



“GHEORGHE ASACHI”

TECHNICAL UNIVERSITY OF IASI, ROMANIA

# 5TH INTERNATIONAL CONFERENCE OF THE DOCTORAL SCHOOL

*doctoral* TUIASI

**18-20 MAY, 2022**

IASI, ROMANIA

**Excellence in Doctoral Studies  
through Innovation, Convergence  
and Interdisciplinarity**



[WWW.CONFERINTA-CSD.TUIASI.RO](http://WWW.CONFERINTA-CSD.TUIASI.RO)



**"Gheorghe Asachi" Technical University of Iasi, Romania**  
**5<sup>th</sup> International Conference of the Doctoral School**  
**May 18 - 20, 2022, Iași, România**



## **5<sup>th</sup> International Conference of the Doctoral School**

**"Gheorghe Asachi" Technical University of Iasi**

***Excellence in Doctoral Studies through Innovation,  
Convergence and Interdisciplinarity***

# **CONFERENCE PROGRAMME**

**May 18 – 20, 2022**

**IAȘI, ROMÂNIA**



## Organizers

- "Gheorghe Asachi" Technical University of Iasi, Romania
- Council for Doctoral University Studies, CSUD
- Council of Doctoral School, CSD

## Partner:

- "Gheorghe Asachi" University Foundation, Iasi, Romania

## Conference Sections

- **Section 1.** Computers and information technology; Systems engineering
- **Section 2.** Chemistry; Chemical engineering; Environmental engineering
- **Section 3.** Civil engineering and installations
- **Section 4.** Electrical engineering; Energy engineering; Electronic engineering, telecommunications and information technology
- **Section 5.** Mechanical engineering; Industrial engineering; Materials engineering; Engineering and management



## Organizer Message

**Dear PhD Students,**

**Dear Colleagues and Guests,**

**Dear Participants,**

At its fifth edition, the International Conference of the Doctoral School at the "Gheorghe Asachi" Technical University of Iasi (TUIASI) aims to provide PhD students of the Doctoral Schools from Technical Universities in Romania and abroad with a favourable framework for communicating the results of their research, exchanging ideas and initiating new collaborations, refine their theoretical and methodological approaches, encouraging presentation and continuous development of interdisciplinary research. The three days' conference (18th-20th of May, 2022) consist of five panel sessions, where PhD students can present and discuss their research papers. The program of the conference will also include a number of plenary presentations held by prestigious professors from universities with which TUIASI has close collaborations.

The conference aims to bring together miscellaneous oral presentations dealing with relevant problems associated to the thirteen doctoral fields at the university: Chemistry; Computers and information technology; Chemical engineering; Civil engineering and installations; Electrical engineering; Electronic engineering, telecommunications and information technologies; Energetic engineering; Industrial engineering; Materials engineering; Mechanical Engineering; Environmental engineering; Systems engineering; Engineering and management.

Bridging the scientific doctoral fields, encouraging the innovation through interdisciplinary collaboration, and the orientation towards internationalization, this event can offer an intellectual intersection between disciplines in which new ideas and progress in science would appear. This way the doctoral programs can be implemented with a focus on training PhD students for research and acquiring a set of core competencies that will allow for the immediate transfer to social institutions in search of a sustainable economy. For PhD students in the earlier stages of doctoral studies, the conference provides an opportunity to train for their first contributions to a certain scientific field, while for the PhD students in later stages, the communications held during conference can be seen as a scientific step towards the jobs market.

**Please visit the conference website at: <https://conferinta-csd.tuiasi.ro/>**

**Welcome to CSD2022, wishing you a successful conference!**

Honorary President,

**Professor Dan CAȘCAVAL**

Rector TUIASI



## Conference committees

### HONORARY PRESIDENT

Prof.dr. **Dan Cașcaval**, **RECTOR**, "Gheorghe Asachi" Technical University of Iasi, Romania

### PRESIDENT

Prof.dr. **Alina-Adriana Minea**, "Gheorghe Asachi" Technical University of Iasi, Romania

### CO-PRESIDENT

Prof.dr. **Maria Gavrilescu**, "Gheorghe Asachi" Technical University of Iasi, Romania

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- Prof.dr. Nicolas Kalogerakis, Technical University of Crete, Chania, Greece
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- Prof.dr. Irina Lungu, Gheorghe Asachi Technical University of Iasi, Romania
- Prof.dr. Luis Lugo, University of Vigo, Spain
- Prof.dr. Antonio Marzocchella, University Federico II, Naples, Italy
- Prof.dr. Omid Mahian, Xi'an Jiaotong University, China
- Conf.dr. Petru Mihai, Gheorghe Asachi Technical University of Iasi, Romania
- Prof.dr. Janus Mindykowski, Gdynia Maritime University, Poland
- Prof.dr. Corneliu Munteanu, Gheorghe Asachi Technical University of Iasi, Romania
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- Prof.dr. Radu-Emil Precup, Politehnica University of Timișoara, Romania
- Prof.dr. Alexandru Sălceanu, Gheorghe Asachi Technical University of Iasi, Romania
- Prof. dr. Neculai Eugen Seghedin, Gheorghe Asachi Technical University of Iasi, Romania
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#### **SECRETARIAT**

- Eng. **Cristina Nagîț**
- Lect.dr. **Andrei Dontu (Section 1)** (andrei-ionut.dontu@academic.tuiasi.ro)
- PhD Student **Iolanda Fustes-Damoc (Section 2)** (iolanda.fustes-damoc@student.tuiasi.ro)
- PhD Student **Cosmin-Ionut Gosav (Section 3)** (cosmin-ionut.gosav@student.tuiasi.ro)
- PhD Student **Vasile Grosu (Section 4)** (vasile.grosu@student.tuiasi.ro)
- Assist.prof.dr. **Elena Ionela Chereches (Section 5)** (elena-ionela.chereches@academic.tuiasi.ro)



# General information

## About our university

"Gheorghe Asachi" Technical University of Iasi is one of the most prestigious universities in Romania, being classified as an advanced research and education university (according to the Order of Ministry of Education and Research, MECTS nr. 5262/2011), whose mission is to carry out specific activities of creation, innovative capitalization of knowledge and its transfer to society in the fundamental fields of engineering sciences, architecture and urbanism, as well as in interdisciplinary and complementary fields, in the local community, at regional, national and international levels.

"Gheorghe Asachi" Technical University of Iasi has the oldest tradition in engineering education in Romania, initiated by Gheorghe Asachi, a representative of the Romanian Enlightenment, and established within the Greek Academy in Iasi (Royal Academy) on November 15, 1813, by the decree signed by Scarlat Calimachi, the ruler of Moldova at that time. This school can be considered the nucleus of higher technical education in Moldova, continuing education between 1834-1847 at the Mihăilean Academy and later at the University of Iasi in the School of Industrial Electricity (since 1910), the Electrotechnical Institute (1912) and the Department of Technological Chemistry (since 1911).

On November 7, 1912, the Faculty of Sciences of the University of Iasi was transformed into an independent department of higher education for teaching electrical engineering, applied chemistry and agricultural sciences. This event represents the "birth certificate" of what later became the Polytechnic Institute of Iasi ("Gheorghe Asachi" Technical University of Iasi today), respectively of the Faculty of Electrical Engineering, Energy and Applied Informatics and the Faculty of Chemical Engineering and Environment Protection.

A crucial moment in the history of our university is the Decision no. 205.660/ 03.12.1937 of the Ministry of National Education, when, the technical higher education is taken out from the aegis of the University of Iasi by the establishment of the „Gheorghe Asachi” Polytechnic School of Iași, as a distinct institution of engineering higher education, the only higher education institution authorized to grant from that date the title of engineer. The University began its activity on October 1, 1938, within three faculties: Industrial Chemistry, Electrical Engineering and Agricultural Sciences, of which the first two were based in Iasi and the third in Chisinau. The first diplomas were issued in 1940.

Through the education reform of 1948, the "Gheorghe Asachi" Polytechnic Institute was established in Iași, with four faculties and ten specializations: Industrial Chemistry (mineral chemistry, leather), Civil Engineering, Electrical Engineering, Mechanics (thermodynamic engineering, hydrotechnics, machine building, aero-naval engineering) with a duration of studies of five years. The Polytechnic Institute of Iași functioned until 1990 with 6 faculties and many newly created specializations. In 1990, four new faculties were established, coming from the faculties of Electrical Engineering and Mechanics.

In 1993 the name of "Polytechnic Institute of Iasi" was replaced by "Gheorghe Asachi" Technical University of Iasi (TUIASI). In 2004 the Architecture department within the Faculty of Constructions and Installations became the "G.M. Cantacuzino" Faculty of Architecture and since then 11 faculties operate within TUIASI.

Today, TUIASI develops programs for undergraduate, master, doctoral, postdoctoral studies and scientific research in interdisciplinary research areas, out of which 10 areas were classified in category A, according to Law 1/2011 and HG 789/2011. The doctoral activity is organized within an interdisciplinary doctoral school including 13 doctoral fields established according to national and international research priority areas.



## About the Conference program

The 5th edition of the International Conference of the Doctoral School of IOSUD "Gheorghe Asachi" Technical University of Iasi (CSD2022), which is organized under the generic "Excellence in Doctoral Studies through Innovation, Convergence and Interdisciplinarity" is programmed during May 18-20, 2022 as videoconference (a fee is not charged).

During the event, plenary conferences are scheduled, lasting 40 minutes each (including discussions), as well as oral presentations lasting 5 minutes each (including discussions). The papers received in the frame of five planned sections will be held on each conference day in 4 parallel sessions, each sessions being organized in 3 blocks, coordinated by a chairperson, separated by coffee breaks or lunch.

At the beginning of the second day of the conference, a session dedicated to diplomas awarding to the Honorary Members of the Doctoral School was planned.

The Conference will be developed on the Google Meet platform, at links which will be communicated to the attendees and guests before conference start, on the conference website.

Details on How to: **Connect & Present at the conference** can be found at:

### VERY IMPORTANT

**The authors who will hold oral presentations are invited to log in at the beginning of the session in which the presentation is scheduled in order to avoid unexpected breaks during the session.**

**Oral presentations will be given in English.**

A PowerPoint support for your presentation adequate for 15 minutes would serve as visual aids that can enhance audience engagement and their understanding of your speech!

**Contact persons:**

**Prof.dr. Maria Gavrilescu**

mgav@tuiasi.ro; +40 745528184

**Prof.dr. Alina-Adriana Minea**

alina-adriana.minea@academic.tuiasi.ro; +40 723455071





## GENERAL CSD2021 CONFERENCE PROGRAM

Wednesday, 18 May, 2022

Time	Event			
9.00-9.25	<b>Opening ceremony</b>			
9.30-10.10	<b>Plenary Conference 1</b>			
10.10-10.50	<b>Plenary Conference 2</b>			
10.50-11.15	<b>Coffee Break</b>			
11.15-12.45	<b>Parallel Session 1.1</b> <b>Section 1.</b> Computers and information technology; Systems engineering	<b>Parallel Session 2.1</b> <b>Section 2.</b> Chemistry; Chemical engineering;	<b>Parallel Session 3.1</b> <b>Section 3.</b> Civil engineering and installations	<b>Parallel Session 4.1</b> <b>Section 4.</b> Electrical engineering; Energy engineering; Electronic engineering, telecommunications and information technology
12.45-14.00	<b>Lunch</b>			
14.00-15.30	<b>Parallel Session 1.2</b> <b>Section 1.</b> Computers and information technology; Systems engineering and information technology	<b>Parallel Session 2.2</b> <b>Section 2.</b> Chemistry; Chemical engineering; Environmental engineering	<b>Parallel Session 3.2</b> <b>Section 3.</b> Civil engineering and installations	<b>Parallel Session 4.2</b> <b>Section 2.</b> Chemistry; Chemical engineering; Environmental engineering <b>Section 5.</b> Mechanical engineering; Industrial engineering; Materials engineering; Engineering and management



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<b>15.30-16.00</b>	<b>Coffee Break</b>
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<b>16.00-17.30</b>	<b>Parallel Session 1.3</b> <b>Section 4.</b> Electrical engineering; Energy engineering; Electronic engineering, telecommunications and information technology	<b>Parallel Session 2.3</b> <b>Section 2.</b> Chemistry; Chemical engineering; Environmental engineering	<b>Parallel Session 3.3</b> <b>Section 3.</b> Civil engineering and installations	<b>Parallel Session 4.3</b> <b>Section 5.</b> Mechanical engineering; Industrial engineering; Materials engineering; Engineering and management

**Thursday, 19 May, 2022**

<b>Time</b>	<b>Event</b>
9.30-10.10	<b>Plenary Conference 3</b>
10.10-10.50	<b>Plenary Conference 4</b>

<b>10.50-11.15</b>	<b>Coffee Break</b>
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<b>11.15-12.45</b>	<b>Parallel Session 1.4</b> <b>Section 5.</b> Mechanical engineering; Industrial engineering; Materials engineering; Engineering and management	<b>Parallel Session 2.4</b> <b>Section 2.</b> Chemistry; Chemical engineering; Environmental engineering	<b>Parallel Session 3.4</b> <b>Section 3.</b> Civil engineering and installations	<b>Parallel Session 4.4</b> <b>Section 2.</b> Chemistry; Chemical engineering; Environmental engineering  <b>Section 4.</b> Electrical engineering; Energy engineering; Electronic engineering, telecommunications and information technology



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<b>12.45-14.00</b>	<b>Lunch</b>			
<b>14.00-15.30</b>	<b>Parallel Session 1.5</b> <b>Section 4.</b> Electrical engineering; Energy engineering; Electronic engineering, telecommunications and information technology	<b>Parallel Session 2.5</b> <b>Section 2.</b> Chemistry; Chemical engineering; Environmental engineering	<b>Parallel Session 3.5</b> <b>Section 4.</b> Electrical engineering; Energy engineering; Electronic engineering, telecommunications and information technology	<b>Parallel Session 4.5</b> <b>Section 2.</b> Chemistry; Chemical engineering; Environmental engineering
<b>15.30-16.00</b>	<b>Coffee Break</b>			
<b>16.00-17.30</b>	<b>Parallel Session 1.6</b> <b>Section 4.</b> Electrical engineering; Energy engineering; Electronic engineering, telecommunications	<b>Parallel Session 2.6</b> <b>Section 2.</b> Chemistry; Chemical engineering; Environmental engineering	<b>Parallel Session 3.6</b> <b>Section 4.</b> Electrical engineering; Energy engineering; Electronic engineering, telecommunications	<b>Parallel Session 4.6</b> <b>Section 5.</b> Mechanical engineering; Industrial engineering; Materials engineering; Engineering and management

**Friday, 20 May, 2022**

<b>Time</b>	<b>Event</b>
9.30-10.10	<b>Plenary Conference 5</b>
10.10-10.50	<b>Plenary Conference 6</b>
<b>10.50-11.00</b>	<b>Short Break</b>



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11.00-13.00	<b>Parallel Session 1.7</b> <b>Section 5.</b> Mechanical engineering; Industrial engineering; Materials engineering; Engineering and management	<b>Parallel Session 2.7</b> <b>Section 4.</b> Electrical engineering; Energy engineering; Electronic engineering, telecommunication s and information technology	<b>Parallel Session 3.7</b> <b>Section 5.</b> Mechanical engineering; Industrial engineering; Materials engineering; Engineering and management	<b>Parallel Session 4.7</b> <b>Section 5.</b> Mechanical engineering; Industrial engineering; Materials engineering; Engineering and management
13.00-13.15	<b>Coffee Break</b>			
13.15-14.45	<b>Parallel Session 1.8</b> <b>Section 5.</b> Mechanical engineering; Industrial engineering; Materials engineering; Engineering and management	<b>Parallel Session 2.8</b> <b>Section 5.</b> Mechanical engineering; Industrial engineering; Materials engineering; Engineering and management	<b>Parallel Session 3.8</b> <b>Section 5.</b> Mechanical engineering; Industrial engineering; Materials engineering; Engineering and management	<b>Parallel Session 4.8</b> <b>Section 5.</b> Mechanical engineering; Industrial engineering; Materials engineering; Engineering and management
15.00-15.30	<b>Closing ceremony</b>			

**THANK YOU FOR  
ATTENDING CSD2022!**