



# NEFES 2026

## The 11th International Conference on New Energy and Future Energy System

July 7-10, 2026

City University of Macau, China

# Conference Program



澳門會展旅遊業協會  
ASSOCIACAO DOS SECTORES DE CONVENCOES, EXPOSITOES E TURISMO DE MACAU  
MACAO ASSOCIATION OF CONVENTION, EXHIBITION & TOURISM SECTORS



# Table of Contents

<b>Part I Conference Schedule Summary .....</b>	<b>1</b>
<b>Part II Keynote Speeches .....</b>	<b>3</b>
<b>Keynote Speech 1: Realistic Energy Loss Reduction with Mild Heating with World’s First Vacuum Insulated Heatable Curtain .....</b>	<b>3</b>
<b>Keynote Speech 2: Anammox Bacterial Ecology and the Effective Implementation in Full-Scale Wastewater Treatment Systems .....</b>	<b>3</b>
<b>Keynote Speech 3: Converting CO2 to Fuels via Thermocatalytic Processes .....</b>	<b>4</b>
<b>Part III Poster Presentations .....</b>	<b>7</b>
<b>Part IV Oral Presentations .....</b>	<b>9</b>
<b>Oral Session 1: Advanced Energy Systems, Thermal &amp; Renewable Energy Technologies .....</b>	<b>11</b>
<b>Oral Session 2: Smart Grids, Low-Carbon Conversion &amp; Functional Energy Materials .....</b>	<b>12</b>
<b>Part V Conference Venue .....</b>	<b>13</b>
<b>Part VI Acknowledgements .....</b>	<b>15</b>

Scan the QR Code to Download the Abstract Proceedings



\* This Program and abstract proceedings are used for NEFES 2026 academic exchange only

# Part I Conference Schedule Summary

July 7, 2026

14:00-18:00 **On-site Registration**  
3F, Corridor, Luso-Chinese Building (中葡樓), City University of Macau

**\* Notice:**

- Please show us your name or paper ID for registration;
- Please pick up all the conference materials at the registration desk (name tag, conference program, meal tickets, and field visit ticket etc.).

July 8, 2026

Location: Room L306, 3/F, Luso-Chinese Building, City University of Macau

**Welcome Speech**

09:00-09:10 Prof. Saim Memon, *Department of Industrial R&D in Vacuum Insulation Energy Technologies, Sanyou London Pvt Ltd, UK; School of Engineering and the Built Environment, Birmingham City University, UK; Jiangsu Sanyou Dior Energy-saving New Materials Co., Ltd (SANYOU DIOR), China*

**Keynote Speech 1: Realistic Energy Loss Reduction with Mild Heating with World's First Vacuum Insulated Heatable Curtain**

09:10-09:50 **Prof. Saim Memon**, *Department of Industrial R&D in Vacuum Insulation Energy Technologies, Sanyou London Pvt Ltd, UK; School of Engineering and the Built Environment, Birmingham City University, UK; Jiangsu Sanyou Dior Energy-saving New Materials Co., Ltd (SANYOU DIOR), China*

**Keynote Speech 2: Anammox Bacterial Ecology and the Effective Implementation in Full-Scale Wastewater Treatment Systems**

09:50-10:30 **Prof. Ji-Dong Gu**, *Environmental Science and Engineering, Guangdong Technion - Israel Institute of Technology, China; Civil and Environmental Engineering, Technion - Israel Institute of Technology, Israel*

10:30-10:40 **Group Photo**

10:40-11:10 **Coffee Break (Room L105, 1/F, Luso-Chinese Building)**

11:10-11:30 **FES3268 (Invited): Novel Designs of In-situ Pendulum-based Wave Energy Harvesters for Unmanned Marine Devices**

**Prof. Tao Wang**, *Zhejiang University, China*

11:30-11:50 **FES3291 (Invited): Boosting Low-temperature Performance of Direct-ammonia Protonic Ceramic Fuel Cells via a Modified LiNi<sub>0.8</sub>Co<sub>0.15</sub>Al<sub>0.05</sub>O<sub>2-δ</sub> Symmetrical Electrode**

**Prof. Jianbing Huang**, *Xi'an Jiaotong University, China*

12:00-14:00 **Lunch Break (Room L105, 1/F, Luso-Chinese Building)**

14:00-17:10 **Oral Session 1: Advanced Energy Systems, Thermal & Renewable Energy Technologies**

**18:00-18:30** **Depart for Macao Tower**

Pick-up Point: Rotunda Dr. Carlos A. C. P. D'Assumpção Bus Stop T307 (alongside the uphill road to CityU main gate) 宋玉生博士圓形地巴士站 T307 (城大校門上坡旁)

18:30-20:30 **Welcome Banquet at Macao Tower (With Buffet Dinner Ticket)**

**July 9, 2026 / Beijing Standard Time (UTC+8)**

**Location: Room L306, 3/F, Luso-Chinese Building, City University of Macau**

09:00-10:25 **Oral Session 2: Smart Grids, Low-Carbon Conversion & Functional Energy Materials**

14:00-16:00 **Poster Session (Room L105, 1/F, Luso-Chinese Building)**

**July 10, 2026**

**One day tour in Macao City**

**Departure from City University of Macau**

09:00 Pick-up Point: Rotunda Dr. Carlos A. C. P. D'Assumpção Bus Stop T307(alongside the uphill road to CityU main gate) 宋玉生博士圓形地巴士站 T307 (城大校門上坡旁)

09:00-10:00 **Ruins of St. Paul**

10:00-11:00 **A-Ma Temple**

11:00-12:00 **Handover Gifts Museum of Macao**

12:00-15:30 **Free Time at The Venetian Macao**

**15:30** **Back to City University of Macau**

Notes: Please note that the itinerary, including the order of visits and time spent at each location, is subject to change based on actual circumstances.

## Part II Keynote Speeches

### Keynote Speech 1: Realistic Energy Loss Reduction with Mild Heating with World's First Vacuum Insulated Heatable Curtain



*Prof. Saim Memon*

*Department of Industrial R&D in Vacuum Insulation Energy Technologies,  
Sanyou London Pvt Ltd, UK;*

*School of Engineering and the Built Environment, Birmingham City  
University, UK;*

*Jiangsu Sanyou Dior Energy-saving New Materials Co., Ltd (SANYOU  
DIOR), China*

**Biography:** Professor Saim Memon is an accomplished CEO and Industrial Professor of Renewable Energy Engineering, renowned for bridging the gap between academic research, industrial innovation, and global market impact. With a distinguished academic career rooted in the UK, he holds a PhD in Mechanical, Electrical, and Manufacturing Engineering from Loughborough University, England; a PGCE teaching qualification from the University of Aberdeen, Scotland; an MSc in Mechatronics from Staffordshire University, England; and a BEng (Hons) in Electrical Engineering, awarded with first-class distinction. Prof. Memon is a Chartered Engineer and a Fellow of the Higher Education Academy, and he also holds Qualified Teacher Status awarded by the General Teaching Council for Scotland. His world-leading multidisciplinary research expertise encompasses Electrical, Mechanical, and Renewable Energy Engineering. Recognised internationally as a global public speaker, Prof. Memon ranks among the top 1% worldwide in the field of Energy and across all disciplines according to ScholarGPS over the past five years. This recognition stems from his extensive academic and research contributions, including over 150+ research publications and 37+ industry articles, accumulating more than 2300+ citations with an h-index of over 28+ and an i10-index exceeding 57+. He has served as Editor-in-Chief and Guest Editor for more than five journals and has fulfilled reviewer roles for over 40 journals. Additionally, he has delivered more than 90 invited, keynote, and visiting lectures and engaged in research collaborations with over 40 countries worldwide. Throughout his teaching career, Prof. Memon has delivered 41 modules as module leader in electrical, electronic, mechanical, and renewable energy engineering, consistently achieving over 90% student satisfaction. He has also successfully supervised numerous PhD, MSc, and MEng projects. Prof. Memon's academic leadership is further evidenced by his significant contributions as a Head of research group, degree apprenticeship programs lead, course director for MSc, MEng, and BEng (Hons) programmes, Deputy Head of the School of Engineering, and overseeing programme development, accreditation, and validation.

**Abstract:** Meeting urgent climate targets requires rapid, scalable reductions in operational energy use across the built environment and associated thermal-management sectors, where end-use losses from walls, roofs, glazing, refrigeration and pipework account for over 40% of global final energy demand—yet traditional fibrous or polymeric insulation materials struggle to achieve sub- $0.20 \text{ W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$  U-values without excessive thickness, embodied-carbon trade-offs, or compromised fire safety. This research presents a harmonised portfolio of ultra-thin vacuum insulation technologies (VITs), engineered to overcome such limitations by evacuating core materials to  $\leq 10$  Pa, thereby minimising convective and gaseous conductive heat transfer. The suite includes standard Vacuum Insulation Panels

(VIP), façade-integrated Decorative VIP (DVIP), 4 mm Vacuum Insulated Wallpaper (VIW), 7 mm Vacuum Insulated Curtains (VIC), their heatable variant (VIHC), and modular Vacuum Insulated Bag/Box (VIBB) systems, all advanced to TRL 7–9. Fifteen-millimetre fibreglass VIPs deliver thermal conductivities as low as  $2.5 \text{ mW}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$  ( $U \approx 0.16 \text{ W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$ ), while 25 mm fumed-silica cores achieve  $4.5 \text{ mW}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ . When embedded in 30 mm DVIP façade cassettes, these systems achieve  $\lambda = 7 \text{ mW}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$  with EN 13501-1 Class A1 fire rating, freeze–thaw durability, and aged performance exceeding 35 years. VIW retrofits reduce solid-brick wall U-values by up to 71% and lower space-heating demand in London homes by 30%, while VIC fabrics with 3 mm removable VIP inserts achieve whole-curtain conductivities of  $13 \text{ mW}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$  and deliver 23% cooling-load savings in single-glazed Riyadh offices; the VIHC variant integrates low-wattage heaters consuming  $\sim 1 \text{ kWh}$  per three-hour cycle to provide local radiant warmth in cold climates. VIBB containers maintain  $2\text{--}8 \text{ }^\circ\text{C}$  for 120 hours in  $40 \text{ }^\circ\text{C}$  ambient conditions, reducing reliance on dry ice or active cooling by 80%. Across building envelopes, transport logistics, AI data centres, and EV battery casings, life-cycle analysis demonstrates that VIT deployment can prevent  $15\text{--}60 \text{ kg CO}_2\text{e}\cdot\text{m}^{-2}$  over 25 years—equivalent to 20–90% abatement in end-use energy waste. This paper argues that modular, shape-flexible vacuum insulation offers an immediately deployable, technically mature solution for deep, demand-side energy reduction essential to real-world climate-change mitigation.

## Keynote Speech 2: Anammox Bacterial Ecology and the Effective Implementation in Full-Scale Wastewater Treatment Systems



***Prof. Ji-Dong Gu***

*Environmental Science and Engineering, Guangdong Technion - Israel Institute of Technology, China;  
Civil and Environmental Engineering, Technion - Israel Institute of Technology, Israel*

**Biography:** Ji-Dong Gu is currently holding a full professorship of the Environmental Engineering, Guangdong Technion - Israel Institute of Technology and also Israel Institute of Technology concurrently. He received his M.Sc. from University of Alberta (Canada), and Ph.D. from Virginia Tech (USA). After a brief post-doc at 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 95, i10-index 503, and total citations of 33,560 (GoogleScholar). He has been the world top 1% scientists by WoS since 2013. He has published in the areas of applied and environmental microbiology and toxicology with more than 550 refereed scientific journal papers, 42 book chapters. He co-edited a book with Ralph Mitchell on ‘Environmental Microbiology’ (2nd ed, John Wiley-Blackwell, 2010). In the Environmental Science and Engineering category, he is ranked the top scientists and highly cited in China.

He is the editor-in-chief for *International Biodeterioration & Biodegradation* (2015– ). He also serves as advisory committee of International Board Member of International Society for Subsurface Microbiology (2016– ); and council member of International Board Member, International Biodeterioration & Biodegradation Society.

**Abstract:** Microbial-driven nitrogen removal is the crucial step in full-scale wastewater treatment plants (WWTPs), a better understanding of the overall nitrogen cycling networks is therefore a prerequisite for the further enhancement and optimization of wastewater treatment processes. Anammox bacteria have a unique affiliation to the different ecological/environmental conditions, and such intrinsic property is a result of their evolution. To further advance the application of anammox in wastewater treatment, metagenomics and metatranscriptomics were used to elucidate the microbial nitrogen removal processes in an ammonium-enriched full-scale WWTPs, which were configured as an anaerobic-anoxic-anaerobic-oxic system for efficient nitrogen removal (99.63%) on a duck breeding farm. A typical simultaneous nitrification-anammox-denitrification (SNAD) process was established in each tank of this WWTP. Ammonia was oxidized by ammonia-oxidizing bacteria (AOB), archaea (AOA), and nitrite-oxidizing bacteria (NOB), and the produced nitrite and nitrate were further reduced to dinitrogen gas (N<sub>2</sub>) by anammox and denitrifying bacteria. Visible red anammox biofilms were formed successfully on the sponge carriers submerged in the anoxic tank, and the nitrogen removal rate by anammox reaction was 4.85 times higher than that by denitrification based on <sup>15</sup>N isotope labeling and analysis. This supports the significant accumulation of anammox bacteria on the carriers responsible for efficient nitrogen removal. Two distinct anammox bacteria, named “*Ca. Brocadia* sp. PF01” and “*Ca. Jettenia* sp. PF02”, were identified from the biofilm in this investigation. By recovering their genomic features and their metabolic capabilities, our results indicate that the highly active core anammox process found in PF01, suggests extending its niche within the plant. With the possible contribution of the dissimilatory nitrate reduction to ammonium (DNRA) reaction, enrichment of PF02 within the biofilm may also be warranted. Collectively, this study highlights the effective design strategies of a full-scale WWTP with enrichment of anammox bacteria on the carrier materials for N removal and therefore the biochemical reaction mechanisms of the contributing members.

### Keynote Speech 3: Converting CO<sub>2</sub> to Fuels via Thermocatalytic Processes



***Prof. Xinhua Liang***

***Department of Energy, Environmental and Chemical Engineering,  
Washington University in St. Louis, USA***

**Biography:** Dr. Xinhua Liang is a professor in the Department of Energy, Environmental, and Chemical Engineering at Washington University in St. Louis. He joined WashU in August 2022 from Missouri University of Science and Technology, where he was the Linda and Bipin Doshi Associate Professor of Chemical and Biochemical Engineering and had been a member of the faculty since 2012. He attended the Chemical Engineering program at Tianjin University, earning bachelor's degree in 2001 and master's degree in 2003. He received Ph.D. in Chemical Engineering from the University of Colorado Boulder in 2008 and had three years of postdoctoral training there. Dr. Liang's research interests are in nanostructured materials synthesis and functionalization by atomic/molecular layer deposition and applying this technology in a broad range of energy and environmental applications including catalysis, storage batteries, and gas and liquid separation.

**Abstract:** Carbon dioxide (CO<sub>2</sub>) is increasingly recognized as a versatile carbon building block for the sustainable synthesis of value-added chemicals and fuels. Among the products accessible from CO<sub>2</sub>, dimethyl ether (DME) stands out as a promising alternative fuel owing to its high cetane number (~55), clean combustion characteristics, sulfur-free nature, and low emissions of NO<sub>x</sub> and carbon monoxide. DME can be readily liquefied under moderate pressures, transported using infrastructure similar to that for liquefied petroleum gas (LPG), and burns without soot formation due to the absence of carbon–carbon bonds. LPG itself is another attractive fuel that can be derived from CO<sub>2</sub>, further expanding the portfolio of carbon-neutral energy carriers. In this presentation, we highlight our recent progress in the direct, one-step hydrogenation of CO<sub>2</sub> to fuels using bifunctional thermocatalysts. Specifically, we demonstrate the efficient conversion of CO<sub>2</sub> and H<sub>2</sub> to DME over a bifunctional catalyst system composed of a Cu-based catalyst for methanol synthesis and an HZSM-5 zeolite for in situ methanol dehydration. This integrated approach enables DME production within a single reactor, eliminating the need for intermediate methanol separation. In parallel, we show that LPG-range hydrocarbons can be selectively produced via one-step CO<sub>2</sub> hydrogenation using a Cu/ZrO<sub>2</sub>/ZnO/Al<sub>2</sub>O<sub>3</sub> (CZZA) catalyst coupled with β-zeolite. Together, these results illustrate the potential of bifunctional thermocatalytic strategies to transform CO<sub>2</sub> into clean, high-performance fuels and contribute to a circular carbon economy.

# Part III Poster Presentations

## Poster Presentation Guidelines

### 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 NEFES 2026 Conference Committee
- Horizontal Head: please make the conference name 'NEFES 2026' and the paper number 'FES\*\*\*\*' as the head of the poster in order to make all the posters unified



### Requirements for the Posters:

- Each presenter is required to stand by their poster during the dedicated poster session to facilitate discussion and exchange with fellow participants. The selections for **Best Poster Presentation** awards will be made during this time.
- Posters will remain on display in the afternoon on July 9th. Presenters are responsible for removing their posters by this deadline. The Conference Secretariat will not be liable for any posters left uncollected after this time.

## Best Poster Presentation Selection

### Selection Criteria:

- Research Quality
- Presentation Skill
- Design

### Nature of the Award

- This award consists of free registration to NEFES 2027 and a certificate
- **ONE Best Poster Presentation** will be selected after session finishes with certificate issued and results demonstrated on NEFES 2027 website

## List of Posters

Time: 14:00-15:00 July 9, 2026

Location: Room L105, 1/F, Luso-Chinese Building

---

<b>FES3269</b>	<b>Modeling of a Multi-Sensing System Using Magnetostrictive Sensors for Preliminary IVR Analysis</b> <i>Dr. Kil Mo Koo, UMI (Universal Monitoring &amp; Inspection), Republic of Korea</i>
<b>FES3294</b>	<b>Performance Evaluation of a 200°C High-Temperature Heat Pump Integrated with Flash Tank and Steam Generator for Waste Heat-Based Industrial Steam Generation</b> <i>Mr. Seon-Woo Lee, Department of Refrigeration and Air-conditioning Engineering, College of Engineering, Pukyong National University, Republic of Korea</i>
<b>FES3295</b>	<b>Simulation Research on Adsorption Heat Pump Utilizing Waste Heat from Immersion Cooling Data Center</b> <i>Prof. Sung-Hoon Seol, Department of Refrigeration and Air-conditioning Engineering, College of Engineering, Pukyong National University, Republic of Korea</i>
<b>FES3299</b>	<b>Modelling, Simulation and Performance Optimization of an Improved Cassava Attrition Peeling System: The Mechanistic Approach</b> <i>Prof. Edeh John Chijioke, Department of Mechanical Engineering, Kabale University, Wester Region, Uganda; Department of Mechanical Engineering, Michael Okpara University of Agriculture, Umudike, Nigeria</i>
<b>FES3308</b>	<b>Thickness-Dependent Emission Characteristics of Yb:FAP Ceramics under Solar Pumping and Comparison with Nd:FAP</b> <i>Mr. Kechao Chen, Kitami Institute of Technology, Japan</i>
<b>FES3311</b>	<b>Discovery and Accumulation Patterns of Helium-Rich Natural Gas in the Erlian Basin</b> <i>Dr. Ruifeng Zhang, PetroChina Huabei Oilfield Company, China</i>

---

# Part IV Oral Presentations

## General Guidelines

- ✚ All presentation times are shown in Beijing Standard Time (UTC+8).
- ✚ 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 prior to the scheduled time and complete their presentations 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
- ✚ Laser Sticks
- ✚ Microphones
- ✚ Please send us the PowerPoint once it is ready and have the PPT back up in a U-disk. For presenters who do not send the PowerPoint, please save it in 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 a complimentary registration to the NEFES 2027.

## **Sample of Assessment Sheet**

### **NEFES 2026 Oral Presentation Assessment**

Dear participants,

After carefully listening to the presentations of this session, please kindly recommend two excellent Oral Presentations with reference to the following evaluation criteria.

The Session Chair will count the votes from each presentation and select ONE Best Oral Presentation in this session. If there is a tie, the Session Chair will make the final decision.

The winner will be announced at the official website after the conference.

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

<b>Items</b>	<b>Assessment</b>
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:**

<b>Paper ID</b>	<b>Reasons</b>

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: Advanced Energy Systems, Thermal & Renewable Energy Technologies

**Time: 14:00-17:10, July 8, 2026**

**Location: Room L306, 3/F, Luso-Chinese Building**

### Session Chairs:

**14:00-15:30 Prof. Fulong Zhao, Harbin Engineering University, China**

**16:00-17:10 Prof. Jiming Wen, Harbin Engineering University, China**

14:00-14:20	<b>FES3301 (Invited)</b>	<b>Ammonia Energy towards the Decarbonization for Power: Fundamental and Application Research on Co-combustion of Ammonia and Conventional Fuels</b> <i>Prof. Hua Xiao, Guangzhou Maritime University, China</i>
14:20-14:40	<b>FES3304 (Invited)</b>	<b>Forecasting the Viability of Complete Stage Transitions in Aluminum-based Batteries</b> <i>Dr. Chi Ho Wong, The Hong Kong Polytechnic University, China</i>
14:40-15:00	<b>FES3289 (Invited)</b>	<b>Water Vapor Migration and Bubble Evaporation under Continuous Uniform Liquid Heating</b> <i>Prof. Jiming Wen, Harbin Engineering University, China</i>
15:00-15:15	<b>FES3276</b>	<b>Evolution of the Aaron Stove for the Gasification of Wood Chips</b> <i>Dr. Stefano Bechis, Interuniversity Department of Regional and Urban Studies and Planning, Politecnico di Torino and Università di Torino, Italy</i>
15:15-15:30	<b>FES3309</b>	<b>Safe-Critical Optimal Control of Alkaline Electrolyzer via Multi-Timescale PPO</b> <i>Mr. Songheng Jiang, College of Electrical Engineering, Zhejiang University, China</i>
15:30-16:00	<b>Coffee Break (Room L105, 1/F, Luso-Chinese Building)</b>	
16:00-16:20	<b>FES3288 (Invited)</b>	<b>Investigation and Application of Dense Droplet Motion and Phase Change Characteristics</b> <i>Prof. Fulong Zhao, Harbin Engineering University, China</i>
16:20-16:35	<b>FES3303</b>	<b>Sustainable Transport Fuel Production from Biomass and Waste Resources: Process Development and AI-Assisted Fuel Quality Analysis</b> <i>Dr. Md Jahirul Islam, School of Engineering and Technology, Central Queensland University, Australia</i>
16:35-16:50	<b>FES3300</b>	<b>Development of a Mechanical Mass-Spring Powered System for Irrigation</b> <i>Prof. Edeh John Chijioko, Department of Mechanical Engineering, Kabale University, Wester Region, Uganda; Department of Mechanical Engineering, Michael Okpara University of Agriculture, Umudike, Nigeria</i>

16:50-17:10	<b>FES3266</b> <b>(Invited Video)</b>	<b>Heat Transfer Mechanisms in Wearable Thermoelectric Devices</b> <i>Prof. Diana Enescu, Valahia University of Targoviste, Romania;</i> <i>Istituto Nazionale di Ricerca Metrologica, Italy</i>
-------------	--	--

## Oral Session 2: Smart Grids, Low-Carbon Conversion & Functional Energy Materials

**Time: 09:00-10:25, July 9, 2026**

**Location: Room L306, 3/F, Luso-Chinese Building**

**Session Chair:**

*Prof. Houpei Li, Hunan University, China*

9:00-9:40	<b>Keynote Speech 4</b>	<b>Converting CO<sub>2</sub> to Fuels via Thermocatalytic Processes</b> <i>Prof. Xinhua Liang, Department of Energy, Environmental and Chemical Engineering, Washington University in St. Louis, USA</i>
9:40-9:55	<b>FES3278</b>	<b>ARCUAS: A 3D Printing of Regolith and Biobased Material for Terraforming</b> <i>Prof. Francesca Parotti, Syracuse University of Florence, Italy</i>
9:55-10:10	<b>FES3310</b>	<b>Element Screening of High-Entropy Silicon Anodes for Enhanced Li-Storage Performance</b> <i>Dr. Yanhong Li, School of Chemical Engineering, Sungkyunkwan University, Republic of Korea</i>
10:10-10:25	<b>FES3319</b>	<b>Towards Low-Carbon Cooling: Adaptive and Hierarchical AI Control of Photovoltaic- Driven Air Conditioning</b> <i>Prof. Houpei Li, College of Civil Engineering, Hunan University, China; Key Laboratory of Building Safety and Energy Efficiency (Hunan University), Ministry of Education, China</i>
10:25-10:55	<b>Coffee Break (Meeting Room L105, Luso-Chinese Building)</b>	
12:00-13:30	<b>Lunch Break</b>	

# Part V Conference Venue

Venue: City University of Macau, China

Address: Avenida Padre Tomás Pereira Taipa, Macau

Website: <https://cityu.edu.mo/en/>



## **Transportation to City University of Macau:**

### **1. From Macao Airport (澳門國際機場)**

- About 4 KM
- Approx. 8 - 10 minutes by taxi
- Approx. 15 - 20 minutes by bus MT1, and get off at **T300 Esparteiro/Lou Lim Ieok** (史伯泰/盧廉若站)

### **2. From Border Gate Terminal (澳門關閘) (注：大陸方向為拱北口岸)**

- About 10 KM
- Approx. 15 - 20 minutes by taxi
- Approx. 45 - 60 minutes by bus No. 25, and get off at **T300 Esparteiro/Lou Lim Ieok** (史伯泰/盧廉若站)

### **3. From Hong Kong- Zhuhai-Macao Bridge Frontier Port (港珠澳大橋澳門口岸)**

- About 16 KM
- Approx. 25 minutes by taxi
- Approx. 45 - 60 minutes. Take bus No.102X, and get off at **Chun Lai Garden** (泉澧花園)

### **4. From New Hengqin Port (橫琴口岸澳門口岸)**

- About 9 KM
- Approx. 20 minutes by taxi
- Approx. 30 - 40 minutes. Take bus No. 101X, and get off at **T300 Esparteiro/Lou Lim Ieok** (史伯泰/盧廉若站)

**Notes:** The campus is located on a hill. If alighting at Esparteiro/Lou Lim Ieok, please allow 10-15 minutes for the uphill walk. Comfortable footwear is recommended.

## Part VI Acknowledgements

On behalf of the NEFES 2026 Organizing Committee, we would like to take this opportunity to express our sincere gratitude to our participants. We would also like to express our acknowledgements to 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 name below, we would love to say thanks as well.

### Conference General Chair

Prof. Farhad Shahnian, School of Engineering and Energy, Murdoch University, Australia

### Technical Program Committee Chairs

Prof. Saim Memon, Birmingham City University, UK; Sanyou London Pvt Ltd, UK

Prof. Grigorios L. Kyriakopoulos, National Technical University of Athens (NTUA), Greece

Prof. Fuqiang Wang, Harbin Institute of Technology (Weihai), China

Prof. Bingang Xu, Hong Kong Polytechnic University, China

### Committee Member

Prof. Muslum Arici, Mechanical Engineering Department, Kocaeli University, Turkey

Dr. Alexander Christantho Budiman, National Research and Innovation Agency (BRIN), Indonesia

Dr. Mingjie Chen, Hydrogeologist, Water Research Center, Sultan Qaboos University, Oman

Prof. Luigi Costanzo, Department of Engineering, University of Campania "Luigi Vanvitelli", Italy

Prof. Maciej Dzikuc, Department of Energy Transformation, University of Zielona Gora, Poland

Prof. Diana Enescu, Department of Electronics, Telecommunications and Energy, VALAHIA University of Targoviste, Romania; Physical Thermodynamics Unit, INRiM, Torino, Italy

Prof. Miodrag Forcan, Faculty of Electrical Engineering, University of East Sarajevo, Bosnia and Herzegovina

Prof. Gheorghe Grigoras, Faculty of Electrical Engineering, Energetics, and Applied Informatics, "Gheorghe Asachi" Technical University of Iasi, Romania

Prof. Kumaran Kannaiyan, Mechanical Engineering, Guangdong Technion-Israel Institute of Technology, China

Dr. Tomasz Kisielewicz, Warsaw University of Technology, Poland

Prof. Sifeddine LABED, Senior Advisor, Renewables & Green Hydrogen, Solar Consult, Algeria

Prof. Yushi Liu, School of Civil Engineering, Harbin Institute of Technology, Harbin, China

Dr. Poh-Yee Loh, Faculty of Built Environment, Universiti Malaya, Malaysia

Dr. M. A. Mohammed Manaz, Department of Electrical Engineering, National Sun Yat-sen University

Dr. Claudia Masselli, University of Naples Federico II, Italy

Prof. Paolo Mercorelli, Control and Drive Systems, Leuphana University, Germany

Prof. LAMINE Mustapha, Faculty of Sciences Aïn Chock, Hassan II University of Casablanca, Morocco

Prof. Shogo Nishikawa, College of Science and Technology, Nihon University, Japan

Prof. Shola Ololade, Centre for Environmental Management, University of the Free State, South Africa

Dr. Crescenzo Pepe, Research Fellow, Università Politecnica delle Marche, Italy

Prof. Jianhua Shen, East China University of Science and Technology, China

Dr. Romeu Vitorino, Department of Electrical Engineering, Polytechnic Institute of Leiria, Portugal

Prof. Sheng-Hung Wu, Research Center for Energy Technology and Strategy, National Cheng Kung University

Prof. Sheng-Jun Zhong, School of Metallurgy, Northeastern University, China











Website



Contact Us

Ms. Judy Li

+86-18071410263

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

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