



# NEFES 2024

## The 9th International Conference on New Energy and Future Energy System

July 29 - August 1, 2024

Győr, Hungary

## Conference Program



**SZÉCHENYI  
EGYETEM**  
UNIVERSITY OF GYŐR

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# Part I Conference Schedule Summary

## Monday, July 29th, 2024

14:00-20:00	On-site Registration <i>Lobby of the Management Campus, Széchenyi István University (SZE)</i>
16:00-18:00	MS Teams Online Conference Testing and Ice-Breaking MS Teams Link: <a href="http://www.academicconf.com/teamslink?confname=nefes2024">http://www.academicconf.com/teamslink?confname=nefes2024</a>

### Notice for offline participants:

1. Please show us your name or paper ID for registration;
2. Please pick up all the conference materials at the registration desk (Name Card, Conference Program, Meals Tickets and Tour Ticket etc.).

### Notice for online participants:

1. MS Teams Link: <http://www.academicconf.com/teamslink?confname=nefes2024>
2. All the time indicated is based on Central European Time (UTC+1:00).

## Tuesday, July 30th Morning, 2024

Welcome Speech		MC001-002 (Ground Floor) -Management Campus of SZE
09:00-09:10	<b>Welcome Speech</b> <b>Chaired by:</b> <i>Prof. Dr. Majid Movahedi Rad, Department of Structural and Geotechnical Engineering, Széchenyi István University, Hungary</i> <b>Delivered by:</b> <i>Dr. Eszter Lukács, Vice President, Széchenyi István University, Hungary</i>	
09:10-09:25	<b>Group Photo</b>	
Keynote Speeches		MC122-123 (1st Floor) -Management Campus of SZE
<b>Keynote Speeches Chaired by:</b> <i>Dr. András Torma, Associate Professor, Head of the Department of Applied Sustainability, Széchenyi István University, Hungary</i>		
09:25-10:05	<b>Keynote Speech 1: Phase Change Materials for Energy Saving in Buildings</b> <i>Prof. Müslüm Arıcı, Kocaeli University, Turkey</i>	
10:05-10:45	<b>Keynote Speech 2: Sustainable and Resilient Retrofit Strategies in Civil Structures and Infrastructures</b> <i>Dr. Marco Domaneschi, Politecnico di Torino, Italy</i>	
10:45-11:00	<b>Coffee Break</b>	

11:00-11:40	<b>Keynote Speech 3: CO<sub>2</sub> Capture and Microbial Catalytic Conversion to CH<sub>4</sub> with Reducing Powers from Minerals and Sunlight</b> <i>Prof. Ji-Dong Gu, Guangdong Technion-Israel Institute of Technology, China</i>
11:40-12:20	<b>Keynote Speech 4: Resilient Energy Systems for Interconnected Infrastructures</b> <b>(Online Presentation)</b> <i>Prof. Hossam A. Gabbar, Ontario Tech University, Canada</i>
12:30-14:00	<b>Lunch Break</b> <i>Széchenyi Restaurant</i>
<b>Tuesday, July 30th Afternoon, 2024</b> MC122-123 (1st Floor) -Management Campus of SZE	
14:00-17:25	<b>Oral Session 1: Green Building and Energy Management</b>
17:25-18:00	<b>Poster Session</b>
18:00-19:30	<b>Dinner Break</b> <i>Széchenyi Restaurant</i>
<b>Wednesday, July 31st, 2024</b> MC122-123 (1st Floor) -Management Campus of SZE	
09:00-12:10	<b>Oral Session 2: Thermal Engineering and Power Engineering</b>
12:30-14:00	<b>Lunch Break</b> <i>Széchenyi Restaurant</i>
14:00-17:20	<b>Oral Session 3: Energy Technologies and Materials</b>
18:00-19:30	<b>Dinner Break</b> <i>Széchenyi Restaurant</i>
<b>Thursday, August 1st, 2024</b> Győr city, Hungary	
09:40-10:00	Gathering at the Gate of <i>Széchenyi István University</i>
10:00-12:00	<b>Sightseeing in Győr city</b>
12:00-14:00	Lunch Time
14:00-16:00	<b>Pannonhalma Abbey</b>

**Note:**

1. Please take your Tour Ticket while getting on the tour bus;
2. This is a tentative itinerary. The final schedule is subject to slight adjustments based on actual arrangements made by the tour guide.



## Part II Keynote Speeches

### Keynote Speech 1: Phase Change Materials for Energy Saving in Buildings



**Prof. Müslüm Arıcı**

*Mechanical Engineering Department, Engineering Faculty, Kocaeli University, Turkey*

**Biography:** Müslüm Arıcı is a Professor in the Thermodynamics and Heat Technique Division of the Mechanical Engineering Department of Kocaeli University, Turkey. He completed a Diploma Course at von Karman Institute, Belgium, in 2007 and received PhD degree from Kocaeli University, Turkey, in 2010. He is a co-author of 250+ papers in refereed SCI-indexed journal papers. He has been serving as associate editor in Case Studies in Thermal Engineering (IF=6.8); Energy, Ecology, and Environment (IF=4.4), Journal of the Faculty of Engineering and Architecture of Gazi University (IF=1.1), and Journal of Thermal Engineering (E-SCI). Besides, he is co-editor of 3 books. He has also been serving as a guest editor in several prestigious journals such as Journal of Cleaner Production, Energy and Buildings, Sustainable Energy Technologies and Assessments, Energy for Sustainable Development, Energy, and Journal of Magnetism and Magnetic Materials. He was enlisted among the world's top 2% scientists according to Stanford University in the last three consecutive years. His fields of interest are energy-efficient buildings, thermal energy storage, solar energy, and thermal management.

**Abstract:** There has been an increasing interest in utilizing phase change materials (PCMs) for energy saving in buildings. The latent heat fusion of PCM at suitable temperatures, allowing a high energy storage and release with a narrow temperature range, helps shift the peak loading period, regulate indoor temperature, and save energy. Since the thermal performance of PCM depends on the utilization level of latent heat, besides the thermophysical properties, it should be selected properly considering climatic conditions, position in the wall, etc. In this talk, PCM applications in buildings will be addressed, and various indices for evaluating the thermal performance of PCMs will be focused on. The indices will be discussed in detail to provide more insight into contribution level of latent heat to energy saving effect in buildings. Furthermore, the thermal performance of PCMs will be compared with conventional methods.

### Keynote Speech 2: Sustainable and Resilient Retrofit Strategies in Civil Structures and Infrastructures



**Dr. Marco Domaneschi**

*Department of Structural, Geotechnical and Building Engineering, Politecnico di Torino, Italy*

**Biography:** Dr. Marco Domaneschi is an Assistant Professor and lecturer of courses in Earthquake Engineering and Structural Design (since 2016) at Politecnico di Torino. He graduated from the University of Pavia with a degree in Civil Engineering, specializing at UPC Barcelona. He was a professional structural engineer and consultant for special structures (3 years) and a consultant in mechanical and computational engineering for industry (8

years). He had his PhD in civil engineering at the University of Pavia (2006). He was an associate researcher and adjunct professor in Structural Engineering courses at Politecnico di Milano (2007-2016). He is an Associate Editor of the Journal of Vibration and Control SAGE, Associate Editor of Bridge Engineering of The Institution of Civil Engineers UK, and Associate Editor of Frontiers in Built Environment. He is an Editorial Board Member of Advances in Eng. Software ELSEVIER, J Traffic and Transportation Eng. ELSEVIER, J Building Pathology and Rehabilitation SPRINGER, Structural Monitoring and Maintenance TECHNO-PRESS, and Bridge Eng. - ICE (2014-2022). He is a reviewer for several journals, speaker, session chair, editorial board member, and organizer of more than 20 conferences. He is the holder of patents, registered and under evaluation. He received the Takuji Kobori Prize 2014 and other research awards. He is a scientific leader and participant in commercial and public research programs. He is the author of more than 70 journal publications, 130 papers to conference proceedings, 1 book, and some chapters. He is a member of professional and research societies EACS, IABMAS, ISHMII, SPONSE, SISCON ([www.siscon.polito.it](http://www.siscon.polito.it)), and ArtIStE (<http://www.civilml.polito.it>). He is included in the "World's Top 2% Scientists" list, Stanford University - Elsevier.

**Abstract:** The keynote is focused on the implementation of innovative design and optimization strategies for solving multi-criteria problems, in which the structural design of civil buildings complies with the sustainability goals of this century. Moreover, resilience aspects in structure and infrastructures will be discussed with reference to monitoring and control. The first part of the discussion will include also the Greece's Polyfytos viaduct, the nation's second-longest bridge spanning 1,372 meters, renowned also for providing access to key power plants in South-East Europe. The study has interdisciplinary aspects, considering not only different technological solutions but also LCA and LCC, along with a study of quantifying the resilience of the different solutions under investigation. Thus, the focus in reinforcement and retrofitting solutions is not purely on technical aspects but associates considerations related to economic and environmental costs, and the overall resilience of the solution. So, the design proposal that emerges is characterized by a holistic and multidisciplinary approach for transportation infrastructure that in many countries around the world is facing these kinds of issues related to aging and capacity degradation. The second part of the discussion will focus on a Genetic Algorithm and the well-known one-dimensional bin packing problem (BPP) within a structural optimization process for civil engineering structures. The Objective Function formulation lies in a marked change of the paradigm, in which the target function is represented by the amount of steel required by the factory instead of the structural cost (e.g., weight). The proposed approach is tested on different steel structures with an increasing number of pieces moving from 2D truss beams to 3D domes. The comparison between the traditional minimum-weight approach and the proposed one has been provided for each case study, highlighting economic and environmental benefits deriving from the latter one.

### Keynote Speech 3: CO<sub>2</sub> Capture and Microbial Catalytic Conversion to CH<sub>4</sub> with Reducing Powers from Minerals and Sunlight



***Prof. Ji-Dong Gu***  
*Environmental Science and Engineering Research Group, Guangdong Technion-Israel Institute of Technology, China*

**Biography:** Ji-Dong Gu is currently a full professor of the Environmental Engineering at Guangdong

Technion - Israel Institute of Technology and Israel Institute of Technology. He obtained his B.Sc from Heilongjiang August First Land Reclamation University, M.Sc. from the University of Alberta (Canada), and Ph.D. from Virginia Tech (USA). After a brief post-doc at the University of Massachusetts – Lowell, he joined Ralph Mitchell's Laboratory at Harvard University for 6 years before taking a faculty position at The University of Hong Kong for more than 21 years. After resigning from the University in Hong Kong, he started his new full-time position with Guangdong Technion - Guangdong Israel Institute of Technology in 2020.

His recent research interest includes: 1) carbon and nitrogen cycling, including anaerobic ammonium oxidation and nitrite-dependent anaerobic methane oxidation; 2) oil field microbiology for enhanced oil recovery and pollution remediation; and 3) microbiology of cultural heritage.

His h-index is 86, i10-index 449, and total citations of 27,249 (GoogleScholar). He has been the world's top 1% scientist by WoS since 2013. He has published in the areas of applied and environmental microbiology and toxicology with more than 450 refereed scientific journal papers and 40 book chapters. He co-edited a book with Ralph Mitchell on 'Environmental Microbiology' (2<sup>nd</sup> ed, John Wiley-Blackwell. 2010), and wrote a book on 'Biosusceptibility of Polymers and Fiber-reinforced Composites and Testing Methods' (Springer, 2024/5) and additionally edited/co-edited 8 special issues in *International Biodeterioration & Biodegradation*, *Ecotoxicology*, *International Journal of Molecular Sciences*, and *Frontiers in Microbiology*. In the Environmental Science and Engineering category, he is ranked the top scientist and highly cited in China.

He is the editor-in-chief for *International Biodeterioration & Biodegradation* (2015–).

**Abstract:** Carbon dioxide is a major greenhouse gas contributing to the climate change, and its capture and storage in the subsurface ecosystems is one option for long-term management of this gas from industries for sustainable development. In the subsurface ecosystems, due to the indigenous microbiota, the fate of CO<sub>2</sub> in such ecosystems is not known and studies were carried out to investigate the indigenous microbiome in subsurface ecosystem, their metabolic capabilities in transforming the injected CO<sub>2</sub> to advance the current knowledge on CO<sub>2</sub> capture in subsurface ecosystems for permanent storage using Illumina sequencing of genomic DNA and transcribed RNA, detection and identification of transformation metabolites, the genes responsible, and also thermodynamics calculation to find out the best conditions for CO<sub>2</sub> conversion to bioenergy as a future technology in energy management. In laboratory-based incubation, studies were conducted to determine the fate of CO<sub>2</sub> and the responses of microbial community. In addition, a promising strategy to stimulate and accelerate biological transformation of CO<sub>2</sub> into methane as energy was achieved in this study with ZVI as the alternative electron donor. Enrichment of *Methanothermobacter* spp. supported their competitive role in biological production of methane process via CO<sub>2</sub>-reducing methanogenesis and formate methanogenesis in ZVI-amended cultures. The detected FeCO<sub>3</sub> mineral also presents a potential for immobilization of CO<sub>2</sub> in the presence of ZVI under the anaerobic conditions. Biomethane production with high rates (> 61.67 μmol/(l·d)) amended with ZVI detected in this study provided a potential opportunity for value-added CO<sub>2</sub> management technologies and further bioenergy regeneration from CO<sub>2</sub> in EOR and CCS of oil reservoirs. Stable isotope C-13 labelled CO<sub>2</sub> was used to trace the transformation and fate of introduced CO<sub>2</sub> in the microcosm systems in this study with minerals or sunlight as a source of electron. Results suggest that biotransformation of CO<sub>2</sub> to CH<sub>4</sub> and organic fatty acids occur in simulated subsurface

conditions and the rate of transformation can be further accelerated by addition of ZVI as an additional source of electron donor.

## Keynote Speech 4: Resilient Energy Systems for Interconnected Infrastructures



***Prof. Hossam A. Gabbar***

***Director of Smart Energy Systems Lab, Ontario Tech University, Canada***

**Biography:** Dr. Gabbar is a full Professor in the Department of Energy and Nuclear Engineering, the Faculty of Engineering and Applied Science, at Ontario Tech University (UOIT), where he has established the Energy Safety and Control Lab (ESCL), Smart Energy Systems Lab, and Advanced Plasma Engineering Lab. He is the recipient of the Senior Research Excellence Award for 2016, UOIT. He is recognized among the top 2% of worldwide scientists with high citations in energy. He is a Distinguished Lecturer – IEEE NPSS on Nuclear-Renewable Hybrid Energy Systems and Plasma-based Waste-to-Energy. He is leading national and international research in the areas of smart energy grids, energy safety and control systems, and waste to energy using advanced plasma technologies. Dr. Gabbar obtained his B.Sc. degree in 1988 with first class of honor from the Faculty of Engineering, Alexandria University (Egypt). In 2001, he obtained his Ph.D. degree from Okayama University (Japan). From 2001 till 2004, he joined the Tokyo Institute of Technology (Japan) as a research associate. From 2004 till 2008, he joined Okayama University (Japan) as an Associate Professor in the Division of Industrial Innovation Sciences. From 2007 till 2008, he was a Visiting Professor at the University of Toronto. He also worked as a process control, safety, and automation specialist in energy and oil & gas industries. Dr. Gabbar has more than 230 publications, including patents, books/chapters, journal and conference papers.

**Abstract:** This talk will present advances in research on planning, design and control strategies of hybrid energy systems and their applications on interconnected infrastructures. The talk will explain design approaches, strategies, and planning of smart energy grids. Nuclear-renewable hybrid energy systems will be discussed with different coupling strategies. Interconnected infrastructures are modeled and linked with energy, water, transportation, waste, food, health, and social systems. Fast charging station design is illustrated using hybrid energy systems with diverse energy storage and integrated within transportation electrification based on resiliency demand and control strategies. Demonstration of resilient micro energy grid is discussed and analyzed in view of different application scenarios, such as energy-water systems, modeling, and simulation of fast charging stations.

# Part III Poster Presentations

## Materials Provided by the Conference Organizer:

- ✧ X Racks & Base Fabric Canvases (60cm×160cm, see the figure)
- ✧ Adhesive Tapes or Clamps

## Materials Provided by the Presenters:

- ✧ Home-made Posters
- ✧ Posters printed by the NEFES 2024 Committee

## Requirements for the Posters:

- ✧ Materials: not limited, can be posted on the Canvases
- ✧ Size: 60cm×160cm
- ✧ Horizontal Head: please make the conference name 'NEFES 2024' and the paper number 'FES\*\*\*\*\*' on the head of the poster to make all the posters unified



\*\*\*\*\*

## Best Poster Presentation Selection Procedure

### Selection Criteria:

- Research Quality
- Presentation Skill
- Design

## Samples of Stickers



### Selection Procedure:

- The conference general chair will invite four volunteers from invited speakers, professors, and experienced researchers to serve as the judges to review the posters (Note: A judge would not have a poster or know the participant exhibiting a poster)
- Two red stickers and two green stickers will be provided to the judges. The red sticker stands for “Research Quality” with a value of 2 points; the green sticker stands for “Presentation Skill and Design” with a value of 1 point
- Each judge will go around the poster session and give the stickers to the poster that he/she thinks is of high quality or well designed and well presented, please note that the judge cannot give two red or two green stickers to the same poster (one red and one green sticker are acceptable)
- After the poster session, the Chair will count the points from each poster and select **ONE** best poster presentation with more points. If there is a tie, the one with more red stickers (Research Quality) wins; if there is still a tie, the Chair will make the final decision.
- If the winner is not able to attend the conference in person, unfortunately, the award will be canceled.

## Nature of the Award

- This award consists of free registration to the NEFES 2025 and a certificate.
- **One Best Poster Presenter** will be selected after the session finishes with a certificate issued **on-site** and results demonstrated on NEFES 2025 website.

## List of Posters

**Time: 17:25-18:00, Tuesday, July 30th, 2024**

**Location: Outside of Room MC122-123, Management Campus, 1st Floor**

<b>FES3038</b>	<b>Hydrogen Productivity in Liquid-Phase Plasma Cracking of <math>\text{Ni}_{(1-x)}\text{Bi}_x\text{TiO}_3</math> Enhanced Visible-Light Photosensitivity</b> <i>Prof. Sang-Chul Jung, Sunchon National University, Korea</i>
<b>FES3062</b>	<b>The Potential of Livestock Residues in European Union</b> <i>Assoc. Prof. Rafał Pudelko, Institute of Soil Science and Plant Cultivation, Poland</i>
<b>FES3080</b>	<b>Innovative Analysis Methods of Energy Performance of Buildings</b> <i>Mr. Dániel László Hegedűs, Széchenyi István University, Hungary</i>
<b>FES3104</b>	<b>Research on the Diversity of Stakeholders and Complex Evolution in the Online Public Opinion Ecosystem in China</b> <i>Dr. Yuanzhuo Wu, Nanchang University, China</i>
<b>FES3105</b>	<b>Numerical Simulation and Experimental Study on Pulse Characteristics of Self-Excited Oscillator Cavity</b> <i>Dr. Wenlong Niu, China University of Petroleum (East China), China</i>
<b>FES3115</b>	<b>Review on Reactive Power Optimization of High Proportion Renewable Energy Power System</b> <i>Ms. Xinyi Yang, Hohai University, China</i>
<b>FES3122</b>	<b>Development of Integrated Climate Scenarios at the Regional Level</b> <i>Dr. Janusz Zyśk, AGH University of Science and Technology, Poland</i>
<b>FES3137</b>	<b>Study on Radiative Property of Radiative Cooling Coatings Containing Non-Uniform Particle Size Distribution</b> <i>Mr. Aoyu Zhang, Harbin Institute of Technology, China</i>



# Part IV Oral Presentations

## General Guidelines

- ✚ All presentation times are shown in Central European Time (UTC+1:00);
- ✚ Duration for Invited Oral Presentation: 20 Minutes of Presentation, including 3-5 Minutes of Q&A;
- ✚ Duration for Regular Oral Presentation: 15 Minutes of Presentation, including 2-3 Minutes of Q&A;
- ✚ All presenters are requested to reach the Session Room before the scheduled time and complete their presentation on time;
- ✚ Presenters should prepare Power Pointer or PDF Files for Presentation with Paper ID (FES\*\*\*\*) marked on the last page;
- ✚ A signed and stamped presentation certificate will be issued after the presentation.

## Offline Oral Presentation Guidelines

### **Devices Provided by the Conference Organizer:**

- ✚ Laptops (with MS-Office & Adobe Reader)
- ✚ Projectors & Screen: Ratio 4:3
- ✚ Laser Sticks
- ✚ Microphones
- ✚ Please send us the PowerPoint once it is ready and have the PPT backup on a U-disk. For presenters who do not send the PowerPoint, please save it on the laptop of the corresponding session 15 min in advance. Kindly tell the Session Chair (before the start of your session) that you are present.

## Online Oral Presentation Guidelines

- ✚ Online Oral Presentation will be conducted via Microsoft Teams Meeting.
- ✚ If a presenter is not able to show up via Teams, the session chair/conference secretary will play the pre-recorded video presentation during his/her scheduled presentation time. If listeners have questions about the presentation, please contact the conference secretary to forward the questions.
- ✚ If a presenter cannot show up on time or has a problem with the internet connection, the session chair has the right to rearrange his/her presentation and let the next presentation start.

## Best Oral Presentation Selection Procedure

**ONE best presentation** will be selected from EACH session based on the following criteria:

- |                     |                            |                         |
|---------------------|----------------------------|-------------------------|
| ✓ Research Quality  | ✓ Presentation Performance | ✓ Presentation Language |
| ✓ PowerPoint Design | ✓ Effective Communications |                         |

## Selection Procedure

- An assessment sheet (see picture) will be delivered to listeners before the session starts;
- When the session finishes, each listener is required to fill out the sheet (he/she can vote for two excellent presentations) and give it to the Session Chair;
- For the online presenters, the assessment sheet would be sent in advance via e-mail. Kindly send us the filled form in electronic version within ONE HOUR after the session is completed;

- The Session Chair will count the votes and select the best oral presentation with the most votes. If there is a tie, the Session Chair will make the final decision.

### **Best Oral Presentations Award**

The Best Oral Presenter from each session will receive an official certificate and complimentary registration to the NEFES 2025.

## **Sample of Assessment Sheet**

### **NEFES 2024 Oral Presentation Assessment**

Dear participants,

Thanks for your support. Kindly read the instructions below for the best oral presentation selection:

- You could select the two best oral presentations with this form and kindly fill in the form when all the speakers finish the presentations;
- 3 Best Oral presentations would be selected separately from Session 1 to Session 3;
- To ensure the fairness of the selection, one person could fill in only one form; kindly fill in the form by yourself and fill in your paper/abstract ID;

**You can refer to the following criteria for best oral selection:**

Items	Assessment
Content	Right, Logical, Original, Well-Structured
Language	Standard, Clear, Fluent, Natural
Performance	Spirited Appearance, Dress Appropriately, Behaves Naturally
PowerPoint	Layout, Structure, Typeset, Animation, Multimedia
Reaction	Build a Good Atmosphere, Speech Time Control Properly

**Please write down the paper ID and give reasons for your recommendation:**

Paper ID	Reasons

Evaluated by: \_\_\_\_\_

Paper ID: \_\_\_\_\_

**Note: Please fill it out and give it to the Session Chair or assistant so that the Best Oral Presentation could be selected.**



## Oral Session 1: Green Building and Energy Management

**Time:** 14:00-17:25, Tuesday, July 30th, 2024

**Location:** MC122-123 (1st Floor), Management Campus, SZE

**Session Chair:** Assoc. Prof. Tamás Horváth, Széchenyi István University, Hungary

14:00-14:20	<b>FES3046</b>	<b>Flexible Organic Electrochromic Devices Having Multicolored, Low-Voltage-Driven and High Contrast, and Organic Photovoltaic Properties Based on Oligomers and Viologen Derivatives</b> <i>Prof. Ping Liu, South China University of Technology, China</i>
14:20-14:35	<b>FES3058</b>	<b>General Purpose Condition Assessment Method That Can Be Automatically Optimised for Specific Objectives</b> <i>Dr. Adam Bukovics, Széchenyi István University, Hungary</i>
14:35-14:50	<b>FES3081</b>	<b>Energy Analysis of Buildings with Large Glazed Surfaces</b> <i>Assoc. Prof. Tamás Horváth, Széchenyi István University, Hungary</i>
14:50-15:05	<b>FES3082</b>	<b>Comparative Analysis of the Environmental Impact of Steel and Reinforced Concrete Hall Structures</b> <i>Dr. Kitti Ajtayné Károlyfi, Széchenyi István University, Hungary</i>
15:05-15:20	<b>FES3085</b>	<b>Challenges and Opportunities in the Energetic Modernization of Historic Residential Buildings in Budapest Downtown</b> <i>Ms. Heléna Szecskő, Széchenyi István University, Hungary</i>
15:20-15:35	<b>FES3086</b>	<b>Investigating the Global Warming Potential of Roof Structures Using Parametric BIM method</b> <i>Dr. Dóra Szalai, Széchenyi István University, Hungary</i>
15:35-15:55	<b>Coffee Break</b>	
15:55-16:10	<b>FES3114</b>	<b>Examination of Industrial Building Heating Modernization and Its Impact on Sustainability Issues</b> <i>Mr. Norbert Nagy, Reformax Ltd., Hungary</i>
16:10-16:25	<b>FES3096</b>	<b>The Evolution of Energetics</b> <i>Mr. Szabolcs Molnár, MVM Ltd., Hungary</i>
16:25-16:45	<b>FES3078</b>	<b>Significance of Spatial Data in Environmental Studies as a New Era of Artificial Intelligence Progress</b> <i>Mr. Nuhcan Akcıt, Middle East Technical University, Turkey</i>
16:45-17:05	<b>FES3130</b>	<b>Silver Energy Challenges – The Place of Older People in the Energy Transition</b> <i>Assoc. Prof. Jan Kazak, Wrocław University of Environmental and Life Sciences, Poland</i>
17:05-17:25	<b>FES3106</b>	<b>Major Factors Affecting Capacity Utilisation of Thermal Power Plants in India, Future Outlook and Financial Impact</b> <i>Dr. Alok K Tripathi, NTPC Regional Learning Institute, India</i>

## Oral Session 2: Thermal Engineering and Power Engineering

**Time: 09:00-12:10, Wednesday, July 31st, 2024**

**Location: MC122-123 (1st Floor), Management Campus, SZE**

**Session Chair: Prof. Abdel Moktader A. El Sayed, Ain Shams University, Egypt**

09:00-09:20	<b>FES3124</b>	<b>Hot and Cool Solutions for Industrial Decarbonization</b> <i>Mr. Stefan Ropers, MAN Energy Solutions SE, Germany</i>
09:20-09:40	<b>FES3075</b>	<b>Thermal Capacity Calculation from P-Wave Velocity and Thermal Conductivity Assessment for Bahariya Sandstone Reservoir Rocks</b> <i>Prof. Abdel Moktader A. El Sayed, Ain Shams University, Egypt</i>
09:40-09:55	<b>FES3049</b>	<b>The Working Characteristics of Different Feed Configurations MVC Evaporation Systems</b> <i>Mr. Fan Bai, Dalian University of Technology, China</i>
09:55-10:10	<b>FES3087</b>	<b>Thermoeconomic Simulation of Complex Energy System for Performance Analysis and Prediction in Deep Peak Shaving</b> <i>Dr. Sha Liu, Jinling Institute of Technology, China</i>
10:10-10:25	<b>FES3107</b>	<b>Thermal Performance and Cost Analysis of a Traditional Four-Pan Jaggery Unit in Northern India</b> <i>Mr. Alok Kumar, Indian Institute of Technology, India</i>
10:25-10:45	<b>Coffee Break</b>	
10:45-11:00	<b>FES3121</b>	<b>Modelling the Türkiye's Power Sector to Achieve Net Zero Emissions</b> <i>Dr. Umit Calikoglu, Hacettepe University, Turkey</i>
11:00-11:15	<b>FES3110</b>	<b>Application of the COCOSYS Code in the Safety Evaluation of Czech Nuclear Power Plants</b> <i>Dr. Adam Kecek, UJV Rez, a. s., Czech Republic</i>
11:15-11:35	<b>FES3099</b>	<b>Underground Water Heating Process by Solar Thermal Collector for Cross-Seasonal Thermal Storage System</b> <i>Dr. Saranmanduh Borjigin, Inner Mongolia University of Technology, China</i>
11:35-11:50	<b>FES3112</b>	<b>Experimental Investigations of Solar Hybrid Atmospheric Water Generator for Potable Water Generation</b> <i>Dr. Baiju Velappan Nadar, TKM College of Engineering, India</i>
11:50-12:10	<b>FES3139</b>	<b>Market Premia for Renewables in Germany: The Effect on Electricity Prices</b> <i>Prof. Manuel Frondel, RWI – Leibniz-Institut für Wirtschaftsforschung e.V., Germany</i>

## Oral Session 3: Energy Technologies and Materials

**Time:** 14:00-17:20, Wednesday, July 31st, 2024

**Location:** MC122-123 (1st Floor), Management Campus, SZE

**Online Room Link:** <http://www.academicconf.com/teamslink?confname=nefes2024>

**Session Chair:** Prof. Wolfgang Osten, University Stuttgart, Germany

14:00-14:20	<b>FES3072</b> <b>Online</b>	<b>An Optimal Scheme Assists the Municipalities in Fukuoka, Japan in Achieving Their Goal of 100% Renewable Energy Supply and Future Decarbonization</b> <i>Assoc. Prof. Richao Cong, The University of Kitakyushu, Japan</i>
14:20-14:45	<b>FES3055</b>	<b>Erosion Monitoring in Harsh Environment and Monitoring of Spray-Coating Processes by Digital Holography</b> <i>Prof. Wolfgang Osten, University Stuttgart, Germany</i>
14:45-15:05	<b>FES3061</b>	<b>Biomass Resources Monitoring System in Poland</b> <i>Assoc. Prof. Magdalena Borzęcka, Institute of Soil Science and Plant Cultivation, Poland</i>
15:05-15:20	<b>FES3068</b>	<b>Evaluation of Practicality for Fully Dense Isotropic Sm-Fe-N Magnets Fabricated by Shock-Wave Consolidation Method</b> <i>Dr. Keiko Hioki, Daido Steel Co., Ltd., Japan</i>
15:20-15:35	<b>FES3100</b>	<b>Functionalized Montmorillonite Clay-Based Proton Exchange Membranes for Direct Methanol Fuel Cells</b> <i>Mr. Pankaj Kumar, Indian Institute of Science Education and Research Bhopal, India</i>
15:35-15:55	<b>Coffee Break</b>	
15:55-16:10	<b>FES3094</b>	<b>Size Distribution and Spectral Response of Diesel Soot Measured by SMPS and Multi-Wavelength Photoacoustic Spectrometer</b> <i>Dr. Tibor Ajtai, University of Szeged, Hungary</i>
16:10-16:25	<b>FES3048</b>	<b>Application of Emission Factors to Explore the Potential of Hydrogen Production from Sewage Sludge</b> <i>Dr. Éva Veronika Pestiné Rácz, Széchenyi István University, Hungary</i>
16:25-16:45	<b>FES3084</b>	<b>Multilateral Evaluation of Energy Technologies - Proposal of an Integrated Model</b> <i>Dr. András Torma, Széchenyi István University, Hungary</i>
16:45-17:00	<b>FES3047</b>	<b>Energy Saving Analysis of Agrowaste Carbon-Ethanol Based Adsorption Heat Pump</b> <i>Mr. P. R. Chauhan, Department of Energy Science and Engineering, Indian Institute of Technology Delhi, India</i>
17:00-17:20	<b>FES3129</b>	<b>Study on Stability of Two-Dimensional Lead Iodide Perovskites for Solar-Cell Applications</b> <i>Prof. Juan F. Sánchez Royo, University of Valencia, Spain</i>

## Part V Conference Venue

### Venue: Széchenyi István University

Website: <https://www.uni.sze.hu/>

Address: 9026 Győr, Egyetem tér 1., Hungary

Tel.: +36 (96) 503 400

Széchenyi István University (SZE) is located in Győr, at the centre of Central Europe's "golden triangle". It situates halfway between the capital of Hungary, Austria and Slovakia, along highway M15, on the river Danube. The main campus of The University of Győr (Széchenyi István University), situated on the banks of the Danube River and only minutes on foot from the downtown. As a dynamically developing Higher Education Institution with nearly 14,000 students, since 2016 the University has seen a rapid rise in the number of international students, now representing 70 nations.



The university has 45 years of tradition and experience in supporting Hungary's leading industries with a strong focus on vehicle engineering, transportation and telecommunication. It becomes the primary driver of the regional economy provider for the public service sector and supplies the human resources and training needs for the North-Transdanubian region.

Starting in 2015, Audi Hungaria and the University of Győr jointly founded the "Audi Hungaria Faculty of Automotive Engineering" which now boasts six professorships: internal combustion engines, automotive manufacturing technology, complete vehicle development, material science and technology, environmental engineering, logistics and shipping.

### Campus Map:



Térkép jelzés	Épület neve
ÚT	Új-Tudástér épület
A, B, C, D	Tanulmányi épületek
K2, K3, K4	Hegedűs Gyula Kollégium
K0, K1	Multifunkciós Épület
E	"E" épület
L1, L2, L3	Labor Épület
G	Építész Műteremház
S1	Győr Városi Egyetemi Csarnok
S2	Kosárlabda Edzőcsarnok
IS	INNO-SHARE épület
LIB	Egyetemi Könyvtár
IG	Igazgatási Épület
I	INOK - Idegen Nyelvi Oktatási Központ
F1	Magyar Posta
F2	Járműhajtás Laboratórium
F2	Csomagolás és Környezetállósági Vizsgálólaboratórium
J	Deák Ferenc Állam- és Jogtudományi Kar épület
MOBILIS	Mobilis Interaktív Kiállítási Központ
BMT	Belsőégésű Motorok és Járműhajtások Tanszék
MC	Menedzsment Campus
P5, P6	Nyitott parkolóznák
P1, P2, P3, P4	Sorompóval elzárt parkolóznák



## Access to Széchenyi István University

### 1. From Budapest Ferenc Liszt International Airport to Széchenyi István University

#### (1) Airport Shuttle Bus – Metro - Inter-City Rail RJX – Bus

From Budapest Ferenc Liszt International Airport, walk 3 min (150m) to station: Liszt Ferenc Airport 2, take airport shuttle bus **100E Airport Express**, get off at *Kálvin tér M* (30 min); walk about 3 min to the Metro station: *Kálvin tér M*, take **Metro M4** (towards Keleti pályaudvar), get off at *Keleti pályaudvar M*; Walk from Keleti pályaudvar M to *Budapest-Keleti* (3 min), take **Inter-City Rail RJX** to Győr (about 1h 20 min); Walk from Győr station to *Aradi vértanúk útja, szökőkút* (about 10 min); take **bus No. 11**, get off at the 3rd stop: Széchenyi István University (or just walk from Győr station to Széchenyi István University, about 1.2miles, 24 min.).

**Note:** Airport Shuttle Bus 100E operates 24 hours a day, about every 15 minutes during the day, every 30-40 minutes at night. Ticket price: 2200 HUF.

#### (2) Taxi - Inter-City Rail RJX – Bus

From Budapest Ferenc Liszt International Airport, take a **Taxi** to *Budapest-Keleti* (Railway Station), take **Inter-City Rail RJX** to Győr (about 1h 20 min); Walk from Győr station to *Aradi vértanúk útja, szökőkút* (about 10 min); take **bus No. 11**, get off at the 3rd stop: Széchenyi István University (or just walk from Győr station to Széchenyi István University, about 1.2miles, 24 min.).

### 2. From Vienna International Airport (Austria) to Széchenyi István University

#### Inter-City Rail RJX - Inter-City Rail RJX – Bus (2h 16 min)

From Vienna International Airport, walk 2 min to *Flughafen Wien Bahnhof*, take **Inter-City Rail RJX** (towards Innsbruck Hbf), get off at *Wien HBF* (about 20 min); take **Inter-City Rail RJX** (towards Budapest-Keleti) to Győr, get off at *Győr* (1 h 10 min); Walk from Győr station to *Aradi vértanúk útja, szökőkút* (about 10 min); take **bus No. 11**, get off at the 3rd stop: Széchenyi István University (or just walk from Győr station to Széchenyi István University, about 1.2miles, 24 min.).

**Download the following pictures if you need to take a taxi:**

#### Show to the Taxi Driver

Please take me to **Széchenyi István University**

Address: 9026 Győr, Egyetem tér 1., Hungary

# Part V Acknowledgements

On behalf of the NEFES 2024 Organizing Committee, we would like to take this opportunity to express our sincere gratitude to our participants. We would also like to acknowledge the Technical Program Committee members who have given their professional guidance and valuable advice as reviewers. For those who contribute to the success of the conference organization without listing the names below, we would love to say thanks as well.

All the members of the NEFES 2024 Organizing Committee are from the countries and areas listed below:

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Assoc. Prof. Bindeshwar Singh, Kamla Nehru Institute of Technology, India

Website



Contact Us

Ms. Annie Zhu

+86-18071410263

[nefes@intergridconf.org](mailto:nefes@intergridconf.org)

[www.intergridconf.org](http://www.intergridconf.org)