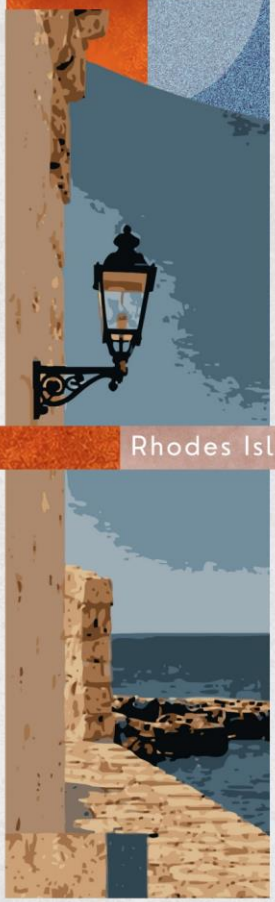
PRES'26

11-14 October 2026

29th Conference on Process Integration, Modelling and Optimisation for Energy Saving and Pollution Reduction



Rhodes Island Greece



ORGANIZERS

School of Mechanical Engineering
Aristotle University of Thessaloniki

Chemical Process and Energy Resources Institute
Centre for Research and Technology Hellas

An event of the PRISE Foundation

Supported by *processes*

PRES'26
WELCOME

PRES'26 International Scientific and Organisation Committees welcome all participants to the twenty-ninth event in the series of PRES conferences in Rhodes, Greece. The PRES conference series was initiated by the late Professor Jiří Jaromír Klemeš. Its first version was organised in 1998 in collaboration with Professor Zdeněk Buriánec within the framework of the CHISA congress. Under the leadership of Professor Jiří J. Klemeš, the conference became an established independent venue in collaboration of the conference PRES'99 with ESCAPE-9, hosted jointly with Hungarian colleagues in Budapest, in 1999. The strong partnership with the Italian Association of Chemical Engineers resulted in the joint organisation of PRES events with the Italian Chemical Engineering Conference (ICheaP) and the publication of conference papers in a dedicated volume of Chemical Engineering Transactions (cited by SCOPUS). With a growing global presence, PRES events have become widely recognised and visited countries where strong communities in Process Integration, modelling, and optimisation have been developed – such as Kuching, Malaysia in 2015, Tianjin, China in 2017, Xi'an, China in 2024 and Port Dickson, Malaysia in 2025. The other PRES venues in Canada (2003), Italy – multiple times, in Greece (2013, 2019, 2023), Croatia (2022), and the Czech Republic – multiple times, have built a strong international network of Process Integration and Pollution Reduction experts that provides a unique platform for scientific and engineering discussions, as well as forging project collaborations.

PRES returns to Greece in 2026 after three successful events in 2013, 2019 and 2023. This year the conference is co-organised by the School of Mechanical Engineering of Aristotle University of Thessaloniki (AUTH) and the Chemical Process & Energy Resources Institute (CPERI) of the Centre for Research and Technology – Hellas (CERTH). PRES'26 is an event of the PRISE Foundation, a non-profit organisation with a mission to promote knowledge development, preservation and update in the fields of resource efficiency, environmental safety and sustainability with the annual PRES conference organisation supervision being the highlight of its activities.

The aim of PRES'26 is to provide a platform for knowledge sharing and dissemination, reviewing the latest research developments and applications as well as cutting-edge results in new and emerging technologies in the fields of Process Integration, Mathematical Modelling and Optimisation as systematic approaches for energy savings and pollution reduction enabling sustainable process systems and cleaner production. The impact of AI is in the core of the conference as new opportunities arise that require however a robust framework to unleash their greatest potential.

The conference attracted 281 abstracts authored by more than 780 researchers from 47 countries. Of these, 146 papers are presented only in the online platform, and 135 papers are in hybrid mode – presented on-site and online. Three plenary lectures from leading scientists in the field of Process Integration and Sustainability set off the scientific discourse, followed by 19 keynote presentations, 83

oral presentations, and 37 poster presentations. All papers have undergone a thorough peer-review process to ensure the highest technical quality, assisted by 114 expert reviewers. A special Poster Selection Committee will evaluate poster presentations for technical quality, presentation skills, clarity of reasoning, the strength of arguments to the questions posed by the Committee members and finally poster content. A number of awards will be announced at the Gala-Awards Conference Dinner on October 14th. Selected papers from PRES'26 are published in a dedicated Volume of Chemical Engineering Transactions by AIDIC, with many more papers to be invited by the International Scientific Committee to submit full research manuscripts to Special Issues in leading scientific journals.

PRES'26 in Rhodes, Greece offers a rich social programme to facilitate networking among conference participants. Whether meeting old friends and colleagues or getting introduced to the PRES family for the first time, the welcome reception party at the old port of Rhodes on Sunday, October 11th sets the stage for the commencement of the scientific dialogue and friendly conversations. The daily coffee and lunch breaks not only immerse participants in the traditional local cuisine but mainly enable the continuation of discussions initiated during the technical sessions. A boat-cruise around Rhodes on Monday, October 12th aims to close the day in the relaxing fashion. The Conference Gala-Awards dinner planned for the evening of Wednesday, October 14th promises to conclude PRES'26 in style. The closing event includes a special entertainment programme, providing a relaxed environment to continue facilitating discussions, recognise excellent research contributions, and look forward to another successful PRES conference in Dalian, China next year.

Rhodes is a place with a history of more than 4,000 years in which past architectural (Lindos temple) and technological (there is strong indication that the Antikythera mechanism – the first analog computer – was constructed in Rhodes) wonders meet the dominating knights of St John. Modern hotels covering the paradise-like riviera are being watched by a unique and well-preserved medieval city. Ancient Greek temples of outstanding harmony merge with the Rhodian sun and the deep blue of the sea and the sky. Enjoy a long walk at the 25 km stretch of the seaside promenade, explore the medieval city narrow streets.

PRES'26 greatly values the efforts of the conference chairs and the members of the International Scientific Committee. The Organising Committee worked hard to manage the participation of delegates from all over the world. The contribution of AIDIC in the publication of a dedicated Volume of Chemical Engineering Transactions and the use of the COMET platform by the SDEWES Centre is greatly appreciated. PRES'26 greatly appreciates the supporters of the Conference and especially the personnel of Machine Dynamics Laboratory in the School of Mechanical Engineering AUTH, and the Process Systems Design and Implementation Laboratory (PSDI) of CPERI/CERTH for all their hard work for the preparation of the Conference.

Panos Seferlis, Athanasios I. Papadopoulos, *PRES'26 Chairs*
Petar Sabev Varbanov, *PRISE Foundation Chair*

ABOUT
PRES SERIES

PRES'26 is the twenty-ninth event in the series. It was initiated by Professor Jiří J. Klemeš with Professor Zdeněk Buriánec in the framework of CHISA congresses. The first independent venue was PRES'99 in Budapest. Following is the full list of the PRES venues.

EVENT	YEAR	PLACE	COUNTRY
1	**1998**	Prague	**Czech Republic**
2	**1999**	Budapest	**Hungary**
3	**2000**	Prague	**Czech Republic**
4	**2001**	Florence	**Italy**
5	**2002**	Prague	**Czech Republic**
6	**2003**	Hamilton, Ontario	**Canada**
7	**2004**	Prague	**Czech Republic**
8	**2005**	Giardini Naxos	**Italy**
9	**2006**	Prague	**Czech Republic**
10	**2007**	Ischia, Naples	**Italy**
11	**2008**	Prague	**Czech Republic**
12	**2009**	Rome	**Italy**
13	**2010**	Prague	**Czech Republic**
14	**2011**	Florence	**Italy**
15	**2012**	Prague	**Czech Republic**
16	**2013**	Rhodes	**Greece**
17	**2014**	Prague	**Czech Republic**
18	**2015**	Kuching, Sarawak	**Malaysia**
19	**2016**	Prague	**Czech Republic**
20	**2017**	Tianjin	**China**
21	**2018**	Prague	**Czech Republic**
22	**2019**	Agios Nikolaos, Crete	**Greece**
23	**2020**	Xi'an	**China**
24	**2021**	Brno	**Czech Republic**
25	**2022**	Bol, Split	**Croatia**
26	**2023**	Thessaloniki	**Greece**
27	**2024**	Xi'an	**China**
28	**2025**	Port Dickson	**Malaysia**
29	**2026**	Rhodes Island	**Greece**

TOPICS

CONFERENCE FORMAT

PRES'26 conference focuses on the following topics

Process Integration for sustainable development
Process analysis, modelling and optimisation
Total Site Integration
Heat transfer and heat exchangers
Energy saving and clean technologies
Sustainable processing and production
Renewable and high efficiency utility systems
Footprint minimisation and mitigation
Operations and supply chain management
Waste minimisation, processing and management
Batch process analysis and integration
Process network dynamics, flexibility and control
Industrial implementation and optimisation
Numerical fluid flow and heat transfer simulation
Sustainability and Process Integration teaching, learning and knowledge tools
CO_2 capture, sequestration and utilisation
Process Systems Engineering (P-graph)
Sustainable aviation

INTERNATIONAL SCIENTIFIC COMMITTEE

PRISE FOUNDATION CHAIR

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P. Y. Liew	Universiti Teknologi Malaysia	MY
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X. Liu	Sinopec China	CN
Y. Liu	Xi'an Jiaotong University	CN
V. Lu	The Hong Kong Polytechnic University	HK, CN
H. Lund	Aalborg University	DK
T. Ma	Xi'an Jiaotong University	CN
Z. Manan	Universiti Teknologi Malaysia	MY
F. Manenti	Politecnico di Milano	IT
H. Mikulčić	University of Zagreb	HR
D. Misirlis	International Hellenic University	GR
D. K. S. Ng	Sunway University	MY
W. P. Q. Ng	Universiti Teknologi Brunei	BN
S. Nižetić	University of Split	HR
P. Ocłoń	Cracow University of Technology	PL
M. Picón-Núñez	University of Guanajuato	MX
J. Pimentel	Széchenyi István University	HU
A. E. Pleşu	University of Barcelona	ES
M. Sadenova	D. Serikbayev East Kazakhstan Technical University	KZ
F. Sher	Nottingham Trent University	UK
R. Smith	The University of Manchester	UK
R. Su	Tianjin University	CN
L. Sun	The University of the West of Scotland	UK
R. R. Tan	De La Salle University	PH
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B. Wang	Zhejiang Ocean University	CN
J. Wang	Fudan University	CN
Y. F. Wang	China University of Petroleum	CN
S. Werle	Silesian University of Technology	PL
F. You	Cornell University	US
H. Yu	Aalborg University	DK

LOCAL ORGANISING COMMITTEE

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PLENARY SPEAKERS

EFSTRATIOS PISTIKOPOULOS

Texas A&M Energy Institute

Towards a Sustainable Energy-Materials Transition Nexus



Professor Efstratios Pistikopoulos is the Director of the Texas A&M Energy Institute and holds the Dow Chemical Chair Professorship in the Artie McFerrin Department of Chemical Engineering at Texas A&M University. He was a Professor of Chemical Engineering at Imperial College London, UK (1991-2015) and a former Director of its Centre for Process Systems Engineering. He holds a Ph.D. degree from Carnegie Mellon University and worked with Shell Chemicals in Amsterdam before joining Imperial. He has authored or co-authored over 650 major research publications in the areas of modelling, data analysis, control and optimization of energy, process and systems engineering & automation applications, 17 books, 5 patents, and various software tools. A co-founder of Process Systems Enterprise (PSE) Ltd (now part of Siemens), he is a Fellow of AIChE and IChemE and the Editor-in-Chief of Computers & Chemical Engineering. Prof. Pistikopoulos was a co-recipient of the prestigious MacRobert Award from the Royal Academy of Engineering in 2007, the recipient of the Computing in Chemical Engineering Award of CAST/AIChE in 2013, the IChemE's Sargent Medal in 2020, and the AIChE's Sustainable Engineering Forum Award in 2021. At Texas A&M, he received The Association of Former Students Distinguished Achievement Award for Research in 2021 and was named a University Distinguished Professor in 2023. He is a Fellow of the Royal Academy of Engineering in the UK, and a Member of the Texas Academy of Medicine, Engineering, Science and Technology.

Abstract: The transition toward low-carbon energy systems faces numerous challenges, including the management of energy storage for intermittent renewable sources, the accounting of emissions across diverse sectors, and the coordination of technology shifts for applications such as power generation, transportation, and dense energy carrier (DEC) production. Achieving these goals sustainably requires significant material resources, as clean energy technologies often demand additional materials than fossil-fuel-based systems, as for example for energy storage, electric vehicle production, grid infrastructure, and construction of wind and solar power systems, among others. As the production and procurement of these materials generate emissions and introduce additional supply chain costs and constraints, the consideration of the energy and materials transition nexus becomes essential to fully address sustainable energy challenges. We will present some of these challenges, propose an energy systems engineering framework for the energy-materials transition nexus, and highlight examples, including solar photovoltaics, wind farms, and electric vehicles, which rely on energy- and emission-intensive materials such as rare earth metals, polymers, and concrete.

MING XU
Tsinghua University

AI-assisted Life Cycle Data Infrastructure Development



Professor Ming Xu is the Chair Professor of Carbon Neutrality, Associate Dean for Research, Founding Director of Center of AI for Ecology and Environment in School of Environment at Tsinghua University. Prior to that, he was a Professor in School for Environment and Sustainability and a Professor in Department of Civil and Environmental Engineering at the University of Michigan, Ann Arbor. He earned his BS and MS from Tsinghua University, China, and PhD from Arizona State University, all in environmental engineering. His research focuses on environmental systems engineering, life cycle assessment, and environmental artificial intelligence. He was awarded the Robert A. Laudise Medal from International Society for Industrial Ecology for "outstanding achievement in industrial ecology by a researcher under the age of 36" in 2015. He received the National Science Foundation Faculty Early Career Development (CAREER) Award in 2016. In 2021 he received the Walter L. Huber Civil Engineering Research Prize from American Society of Civil Engineers for "his significant contributions in advancing life-cycle environmental impact assessment of industrial systems." In 2024 he was the only recipient of the Amazon Research Award from mainland China. He served as the President of the International Society for Industrial Ecology (term 2023-2024). Currently he is the Editor-in-Chief of Elsevier's flagship journal in environmental management, Resources, Conservation & Recycling (2024 Impact Factor 10.9). He is also a member of the UNEP's International Resource Panel. He has been leading the TianGong Initiative which consists of about 200 researchers from more than 60 institutions across the world to develop the TianGong LCA Database, an open and transparent life cycle assessment database for China (https://www.tiangong.earth).

Abstract: Life Cycle Assessment (LCA) is critical for global green supply chains, yet traditional databases suffer from low transparency, proprietary lock-in, and poor representation. Launched in March 2023, the TianGong Initiative addresses this by establishing an open-source LCA database for China using a "backbone-first" approach for complete matrix computability. TianGong integrates AI within its TianGong Data System (TIDAS)—utilizing LLMs, specialized execution skills, and a 70B+ token knowledge base—to automate evidence retrieval and data classification alongside expert validation. Localized assessments demonstrate significant impact: TianGong reduces global warming potential estimates for Chinese lithium-ion battery manufacturing by up to 39.4% compared to ecoinvent and provides realistic national grid emissions data. Expanding beyond a database, TianGong is evolving into a global infrastructure to enable dataset fusion and foster international sustainability collaboration.

BÉLA KELEMEN
MOL Group

The Energy Transition Paradox
What Science Tells Us About a Sustainable Future



Dr Béla Kelemen has been functioning as MOL Group Business Excellence Vice President since January 2016. Before he spent over 20 years of different senior positions in the MOL Group Downstream. Last he was in charge of Downstream Optimization VP as Supply Chain Manager. Béla joined MOL Group in 1997 as an LPG trader after spending five years in an American Hungarian Joint venture where he learnt Crude Oil, and Oil Products trading. He then transitioned into other product as bitumen, other position as sales director and other country as Slovakia. One of his biggest challenge was in his Downstream career to lead five refineries as Production VP. He was always very committed to business development particularly to develop business via technology development and people development. Todays in his position he is leading the Lean transformation of the company, establishing the continuous improvement culture by waste elimination and resource saving. Béla holds a Master of Chemical Engineering degree from Technical University Budapest, Hungary and PhD of Physical Chemistry. He was representing MOL in Petroleum Refiners Association where he has been functioning 4 years as the President then another 4 years as Vice President of the Association.

Abstract: The global energy transition is often framed around ambition, regulation, and decarbonization targets. Yet history teaches us that aspirations alone do not transform societies. Lasting progress must be built on scientific reality and the fundamental laws of physics, chemistry, and thermodynamics.
This keynote examines the central paradox of the energy transition: while the world seeks to reduce carbon emissions, carbon remains essential to life, materials, industry, mobility, and modern prosperity. The real challenge is not eliminating carbon but using it intelligently and sustainably.
Achieving a truly sustainable future will demand unprecedented levels of innovation, scientific excellence, and technological breakthroughs. Only by aligning environmental ambitions with scientific realities can we create an energy transition that is not only desirable, but achievable, resilient, and enduring.

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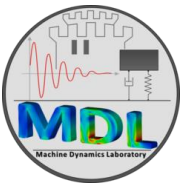
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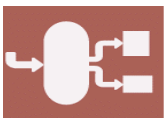
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CPERI

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Process and
Energy
Resources
Institute





processes







ΕΠΙΣΤΗΜΟΝΙΚΕΣ
ΕΚΔΟΣΕΙΣ ΤΖΙΟΛΑ



ACKNOWLEDGEMENTS

The Local Organising Committee gratefully thanks the following personnel and collaborators of the Process Systems Design and Implementation Laboratory (PSDI) of CPERI/CERTH and the Machine Dynamics Laboratory of AUTH, Akrivos Kakabegkas, Babis Kantouros, Costas Koutroulis, Panagiotis Kazepidis, Evie Nessi, Eleni Nikolaidou, Konstantinos Parissis, Christina Paschou, Thomas Prousalis, Lefteris Poulidis, Alexis Sandravelis-Panteliadis, Konstantina Tolia, Efthimis Valais, Theofilos Xenitopoulos, for their devotion to the preparation of PRES'26 Conference.

PRES'26 expresses its gratitude to the Municipality of the City of Rhodes and the Municipality of Rhodes Company (DERMAE) for offering the welcome reception and providing the necessary conveniences to the PRES'26 activities. Special thanks go to Mr Costas Kastanakis for organising all essential issues related to our stay in Rhodes.

The International Scientific Committee would like to gratefully express thanks to the 114 expert reviewers who have helped in successfully completing the peer review process for the Chemical Engineering Transactions volume and the PRES'26 Proceedings volume.

Processes (ISSN: 2227-9717) - is an international, peer-reviewed, open access journal on processes/systems in chemistry, biology, material, energy, environment, food, pharmaceutical, manufacturing, automation control, catalysis, separation, particle and allied engineering fields published semimonthly online by MDPI, for Sponsoring the Best Paper Award.

CONFERENCE HALLS

TIME	DELPHI AMPHITHEATRE	NAFSICA A	NAFSICA B	NEFELI A	NEFELI B
	RODOS PALACE CONFERENCE CENTRE				
11	**SUNDAY**, OCTOBER **11**TH				
14:00	REGISTRATION (PRES'26 DESK – CONFERENCE CENTRE)				
17:15	Buses depart from RODOS PALACE Main Entrance				
17:30	WELCOME PARTY (OLD PORT OF RHODES)				
12	**MONDAY**, OCTOBER **12**TH				
8:30	REGISTRATION (PRES'26 DESK – CONFERENCE CENTRE)				
9:15	**OPENING CEREMONY**				
10:00	**PLENARY SESSION I**				
11:10	**Session 1.1** PROCESS INTEGRATION FOR SUSTAINABLE DEVELOPMENT	**Session 1.2** CO_2 CAPTURE, SEQUESTRATION AND UTILISATION	**Session 1.3** ENERGY SAVING AND CLEAN TECHNOLOGIES	**Session 1.4** PROCESS ANALYSIS, MODELLING, AND OPTIMISATION	**Poster Session**
12:50	LUNCH (AMBROSIA RESTAURANT)				
14:15	**PLENARY SESSION II**				
15:20	COFFEE BREAK (CONFERENCE CENTRE)				
15:40	**Session 1.5** PROCESS ANALYSIS, MODELLING, AND OPTIMISATION	**Session 1.6** BIO-DERIVED CO_2 CAPTURE, SEQUESTRATION AND UTILISATION	**Session 1.7** ENERGY SAVING AND CLEAN TECHNOLOGIES	**Session 1.8** SUSTAINABLE AVIATION	**Poster Session**
17:20	**End of Sessions**				
17:45	BOAT CRUISE – PORT OF RHODES (Buses leave 17:30 from RODOS PALACE Main Entrance)				
	FREE EVENING				

	CONFERENCE HALLS				
TIME	**DELPHI AMPHITHEATRE**	**NAFSICA A**	**NAFSICA B**	**NEFELI A**	**NEFELI B**
	RODOS PALACE CONFERENCE CENTRE				
13	**TUESDAY**, OCTOBER **13TH**				
09:00	REGISTRATION (PRES'26 DESK – CONFERENCE CENTRE)				
09:30	**Session 2.1** PROCESS ANALYSIS, MODELLING, AND OPTIMISATION	**Session 2.2** HEAT TRANSFER & HEAT EXCHANGERS	**Session 2.3** OPERATIONS AND SUPPLY CHAIN MANAGEMENT	**Session 2.4** RENEWABLE & HIGH-EFFICIENCY UTILITIES	**Poster Session**
11:10	COFFEE BREAK (CONFERENCE CENTRE)				
11:30	**PLENARY SESSION III**				
12:35	LUNCH (AMBROSIA RESTAURANT)				
14:00	**Session 2.5** WASTE MINIMISATION, PROCESSING & MANAGEMENT	**Session 2.6** FOOTPRINT MINIMISATION AND MITIGATION	**Session 2.7** PROCESS INTEGRATION FOR SUSTAINABLE DEVELOPMENT	**Session 2.8** P-GRAPH WORKSHOP	**Poster Session**
17:20	**End of Sessions (Sessions 2.5 and 2.7 end at 17:40)**				
17:30	PRISE BOARD MEETING				
18:30	ISC DINNER (by Invitation) Bus leaves from RODOS PALACE Main Entrance at 18:30				

	CONFERENCE HALLS		
TIME	NAFSICA A	NAFSICA B	NEFELI A
	RODOS PALACE CONFERENCE CENTRE		
14	**WEDNESDAY**, OCTOBER **14**TH		
09:00	REGISTRATION (PRES'26 DESK – CONFERENCE CENTRE)		
09:30	**Session 3.1** PROCESS ANALYSIS, MODELLING, AND OPTIMISATION	**Session 3.2** PROCESS SYSTEMS, DYNAMICS AND CONTROL	**Session 3.3** PROCESS INTEGRATION FOR SUSTAINABLE DEVELOPMENT
11:10	COFFEE BREAK (CONFERENCE CENTRE)		
11:30	**Session 3.4** PROCESS INTEGRATION FOR SUSTAINABLE DEVELOPMENT	**Session 3.5** PROCESS INTEGRATION FOR SUSTAINABLE DEVELOPMENT	**Session 3.6** PROCESS INTEGRATION FOR SUSTAINABLE DEVELOPMENT
13:10	LUNCH (AMBROSIA RESTAURANT)		
14:30	PRES'27 ANNOUNCEMENT – CLOSING SESSION		
20:00	GALA AWARDS DINNER (TWELVE ISLANDS (12 NISIA) RESTAURANT)		

PROGRAMME

11 SUNDAY, OCTOBER 11TH

RODOS PALACE CONFERENCE CENTRE LOBBY

14:00	REGISTRATION
17:30	Welcome Reception (OLD PORT OF RHODES) Buses leave from RODOS PALACE Main Entrance at 17:15

12 MONDAY, OCTOBER 12TH

DELPHI AMPHITHEATRE

8:30 REGISTRATION (RODOS PALACE CONFERENCE CENTRE LOBBY)

9:15 **OPENING CEREMONY**

CHAIRS: **Panos Seferlis, Athanasios I. Papadopoulos**

MESSAGE ON BEHALF OF PRISE FOUNDATION

Raymond Tan, Board Member

Welcome address

Ioannis Rekanos, Vice-Rector for Research and Innovation, Aristotle University

Welcome address

Spyros Voutetakis, Director, Chemical Process & Energy Resources Institute/CERTH

Welcome address

Alexander Basile Coliadis, Mayor of Rhodes

OPENING ADDRESS

Petar Sabev Varbanov, Panos Seferlis, Athanasios I. Papadopoulos

PLENARY LECTURE I

CHAIRS: **Panos Seferlis, Athanasios I. Papadopoulos**

10:00 Towards a Sustainable Energy-Materials Transition Nexus

Efstratios Pistikopoulos

11:00 **GROUP PHOTO**

DELPHI AMPHITHEATRE, OCTOBER 12TH

SESSION 1.1

PROCESS INTEGRATION FOR SUSTAINABLE DEVELOPMENT

CHAIRS: **Kathleen Aviso, Spyros Voutetakis**

11:10	**KEYNOTE LECTURE** Hybrid Pinch Method for Bi-Level Energy Planning and Carbon Management Games ***R.R. Tan,*** *K. Aviso, S. Bandyopadhyay, D. Foo, M.V. Migo-Sumagang*
11:50	A Modeling Framework for the Hydrodeoxygenation of Fast Pyrolysis Bio-Oil in Trickle-Bed Reactors ***K. Papavasileiou,*** *A.S. Kyriakides, S. Bezergianni, M. Georgiadis, S. Papadopoulou, S. Voutetakis*
12:10	Cost-Optimal Planning of CO2 Capture Retrofit under Annual and Cumulative Storage Constraints *D. Snopkov, R.R. Tan, I.H. Gue, D. Foo****, I. Radelyuk***
12:30	Multi-Objective Optimisation of a Grid-Supplying Biomass CHP Hub Integrated with Solar-Powered V2G and H2G-Capable Mini-Grids ***T.B. Chitsiga****, A.J. Isafiade*

NAFSICA A, OCTOBER 12TH

SESSION 1.2

CO_2 CAPTURE, SEQUESTRATION AND UTILISATION

CHAIRS: **Thodoris Damartzis, Panagiotis Kazepidis**

11:10	**KEYNOTE LECTURE** Modeling and Optimization of Membrane and Adsorption-Based Processes for Carbon Capture from Post-Combustion CO2 Point Sources *C. Chatziasteriou, M. Georgiadis****, E. Kikkinides***
11:50	Scenario based forecasting of the economic viability of a cement plant equipped with a MEA-based Carbon Capture Unit *I. Thiagalingam,* ***C. Bouallou***

12:10	Life Cycle Inventory Modelling for CESAR1 CO_2 Capture Solvent: Patent-Derived UniSim Production Routes for AMP and Piperazine ***A. Robinson Medici***
12:30	Comparative Cost Optimization of Amine Solvents for Rotating Packed Bed (RPB) Carbon Capture from Cement and Natural Gas Flue Gases ***B. Kantouros,*** *T. Prousalis, I. Tsivintzelis, A.I. Papadopoulos, P. Seferlis*

NAFSICA B, OCTOBER 12TH

SESSION 1.3

ENERGY SAVING AND CLEAN TECHNOLOGIES

CHAIRS: **Sandro Nižetić**, **Jie Li**

11:10	**KEYNOTE LECTURE** Assessment of Decarbonized Waste-to-Energy Gasification for Sustainable Chemicals and Energy Vector Poly-generation ***C.C. Cormos****, M. Prodan, L. Petrescu, A.M. Cormos*
11:50	Techno-Economic Assessment of Distillation Strategies for Separating Dimethyl Carbonate/Methanol Azeotrope ***Q. Li,*** *T. Yordanov, A. Kiss*
12:10	Optimisation of Mobilised Energy Storage for Regional Industrial Energy Trading *H.S.H. Hariz Izzuddin, P.Y. Liew,* ***L. Gai****, B. Wang, L.S. Tan, S.Z. Nordin*
12:30	Analysing the Impact of Oil Palm Bioenergy-Led Fuel Diversification on Malaysia's Energy Climate Resilience: A Multi-Scenario Planning Model *C. Lau, I. Moser, B.S. How,* ***V. Andiappan***

NEFELI A, OCTOBER 12TH

SESSION 1.4

PROCESS ANALYSIS, MODELLING, AND OPTIMISATION

CHAIRS: **Yasuki Kansha, Efrosyni Giama**

11:10	**KEYNOTE LECTURE** From Industrial Control to Administrative Resilience: A Conceptual Framework for Regional Systems ***B. Eisinger**, L. Buics*
11:50	Design and Optimization of Renewable Energy Systems for Green Ammonia Production ***D. Jeon**, J.K. Kim*
12:10	Hybrid Modelling of Biological Methanation in Trickle Bed Reactors ***T. Jonach,** K. Wieland, K. Kobsik, N. Kreuzinger*
12:30	Design of Robust Recycling Networks for End of Life Material Management ***J. Pimentel**, G. Ruiz-Mercado, F. Friedler*

NEFELI B, OCTOBER 12TH

11:10-12:50	**POSTER SESSION**
12:50	LUNCH Ambrosia Restaurant

DELPHI AMPHITHEATRE

PLENARY LECTURE II

CHAIRS: **Petar Sabev Varbanov, Michael Georgiadis**

14:15	AI-assisted Life Cycle Data Infrastructure Development ***Ming Xu***

15:20 COFFEE BREAK – CONFERENCE CENTRE

DELPHI AMPHITHEATRE, OCTOBER 12TH

SESSION 1.5

PROCESS ANALYSIS, MODELLING, AND OPTIMISATION

CHAIRS: **Calin Cormos, Jakov Baleta**

15:40 **KEYNOTE LECTURE**

Orange Hydrogen: Valorization of Hydrogen Sulfide through Thermochemical Splitting

S. Caspani, ***F. Manenti***

16:20 Techno-Economic Assessment of a Modularized RPB-Based CO_2 Capture Process for Commercial-Scale Application

H. Kim*, J.K. Kim*

16:40 Machine Learning-Assisted Techno-Economic Optimization of PET Chemical Recycling via Subcritical Methanolysis

P. Ntantolis, ***T. Damartzis***

17:00 Dynamic Modeling of a tCO2 Rankine Pumped Thermal Energy Storage System under Variable Renewable Energy Conditions

A. Stoikos*, A.S. Kyriakides, I. Tsimpanogiannis, K. Papavasileiou, P. Seferlis, S. Voutetakis*

NAFSICA A, OCTOBER 12TH

SESSION 1.6

BIO-DERIVED CO_2 CAPTURE, SEQUESTRATION AND UTILISATION

CHAIRS: **Athanasios I. Papadopoulos, Patricia Braga**

15:40 **KEYNOTE LECTURE**

Enzymatic CO_2 Capture in a Rotating Packed Bed and Electrocatalytic CO_2 Reduction to Useful Products: An Overview of the REUSE Project

A.I. Papadopoulos*, S. Balomenou, D. Tsiplakides, K. Papazisi, E. Nessi, P. Kazepidis, V. Silva, A. Castro Vargas, K. Manian, S. Paul, J. Lee, P. Andric, M. Milic, S. Barricella, O. Kuti, D. Sawtell, Z. Abd-Allah, T. Xenitopoulos, P. Seferlis*

16:20 Multi-Dimensional Optimization of Coal-RDF-Ammonia Fuel Blends: Exergetic Efficiency and Environmental Impact

J. Chavando, ***P. Braga****, D. Eusébio, V. Silva*

16:40 CFD-Based Optimisation of Biomass Gasification and Combustion for High-Purity CO_2 Production

A. Salem*, V. Silva, O. Kuti*

17:00 Pilot-scale evaluation of aqueous AMP and KOH for CO_2 capture in a Rotating Packed Bed: Implications and comparison with MEA

E. Nikolaidou*, E. Nessi, P. Seferlis, A.I. Papadopoulos*

NAFSICA B, OCTOBER 12TH

SESSION 1.7

ENERGY SAVING AND CLEAN TECHNOLOGIES

CHAIRS: **Sebastian Werle, Hrvoje Mikulčić**

15:40 Receding-Horizon Weight Scheduling for NMPC-Based Energy Coordination in an Isolated Multinode Microgrid

D. Trigkas*, S. Voutetakis, S. Papadopoulou*

16:00	Effect of Thermal Cycling on Stability of Thermal Properties of Waste-Based Phase Change Materials ***I. Čorić**, S. Nižetić, M. Jurčević, J. Bošnjak Hordov, D. Čoko, M. Jakić, M. Ćosić*
16:20	Controlling Exploration and Convergence in AI-Assisted Generative Process Synthesis *A.T. Karagoz, **J. Li***
16:40	An Integrated Polygeneration System for Cooling, Power, and Chemical Production via Cascade Utilization of LNG Cold Energy *L. An, B. Wang, W. Chen, M. Zhou, Y. Zhuang, H. Tao, **L. Gai***

NEFELI A, OCTOBER 12TH

SESSION 1.8

SUSTAINABLE AVIATION

CHAIRS: **Dimitris Misirlis, Zinon Vlahostergios**

15:40	**KEYNOTE LECTURE** Integrated Modelica-Based Modeling and Validation of a Heat Exchanger System for Fuel Cell Aircraft Applications ***S. Cai***
16:20	CFD Analysis of Bypass-Stream Cooling in a Free Double Piston Engine ***K. Fotis,** V. Karaiskos, Z. Vlahostergios, D. Misirlis, K. Yakinthos*
16:40	Experimental Investigation of Performance of a Plate-Fin Heat Exchanger with Serrated and Herringbone Fins under Two-Phase Flow in Presence of Non-Condensable Gases ***M. Dimitriadou**, V. Karaiskos, Z. Vlahostergios, D. Misirlis, K. Yakinthos, C. Mcnab, B. Pollard, J. Mccormick*
17:00	Overview of Analytical and Numerical Tools for Aerothermal Design Studies in Aero-Engine Applications ***V. Karaiskos,** O. Ziogas, M. Dimitriadou, P. Panagiotou, Z. Vlahostergios, D. Misirlis, K. Yakinthos*

NEFELI B, OCTOBER 12TH

15:40-17:20 **POSTER SESSION**

13 TUESDAY, OCTOBER 13TH

09:00 REGISTRATION (RODOS PALACE CONFERENCE CENTRE LOBBY)

DELPHI AMPHITHEATRE

SESSION 2.1

PROCESS ANALYSIS, MODELLING, AND OPTIMISATION

CHAIRS: **Raymond Tan, Chunyan Si**

09:30 **KEYNOTE LECTURE**

Multi-parametrical Experimental Investigation of Textile Waste Under Low-molecular-weight Solvent Solvolysis Processes

L. Slobodkina, R. Muzyka, S. Sobek, M. Sajdak, ***S. Werle***

10:10 Optimal Sizing of Heat Pump Systems for Heating and Cooling Processes Through Mathematical Programming

K. Sittas*, E. Giama*

10:30 A Multi-Energy Integration Framework for Optimizing Biomass-to-Methanol Conversion: Unraveling the Effects of Green Hydrogen Penetration

N. Zhang*, Z. Li, P. Liu*

10:50 Uncertainty driven optimization of methanol synthesis: a global sensitivity approach to energy efficiency and operational resilience

G. Leonzio*, S. Kucherenko, F. Manenti, N. Shah*

NAFSICA A, OCTOBER 13TH

SESSION 2.2

HEAT TRANSFER AND HEAT EXCHANGERS

CHAIRS: **Boglárka Eisinger, Bin Shen How**

09:30	**KEYNOTE LECTURE** Performance Evaluation of a Gray-Box Soft-Sensor Model under Different Indoor Thermo-Hydrodynamic Conditions *J. Wang, H. Takahashi, Y. Sakai, R. Zhang, H. Kanayama, D. Satou,* ***Y. Kansha***
10:10	Numerical Modelling and Performance Assessment of TPMS Based Heat Exchangers for sCO2 Recompression Cycle Applications ***D. Misirlis****, A. Kaldellis, I. Mirisidis, D. Sagris, C. David*
10:30	Multi-period co-optimization of vertical thermosyphon reboilers for seasonal operation in amine-based carbon capture process *X. Ma, T. Pan,* ***Z. Yang****, N. Zhang, G. Li*
10:50	System-Level Optimization and Heat Pump Integration for Decarbonization of Dairy and Liquid Food Processing ***X. Bin****, H. Ghanbari, M. Andersson, D. Arlov*

NAFSICA B, OCTOBER 13TH

SESSION 2.3

OPERATIONS AND SUPPLY CHAIN MANAGEMENT

CHAIRS: **Maliheh Razavi, Jean Pimentel**

09:30	**KEYNOTE LECTURE** Inoperability-Based Business Risk Analysis for Green Start-Ups *R.R. Tan,* ***K. Aviso****, K.D. Yu, J. Santos, M.V. Migo-Sumagang*
10:10	Improved Simulation-based Algorithm for Multiproduct Pipeline Scheduling Using Parallel Paths ***A. Éles****, I. Heckl*

10:30	An Optimisation Framework Integrating Land Use Implications for Energy Transition Planning under Data Centres Growth *X.H. Cheng, D.R. Markandu, B.S. How,* ***V. Andiappan***
10:50	Water Integration in Thermoelectric Plants: Dataset collection and Discussion on the Use of Water Integration Methods for a Real Case Study ***L. Le Brun****, G.P. Alfonso Sarmiento, P. Herbelin, T. Neveux, C. Castel*

NEFELI A, OCTOBER 13TH

SESSION 2.4

RENEWABLE AND HIGH-EFFICIENCY UTILITIES

CHAIRS: **Chakib Bouallou, Xia Liu**

09:30	**KEYNOTE LECTURE** Big Data Management for Palm Oil Industry Circular Economy Optimisation ***H.L. Lam***
10:10	LCA of Renewable Energy Valorisation by Chemical Storage in a Methane Closed Grid System with CO2 Recycling ***G. Tondelli****, B. Okyay Yücel, W. Cardoso, I. Rossetti, C. Pirola*
10:30	Addressing the Intermittency of Renewable Hydrogen Production: A Techno-Economic Analysis on Firming Options ***L.S. Yeo****, I.N. Akhsani, R. Fouquet, H.K. Ho, A.X.Y. Mah*
10:50	Integrating Vehicle-to-Grid Electric Vehicles with Hydrogen–Ammonia as Multi-Timescale Hybrid Storage in Renewable Power Systems *Z. Zhu, X. Chen,* ***M. Aziz***

NEFELI B, OCTOBER 13TH

9:30-11:10 **POSTER SESSION**

11:10	COFFEE BREAK – CONFERENCE CENTRE

DELPHI AMPHITHEATRE, OCTOBER 13TH

PLENARY SESSION III

CHAIRS: **Petar Sabev Varbanov, Flavio Manenti**

11:30	*The Energy Transition Paradox* *What Science Tells Us About a Sustainable Future* ***Béla Kelemen***

12:35	LUNCH Ambrosia Restaurant

DELPHI AMPHITHEATRE, OCTOBER 13TH

SESSION 2.5

WASTE MINIMISATION, PROCESSING AND MANAGEMENT

CHAIRS: **Simira Papadopoulou**, **Kirti Yenkie**

14:00	From Foam Waste to Value: Mechanical Recycling of Crosslinked EPDM Foams in Polyolefin Matrices ***M. Razavi**, M. Razavi-Esfali, S.Y. Teng*
14:20	Bridging Vision-Language Models and P-graph Optimization for Reliable Wastewater Treatment Networks *A. Castellar-Freile, B. Guillermo, J. Pimentel, Á. Orosz, **K. Yenkie***
14:40	Biomass to Hydrogen (B2H2): A Dual-Stream Circular Concept for Low-Carbon Hydrogen from Sewage Sludge ***N. Iannotta**, D. Basso, L. Zanetti, M. Pecchi, M. Tenardi, S. Cavana, G. Catalano, F. Bonariol, S. Petronelli, S. Piazzi, F. Patuzzi, M. Baratieri, F. Manenti*
15:00	A Behavioral Game-theoretic Framework for Waste-to-product Networks in Hi-tech Eco-industrial Parks ***L.W. Yip,** J.Y. Lee*
15:20	Evaluation of Synthetic NOX Utilization from Ammonia Combustion for Chemical Recycling *I. Ino, **Y. Kansha***

15:40	Comparative life cycle sustainability assessment of ciprofloxacin removal using advanced nanoadsorption vs ozonation *O. Plohl, **C. Si**, E. Mihelič, S.Š. Turk, U. Rozman, M. Legan, A. Žgajnar Gotvajn, L. Čuček*
16:00	Optimisation of branched sorting and post-treatment sequences in the recycling of automotive plastics ***Q.Y. Ong**, S. Pal, S.Y. Teng*
16:20	Analysis and Scale-Up Considerations About the State of the Art of the Chemical Recycling of Polyamide 6 ***A. Ferlin**, C. Maesani, S. Alini, C. Pirola*
16:40	Thermal Performance Enhancement of Shell-and-Tube Heat Exchangers with Twisted Tubes and Shell-Side Flow Arrangements *J.L. García-Castillo, **M. Picón-Núñez**, J.A. Crespo-Quintanilla*
17:00	Thermo-hydraulic Design and Optimisation of Multi-pass Compabloc Heat Exchangers *J.R. Lizárraga-Morazán, **M. Picón-Núñez***
17:20	LBM Simulation of Thermal Conductivity in Unsaturated Frozen Fine Sand Based on Sphere Packing and Neighborhood-Constrained Growth ***F. Cui**, C. Zhao, J. Wang, J. Chen, Z. Liu*

NAFSICA A, OCTOBER 13TH

SESSION 2.6

FOOTPRINT MINIMISATION AND MITIGATION

CHAIRS: **Alexis-Spyridon Kyriakides, Ákos Orosz**

14:00	A Sparse Reconstruction Framework for Temperature Fields in Composite Phase Change Materials Based on Gappy POD and Sensor Placement Optimization ***Z. Han**, N. Li, Q. Ma, L. Jiang, H. Zhang, T. Ma*
14:20	Topology Optimization of Multi-Inlet Manifolds for Vibration Suppression Based on Transient Pressure Excitation and Prestressed Modal Analysis ***N. Zhuang**, J. Wang, Y. Liu, P. Guo, X. Liu*

14:40	Data-driven prediction of CO2-induced corrosion in carbon steel pipelines for carbon capture utilization and storage applications ***T. Xenitopoulos**, E. Nikolaidou, P. Seferlis, A.I. Papadopoulos*
15:00	Longitudinal Analysis of Kazakhstan's Virtual Water Trade: An Input-Output Assessment from 2000 to 2024 ***I.H. Gue,** J.R. Teng, I. Radelyuk, R.R. Tan*
15:20	Traceability-Enabled Optimization of Timber Supply Chains: A Lightweight Python-Based DSS for Footprint Minimization (Chalkidiki, Greece Case Study) *L. Konstantinidis, **Z. Andreopoulou**, N. Morfopoulos*
15:40	Immersive XR-based Training Platform for Smart Readiness Indicator Assessment in Sustainable Buildings ***K. Chatzikonstantinidis**, P. Papadopoulos, E. Chatzidarellis, E. Giama, A. Papadopoulos*
16:00	Can We Trust Large Language Models to Advise on Plastics Recycling? Not Out of the Box. ***A. Bin Sahl**, K. Ragaert, S.Y. Teng*
16:20	Decarbonization Pathways for a Hydropower Dependent Electricity System: Implications of Water Constraints in Colombia *F. Flores, F. Feijoo, **H. Mikulčić***
16:40	Enhancing direct CO_2-to-dimethyl ether conversion through spatially confined core-shell catalyst architecture ***K.D. Rios Ramirez**, M. Jafari, B. Dorneanu, K. Valverde Pontes, H. Arellano-Garcia*
17:00	Thermal Characterization of Waste Margarine and Palm Oil for Energy Storage Applications *J. Bošnjak Hordov, **I. Čorić**, M. Jakić, M. Ćosić, M. Jurčević, D. Čoko, M. Arici, S. Nižetić*

NAFSICA B, OCTOBER 13TH

SESSION 2.7

PROCESS INTEGRATION FOR SUSTAINABLE DEVELOPMENT

CHAIRS: **Denny K. S. Ng, Daria Popugaeva**

14:00	**KEYNOTE LECTURE** Reconceptualizing Net-Zero Emission for Tropical Building Development: A Case Study of Sunway University's Net Zero Carbon Building *D.K.S. Ng, L.J.L. Tee, D. Alias,* ***K.G.H. Kong***
14:40	**KEYNOTE LECTURE** Process Design and Analysis of Power to Aromatics via Methanol *J. Jiang, M. Qi,* ***H. Yu***
15:20	The Coefficient of Performance Analysis in Industrial Cryogenic Refrigeration Process Using Different Refrigerants ***X. Liu****, L. He*
15:40	Application Research of Pressure Swing Thermal Coupling Technology Based on DWC in Mixed Aromatics Systems ***L. Zheng****, Y. Guo, L. He*
16:00	Market-Oriented Investment Decision Making in Integrated Renewable-Electrolyzer Systems *M. Kanta, C.N. Dimitriadis,* ***M. Georgiadis***
16:20	Integrated Simulation Approach for Enhancing Chilled and Cooling Water Networks Performance: Sunway University Case Study ***D. Alias****, P. Tan, L.J.L. Tee, K.G.H. Kong, D.K.S. Ng*
16:40	Rainwater Harvesting and Smart Water Treatment Integration in a Tropical Net-Zero Carbon Building: A Living Laboratory Case Study at Sunway University ***K.G.H. Kong****, D. Alias, B.S. How, L.J.L. Tee, D.K.S. Ng*
17:00	Developing Thermodynamically Stable Bio-Lubricants from Vegetable Oils: A Process Optimisation and Computer-Aided Molecular Design Methodology ***X.S. Lim****, L.Y. Ng, D.K.S. Ng, N.G. Chemmangattuvalappil*

17:20	Synthesis of integrated hydrogen production systems considering emerging technologies and alternative carbon management options ***G. Abdelrahman**, M. Katebah, M. Lameh, M. Ahmed, P. Linke*

NEFELI A, OCTOBER 13TH

SESSION 2.8

P-GRAPH WORKSHOP

LECTURERS: ***H. L. Lam, S. Y. Teng, J. Pimentel***

NEFELI B, OCTOBER 13TH

14:00-17:20 **POSTER SESSION**

14 WEDNESDAY, OCTOBER 14TH

NAFSICA A, OCTOBER 14TH

SESSION 3.1

PROCESS ANALYSIS, MODELLING, AND OPTIMISATION

CHAIRS: **Ivan Henderson Gue, Dela Quarme Gbadago**

09:30 **KEYNOTE LECTURE**

Multi-scenario joint optimization of heat load allocation and debottlenecking in heat exchanger networks under multi-source disturbances

L. Zhao, *G. Liu*

10:10 Mathematical Modeling and Optimization of Power Allocation of a Multi-Stack Alkaline Water Electrolysis System

A.S. Kyriakides, *A. Stoikos, D. Trigkas, S. Voutetakis*

10:30 Integration of wind and solar power with green methanol production and an energy management system in a DC chemical microgrid

Y. Zhang, *G. Liu*

10:50 Integrated Capacity Design and Year-Long Scheduling Optimisation of Green Ammonia Production Systems

R. Sun, T. Zheng, Y. Ma, T. He, ***J. Li***

NAFSICA B, OCTOBER 14TH

SESSION 3.2

PROCESS SYSTEMS, DYNAMICS AND CONTROL

CHAIRS: **Georgios Georgiadis, Zekun Yang**

9:30 **KEYNOTE LECTURE**

Integrating Redundancy Optimization into Process Network Synthesis via the P-Graph Framework

Á. Orosz, *J. Pimentel, P.S. Varbanov, F. Friedler*

10:10	Multi-Loop Control Strategy for Post-Combustion CO2 Capture Using Hollow-Fiber Membrane Contactors Integrated with a Power Plant ***A.C. Bozonc**, V.M. Cristea, A.M. Cormos*
10:30	System Identification of a Packed Bed Latent Heat Storage System with Composite Phase Change Materials ***K. Parissis**, T. Xenitopoulos, A. Anagnostopoulos, P. Seferlis*
10:50	Evaluation of Scaling Fouling in Evacuated Flat Plate Solar Collector Networks Using Fouling and Operating Curves ***H.G. Lugo Granados**, L. Canizalez Dávalos, M. Picón-Núñez*

NEFELI A, OCTOBER 14TH

SESSION 3.3

PROCESS INTEGRATION FOR SUSTAINABLE DEVELOPMENT

CHAIRS: **Lubomir Klimes, Dimitris Trigkas**

09:30	**KEYNOTE LECTURE** Energy Grading and Cascade Utilisation in Energy-Integrated System based on Energy Quality Pinch Analysis ***B. Wang,** F. Wang, P.S. Varbanov*
10:10	Model Predictive Control for Cooling Water Systems with Renewable Energy Integrated: Balancing Economic Efficiency and Carbon Reduction *S. Wen, **G. Liu***
10:30	Allocation of Carbon Dioxide Removal Cost Reductions as Cooperative Games *V. Andiappan, K. Aviso, **B.S. How**, M.V. Migo-Sumagang, R.R. Tan*
10:50	Optimal Deployment of CO2 Capture, Utilisation, Mineralisation, and Sequestration (CCUS) Networks Under Uncertain Carbon Permit Cost ***T. Prousalis**, B. Kantouros, A.I. Papadopoulos, P. Seferlis*
11:10	COFFEE BREAK – CONFERENCE CENTRE

NAFSICA A, OCTOBER 14TH

SESSION 3.4

PROCESS INTEGRATION FOR SUSTAINABLE DEVELOPMENT

CHAIRS: **Lars Rehmann, Eustathios Kikkinides**

11:30	**KEYNOTE LECTURE** Cryopurification for sustainable mine-impacted water remediation in Canada's North ***D. Popugaeva,*** *E. Allen, K. Kreyman, L. Rehmann*
12:10	Reaction Kinetics and Chemical Equilibrium Studies of Solvent-based CO_2 Absorption with Pollutants ***E. Valais****, E. Nessi, P. Seferlis, A.I. Papadopoulos*
12:30	A Systematic Framework for Physics-informed Biomass Gasification Surrogates under Uncertainty ***L. Poulidis****, P. Seferlis, V. Silva, A.I. Papadopoulos*
12:50	Techno-Economic Assessment of Enzymatic Rotating Packed Bed CO_2 Capture Plant with Electrochemical Solvent Regeneration ***A. Sandravelis-Panteliadis****, T. Xenitopoulos, G. Gkizas, A.I. Papadopoulos, P. Seferlis*

NAFSICA B, OCTOBER 14TH

SESSION 3.5

PROCESS INTEGRATION FOR SUSTAINABLE DEVELOPMENT

CHAIRS: **Suzana Yusup, Evie Nessi**

11:30	**KEYNOTE LECTURE** Malaysia's Net Zero Path: Hydrogen Vehicles Outlook in Malaysia ***S. Yusup****, C.P. Tan, Z.H. Lim, N.N. Abdul Talib, F.E. Ab Latif, H.L. Lam*

12:10	Multi-objective optimization of multi-source integrated cooling, heating and power production and consumption system *W. Duan,* ***Q. Zhang***
12:30	A Two-Stage Machine Learning Framework for Predicting Activated Carbon Properties from Agricultural Waste via Hydrothermal Carbonisation and Chemical Activation *E. Houghton,* ***S. Ramjee****, S. M. Tichapondwa*
12:50	A Combined AHP-TOPSIS Approach for Multi-Period Optimisation Model for Strategic Investment of Emerging Technologies *M.A. Mohamaad Zaki, J. Ooi,* ***C.H. Lim***

NEFELI A, OCTOBER 14TH

SESSION 3.6

PROCESS INTEGRATION FOR SUSTAINABLE DEVELOPMENT

CHAIRS: **Haoshui Yu, Thomas Prousalis**

11:30	**KEYNOTE LECTURE** Towards Sustainable Machine Learning: A Unified Repository for Process Modelling, Optimisation, and Knowledge Reuse ***D.Q. Gbadago****, S. Hwang*
12:10	Hydrocracking Severity as a Lever for Propane-Enabled Hydrogen Self-Sufficiency in HEFA Processes ***T. Gebreegziabher****, P. Gerber Machado, D. Iribarren, J. Dufour Andía*
12:30	A Unified Modeling and Optimization Framework for Integrated Energy Systems Considering Energy-Mass Coupling ***G. Sun****, L. Chu, Z. Li, P. Liu*
12:50	Large language models for advancing circularity: from formulation optimisation to practical deployment ***S.Y. Teng****, A. Bin Sahl*
13:10	LUNCH AMBROSIA Restaurant

NAFSICA A, OCTOBER 14TH

14:30 **PRES'27 ANNOUNCEMENT – CLOSING SESSION**

CHAIRS: **Panos Seferlis, Petar Sabev Varbanov**

TWELVE ISLANDS (12 NISIA) RESTAURANT RODOS PALACE HOTEL

20:00 **GALA – AWARDS DINNER**

MODERATORS: **Panos Seferlis, Petar Sabev Varbanov**

ONLINE PRESENTATIONS

The following papers are presented only online, on the PRES'26 virtual conference platform (VIRTCON): https://registration.sdewes.org/PRES26/virtcon/. The corresponding author is marked with an asterisk (*).

No.	Paper ID	Title / Authors
O1	PRES26.0001	Ways to minimize the impact of heavy metals on the environment *M. Sadenova*, P.S. Varbanov, N. Kulenova, L. Shushkevich, S. Gert*
O2	PRES26.0005	Multi-Objective Optimization of Integrated Food, Water and Energy Supply Networks Using Mathematical Programming *A.J. Isafiade**
O3	PRES26.0006	Numerical Study on Synergistic Heat Transfer Enhancement for Plate-Fin Radiators with Fins and Vortex Generators *J. Chen, X. Wang, W. Si, J. Yang*, Q. Wang*
O4	PRES26.0011	SUSTAINABLE CONSTRUCTION: TESTING AND EXPERIMENTAL EVALUATION OF NON-AUTOCLAVED AERATED CONCRETE BLOCKS BASED ON ASH-AND-SLAG WASTE *O. Rudenko, D. Anop*, M. Sadenova, A. Kolesnikova, N. Soshnikov, S. Lutai*
O5	PRES26.0014	Scale-Up and Carbon Footprint Intensity Assessment of Petroleum Nut Oil Extraction using Ethanol *C.J. Peras, A. Gallarte, C. David, B. Bataller, M.J. Bambase, M. Borines, M.V. Migo-Sumagang**
O6	PRES26.0021	Thermal performance of a solar chimney-augmented panel-type radiator in ONAN mode *Y. Tian, J. Shen, X. Wang, W. Si, J. Yang*, Q. Wang*

No.	Paper ID	Title / Authors
O7	PRES26.0024	Thermodynamic Comparative Analysis of Utilization Configurations for Integrated Energy Systems Based on Offshore Wind Power *X. Wu, Z. Li, P. Liu**
O8	PRES26.0032	Guaiacol oxidation over biomass-based coal catalysts *A. Stepacheva*, M. Markova, P. Borodkina, O. Grebennikova, V. Matveeva, M. Sulman*
O9	PRES26.0033	Study of kraft lignin oxidation by hydrogen peroxide over heterogeneous catalyst *A. Stepacheva*, M. Markova, M. Akinchits, Y. Lugovoy, A. Sokolova, M. Sulman*
O10	PRES26.0034	Comprehensive Assessment of a Solar Energy Production System for Industrial Applications *G. Martínez-Rodríguez*, J. Martinez-Sanchez, A.L. Fuentes-Silva, J.C. Baltazar*
O11	PRES26.0055	Glass-Ceramics from Melts of Mongolian TPP Fly Ash *R. Kulumbegov, L. Delitsyn, N. Klimenko, O. Popel, M. Sulman, V. Petropavlovskaya**
O12	PRES26.0056	Glucose transformation in the presence of a g-C3N4/SiO2 photocatalyst *M. Sulman*, E. Kozlova, K. Potapenko, L. Nikoshvili, O. Manaenkov, V. Molchanov, B. Tikhonov, V. Matveeva*
O13	PRES26.0057	Hydrolysis of plant polysaccharides using a solid acid polymer catalyst *O. Manaenkov, L. Panskova, O. Kislitsa, E. Gavrilova, V. Matveeva, M. Sulman**

No.	Paper ID	Title / Authors
O14	PRES26.0058	Selective hydrogenation of biomass-derived furfural: effective catalytic properties of Pd-Cu and Pd-Co alloy nanoparticles in zeolite *V. Matveeva*, L. Nikoshvili, A. Sidorov, D. Lisichkin, M. Grigoriev, B. Tikhonov, O. Manaenkov*
O15	PRES26.0059	Ligand-Free Polymer-Supported Copper Catalysts for the Amination Reactions with Sodium Azide *E. Bakhvalova, V. Matveeva, L. Nikoshvili**
O16	PRES26.0060	Ru-Containing Catalysts Supported on Amorphous Aromatic Polymers for the Selective Hydrogenation of Furfural to Furfuryl Alcohol *D. Lisichkin, A. Bykov, E. Bakhvalova, V. Matveeva, L. Nikoshvili**
O17	PRES26.0061	Formaldehyde and its derivatives synthesis from Carbon Dioxide and hydrogen over trimetallic Ru-Pt-Cu catalyst *V. Doluda*, A. Kuragin, D. Tscvetkov, M. Markova, A. Sidorov, N. Lakina, M. Sulman*
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O26	PRES26.0072	Review on the Synthesis Methods of High-Entropy Oxide Particles *G.J. Reyes, A.E.S. Choi, J.F. Su, G.P. Bernardo**
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O33	PRES26.0113	Malaysian Seafarers' Decarbonisation Readiness: A Review of Competencies, Training and Governance *L. Chuah*, O. Nor Hasni, K. Mokhtar, K.B. Loke, F. Sg, S.M. Mahmud, D.M. Islam, C.J. Thong, E.M. Eliasa, N. Mohd Rozar*
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GENERAL INFORMATION

Registration Procedure

Delegates may receive their registration package at the conference reception desk located at the Lobby of Rodos Palace Conference Centre between 14:00-17:00 on Sunday October 11th. The reception desk will also be open for the registration of delegates on the remaining days from 9:00 a.m. Delegates are kindly requested to wear their badges at all times during the conference and upon their entrance to the conference venue if they stay at other hotels.

Emergency Contact Numbers

The emergency number for all purposes in Greece is 112 (free of charge from mobile phones). In case of an emergency notify the conference reception desk.

Wireless Internet

Free wireless Internet access is provided for all conference attendants in all conference lecture halls and common areas of the hotel.

Food & Beverage

Refreshments and light snacks during the coffee breaks and lunches (Ambrosia Restaurant) are included in the registration fee. The delegates should show their badges before their entrance into the Hotel's Restaurant.

Instructions to Session Chairs

- Please take a moment to identify the session you are chairing and find its location. Ensure that you arrive at your session room well before the session commences to allow the technical assistants to explain any specific functionality of the room equipment and to meet the session speakers. Please report any problem to the technical assistants.
- Session chairs should keep strictly the time schedule to enable participants to follow the technical programme. In case of a presenter being absent, the session chair should delay the session until the next scheduled presentation.

Instructions to Oral Presenters

- Please ensure you arrive at the designated session room before the session starts so that you can notify the session chair about your presence, upload your presentation at the provided computer and become familiar with the presentation space and the audio/visual equipment in the room.

- Keynote lectures are allocated up to 35 minutes for the presentation and 5 minutes for questions, within a total slot of 40 minutes.

- Regular presentations are allocated 15 minutes for the presentation followed by 5 minutes for questions by the audience.

- All presenters are kindly asked to keep the time frame allocated so that participants can follow the lecture programme.

- Session chairs have been given instructions for the strict regulation of the time schedule. Presenters will be given a two-minute warning by the session chairs.

Instructions to Poster Presenters

- The poster stands have dimensions of 95 cm x 178 cm. A0 poster size appears to be ideal. Each stand will have a tag indicating the poster number. Organisers will provide the material for placing the posters on the stands.

- Poster presenters can place their posters on the stands after 9:00 a.m. on Monday.

Prizes and Awards

PRES conferences have established a tradition of selecting the best poster presentations to researchers with a vital contribution towards enhancing our understanding of process integration for energy conservation, pollution reduction and related topics. Clarity of presentation and knowledge of the subject are additional selection criteria.

The PRES'26 best poster presentation Awards recipients will be selected by a Special Selection Committee from members of the International Scientific Committee. The award will be presented during the Conference Gala Awards Dinner on Wednesday October 14th. Only personally presented winners will be awarded. In addition, the Best Paper "Jiří J. Klemeš" Award will be presented on October 14th.

Transportation

Rodos Palace Hotel is located in the Ixia area. Transportation from the Diagoras International Airport (RHO) to Rodos Palace Hotel centre is possible by public bus (tickets cost 2.5 € per person and can be purchased online https://eticketingroda.amco.gr – choose Diagoras Airport to Ixia Zone) or taxi (about 25-30 € - taxi can usually accommodate up to 3 people depending on their luggage). Bus routes from the airport run every half an hour.

Social Programme

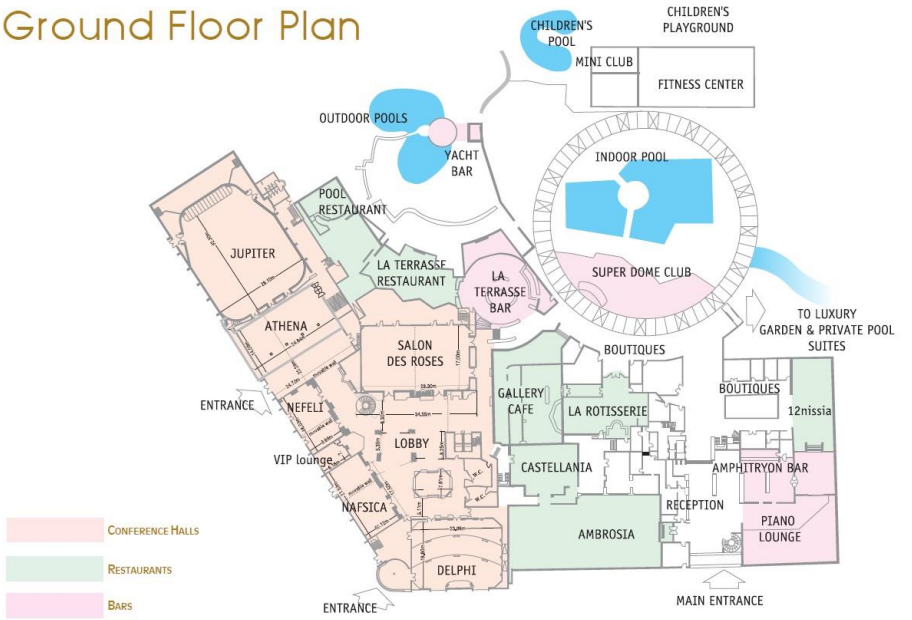
The Welcome Party will take place at the old port of Rhodes on Sunday October 11th from 17:30-20:00. Light snacks and drinks will be offered to all conference attendants. Buses will leave from the main entrance of Rodos Palace Hotel at 17:15. There will be no buses to return you to the Hotel as participants are encouraged to tour the medieval city of Rhodes. Public bus and taxi offer a quick return to the Hotel.

A boat cruise around the medieval city of Rhodes will take place on Monday October 12th starting at 17:45. Departure with Buses from Rodos Palace main entrance at 17:30. One complimentary bottle of beer, glass of wine or refreshment is included.

PRES'26 running – power walking club invites everybody who wants to exercise along the long seafront promenade on Tuesday and Wednesday at 7:30 am for a unique experience. So get your running gear and join the fun! Surprise gifts to be given away to brave participants!

The Conference Gala-Awards dinner will take place at the Twelve Islands (12 Nisia) Restaurant of Rodos Palace Hotel on Wednesday October 14th from 20:00 until 22:00. Invitations to the dinner are included in the registration package for full-rate participants. A gourmet dinner and excellent local wines will set the background for a relaxed evening to reflect on the scientific endeavours presented at the conference. The PRES'26 Best Poster Presentation Awards will be presented during the Gala-Awards Dinner.

RODOS PALACE HOTEL
FLOOR PLAN



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