dr. Andriy Zdobytskyi**  
Lviv Polytechnic National University, Ukraine

## ***Members of Organizing Committee:***

**dr. Andriy Kernytskyy**

**dr. Mykhaylo Melnyk**

**dr. Uliana Marikutsa**

**bsc. Panchyshyn Diana**

**bsc. Yuliia Neymet**

Lviv Polytechnic National University, Ukraine

## International Program Committee

<b>Prof.</b>	<b>Aivars Aboltins</b>	Latvia University of Life Sciences and Technologies
<b>Prof.</b>	<b>Jerzy Bajkowski</b>	Warsaw University of Technology
<b>Prof.</b>	<b>Marian Banaś</b>	AGH University of Science and Technology
<b>Prof.</b>	<b>Anna Timofiejczuk</b>	Silesian University of Technology
<b>Prof.</b>	<b>Wojtek Sitek</b>	Silesian University of Technology
<b>Prof.</b>	<b>Krzysztof Gaska</b>	Silesian University of Technology
<b>Prof.</b>	<b>Bogusław Łasarz</b>	Silesian University of Technology
<b>Prof.</b>	<b>Janusz Kotowicz</b>	Silesian University of Technology
<b>Prof.</b>	<b>Marek Iwaniec</b>	AGH University of Science and Technology
<b>Prof.</b>	<b>Jerzy Józwik</b>	Lublin University of Technology
<b>Prof.</b>	<b>Roman Kaczyński</b>	Białystok University of Technology
<b>Prof.</b>	<b>Krzysztof Mendrok</b>	AGH University of Science and Technology
<b>Prof.</b>	<b>Krzysztof Kołodziejczyk</b>	AGH University of Science and Technology
<b>Prof.</b>	<b>Petro Kosobutskyy</b>	Lviv Polytechnic National University
<b>Prof.</b>	<b>Piotr Krawiec</b>	Poznań University of Technology
<b>Prof.</b>	<b>Tadeusz Kamiński</b>	AGH University of Science and Technology
<b>Prof.</b>	<b>Mykhailo Lobur</b>	Lviv Polytechnic National University
<b>Dr.</b>	<b>Andrzej Łukaszewicz</b>	Białystok University of Technology
<b>Prof.</b>	<b>Oleh Matviyukiv</b>	Lviv Polytechnic National University
<b>Dr.</b>	<b>Mykhaylo Melnyk</b>	Lviv Polytechnic National University
<b>Prof.</b>	<b>Jerzy Pokojski</b>	Warsaw University of Technology
<b>Prof.</b>	<b>Krzysztof Pytel</b>	AGH University of Science and Technology
<b>Prof.</b>	<b>Dariusz Perkowski</b>	Białystok University of Technology
<b>Prof.</b>	<b>Yaroslav Sokolovsky</b>	Lviv Polytechnic National University
<b>Prof.</b>	<b>Zinovy Stotsko</b>	Lviv Polytechnic National University
<b>Prof.</b>	<b>Tadeusz Telejko</b>	AGH University of Science and Technology
<b>Prof.</b>	<b>Wiesław Tarekko</b>	Maritime Academy in Gdynia
<b>Prof.</b>	<b>Robert Zalewski</b>	Warsaw University of Technology
<b>Prof.</b>	<b>Rafał Wiśniowski</b>	AGH University of Science and Technology
<b>Prof.</b>	<b>Vladyslav Yevsieiev</b>	Kharkov National University of Radio Electronics

## Test Connection Session

**Thursday 09.12.2021, (UTC+01:00, Warszawa) 16<sup>00</sup>–17<sup>30</sup>**

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**CADMD 2021, 9 - 10 December, 2021, Krakow, POLAND,**

## Conference opening

*Friday 10.12.2021, (UTC+01:00, Warszawa) 11<sup>00</sup> – 11<sup>20</sup>*

Meeting ID: 495 461 6536, link to connect: CADMD

<https://us02web.zoom.us/j/4954616536?pwd=Sk9ITEJGVURyR20xc1Y2dHNteEhsdz09>

**Chairman:** prof. Mykhailo Lobur  
**Secretary:** dr. Andriy Zdobytskyi

- 1. SPEECH OF THE CONFERENCE'S CO-CHAIRMAN**  
**Prof. Mykhailo Lobur,**  
**Head of CAD Systems Department of**  
**Lviv Polytechnic National University**
- 2. THE INTRODUCTION GREETING OF THE CONFERENCE**  
**Prof. Jerzy Lis**  
**AGH UST Rector.**

## Session A

*Friday 10.12.2021, (UTC+01:00, Warszawa) 11<sup>20</sup> – 13<sup>40</sup>*

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**Chairman:** prof. Mykhailo Lobur  
**Secretary:** dr. Andriy Zdobytskyi

- 1. CREATING MATERIALS WITH THE SPECIFIC ELECTROMAGNETIC PROPERTIES USING THE ASYMPTOTIC APPROACH**  

Mykhaylo Andriychuk
- 2. THE CONCEPT OF USING OF THE UNMANNED AERIAL VEHICLES TO LOCATE POLLUTION SOURCES IN INDUSTRIAL AREAS**  

Dawid Nowicki, Katarzyna Suder-Dębska,  
Ireneusz Czajka



3. **DEVELOPMENT OF ALGORITHMIZATION BASES FOR JET TREATMENT EVALUATION MODES OF PRODUCT CURVILINEAR SURFACES**  
Zinoviy Stotsko, Tetyana Stefanovych
4. **NUMERICAL ANALYSIS OF COLD EXTRUSION OF TUBES USING CAx SYSTEM**  
Grzegorz Skorulski, Andrzej Łukaszewicz
5. **AUTOMATED 3D DESIGN OF PRINTED CIRCUIT BOARDS IN CAD SOLIDWORKS**  
Serhii Avdieiev, Tamara Klymkovych,  
Roman Panchak, Kostyantyn Kolesnyk
6. **TESTING AND EVALUATION OF SUCTION CUPS AS A GRIPPING TOOL FOR A MUSHROOM PICKING ROBOT**  
Petro Shmigelskyi, Oleg Bodnar,  
Ihor Farmaga
7. **USE OF CELLULAR AUTOMATA IN MODELING HEAT AND MOISTURE CONDUCTIVITY PROCESSES AT THE MATERIAL BOUNDARY**  
Yaroslav Sokolovskyy, Oleksiy Sinkevych
8. **TOPOLOGICAL OPTIMIZATION PARAMETERS OF BLADES OF WIND TURBINES**  
Krzysztof Pytel, Andriy Zdobyttskyi,  
Mychailo Lobur, Roman Panchak,  
Anna Hnatiuk
9. **CONTROL SYSTEM FOR AN EXPERIMENTAL MODEL OF ROBOTIC MOBILE PLATFORM WITH MANIPULATOR**  
Vitaliy Mazur, Sofiia Panchak
10. **ANALYSIS OF APPLICABILITY OF FLOW-ACOUSTIC COUPLING USED FOR THE PRESSURE MEASUREMENT**  
Paweł Łojek, Ireneusz Czajka

## Session B

*Friday 10.12.2021, (UTC+01:00, Warszawa) 14<sup>40</sup> – 16<sup>45</sup>*

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**Chairman:** prof. Marian Banaś, prof. Krzysztof Pytel

**Secretary:** dr. Mykhaylo Melnyk

**1. DEVELOPMENT OF METHODS FOR DETECTING NETWORK ATTACKS ON CYBER-PHYSICAL SYSTEMS**

Olexander Belej, Iryna Artyschuk,  
Nataliia Spas, Natalia Nestor

**2. TRAM NOISE LEVEL DETERMINATION ANALYSIS CASE STUDY FROM LVIV**

Mariia Orynychak, Volodymyr Havran,  
Mykhaylo Melnyk

**3. DEVELOPMENT OF MICROCONTROLLER BASED TEMPERATURE AND HUMIDITY DATA LOGGER**

Andriy Holovatyy, Roman Panchak,  
Mykhaylo Lobur

**4. WAYS TO INCREASE THE EFFICIENCY OF THE LIDAR SCAN SYSTEM OF THREE-DIMENSIONAL OBJECTS**

Khranovskyi Mykola, Yusiuk Vladyslav,  
Andriy Zdobytyskyi, Tamara Klymkovych,  
Uliana Marikutsa

**5. ENGINEERING DRAWING EDUCATION USING CAD TOOLS**

Andrzej Łukaszewicz, Andriy Kernytskyy,  
Mykhaylo Melnyk

**6. PROBABILISTIC MODELING OF MECHANICAL CANTILEVER OSCILLATOR FLUCTUATION**

Petro Kosobutskyy, Andriy Zdobytyskyi,  
Uliana Marikutsa, Mykhaylo Melnyk,  
Marek Iwaniec

**7 SIMULATION MODEL FOR CONVERSION HEAT TO ELECTRICITY UNDER MAGNETIC FLUX BASED ON COMSOL**

Oleh Matviyiv, Mykhailo Lobur,  
Nataliia Bokla, Tamara Klymkovych,  
Serhiy Shcherbovskykh

**8 NUMERICAL TESTS OF THE POWER COEFFICIENT THE VAWT WITH ODGV**

Radosław Ptak, Krzysztof Kołodziejczyk

**9 VISUALIZATION TOOL FOR ROOM MODEL SIMULATION AND WALL ROUGHNESS ANALYSIS**

Mykhailo Muliar, Roman Habovskyi,  
Mykhailo Lobur, Mykhaylo Melnyk,  
Pavlo Denysyuk

**10 INVESTIGATION OF SOUND LEVEL METERS ACCURACY IN DETERMINING THE EQUIVALENT SOUND LEVEL**

Mykhaylo Melnyk, Andriy Kernytskyi,  
Andrzej Lukaszewicz, Mykhailo Lobur,  
Andriy Zdobytskyi, Krzysztof Pytel

## Conference Closing

*Friday 10.12.2021, (UTC+01:00, Warszawa) 16<sup>45</sup> – 17<sup>00</sup>*

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**Chairman:** prof. Mykhailo Lobur

**Secretary:** dr. Andriy Zdobytskyi

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

