SUNWAY UNIVERSITY
A CLASS ABOVE

PRES'25

28th Conference on Process Integration, Modelling and Optimisation for Energy Saving and Pollution Reduction

24th – 27th August 2025

Port Dickson, Malaysia

Organized by:

Premier Digital Tech Institution
Faculty of ENGINEERING & TECHNOLOGY

Co-organized by:

PRISE
University of Nottingham
UK | CHINA | MALAYSIA

WELCOME MESSAGES

Welcome Speech from the President of Sunway University, Professor Sibrandes Poppema

It is my pleasure to extend a warm welcome to all esteemed speakers, guests and participants at the 28th Conference on Process Integration, Modelling & Optimization for Energy Saving and Pollution Reduction (PRES'25). It is both a pleasure and an honour to co-host this conference and to bring together such a diverse group of experts in the fields of process systems, energy efficiency and sustainability.

In an era where the urgency for sustainable energy solutions and environmental stewardship is greater than ever, PRES'25 provides an essential platform to share cutting-edge research, innovative technologies, and practical strategies. The challenges we face in achieving carbon neutrality, enhancing resource efficiency, and mitigating environmental impact require not only scientific excellence but also strong cross-disciplinary collaboration.

At Sunway University, we are deeply committed to advancing the United Nations Sustainable Development Goals and to promoting planetary health. Through our research centres and collaborations, we strive to translate knowledge into impactful actions that contribute to a more sustainable future. Hosting PRES'25 is a proud milestone for us, marking an opportunity to strengthen global partnerships and inspire new solutions for energy efficiency and pollution reduction.

I wish to express my heartfelt gratitude to all distinguished speakers, the organising committee, session chairs, paper contributors, and our sponsors for their invaluable dedication in making this conference possible. I look forward to engaging discussions, meaningful collaborations, and impactful outcomes that will extend far beyond this event.

I wish everyone a fruitful, inspiring, and successful PRES'25.

Professor Sibrandes Poppema
President
Sunway University

Welcome Message from the PRISE Foundation (Professor Petar Varbanov, PRISE Foundation)

Dear Participants, Dear Members of the Scientific Community

On behalf of the founder of PRISE Foundation – Professor Ferenc Friedler, and in the name of the Board of Trustees of PRISE Foundation, it is my great pleasure to extend a warm welcome to all participants, distinguished speakers, and guests of the 28th Conference on Process Integration, Modelling and Optimization for Energy Savings and Pollution Reduction – PRES'25.

This conference stands as a leading platform for knowledge exchange, innovation, and collaboration in the pursuit of a more sustainable and resource-efficient future. PRES has always brought together experts from around the world to share practical solutions, pioneering research, and bold ideas that address the most pressing challenges of our time, ranging from climate change mitigation and adaptation to circular economy and resource efficiency.

The excellence and success of PRES conferences are based on the rules and high standards set out by the conference founder – Professor Dr. Habil Jiří J. Klemeš, DSc. The PRISE Foundation is the guardian upholding those standards and carrying the responsibility for the success of the PRES in the changing world.

This is the third conference organised under the authority of the PRISE Foundation. This year we honour the 80th anniversary of the birth and the scientific achievements of Professor Klemeš. Also, PRES'25 is coming back to Malaysia exactly 10 years after the PRES'15 venue in Kuching.

Professor Klemeš was a master of building bridges of scientific cooperation across geographic borders. Following these principles, PRISE is open to continuing the collaboration with everybody who supported the conference series in the past and with those who have an interest in being involved in organising the conference in the future. Collaboration with other scientific conferences and the scientific community is a key pillar of our development. Examples include "Conference on Sustainability" by Széchenyi István University, the "International Conference on Low Carbon Asia", and the "1st International Conference on Chemical and Energy Engineering 2025" by University Technology Malaysia.

PRES is dedicated to collaboration with leading scientific journals – such as ENERGY (Elsevier), Thermal Science and Engineering Progress (Elsevier), Clean Technologies and Environmental Policy (Springer), Process Integration and Optimization for Sustainability (Springer), and Discover Sustainabililty (Springer), while closely collaborating with Chemical Engineering Transactions (AIDIC). The PRISE leadership, in collaboration with the SDEWES Centre, also established a new journal for serving the expanding conference scope – Journal of Sustainable Development of Natural Resources Management.

In that context, PRES'25 offers two important events aimed at breaking new ground for the second quarter of the 21st Century. The first is the Plenum Forum honouring the memory of Professor Klemeš with a discussion on the advanced roadmap for the development of our platform in the

future. The second event is a forum presenting news from the PRISE Foundation and its tighter collaboration with the P-graph community.

We would like to thank the organisers for their dedication to bringing this important event to life, as well as all contributors, the authors, reviewers, and session chairs, for their invaluable work. Special thanks are due to Professor Ir. Denny Ng Kok Sum, Professor DDr. Hon Loong Lam, Dr. Dalila Alias, and Ms. Aisha Rozaida Mohd Ridzuan for the excellent organisation and care for the conference participants.

We encourage all participants to take full advantage of the technical sessions, networking opportunities, and discussions that will shape new partnerships and inspire future breakthroughs. Let us use this gathering not only to exchange knowledge but also to strengthen our collective resolve to make a real difference for our planet and future generations. We wish you a productive, insightful, and inspiring PRES'25.

A note from the Conference Chair (Professor Ir. Dr. Denny Ng)

It is my great pleasure to extend a warm welcome to all participants of the 28th Conference on Process Integration, Modelling, and Optimisation for Energy Saving and Pollution Reduction (PRES'25). For 28 years, the PRES conference series has been a cornerstone for scientists, engineers, and decision-makers to collaborate on solutions for global challenges. This year, we continue this proud tradition by focusing on improved efficiency and sustainability in industrial and regional systems, addressing critical issues in energy, water, pollution, and overall sustainability.

At Sunway University, our commitment to sustainability is fuelled by the inspiration of the United Nations' 17 Sustainable Development Goals (SDGs). These goals drive every aspect of our institution, from our research and teaching to our campus operations and community engagement. This dedication to the SDGs is a perfect fit with the mission of PRES'25, as our shared work directly contributes to achieving a more sustainable future. By focusing on process integration, modelling, and optimisation, we are making tangible progress toward goals such as SDG 7 (Affordable and Clean Energy), SDG 9 (Industry, Innovation, and Infrastructure), SDG 12 (Responsible Consumption and Production), and SDG 13 (Climate Action).

This year, the conference is a joint effort between the PRISE Foundation, Sunway University, and the University of Nottingham Malaysia. We are delighted to be hosting you in the beautiful coastal town of Port Dickson, Malaysia. Known for its stunning beaches and vibrant atmosphere, I encourage you to take some time to enjoy the surroundings and experience the local culture. We have an exciting program ahead, filled with a diverse range of technical sessions, presentations, and discussions. I hope that you will not only gain new knowledge and insights but also forge new connections and collaborations that will advance our collective work. I would like to express my sincere gratitude to the organising committee, reviewers, and volunteers for their dedication and hard work in making PRES'25 a reality. On behalf of the entire organising team, I wish you a fruitful and memorable conference.

Professor Ir. Denny Ng Kok Sum

Dean and Professor
Faculty of Engineering and Technology, Sunway University
Conference Chair, PRES'25

A Note from the Conference Co-Chair (Professor DDr. Lam Hon Loong)

It is my distinct pleasure to welcome you to the 28th Conference on Process Integration, Modelling, and Optimisation for Energy Saving and Pollution Reduction (PRES'25). This year, we continue the long-standing tradition of PRES as a crucial platform for addressing global sustainability challenges.

The University of Nottingham Malaysia (UNM) is a proud co-organizer of PRES'25. As a leading institution in research and knowledge exchange focused on environmental sustainability and development across the Asia Pacific, we are deeply committed to shaping a sustainable future in everything we do. As the co-chair of the Centre of Excellence for Green Technology at UNM, our efforts are aligned with the UN Sustainable Development Goals (SDGs), and we firmly believe that higher education plays a pivotal role in driving this global movement. We are confident that your work in process integration, modeling, and optimization will play a key role in advancing a more sustainable world. We are excited to facilitate this important dialogue and provide a platform for synergies to emerge.

I would like to extend my gratitude to my fellow organizing chairs, the committee members, and all participants for making this event possible. Your dedication to advancing research and innovation is what makes the PRES conference series so impactful. I wish you all a productive and inspiring conference in the beautiful setting of Port Dickson.

Professor DDr. Lam Hon Loong
Professor, University of Nottingham Malaysia,
Conference Co-Chair, PRES'25

About 28th Conference on Process Integration, Modelling and Optimisation for Energy Saving and Pollution Reduction (PRES'25)

PRES 2025 is the 28th in the series. It was initiated in collaboration with the late Prof Zdeněk Burianec and the late Prof Jiří J. Klemeš in the framework of CHISA congresses. Prof Klemeš served as the conference president for 25 years. The events in the series are as follows:

Year	Venue	Year	Venue
1998	Prague, CZ	2012	Prague, CZ
1999	Budapest, HU	2013	Rhodes, GR
2000	Prague, CZ	2014	Prague, CZ
2001	Florence, IT	2015	Kuching, MY
2002	Prague, CZ	2016	Prague, CZ
2003	Hamilton, CA	2017	Tianjing, CN
2004	Prague, CZ	2018	Prague, CZ
2005	G. Naxos, IT	2019	Crete, GR
2006	Prague, CZ	2020	Xi'an, CN
2007	Ischia, IT	2021	Brno, CZ
2008	Prague, CZ	2022	Bol, HR
2009	Rome, IT	2023	Thessaloniki, GR
2010	Prague, CZ	2024	Xi'an, CN
2011	Florence, IT	2025	Port Dickson

THE AIM

The aim of the PRES conference is to review the latest development and applications of process integration for energy conservation, pollution reduction and related topics. Industrial experience of the application of any available method is also welcome.

TOPICS

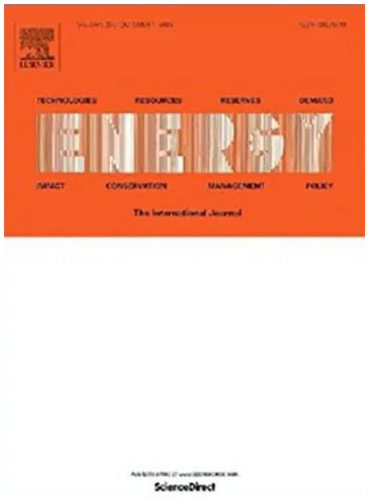
Process integration for sustainable development	Cleaner production and technologies
Energy saving technology	Waste minimisation, processing and management
Low carbon development strategy	Dynamic, flexible and sustainable plant operation
CFD, Heat Transfer and Heat exchangers	Industrial application & optimal design
Integration of renewables, biomass and energy conversion technologies	Sustainable green palm oil transformation
Integrated and multifunctional operations	AI and Big data management for process industry
Operational research, supply chain and technology management	

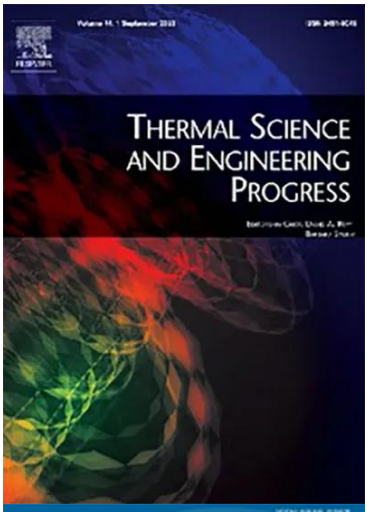
FORMAT

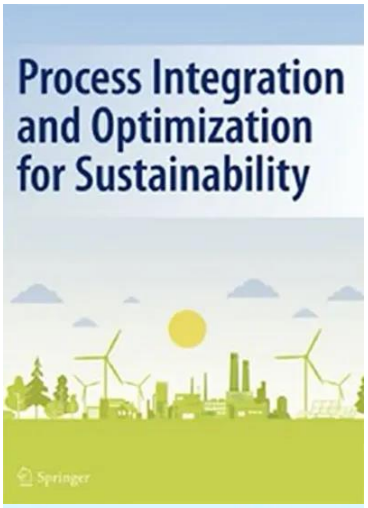
The Conference technical program is structured in 4-5 parallel sessions. Besides invited lectures; papers submitted will be considered for oral/poster presentations.

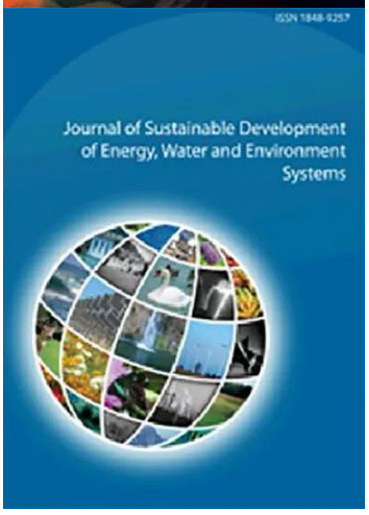
PROCEEDINGS

There are two options of proceedings, 8 pages of full paper in the conference proceeding or 6 pages of full paper in Chemical Engineering Transactions www.aidic.it/cet (indexed by SCOPUS and TSI).

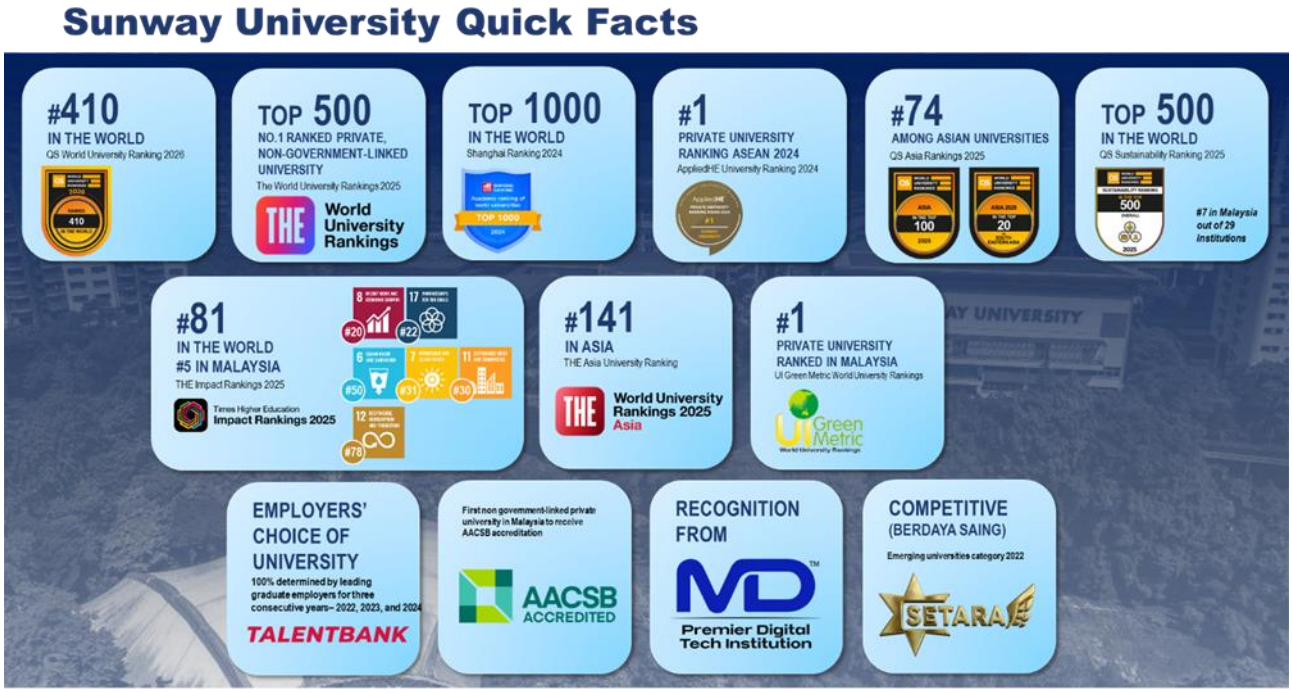






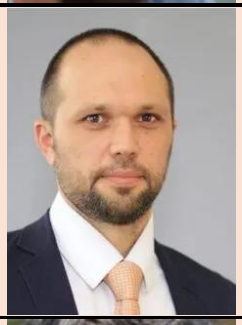


SUNWAY UNIVERSITY RANKING



COMMITTEE MEMBERS

INTERNATIONAL SCIENTIFIC COMMITTEE

	**Professor Harvey Arellano-Garcia Brandenburg** *University of Technology, Germany*		**Prof Dr Kathleen Aviso** *De La Salle University Manila, Philippines*
	**Prof Dr Olga Arsenyeva, DSc** *O.M.Beketov National University of Urban Economy in Kharkiv, Ukraine*		**Prof Dr Jakov Baleta** *University of Zagreb, Croatia*
	**Professor Santanu Bandyopadhyay** *IIT Bombay, India*		**Assoc. Prof. Dr. Awais Bokhari** *Lebanese American University*
	**Stanislav Boldyryev** *University of Zagreb, Croatia*		**Professor Chakib Bouallou** *MINES Paris – PSL Research University, France*
	**Professor Cheng-Liang Chen** *National Taiwan University, Taiwan, China*		**Dr Lai Fatt Chuah** *Universiti Utara Malaysia*

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Dominic Foo
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CalGavin Ltd

Professor Truls Gundersen
Norwegian University of Science and Technology

Professor Andrew Hoadley
Monash University

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Swinburne University of Technology Sarawak, Malaysia

Professor Xiaoping Jia
Qingdao University of Science and Technology

Professor Yasuki Kansha
The University of Tokyo, Japan

Professor Petro Kapustenko
Brno University of Technology (CZ) National Technical University Kharkiv Polytechnic Institute (UA)

Professor Jin-Kuk Kim
Hanyang University, Kora

Professor Chun-Han Ko
National Taiwan University, Taiwan, China

Professor Zdravko Kravanja
University of Maribor

Professor David Kukulka
State University of New York College at Buffalo, United States

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University of Nottingham, Malaysia

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Universiti Teknologi Malaysia, Malaysia

Professor Yongtu Liang
China University of Petroleum, China

Associate Professor Liew Peng Yen
Universiti Teknologi Malaysia, Malaysia

Dr Jeng Shiun Lim
Universiti Teknologi Malaysia, Malaysia

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Xi'an Jiaotong University, China

Dr Xia Liu
Sinopec China, Shanghai, China

Professor Yongzhong Liu
Xi'an Jiaotong University, China

Professor Vivien Lu
The Hong Kong Polytechnic University, Hong Kong, China

Professor Henrik Lund
Aalborg University, Denmark

Professor Ting Ma
Xi'an Jiaotong University, China

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Professor Flavio Manenti
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Professor Kazuo Matsuda
Chiyoda Corporation, Yokohama, Japan

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University of Zagreb, Croatia

Dr Dimitrios Misirlis
International Hellenic University, Greece

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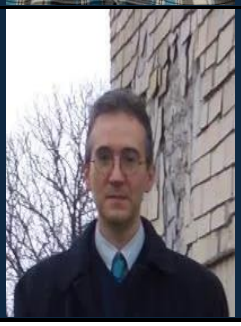
Sunway University, Malaysia

Dr Wendy Pei Qin Ng
Universiti Teknologi Brunei, Brunei Darussalam

Professor Sandro Nižetić
University of Split, Croatia

Prof Dr Paweł Ocłoń Cracow *University of Technology, Poland*

Dr Alexandra Elena Pleşu Popescu
University of Barcelona, Spain



Professor Andrea Pietro Reverberi
Universita' di Genova, Italy

Professor Marzhan Anuarbekovna Sadenova
D. Serikbayev
East Kazakhstan Technical University, Kazakhstan

Dr Farooq Sher
Nottingham Trent University, United Kindom

Professor Robin Smith
The University of Manchester, United Kindom

Professor Rongxin Su
Tianjin University, China

Professor Li Sun
The University of the West of Scotland, United Kindom

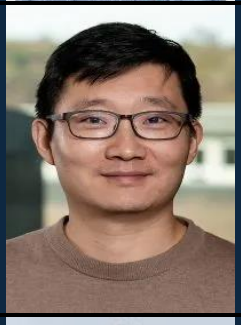
Professor Raymond Tan
De La Salle University, Philippines

Professor Krzysztof Urbaniec Warsaw
University of Technology, Poland

Professor Sarifah Rafidah Wan Alwi
Universiti Teknologi Malaysia, Malaysia

Dr Bohong Wang
Zhejiang Ocean University, China

Professor Jin Wang
Hebei University of Technology, China

	**Professor Qiuwang Wang** *Xi'an Jiaotong University, China*		**Professor Yufei F. Wang** *China University of Petroleum, China*
	**Professor Yutao Wang** *Fudan University, China*		**Professor Sebastian Werle** *Silesian University of Technology, Poland*
	**Professor Fengqi You** *Cornell University, United States*		**Dr Haoshui Yu** *Aalborg University, Denmark*
	**Professor Xigang Yuan** *Tianjin University, China*		**Prof Dr Min Zeng** *Xi'an Jiaotong University, China*

LOCAL ORGANIZING COMMITTEE

	**Denny Ng Kok Sum** *Sunway University, Malaysia*		**Lam Hon Loong** *University of Nottingham, Malaysia*
	**Dominic Foo** *University of Nottingham, Malaysia*		**Nishanth Gopalakrishnan Chemmangattuvalappil** *Sunway University, Malaysia*
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	**Irene Chew Mei Leng** *Monash University, Malaysia*		**Wan Yoke Kin** *University of Nottingham, Malaysia*
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Shirleen Lo Lee Yuen
National University of Singapore, Singapore

Karen Kong Gah Hie
Zhejiang University, China

Jaya Prasanth Rajakal
Sunway University, Malaysia

Ngan Seok Peng
University of Nottingham, Malaysia

PLENARY SPEAKERS

Professor Raymond Tan
De La Salle University

Process Integration in the Race to Net Zero

Mainstream scientific and industrial interest in process integration techniques were initially triggered by the energy crises of the 1970s. Applications diversified over the next five decades to enable the efficient use of resources following the same set of core principles first established for heat integration. In the early 21st Century, growing concerns about climate change led to the emergence of a branch of process integration that focuses on carbon emissions management. At the same time, the rapid growth of brute-force computing power has led to speculation about the obsolescence of process integration in the modern Big Data era. In this talk, I discuss the use of process integration as an "interpretable optimization" framework to allow engineers to design climate-friendly industrial systems. Examples from my two decades of work in energy mix optimization, CO2 network design, and negative emissions portfolio planning demonstrate the versatility of process integration. Finally, I discuss the prospects for using this time-tested framework as an engineering tool to deal with other emerging sustainability challenges.

Professor Suzana Yusup
Tenaga Nasional Berhad Research

Application of Machine Learning (ML) and Computational Modelling (CM) in Energy Transition Journey to Achieve Net Zero 2050

Climate change has significantly impacted the livelihood of mankind. Extreme weather, rising of sea levels and increasing temperature are among the results of climate change. Globally and nationally significant measures have been addressed to mitigate the impact of climate change not limited to policies and developed strategies. Malaysia pledged to achieve the Net Zero target by 2050. To progress towards this target, the Carbon Development Strategy for Malaysia has been established to progress towards achieving the Net Zero target. Industry sectors are paving to reduce carbon emissions through improved energy efficiencies, integration of renewables in the energy mix and applying fuel switching among the initiatives. The talk highlights low-carbon development initiatives from lab to industrial case studies that apply ML and Computational Modelling. ML and deep learning play significant roles in today's computational era to enable predictions/forecast specific outcomes with a higher degree of accuracy and finding patterns and relationships in data for various aims. It enables prediction and forecasted scenarios ranging across many disciplines and chemical engineering

Professor Pei Liu
Tsinghua University

Energy systems engineering and applications in the energy sector

The energy sector is going through an unprecedented transition period towards a less carbon-intensive end. The way human society uses and consumes energy is expected to change dramatically from the way as of today, from centralized generation and distribution to more distributed yet integrated, from fossil fuel dominated to renewable energy dominated, and from automatic energy management and control to intelligent. The transition period that we are going through is thus a rather challenging one as the energy systems need to have tremendous structural changes whilst meeting energy demands. Energy systems engineering, as a branch of process systems engineering, could facilitate this procedure with the planning, design, and operation of various energy systems. In this talk, we will illustrate how energy systems engineering concept and methods can be used in planning of the energy transition pathway of a large region, which is heterogeneous in terms of energy supply and demand, optimal design of integrated energy systems, intelligent operation of energy systems through mechanism-modelling and big data based digital twins, and flexible operation of energy systems to accommodate intermittent renewable energy

Professor Fengqi You
Cornell University
Roxanne E. and Michael J. Zak Professor in Energy Systems Engineering

AI for Science and Sustainability: A Journey from Process Integration

Fengqi You is the Roxanne E. and Michael J. Zak Professor in Energy Systems Engineering at Cornell University. He holds affiliations with multiple Graduate Fields at Cornell, including Chemical Engineering, Computer Science, Electrical and Computer Engineering, Operations Research and Information Engineering, Systems Engineering, Mechanical Engineering, Civil and Environmental Engineering, and Applied Mathematics. Within Cornell, he serves as the Chair of Ph.D. Studies in Systems Engineering, Co-Director of the Cornell University AI for Science Institute (CUAISci), Co-Director of the Cornell Institute for Digital Agriculture (CIDA), and Director of the Cornell AI for Sustainability Initiative (CAISI). Before joining Cornell in 2016, he worked at Argonne National Laboratory's Mathematics and Computer Science Division and served as a faculty member at Northwestern University. His research focuses on fundamental theories and methods of systems engineering, with applications in materials informatics, smart manufacturing, digital agriculture, energy systems, and sustainability. Fengqi has an h-index of 91 and has authored over 300 refereed articles in journals such as Nature, Science, Nature Sustainability, Nature Food, Nature Communications, Science Advances, and PNAS. His research has garnered editorial highlights in Science and Nature, featured on dozens of journal covers (e.g., Energy & Environmental Science), and covered by leading media outlets (e.g., New York Times, BBC, Reuters, Washington Post, Forbes, Wall Street Journal, Fortune, Daily Mail, The Guardian, Agence France-Presse, Bloomberg, Scientific American, Newsweek, BusinessWeek, Hill, CNN, Harvard Business Review, New Scientist, and National Geographic). He is an award-winning scholar and teacher, having received over 25 major national and international awards in the past six years from leading professional organizations such as the American Institute of Chemical Engineers (AIChE), American Chemical Society (ACS), Royal Society of Chemistry (RSC), American Society for Engineering Education (ASEE), and American Automatic Control Council (AACC), in addition to multiple best paper awards. Selected ones include the NSF CAREER Award (2016), AIChE Environmental Division Early Career Award (2017), AIChE Research Excellence in Sustainable Engineering Award (2017), Computing and Systems Technology (CAST) Outstanding Young Researcher Award from AIChE (2018), Cornell Engineering Research Excellence Award (2018), ACS Sustainable Chemistry & Engineering Lectureship Award (2018), AIChE Excellence in Process Development Research Award (2019), AIChE Innovations in Green Process Engineering Award (2020), Mr. & Mrs. Richard F. Tucker Excellence in Teaching Award (2020), ASEE Curtis W. McGraw Research Award (2020), O. Hugo Schuck Award from AACC (2020), AIChE Sustainable Engineering Forum Education

Award (2021), AIChE George Lappin Award (2022), Stratis V. Sotirchos Lectureship Award by the Foundation for Research & Technology – Hellas (FORTH) (2022), and the Lawrence K. Cecil Award in Environmental Chemical Engineering (2024). He serves as an editor of Computers & Chemical Engineering; associate editor of the AAAS journal Science Advances, Applied Energy, and IEEE Transactions on Control Systems Technology; consulting editor of the AIChE Journal; subject editor of Advances in Applied Energy; guest editor of Energy, Journal of Cleaner Production, and Renewable & Sustainable Energy Reviews; and was on the editorial boards of ACS Sustainable Chemistry & Engineering, Industrial & Engineering Chemistry Research, PRX Energy, and more. He is an elected Fellow of the Royal Society of Chemistry (FRSC), Fellow of the AIChE, and Fellow of the American Association for the Advancement of Science (AAAS).

KEYNOTE SPEAKERS

Professor Santanu Bandyopadhyay

Dr. Hégely László

Professor Sharifah Rafidah Wan Alwi

Dr. Tim Walmsley

Professor Lee Chew Tin

Dr. Li Nianqi

Professor Kathleen Aviso

Dr. Picón Núñez

Dr. Lee Jui-Yuan

Dr. Benjamin Ong

Dr. Jean Pimentel

Professor Hrvoje Mikulčić

CONFERENCE PROGRAM

Pre-conference Day: Sunday, 24th August 2025

TIME	PROGRAMME		VENUE
7.45 am - 9.00 am	Gathering and briefing before departure		Grand Lexis HoteL, PD
9.00 am - 10.00 am	Depart from Grand Lexis Hotel, Port Dickson		Port Dickson - Malacca
10.00 am - 4.00 pm	Malacca Tour including: - Malacca City Tour - Baba Nyonya Heritage Museum - The Straits Mosque - Baba Nyonya Cuisine Lunch Note: All services are strictly subject to availability upon confirmation		Malacca City
4.00 pm - 5.00 pm	Depart to Grand Lexis Hotel, Port Dickson		Malacca- Port Dickson
5.00 pm - 7.00 pm	**PRES'25 Prelude:** Plenary Talk by Prof. Fengqi You (Cornell University, USA) ***AI for Science and Sustainability: A Journey from Process Integration***	Welcome drink and key collection	Pool Café, Grand Lexis Hotel, PD
7.00 pm – 8.30 pm	Board Meeting of PRISE Foundation		VIP Holding Room, Level 1, Grand Lexis Hotel
END OF DAY 0			

Conference Day 1: Monday, 25th August 2025

TIME	PROGRAMME	VENUE
8.00 am - 9.00 am	Registration and conference kit collection	Bunga Raya Grand Ballroom
OPENING CEREMONY		
9.00 am - 9.05 am 9.05 am - 9.20 am 9.20 am - 9.50 am 9.50 am – 10.00 am 10.00 am - 10.15 am	National Anthem, Negaraku Welcoming Remarks by **Prof Petar Sabev Varbanov**, **Prof Denny Ng**, and **Prof Lam Hon Loong**, Co-Chairs of PRES'25 Officiating Remarks by **Professor Sibrandes Poppema**, President of Sunway University Sponsorship Appreciation and Launch Video Presentation Photography Session	Bunga Raya Grand Ballroom
10.15 am - 10.45 am	Coffee Break + Onsite Poster Session	
10.45 am - 11.45 am	Plenary Talk: **Professor Pei Liu** ***Energy systems engineering and applications in the energy sector*** Chair: **Denny Ng** Co-Chair: **Petar Varbanov**	Bunga Raya Grand Ballroom
11.45 am - 12.45 pm	Panel Discussion Session ***Sustainable Development Goals*** Moderator: **Viknesh Andiappan** Panelists: **Sharifah Rafidah Wan Alwi, Kathleen Aviso, Sebastian Werle**	Bunga Raya Grand Ballroom

12.45 pm - 2.00 pm	Lunch	Roselle Coffee House
2.00 pm – 4.00 pm	**Session 1**	Bunga Raya Hall 3A
	Session 2	Bunga Raya Hall 3
	Session 3	Bunga Raya Hall 2
	Session 4	Bunga Raya Hall 1
	Session 5	Bunga Raya 1
	Session 6	Bunga Raya 2
4.00 pm – 4.30 pm	Coffee Break + Onsite Poster Session	
4.30 pm – 6.30 pm	**Session 7**	Bunga Raya Hall 3A
	Session 8	Bunga Raya Hall 3
	Session 9	Bunga Raya Hall 2
	Session 10	Bunga Raya Hall 1
	Session 11	Bunga Raya 1
	Session 12	Bunga Raya 2
END OF DAY 1		

Conference Day 2, Tuesday, 26th August 2025

TIME	PROGRAMME	VENUE
9.00 am - 10.00 am	**Plenary Talk:** **Professor Raymond Tan** ***Process Integration in the Race to Net Zero*** **Chair: Dominic Foo**	Bunga Raya Grand Ballroom
10.00 am - 10.30 am	Coffee Break & Onsite Poster Session	
10.30 am - 12.30 pm	**Session 13**	Bunga Raya Hall 3A
	Session 14	Bunga Raya Hall 3
	Session 15	Bunga Raya Hall 2
	Session 16	Bunga Raya Hall 1
	Session 17	Bunga Raya 1
	Session 18	Bunga Raya 2
12.30 pm - 1.30 pm	Lunch	Roselle Coffee House
1.30 pm - 2.50 pm	**Session 19**	Bunga Raya Hall 3A
	Session 20	Bunga Raya Hall 3
	Session 21	Bunga Raya Hall 2
	Session 22	Bunga Raya Hall 1
	Session 23	Bunga Raya 1
	Session 24	Bunga Raya 2
2.50 pm - 3.10 pm	Intermittent Break + Onsite Poster Session	
3.10 pm - 4.30 pm	**Session 25**	Bunga Raya Hall 3A
	Session 26	Bunga Raya Hall 3
	Session 27	Bunga Raya Hall 2
	Session 28	Bunga Raya Hall 1
	Session 29	Bunga Raya 1
	Session 30	Bunga Raya 2
4.30 pm - 5.00 pm	Coffee Break & Onsite Poster Session	
5.00 pm – 7.00 pm	Plenum Forum: **PRES'25 Memorial Forum Dedicated to the 80th Anniversary of Professor Jiří J. Klemeš:** ***The Advanced Integration Roadmap: Enabling Cleaner Technology of the Future*** Moderator**: Petar Varbanov, Hon Loong Lam** Panelists: **Denny Ng**, **Panos Seferlis**, **Chew Tin Lee**	Bunga Raya Grand Ballroom
END OF DAY 2		
8.00 pm - 11.00 pm	**Gala Dinner**	Bunga Raya Grand Ballroom

Conference Day 3, Wednesday, 27th August 2025

TIME	PROGRAMME	VENUE
9.00 am– 10.00 am	**Plenary Talk:** **Professor Suzana Yusup** ***Application of Machine Learning (ML) and Computational Modelling (CM) in Energy Transition Journey to Achieve Net Zero 2050*** **Chair: Hon Loong Lam**	Bunga Raya Grand Ballroom
10.00 am – 10.30 am	Coffee Break	
10.30 am – 12.00 pm	P-graph and PRISE Forum ***Sustainable Symbiosis: Building bridges for scientific cooperation for a Greener Future*** Chair: **Petar Varbanov** Panellists: **Jean Pimentel, Raymond Tan, Yee Van Fan**	Bunga Raya Grand Ballroom
12.00 pm – 1.00 pm	Lunch	Roselle Coffee House
1.00 pm – 1.30 pm	Book Launch	Bunga Raya Hall 3A
1.30 am -3.10 pm	**Session 31**	Bunga Raya Hall 3A
	Session 32	Bunga Raya Hall 3
	Session 33	Bunga Raya Hall 2
	Session 34	Bunga Raya Hall 1
3.10 pm – 3.50 pm	Coffee Break	Roselle Coffee House
CLOSING CEREMONY		
4.00 pm – 5.00 pm	**Closing Remarks and Awards Presentation**	Bunga Raya Grand Ballroom
END OF DAY 3		

Remarks:

1. Please note that the Conference Programme is based on Malaysia Time (UTC/GMT +8 hours)
2. This is the latest programme, and any subsequent changes will be updated from time to time
3. For further enquiry, please contact the PRES'25 secretariat at pres2025@sunway.edu.my

SOCIAL EVENT

Unwind and Explore: A Cultural Journey to Historical Malacca

Immerse yourself in the rich heritage of Malacca, a UNESCO World Heritage Site!

This exclusive social event offers a captivating glimpse into the unique Peranakan culture with an authentic Baba Nyonya cuisine lunch. Delve into history at the Baba Nyonya Heritage Museum, admire the architectural beauty of the Straits Mosque, and enjoy a guided walking tour through the charming historical streets, once a vital trading port. Discover a fascinating blend of cultures and create lasting memories beyond the technical sessions.

ORAL PRESENTATIONS

Day 1, Monday, 25th August 2025			
Time	**Session**	**Venue**	**Theme**
2.00 pm – 4.00 pm	1	Bunga Raya Hall 3A	Waste minimisation, processing and management
	2	Bunga Raya Hall 3	Renewable and high-efficiency utility systems
	3	Bunga Raya Hall 2	Process analysis, modelling and optimisation
	4	Bunga Raya Hall 1	Numerical fluid flow and heat transfer simulation
	5	Bunga Raya 1	Sustainable processing and production
	6	Bunga Raya 2	Process analysis, modelling and optimisation
4.30 pm – 6.30 pm	7	Bunga Raya Hall 3A	Process analysis, modelling and optimisation
	8	Bunga Raya Hall 3	Sustainable processing and production
	9	Bunga Raya Hall 2	Process integration and sustainable development
	10	Bunga Raya Hall 1	Energy saving and clean technologies
	11	Bunga Raya 1	Energy saving and clean technologies
	12	Bunga Raya 2	Energy saving and clean technologies

Day 2, Tuesday, 26th August 2025			
Time	**Session**	**Venue**	**Theme**
10.30 am – 12.30 pm	13	Bunga Raya Hall 3A	Footprint minimisation and mitigation
	14	Bunga Raya Hall 3	Heat transfer and heat exchangers
	15	Bunga Raya Hall 2	Process integration for sustainable development
	16	Bunga Raya Hall 1	Energy saving and clean technologies
	17	Bunga Raya 1	Process analysis, modelling and optimisation
	18	Bunga Raya 2	Process analysis, modelling and optimisation
1.30 pm – 2.50 pm	19	Bunga Raya Hall 3A	Waste minimisation, processing and management
	20	Bunga Raya Hall 3	Process analysis, modelling and optimisation
	21	Bunga Raya Hall 2	Process analysis, modelling and optimisation
	22	Bunga Raya Hall 1	Process integration for sustainable development
	23	Bunga Raya 1	Process analysis, modelling and optimisation
	24	Bunga Raya 2	Energy saving and clean technologies
3.10 pm – 4.30 pm	25	Bunga Raya Hall 3A	Energy saving and clean technologies
	26	Bunga Raya Hall 3	Process analysis, modelling and optimisation
	27	Bunga Raya Hall 2	Process analysis, modelling and optimisation
	28	Bunga Raya Hall 1	Energy saving and clean technologies
	29	Bunga Raya 1	Process analysis, modelling and optimisation
	30	Bunga Raya 2	Footprint minimisation and mitigation

Day 3, Wednesday, 27th August 2025			
Time	**Session**	**Venue**	**Theme**
1.30 am – 3.10 pm	31	Bunga Raya Hall 3A	Process analysis, modelling and optimisation
	32	Bunga Raya Hall 3	Footprint minimisation and mitigation
	33	Bunga Raya Hall 2	Numerical fluid flow and heat transfer simulation
	34	Bunga Raya Hall 1	Energy saving and clean technologies

Day 1, Monday, 25th August 2025

Session 1: Bunga Raya 3A

Theme: Waste minimisation, processing and management

Chair: Tim Walmsley **Co-chair: Wei Wu**

Time	Paper ID	Paper Title	Presenter
2.00 – 2.40 PM	PRES25.0285	Data-driven Predictive Models on food waste compost quality *C.T. Lee*, P.Y. Ong, L.Y. Lim, N.F. Ahmad Sanadi*	Prof. C.T. Lee
2.40 - 3.00 PM	PRES25.0303	Energy, exergy and economic (3E) analyses of DME-power polygeneration system based on the integration of biomass gasification and direct synthesis of DME *W. Xu*, P. Cui*	Mr. W. Xu
3.00 - 3.20 PM	PRES25.0177	The Technological Advances, Challenges and Future Trends of Energy Utilization Integrated Liquefied Natural Gas Cold Energy *L. An, B. Zhu, B. Wang, L. Gai**	Ms. L. An
3.20 - 3.40 PM	PRES25.0311	Artificial Intelligence-Enabled Multi-Criteria Optimisation and Decision-Making for Enzymatic CO2 Capture in Rotating Packed Beds *T. Xenitopoulos, A. Papadopoulos, P. Seferlis**	Mr. T. Xenitopoulos
3.40 – 4.00 PM	PRES25.0312	Supervised Machine Learning Biomass Gasification with Integrated Power Generation: Model Development and Performance Assessment *L. Poulidis, A. Papadopoulos, V. Silva, P. Seferlis**	Mr. L. Poulidis

Session 2: Bunga Raya Hall 3

Theme: Renewable and high-efficiency utility systems

Chair: J.L. Encarnacion **Co-chair: Seok Peng Ngan**

Time	Paper ID	Paper Title	Presenter
2.00 – 2.40 PM	PRES25.0218	Solar Thermal Networks: A Thermal Effectiveness Approach to Their Design *J.R. Lizárraga-Morazán, M. Picón Núñez**	Dr. M. Picón Núñez
2.40 - 3.00 PM	PRES25.0036	Resources Allocation and Operations Optimisation for CO2 Capture in Industrial Clusters *Y.E. Chew, B.S. How, I. Moser, M.F. Benjamin, R.R. Tan, V. Andiappan**	Mr. Y.E. Chew
3.00 - 3.20 PM	PRES25.0061	Optimizing Renewable Energy Integration for Sustainable Cryptocurrency Mining *J.T. Lanting*, J.L. San Juan*	Mr. J.T. Lanting

3.20 - 3.40 PM	PRES25.0169	Optimized Dual-Organic Rankine Cycle for LNG Cold Energy Power Generation Using Genetic Algorithm *Y. Zhang, B. Wang, H. Tao, J. Ou, Z. Guo, L. Gai**	Dr. L. Gai
3.40 – 4.00 PM	PRES25.0053	Environmental and Lifecycle Impacts of Halimeda-Derived Calcium Carbonate: Towards Carbon-Neutral Cement *H.M. Irfan, W. Wu**	Mr. H.M. Irfan
Session 3: Bunga Raya Hall 2			
Theme: Process analysis, modelling and optimisation			
Chair: Bing Shen How		**Co-chair: Boglárka Eisinger**	
Time	**Paper ID**	**Paper Title**	**Presenter**
2.00 – 2.40 PM	PRES25.0142	Keynote: Process Synthesis and Optimization: A P-graph Approach for Cost, Emission and Waste Minimization *B. Abdelbari, S.R. Wan Alwi*, V. Petar (prise)*	Prof. S.R. Wan Alwi
2.40 - 3.00 PM	PRES25.0157	Development of P-graph Models for the Synthesis of Plastic Waste-to-Fuel Supply Chain *K.B. Tuaño*, H.L. Kho, K. Aviso, R.R. Tan*	Ms. K.B.Tuaño
3.00 - 3.20 PM	PRES25.0211	Scenario-Based Process Sustainability Analysis Using Control Theory and P-Graph Methodology *L. Buics*, B. Eisinger Balassa*	Dr. L. Buics
3.20 - 3.40 PM	PRES25.0112	Preliminary Study and Review of Cryogenic Post-Combustion CO2 Capture Onboard LNG-Driven Ships *D. Turunawarasu, J. Ballout, M. Al-Rawashdeh, B.S. How, V. Andiappan**	Mr. D. Turunawarasu
Session 4: Bunga Raya Hall 1			
Theme: Numerical fluid flow and heat transfer simulation			
Chair: Hon Loong Lam		**Co-chair: Julius Rhoan Lustro**	
Time	**Paper ID**	**Paper Title**	**Presenter**
2.00 – 2.40 PM	PRES25.0023	Optimisation of the Working Fluid Flow Rate of Heat Pump-Assisted Batch Distillation *L. Hegely*, P. Lang*	Dr. L. Hegely
2.40 - 3.00 PM	PRES25.0176	CFD-Driven Optimization of CO_2-ODP: Unlocking Sustainable Propylene Production *J. Jung, S. Hwang**	Ms. J. Jung
3.00 - 3.20 PM	PRES25.0113	Assessment of the Thermocline Thermal Energy Storage Tank Thermal Expansion *K. Elfeky*, A. Mohammed, Q. Wang, K. Ge*	Dr. K. Elfeky

3.20 - 3.40 PM	PRES25.0117	Computational Fluid Dynamics Analysis of Molten Salt-Air Heat Exchanger Configurations *A. Raj*, N.B. Desai, F. Haglind*	Dr. A. Raj
3.40 – 4.00 PM	PRES25.0135	Use of CFD tools to design and evaluate tubular baffles in an electrochemical reactor for the removal of hexavalent chromium *J.E. Lugo Hinojosa*, S.A. Martínez-Delgadillo, V.X. Mendoza-Escamilla, J.A. Yañez, I. Gonzales Neria, A. Alonzo-García*	Mr. Lugo Hinojosa
Session 5: Bunga Raya 1			
Theme: Sustainable processing and production			
Chair: Jecksin Ooi		**Co-chair: Pratham Arora**	
Time	**Paper ID**	**Paper Title**	**Presenter**
2.00 – 2.20 PM	PRES25.0067	The Simulation and Analysis of a Urea and Methanol Synthesis System Utilizing Waste Heat from Slag *Y. Peng, Q. Zhang**	Mr. Y. Peng
2.20 - 2.40 PM	PRES25.0109	Hydrogen-based Energy Transition for Decarbonisation of Eco-Industrial Park Using Modified Carbon Emission Pinch Analysis (CEPA) *M.A.F. Abd Aziz, P.Y. Liew*, K.S. Woon, N.E. Mohammad Rozali*	Dr. P. Y. Liew
2.40 - 3.00 PM	PRES25.0095	Integrated Modeling Approaches to Enhance Water Sustainability in Philippine Watersheds: A Review of its Applications and Limitations *M.E.C. Perez, J.B.D. Pernia, C.C. Futalan, M.V. Ligaray, A.E.S. Choi**	Prof. A.E.S. Choi
3.00 - 3.20 PM	PRES25.0128	Biomethanol Production from Renewable Sources and CO_2 Derived from Biogas *A. Haddad, K. Mammadyarova, C. Bouallou**	Prof. C. Bouallou
3.20 - 3.40 PM	PRES25.0154	Optimizing operating conditions of a green ammonia production system from off gas considering co-generation of heat and power *R. Sun, L. Sun, J. Li**	Mr. R. Sun
3.40 – 4.00 PM	PRES25.0054	Dynamic Simulation-Based Assessment of Pressure Control for High-Pressure Steam Generation in a Cogeneration Plant *M.A. Isa*, MA. Abu Taleb, R. A Latip, A.C. Kamel, MF. Abidin, MT. Tahreb, M. Hadzir, B. Raghunathan*	Mr. M. A. Isa

Session 6: Bunga Raya 2			
Theme: Process analysis, modelling and optimisation			
Chair: Jean Pimentel		**Co-chair: Nishanth Chemmangattuvalappil**	
Time	**Paper ID**	**Paper Title**	**Presenter**
2.00 – 2.20 PM	PRES25.0131	An innovative Design of Extractive Distillation-Reactive Distillation coupled system for Cyclohexane/Isopropanol/Water Separation process *Y.S. Chen*, T. Ibrahim, H.H. Liang, H.Y. Lee*	Ms. H.H. Liang
2.20 – 2.40 PM	PRES25.0159	Towards Realistic Design of Reactive Distillation Processes: Significance of Impurities in the Feed *Z.Y. Kong, A. Yang, G.P. Rangaiah**	Dr. Z.Y. Kong
2.40 - 3.00 PM	PRES25.0300	Thermodynamic Mechanism-Driven Extractive Distillation for Ternary Azeotrope Separation: Energy-Economic-Environmental Trade-off Optimization *W. Liu**	Ms. W. Liu
3.00 - 3.20 PM	PRES25.0297	Process design and Energy, exergy, economic, and environmental analysis of mixed entrainer extractive distillation separation of wastewater containing tetrahydrofuran and ethanol *Z. Wang**	Mr. Z. Wang
3.20 - 3.40 PM	PRES25.0296	Thermodynamic mechanism-driven ionic liquid reactive extractive distillation: Economic-environmental-energy-exergy trade-off optimization *W. Zhao**	Mr. W. Zhao
3.40 – 4.00 PM	PRES25.0302	Process comparison and performance evaluation of refining gasoline additives by extractive pressure swing distillation based on multi-objective optimization *W. Sun**	Ms. W. Sun
Session 7: Bunga Raya Hall 3A			
Theme: Process analysis, modelling and optimisation			
Chair: Denny Ng		**Co-chair: Yong Peng**	
Time	**Paper ID**	**Paper Title**	**Presenter**
4.30 – 5.10 PM	PRES25.0075	Algebraic Optimization of Water-Energy Nexus System *S. Prabhakar*, S. Bandyopadhyay*	Prof. S. Bandyopadhyay
5.10 - 5.30 PM	PRES25.0047	Modelling of Woody Biomass Gasification for Process Optimization *K. Yu Hui, Y. Kansha**	Ms. K. Yu Hui

5.30 - 5.50 PM	PRES25.0049	Developing a Multi-objective Optimization Model for Integrated Hybrid Technology in Wastewater Treatment Plants *L. Chua*, J.L. San Juan*	Mr. L. Chua
5.50 - 6.10 PM	PRES25.0122	Design and Multi-objective Optimization of a Green Methanol-based Poly-generation System for Sustainable Olefins and Aromatics Production *Z. Song, G. Liu**	Dr. Z. Song
6.10 - 6.30 PM	PRES25.0203	Multi-period natural gas pipeline scheduling optimisation integrated with LNG cold energy cascade utilisation *B. Wang*, W. Zhao*	Dr. B. Wang
Session 8: Bunga Raya Hall 3			
Theme: Sustainable processing and production			
Chair: Raymond Tan		**Co-chair: Haoshui Yu**	
Time	**Paper ID**	**Paper Title**	**Presenter**
4.30 – 5.10 PM	PRES25.0314	Electrifying Post-Combustion Carbon Capture: Modeling, Integration, and Smart Operation *B.H.Y. Ong*, D. Allgäuer, A. Masero, F. Kühlkamp, O. Levon*	Dr. B.H.Y Ong
5.10 - 5.30 PM	PRES25.0081	Robust Decarbonization Planning of Multi-regional Energy Sector with Flexible Carbon Capture and Storage Systems *R.T. Marquez, J.F. Tapia**	Mr. R.T. Marquez
5.30 - 5.50 PM	PRES25.0077	A Comparative Techno-Economic Analysis of Gray, Blue and Green Hydrogen Production Technologies *D. Jeon, J. Lee, J.K. Kim**	Mr. D. Jeon
5.50 - 6.10 PM	PRES25.0048	Development of Capture and Utilization System for NOX Gas from NH3 Combustion *I. Ino, Y. Kansha**	Mr. I. Ino
6.10 – 6.30 PM	PRES25.0149	Decarbonising Industrial Process Heat: A Renewable Energy Roadmap for Aotearoa-New Zealand *D.J.S. Chong*, T. Walmsley, M. Atkins, B. Bertok, M.R. Walmsely*	Mr Chong

Session 9: Bunga Raya Hall 2			
Theme: Process integration and sustainable development			
Chair: Viknesh Andiappan		**Co-chair: Karen Kong**	
Time	**Paper ID**	**Paper Title**	**Presenter**
4.30 – 5.10 PM	PRES25.0039	A Pinch Analysis Framework for Multiscale Energy Systems Integration *T. Walmsley*, A. Adeel, E. Klinac (burroughs), C. Bayer*	Dr. T. Walmsley
5.10 - 5.30 PM	PRES25.0037	Solar Thermal Integration in Industrial Processes using Pinch Analysis and Flow Optimization *R.K. Yadav*, S. Bandyopadhyay, A. Hoadley, R. Dargaville*	Mr. R.K. Yadav
5.30 - 5.50 PM	PRES25.0056	Targeting Dual Objective Source-Sink Problems Using Pinch Analysis *A. M U*, S. Bandyopadhyay*	Ms. A. M U
5.50 - 6.10 PM	PRES25.0074	Optimisation of Nonlinear Resource Conservation Network using Pinch Analysis *A. Jain*, S. Bandyopadhyay*	Mr. A. Jain
6.10 - 6.30 PM	PRES25.0058	Targeting for water reuse in source-sink network with epistemic uncertainty in parameters *A.K. Pandey*, S. Bandyopadhyay*	Mr. A. K. Pandey
Session 10: Bunga Raya Hall 1			
Theme: Energy saving and clean technologies			
Chair: Peng Yen Liew		**Co-chair: Edwin Lim**	
Time	**Paper ID**	**Paper Title**	**Presenter**
4.30 – 5.10 PM	PRES25.0264	The P-graph Framework: Foundations and Extensions for Industrial and Regional Energy Optimization Supporting Decarbonization *J. Pimentel*, B.S. How, H.L. Lam, V. Petar (prise), R.R. Tan, F. Friedler*	Dr. J. Pimentel
5.10 - 5.30 PM	PRES25.0165	Performance-based Mapping of Electric Tricycle considering Road Grade in the Philippines *M.A. Mozo, V. Banaguas, J.I. Encarnacion, C.M. Odulio**	Dr. C. M. Odulio

5.30 - 5.50 PM	PRES25.0194	Modelling the Energy Storage Potential of Retired EV Batteries for Renewable Integration *R. Santran, A. Dey, R. Aanand, R. Singh**	Mr. R. Santran
5.50 - 6.10 PM	PRES25.0001	Physics-informed neural network for modeling the municipal solid waste to energy process *W. Wu**	Prof. Wu
6.10 - 6.30 PM	PRES25. 0152	Digitalisation: The Missing Step Before AI in Industry 4.0 *S.P. Ngan, S.L. Ngan, D. Zhao, H.L. Lam**	Mr. S.P. Ngan
Session 11: Bunga Raya 1			
Theme: Energy saving and clean technologies			
Chair: Savier Kong		**Co-chair: Navdeep Bhadbhade**	
Time	**Paper ID**	**Paper Title**	**Presenter**
4.30 – 5.10 PM	PRES25.0024	Experimental and Mathematical Modelling of CO2 Solubility in 2-Dimethylethanolamine-Potassium Chloride Aqueous Solution *J.H. Law, M.B. Jasser, M.K. Aroua**	Mr. J.H. Law
5.10 - 5.30 PM	PRES25.0025	Deep Eutectic Solvents Design via Computer-Aided Molecular Design for Industrial Applications *K.N. Manor Muhanin, N. Chemmangattuvalappil, C.H. Lim, J. Ooi*	Mr. Manor Muhanin
5.30 - 5.50 PM	PRES25.0080	Process Design and Optimization of Membrane Systems for Biogas Upgrading with Varying Membrane Performance *S.J. Kim, J.K. Kim*, Y. Song*	Mr. S.J. Kim
5.50 - 6.10 PM	PRES25.0301	Extracting polar acetic acid from water via multicomponent deep eutectic solvents: thermodynamics and molecular dynamics *Y. Zhou**	Ms. Y. Zhou
6.10 - 6.30 PM	PRES25.0305	Highly efficient separation of heavy metals from wastewater with hydrophobic deep eutectic solvents *D. Liu**	Ms. D. Liu

Session 12: Bunga Raya 2			
Theme: Energy saving and clean technologies			
Chair: H. Mikulčić		**Co-chair: S. Zhang**	
Time	**Paper ID**	**Paper Title**	**Presenter**
4.30 – 5.10 PM	PRES25.0179	Process Development and Techno-economic Analysis of Hydrogen Liquefaction Process with Partial Utilization of LNG Cold Energy *H. Jung, S. Hwang**	Mr. H. Jung
5.10 - 5.30 PM	PRES25.0130	Process Integration and Electrification Pathways for Zero Carbon Milk Powder Spray Drying *S. Mcarthur, M. Walmsley*, T. Walmsley, B. Lincoln*	Prof. M. Walmsley
5.30 - 5.50 PM	PRES25.0237	A Comparative and Economic Analysis of Technology Routes for Producing Benzene from Aromatics *W. Yuan*, Y. Guo, L. He*	Dr. W. Yuan
5.50 - 6.10 PM	PRES25.0236	The Development of Cracking C9 Utilization Technology in Petrochemical Industry *X. Liu*, L. He*	Dr. X. Liu
6.10 - 6.30 PM	PRES25.0020	Enhanced Heat Recovery Network With Integrated Sensible Heat Storage Facilities for Energy Intensive Industry *T.J.N. Ang, Á. Orosz, F. Friedler, V. Andiappan, B.S. How**	Ms. T.J.N. Ang

Day 2, Tuesday, 26th August 2025

Session 13: Bunga Raya 3A

Theme: Footprint minimisation and mitigation

Chair: Edwin Lim **Co-chair: Chew Tin Lee**

Time	Paper ID	Paper Title	Presenter
10.30 – 11.10 AM	PRES25.0093	Bilevel programming for optimizing carbon dioxide removal portfolios *K. Aviso*, M.V. Migo-Sumagang, R.R. Tan*	Prof. K. Aviso
11.10 – 11.30 AM	PRES25.0306	Comparative Life Cycle Carbon Footprint Assessment of Three DME-Power polygeneration Systems Based on Biomass Gasification *L. Yang*, Z. Zhu*	Ms. L. Yang
11.30 – 11.50 AM	PRES25.0293	A Life Cycle Analysis of Energy Use and Environmental Impacts of Bioplastics from Seaweed Biorefinery *S. Chaurasiya, N. Preuss, F. You**	Prof. F. You
11.50 – 12.10 PM	PRES25.0245	Optimum integration strategies for energy efficiency measures, energy conversion technologies, and renewable technologies under various resource constraints. *N. Bhadbhade*, J. Grand, E. Klinac (burroughs), B.H.Y. Ong*	Dr. N. Bhadbhade
12.10 – 12.30 PM	MDPI Processes		Dr Lee

Session 14: Bunga Raya Hall 3

Theme: Heat transfer and heat exchangers

Chair: Santanu Bandyopadhyay **Co-chair: Olga Arsenyeva**

Time	Paper ID	Paper Title	Presenter
10.30 – 11.10 AM	PRES25.0043	An integrated vapor compression and mechanically pumped two-phase cooling loops for high-power electronic devices: transient analysis and flow stability control *N. Li, J. Wang, M. Zeng*, T. Ma, Q. Wang*	Dr. N. Li
11.10 – 11.30 AM	PRES25.0005	Numerical Investigation on Solid-Liquid Phase Change in a Cylindrical Module for Latent Heat Energy Storage *U. Khaqan, X. Liang, H. Du, S. Ud Din, J. Wang**	Ms. U. Khaqan

11.30 – 11.50 AM	PRES25.0101	Soft-sensor modeling of vessel interior temperatures under different nozzle configurations in a cooling process *J. Wang, F. Xu, Y. Sakai, H. Takahashi, R. Zhang, H. Kanayama, D. Satou, Y. Kansha**	Dr. J. Wang
11.50 – 12.10 PM	PRES25.0072	Experimental and analytical investigation of plate-fin recuperator for a micro gas turbine *Z. Han, D. Xu, Q. Kong, D. Liu, Q. Ma, Q. Wang, T. Ma**	Mr. Z. Han
Session 15: Bunga Raya Hall 2			
Theme: Process integration for sustainable development			
Chair: Zhongwen Song		**Co-chair: Lik Yin Ng**	
Time	**Paper ID**	**Paper Title**	**Presenter**
10.30 – 11.10 AM	PRES25.0008	Decarbonising Hard-to-Abate Industries: A Techno-Economic Case Study of Retrofitting an SMR-Based Ammonia Plant *S. Perković, H. Mikulčić**	Prof. H. Mikulčić
11.10 – 11.30 AM	PRES25.0011	Process simulation, system integration and techno-economic analysis (TEA) of direct air carbon capture and green fuel production *M. Qi, B. Luong, H. Yu**	Prof. H. Yu
11.30 – 11.50 AM	PRES25.0032	Optimal Allocation of Economic Benefits in an Eco-Industrial Park under Neutrosophic Environment *J.F. Tapia*, I.H. Gue, R.R. Tan, K. Aviso*	Dr. J.F. Tapia
11.50 – 12.10 PM	PRES25.0171	Optimization of Energy Efficiency in NGCC Power Plants for Carbon Capture Process Integration *H. Koo*, S. Hwang*	Mr. H. Koo
12.10 – 12.30 PM	PRES25.0270	Cost-Optimal Capture Rate Analysis for Membrane CO_2 Capture Process with Life - Cycle and Economic Assessment *Y. Song, M. Binns, S. Lee, J.H. Lee, J.G. Yeo, J.K. Kim**	Mr. Y. Song
Session 16: Bunga Raya Hall 1			
Theme: Energy saving and clean technologies			
Chair: Peng Yen Liew		**Co-chair: László Hégely**	
Time	**Paper ID**	**Paper Title**	**Presenter**
10.30 – 11.10 AM	PRES25.0205	Process Electrification and Carbon Reduction through Heat Pump-assisted Distillation *J.Y. Chen, P.S. Chen, Z.Y. Du, J.Y. Lee**	Dr. J.Y. Lee

11.10 – 11.30 AM	PRES25.0012	A Comparative Study Between Pinch Design Method and Superstructure Applied on Carbon Capture Storage *R. Handogo*, R. Panca Anugraha, P.L.A. Nanggala, J. Juwari, R.R. Satriyo, I GP.F.A. Kusuma, S.F. Amarasuli*	Mr. P.L.A Nanggala
11.30 – 11.50 AM	PRES25.0031	Optimising Energy Transitions: Assessing Renewable Energy Integrations with Grid Limitations *X.H. Cheng, D.R. Markandu, B.S. How, V. Andiappan**	Ms. X.H. Cheng
11.50 – 12.10 PM	PRES25.0103	Optimal Energy Resource and Storage Planning for Residential Sector Decarbonisation *C. Lau, I. Moser, B.S. How, V. Andiappan**	Mr. C. Lau
12.10 – 12.30 PM	PRES25.0108	Optimisation Framework of Multi-Energy Peer-to-Peer Trading with Hybrid Market Models in Eco-industrial Park *N.S.H. Kamarudzaman, P.Y. Liew*, K.W. Tan, K.S. Woon, N.R. Jamian*	Ms. Kamarudzaman
Session 17: Bunga Raya 1			
Theme: Process analysis, modelling and optimisation			
Chair: Savier Kong		**Co-chair: Joseph Ortenero**	
Time	**Paper ID**	**Paper Title**	**Presenter**
10.30 – 10.50 AM	PRES25.0017	Dynamic Modelling of an Amine-based CO2 Capture Unit Using Hollow Fiber Membrane Contactors in a Coal-fired Power Plant Considering Load Variation *Z. Cheng, Z. Li, P. Liu**	Mr. Z. Cheng
10.50 – 11.10 AM	PRES25.0213	N-best Design Options with Strategical Differences in Process Network Synthesis *Á. Orosz, S.Y. Teng, F. Friedler**	Dr. A. Orosz
11.10 – 11.30 AM	PRES25.0253	A Perspective on Integrating Process Dynamics Simulation into Process Control Education at Undergraduate Level *V. Andiappan*, Z.Y. Kong, I. Teh, J. Sunarso*	Dr. V. Andiappan
11.30 – 11.50 AM	PRES25.0146	Sustainable Valorization of Paper Industry Waste (Paper Dust) via Downdraft Air Gasification: A Comprehensive Aspen Plus® Process Model for Syngas Production *S. Kumar, A. Halba, P. Arora**	Prof. P. Arora

11.50 – 12.10 PM	PRES25.0214	Sustainability and Energy Efficiency in Administrative Processes: A Control Theory Approach with P-Graph Optimization *B. Eisinger*, L. Buics*	Dr. Eisinger
12.10 – 12.30 PM	PRES25.0196	Decarbonizing Industrial Process Heat: A Renewable Energy Roadmap for Aotearoa-New Zealand *D.J.S. Chong*, T. Walmsley, M. Atkins, B. Bertok, M.R. Walmsley*	Mr. D.J.S Chong
Session 18: Bunga Raya 2			
Theme: Process analysis, modelling and optimisation			
Chair: Jui-Yuan Lee		**Co-chair: Yoke Kin Wan**	
Time	**Paper ID**	**Paper Title**	**Presenter**
10.30 – 10.50 AM	PRES25.0014	Vulnerability Assessment of Coupled Energy and Resource Networks Considering the Contribution of Neighboring Nodes *R. Duan, L. Kang*, Y. Liu*	Mr. R. Duan
10.50 – 11.10 AM	PRES25.0057	A Mixed-Integer Linear Programming Model for Enhanced Weathering Networks Considering Logistical Emissions *M.V. Migo-Sumagang*, K. Aviso, D. Foo, R.R. Tan, Y.L. Tan*	Dr. M.V. Migo-Sumagang
11.10 – 11.30 AM	PRES25.0083	Thermodynamic Analysis of CO_2-Rich Natural Gas Utilization via Chemical Looping Hydrogen Generation *A.H. Ahmad, M. Aziz**	Mr. A.H. Ahmad
11.30 – 11.50 AM	PRES25.0304	Process design and multi-objective optimization based on extractive distillation for separation of vinyl acetate/methyl acetate/water azeotrope *Y. Zhang**	Ms. Y. Zhang
11.50 – 12.10 PM	PRES25.0224	Optimization of an Integrated Multilevel Energy Complementary System for Hydrogen Production, Storage, and Utilization *L. Huang, J. Sun*, D. Foo, X. Zeng, L. Wang, S. Hu*	Dr. J. Sun
12.10 – 12.30 PM	PRES25.0124	Maximizing Environmental Returns under Capital Constraints: A Sectoral Optimization Model Using P-Graph *D. Zhao, S.L. Ngan*, A.H. Jamil, B.S. How, S.P. Ngan*	Dr. D. Zhao

Session 19: Bunga Raya Hall 3A			
Theme: Waste minimisation, processing and management			
Chair: Dominic Foo		**Co-chair: Sebastian Werle**	
Time	**Paper ID**	**Paper Title**	**Presenter**
1.30 – 1.50 PM	PRES25.0078	Development of green water treatment process using photocatalyst-containing droplets *S. Kato, Y. Kansha**	Mr. S. Kato
1.50 - 2.10 PM	PRES25.0256	Synergistically Optimized Distributed Energy System Combining Hydrogen-Blended Natural Gas and Geothermal Energy for Low-Carbon Residential Areas *Y. Peng, Q. Liao*, B. Wang, Y. Chen, Y. Liang*	Dr. Y. Peng
2.10 - 2.30 PM	PRES25.0295	Energy, exergy and economic analyses of DME-power polygeneration system based on the integration of biomass gasification and direct synthesis of DME *W. Xu**	Mr.W. Xu
2.30 - 2.50 PM	PRES25.0318	Circular Economy Strategies Analysis in Palm Oil Mills Using P-Graph *E.G.D. Liyis, S.W. Teh, S.X. Teng, K.W. Cheng, Y.J. Chan, H.L. Lam**	Prof. H.L. Lam
Session 20: Bunga Raya Hall 3			
Theme: Process analysis, modelling and optimisation			
Chair: Kathleen Aviso		**Co-chair: Nishanth Chemmangattuvalappil**	
Time	**Paper ID**	**Paper Title**	**Presenter**
1.30 – 1.50 PM	PRES25.0016	Multi-Period Optimization of Industry 5.0 Technology Adoption in Oil Palm Plantation *M.A. Mohamaad Zaki, J. Ooi, C.H. Lim**	Mr. M.A. Mohamaad Zaki
1.50 - 2.10 PM	PRES25.0062	Design and Optimization of Coal-fired Combined Cooling, Heating and Power System for Integration of Hybrid Hydrogen Network *W. Duan, Q. Zhang**	Ms. Duan
2.10 - 2.30 PM	PRES25.0065	Comparative analysis of syngas production via gasification and plasma gasification of municipal solid waste for methanol synthesis *A. Sornchai, Y. Patcharavorachot, D. Saebea**	Ms. Sornchai
2.30 - 2.50 PM	PRES25.0240	Assessing the Optimal Resource Mix for Deep Decarbonization of the Indian Power Sector by 2070 *A.D.C. Arul Babu, V. Ramadesigan*, R. Banerjee*	Mr. Arul Babu

Session 21: Bunga Raya Hall 2			
Theme: Process analysis, modelling and optimisation			
Chair: John Frederick D. Tapia		**Co-chair: Hanim Basarudin**	
Time	**Paper ID**	**Paper Title**	**Presenter**
1.30 – 1.50 PM	PRES25.0015	Thermodynamic Performance analysis of the Combined Liquid Organic Hydrogen Carrier and Solid Oxide Fuel Cell System *M. Qiu, L. Kang*, Y. Liu*	Ms. M. Qiu
1.50 - 2.10 PM	PRES25.0068	A comprehensive framework for targeting the disturbance propagation path and debottleneck strategy of chemical process considering the topology and cascading effects *L. Zhao, G. Liu**	Ms. L. Zhao
2.10 - 2.30 PM	PRES25.0073	Performance Modelling of Biomass/Ammonia/Coal Co-firing in Pulverized Coal-fired Boiler using Process Simulation *R. Waluyo, M. Aziz**	Mr. Waluyo
2.30 - 2.50 PM	PRES25.0050	Assessment of Potential Modifications to High-Pressure (HP) and Medium-Pressure (MP) Boiler Feed Water (BFW) Pump Systems for Integrated Plant Network Analysis in BFW Services *M.A. Isa*, MA. Abu Taleb, R. A Latip, A.C. Kamel, MS. Samin, W.A.F. Wan Abd Munir, M. M Hadzir, W MN. W Ismail, B. Raghunathan*	Mr. MS. Samin
Session 22: Bunga Raya Hall 1			
Theme: Process integration for sustainable development			
Chair: Yang Yang		**Co-chair: Yoke Kin Wan**	
Time	**Paper ID**	**Paper Title**	**Presenter**
1.30 – 1.50 PM	PRES25.0280	A Heat Exchanger Network Retrofit Method for Non-Continuous Processes based on Clustering and Reinforcement Learning *Y. Jiang*, T. Walmsley, K. Hall, B.H.Y. Ong, M.R. Walmsley, M. Atkins*	Mr. Y. Jiang
1.50 - 2.10 PM	PRES25.0127	Intelligent Structural Optimization of Composite Mini-channel Heat Exchangers by using Reinforcement Learning Algorithms *D. Xu, Z. Han, D. Liu, Q. Wang, T. Ma**	Mr. D. Xu

2.10 - 2.30 PM	PRES25.0051	Evaluation of retrofit strategies to mitigate scope 1, 2, and 3 emissions in wastewater treatment plants for carbon neutrality *H. Song, T. Woo, S. Kim, C. Jung, N. Jeon, S. Heo, C. Yoo**	Ms. H. Song
2.30 - 2.50 PM	PRES25.0064	Machine Learning Based Integrated Optimization of Mass-Energy for Refinery and Synthetic Plant of Chemicals *Y. Yang, Q. Zhang**	Dr. Y. Yang
Session 23: Bunga Raya 1			
Theme: Process analysis, modelling and optimisation			
Chair: Adeniyi Isafiade		**Co-chair: Dalila Alias**	
Time	**Paper ID**	**Paper Title**	**Presenter**
1.30 – 1.50 PM	PRES25.0288	The few-shot weld defect classification method based on improved ResNet50 and generative adversarial network *B. Wang, Z. Qiao**	Mr. Z. Qiao
1.50 - 2.10 PM	Oleology	Maximizing Enhanced Oil Recovery with Effective Coalescing using MyCelx Coalescing Technology *J.M. Lee**	Ms. Lee
2.10 - 2.30 PM	PRES25.0313	Application-specific quality assessment of recycled plastics using Zero-shot Learning and Large Language Models (LLMs) *Q.Y. Ong, K. Ragaert, S.Y. Teng**	Ms. Q.Y. Ong
2.30 – 2.50 PM	PRES25.0166	The Rolw of Road Grades in Drive Cycle Analysis for Electric Vehicle *M.A. Mozo, V. Banaguas, J.I. Encarnacion, C.M. Odulio**	Mr. Mozo
Session 24: Bunga Raya 2			
Theme: Energy saving and clean technologies			
Chair: Bohong Wang		**Co-chair: Viknesh Andiappan**	
Time	**Paper ID**	**Paper Title**	**Presenter**
1.30 – 1.50 PM	PRES25.0147	Electrocatalytic Activity of Nickel Zinc Selenide on Nickel Foam for the Production of Hydrogen via Water Electrolysis *A. Flaviano, P.R. Morente, M.B. Owogowog, J. Balisnomo, J. Ocon, J. Ortenero**	Ms. A. Flaviano
1.50 - 2.10 PM	PRES25.0207	Use of metallurgical slags in ecological catalysis *M. Utegenova*, M. Sadenova, S. Tungatarova*	Ms. Utegenova

2.10 - 2.30 PM	PRES25.0308	Clean production of fluid catalytic cracked diesel using ionic liquids and predictive molecular thermodynamics *X. Wang*, G. Li*	Mr. X. Wang
2.30 - 2.50 PM	PRES25.0292	Ammonia Decomposition: A Route to Clean Hydrogen Generation *P. Arora*, M. Chopra*	Prof. P. Arora
Session 25: Bunga Raya Hall 3A			
Theme: Energy saving and clean technologies			
Chair: Bing Shen How		**Co-chair: Marzhan Sadenova**	
Time	**Paper ID**	**Paper Title**	**Presenter**
3.10 – 3.30 PM	PRES25.0060	Carbon Dioxide Capture Performance Characterization of Mesoporous Carbon Impregnated with Triethylenetetramine *F. Chrisnardy, Y. Kansha**	Ms. F. Chrisnardy
3.30 – 3.50 PM	PRES25.0243	Modeling and Optimization of Natural Gas Pipeline Networks Based on the Integration of PWL and McCormick Relaxations *H. Hao*, B. Wang*	Ms. H. Hao
3.50 – 4.10 PM	PRES25.0098	Pathway Optimization for Low-Carbon Plastic Waste-to-Hydrogen Production with Flexible Feed Composition Using a Regression Model *S.K.Y. Song, V. Andiappan, F. Friedler, B.S. How**	Ms. S.K.Y. Song
4.10 – 4.30 PM	PRES25.0033	Multi-Parameter Optimization of Minimal Surface Structure Tank for Metal Hydride as Mobile Hydrogen Storage Solution *L.A. Lesmana, M. Aziz**	Mr. L.A. Lesmana
Session 26: Bunga Raya Hall 3			
Theme: Process analysis, modelling and optimisation			
Chair: Pratham Arora		**Co-chair: Karen Kong**	
Time	**Paper ID**	**Paper Title**	**Presenter**
3.10 – 3.30 PM	PRES25.0018	Optimal Design of a Modular Renewable Methanol Synthesis System Based on Reconfiguration of Reactor and Separator Units *L. Zhang, J. Tang, L. Kang*, Y. Liu*	Ms. L. Zhang
3.30 – 3.50 PM	PRES25.0019	Optimal Design of Hydrogen Refueling Station Considering Matching of Multi-stage Compression and Storage Processes *J. Lian, L. Kang*, Y. Liu*	Mr. J. Lian

3.50 – 4.10 PM	PRES25.0029	Optimal design of modular production systems for renewable methanol with multi-capacity production lines based on operating windows regulation *X. Kong, J. Wang, L. Kang, Y. Liu**	Mr. X. Kong
4.10 – 4.30 PM	PRES25.0069	Determining Optimal Crisis Operation for Integrated Plastics Recycling Network Using Fuzzy Linear Programming Enterprise Input-Output Model *B.J. Santos*, M.F. Benjamin, J.F. Tapia, R.R. Tan*	Mr. B.J. Santos

Session 27: Bunga Raya Hall 2

Theme: Process analysis, modelling and optimisation

Chair: Jecksin Ooi **Co-chair: Akos Orosz**

Time	Paper ID	Paper Title	Presenter
3.10 – 3.30 PM	PRES25.0076	Circular Integration of Electrified Plastic Waste-to-X Systems into Oil Refineries *A.S.T. Tan, S. Mousa, D. Al-Mohannadi, J.Y. Lee, V. Andiappan, B.S. How**	Ms. A.S.T. Tan
3.30 – 3.50 PM	PRES25.0151	Kinetic Modeling of Hydrogenation Reaction and Derivation of Optimal Operating Conditions for Quality Improvement *J. Park, S. Hwang**	Ms. J. Park
3.50 – 4.10 PM	PRES25.0289	Synthesis of CO2-based Polyethylene Through Hybrid Renewable and PtX Systems *M. Dokl, Z. Kravanja, L. Čuček**	Ms. M. Dokl
4.10 – 4.30 PM	PRES25.0133	Design Optimization of Small-Scale Horizontal-Axis Wind Turbines Using Genetic Algorithms to Minimize CO_2 Emissions *M. Lumbera*, J.I. Encarnacion*	Mr. M. Lumbera

Session 28: Bunga Raya Hall 1

Theme: Energy saving and clean technologies

Chair: Dominic Foo **Co-chair: Laszlo Hegely**

Time	Paper ID	Paper Title	Presenter
3.10 – 3.30 PM	PRES25.0007	Collaborative optimization planning of multi-island energy systems considering ship-based mobile energy storage *A. Yu, Z. Li, P. Liu**	Ms. A. Yu
3.30 – 3.50 PM	PRES25.0030	Performance evaluation of ceramic solar system for domestic space heating: A case study in Heibei, China *S. Yang, Z. Fang, S. Zhang*, Z. Wang*	Dr. S. Zhang

3.50 – 4.10 PM	PRES25.0089	Performance of Nickel-Iron Selenide on Bamboo Nanocellulose for Hydrogen Production *J. Ortenero*, A.R. Lapuz*	Dr. J. Ortenero
4.10 – 4.30 PM	PRES25.0164	Evaluation of the carbon emissions of electric vehicles in the Philippines using representative drive cycles and local power mix *J.I. Encarnacion*, M.A. Mozo, V. Banaguas, C.M. Odulio*	Dr. Encarnacion
Session 29: Bunga Raya 1			
Theme: Process analysis, modelling and optimisation			
Chair: Nianqi Li		**Co-chair: Dalila Alias**	
Time	**Paper ID**	**Paper Title**	**Presenter**
3.10 – 3.30 PM	PRES25.0220	Evaluation of hydrodynamic behavior in an electrochemical reactor of tubular baffles with different impellers. *O. Abrica Gonzalez*, S.A. Martínez-Delgadillo, J.A. Yañez-Varela*	Mr. O. Abrica
3.30 – 3.50 PM	PRES25.0250	Thermodynamic Optimization of Thermal Grids Using Pinch and Exergy Analysis *J. Grand*, B.H.Y. Ong, B. Wellig*	Mr. J. Grand
3.50 – 4.10 PM	PRES25.0227	Optimisation of Energy Utilisation and Heat Recovery in Plastic Waste Management Using TRNSYS *C. Si, Y.V. Fan, L. Čuček*, M. Dokl, Z. Kravanja*	Ms. C. Si
4.10 – 4.30 PM	PRES25.0271	Enhanced NO2 Gas-Sensing Performance by Core-Shell Ni/ZIF-8/ZnO Nanospheres *R.R. Kumar**	Dr. R.R. Kumar
Session 30: Bunga Raya 2			
Theme: Footprint minimisation and mitigation			
Chair: Kok Sin Woon		**Co-chair: Sue Lin Ngan**	
Time	**Paper ID**	**Paper Title**	**Presenter**
3.10 – 3.30 PM	PRES25.0090	Indirect Economic Impacts and Emissions of Basalt Enhanced Weathering in Malaysia *K. Aviso, D. Foo, I.H. Gue, M.V. Migo-Sumagang, R.R. Tan*, Y.L. Tan*	Prof. R.R. Tan

3.30 – 3.50 PM	PRES25.0145	Bridging Data Gaps in Coal Quality Assessment: A Machine Learning Approach for the Process Performance Enhancement *H. Basarudin*, A.Z.S. Zulkifli, S. Yusup, M.N. Zulkifle, M.S.H. Mohd Samsuri, H. Basarudin*	Dr. H. Basarudin
3.50 – 4.10 PM	PRES25.0209	Systematic Framework for Evaluating Microreactors vs. CSTR and PFR Systems *A. Nemet*, M. Zazijal, Z. Kravanja*	Dr. A. Nemet
4.10 – 4.30 PM	PRES25.0239	A Multi-Dimensional Framework for Just and Equitable Renewable Energy Target Allocation in India's Federal System *N.T. Venkataramana, T. Kanitkar, V. Ramadesigan*, R. Banerjee*	Mr. N.T Venkataramana

Day 3, Wednesday, 27th August 2025

Session 31: Bunga Raya 3A

Theme: Process analysis, modelling and optimisation

Chair: Zekun Yang **Co-chair: Benjamin Ong**

Time	Paper ID	Paper Title	Presenter
1.30 – 1.50 PM	PRES25.0096	Double-effect Parallel Batch Distillation by Feed Splitting *L. Hegely, P. Lang**	Prof. P. Lang
1.50 - 2.10 PM	PRES25.0144	Establishing the correlation between Gas Chromatography-Mass Spectroscopy (GCMS) fragmentation and Laminar Burning Velocity (LBV) in sustainable gasoline blending components. *C. Av Muthiah*, M. Subramaniyam, S. Shinde, P. Seferlis*	Ms. AV Muthiah
2.10 - 2.30 PM	PRES25.0259	Value Potential for Screening of Reaction Pathways *D.K.S. Ng**	Prof. Ng
2.30 - 2.50 PM	PRES25.0228	Optimized Dual-Battery Energy Storage System for Improved Lifetime and Cost Reduction in Renewable Energy Systems *A.D. Binti Nizamuddin, W.S. Ho*, H. Hashim, M.A. Zubir, Z. Ab Muis, K.Y. Wong*	Dr.W.S. Ho

Session 32: Bunga Raya Hall 3

Theme: Footprint minimisation and mitigation

Chair: A. Raj **Co-chair: Maria Victoria Migo-Sumagang**

Time	Paper ID	Paper Title	Presenter
1.30 – 1.50 PM	PRES25.0273	Multi-Period Planning for Corporate Emission Reduction *D. Foo*, C.H. Chew*	Prof. D. Foo
1.50 - 2.10 PM	PRES25.0123	Can the EU-27 Achieve Its 2030 Climate Targets? An AI-Driven Forecast of Energy and Emissions Trends *K.S. Woon*, M.Y. Chin*	Dr. K.S. Woon
2.10 - 2.30 PM	PRES25.0132	Flexible superstructure synthesis approach for multi-region and multi-period carbon capture and storage network design *H. Liu, A.J. Isafiade**	Prof.A.J. Isafiade

2.30 - 2.50 PM	PRES25.0175	Sustainable Urban Mobility system: Network Based Approach for Multimodal Integration and Emission Reduction *I. Jeong, S. Kim, J. Kwak, M. Choi, S. Lee**	Mr. I. Jeong
2.50 – 3.10 PM	PRES25.0021	Integrated Off-Grid Resource Sharing and Energy Network Optimisation for Several Co-Located Rural Communities in Namibia *K. Jegede*, A.J. Isafiade, M. Short*	Ms. K. Jegede
Session 33: Bunga Raya Hall 2			
Theme: Numerical fluid flow and heat transfer simulation			
Chair: Jin Wang		**Co-chair: Martin Picón Núñez**	
Time	**Paper ID**	**Paper Title**	**Presenter**
1.30 – 1.50 PM	PRES25.0003	Investigation of Thermoelectric Cooling in Wearable Generators Using Phase Change Materials as a Heat Sink *J. Saleem, Z. Hou, M. Shen, N. Ahmed, J. Wang**	Mr. Saleem
1.50 - 2.10 PM	PRES25.0161	CFD Analysis of CO2 Dispersion in Air-Conditioned Office Spaces with Varying Occupancy Configurations *R.P. Estaquio*, N.D. Genuino, L.C. Manuel, K. Santos, N. Astrologo, S.M. Montecillo, J.R. Lustro, J.R. Hizon*	Dr.J.R. Lustro
2.10 - 2.30 PM	PRES25.0226	Modeling Heat Transfer Enhancement in a CO_2 Methanation Reactor with Twisted Tape Inserts *C. Troyano Ferré*, R. Cabello, A.E. Plesu Popescu, J. Bonet-Ruiz, P. Gamallo Belmonte, X. Gimenez Font*	Mr. C. Troyano Ferré
Session 34: Bunga Raya Hall 1			
Theme: Energy saving and clean technologies			
Chair: Lik Yin Ng		**Co-chair: Sue Lin Ngan**	
Time	**Paper ID**	**Paper Title**	**Presenter**
1.30 – 1.50 PM	PRES25.0298	The strong interaction between the hydrophobic deep eutectic solvent and phenol enables efficient separation of aqueous and phenol system *Y. Zhou**	Ms. Zhou
1.50 - 2.10 PM	PRES25.0307	Cleaner production of fluid catalytic cracking diesel with ionic liquids and predictive molecular thermodynamic. *X. Wang**	Mr. Wang

2.10 - 2.30 PM	PRES25.0261	Enhancement of Energy Efficiency for Chilled Water Networks in Existing University Building *D. Alias, P. Tan, D.K.S. Ng**	Dr. Alias
2.30 - 2.50 PM	PRES25.0038	Advancing Decarbonization in Process Industries: Multi-objective and Multi-period Heat Exchanger Network Synthesis with Post-combustion Carbon Capture *Z. Yang, T. Pan, S. Zhang, N. Zhang*, R. Smith*	Dr. Z. Yang

POSTER PRESENTATIONS

Day 1, Monday, 25th August 2025		
Paper ID	**Paper Title**	**Presenter**
PRES25.0009	Modelling Framework for Coupling of Power and Freshwater Production Sector Considering Storage *P. Lonić, F. Jurić, H. Mikulčić**	Prof. Mikulčić
PRES25.0013	Benchmarking Hydrogen Life Cycle Assessments: A Review of Methodologies and Results *R.P. S. Thomas Adisan, S.R. Wan Alwi*, Z. Abdul Manan, V. Andiappan, J.S. Lim, B.S. How*	Mr. S. Thomas Adisan
PRES25.0028	The Potential and Role of Seasonal Energy Storage in the Transition of Power and Heating Sectors *Z. Li, C. Li, Z. Wang, J. Huang, P. Liu**	Mr. Li
PRES25.0041	Textile Waste Recycling: The Role of Thermogravimetric Analysis *L. Slobodkina, R. Muzyka, S. Sobek, M. Sajdak, S. Werle**	Prof. Werle
PRES25.0046	Techno-economic Analysis of Sustainable Aviation Fuel from Corn Stover *J.F. Tapia*, A.M. Abrasia, J.A. Dalisay, J.A. Halili, A.F. Miguel, K.M. Mangali, C.J. Lopez, D. Foo, R.R. Tan*	Dr. Tapia
PRES25.0079	Innovative Approaches to Palm Oil Mill Management Through Electrocoagulation *V.Z. Cabrera, M.B. Sorila, S. Tercenio, J. Ortenero*, A.E.S. Choi*	Dr. Ortenero
PRES25.0085	Enhancing Energy Efficiency through Heat Recovery in Coal-Fired Power Plant using Aspen Energy Analyzer *S.S. Johari*, S. Yusup, A.Z.S. Zulkifli, M.S.H. Mohd Samsuri*	Ms. Johari
PRES25.0092	Advances in Biodegradable Plastic Production: Exploring Strategies and Technologies using Renewable Resources *G.M.V. Silva, A.J.A. Go, R.E.M. Manlulu, J.A.R. Calero, K. Aviso, A.E.S. Choi**	Prof. Choi
PRES25.0094	Paving the way to Sustainability: Exploring the Effects of Additives to Concrete Mixes for Enhancing Mechanical Properties and Cost Efficiency *P. Dizon, K.L. Guanlao, K. Marqueses, C.J. Oliva, K. Aviso*, A.E.S. Choi*	Prof. Aviso
PRES25.0121	Sustainable Methanol Production via Integrated Supercritical CO_2 Cycle: Process Optimization and Energy Efficiency Analysis *Z. Ling, C. Bouallou**	Prof. Bouallou

PRES25.0126	Chemometric-based Local Temperature Prediction for Control System Design *H. Takahashi, Y. Kansha**	Prof. Kansha
PRES25.0136	A Product Centric Design for the Recovery of Value-Added Chemicals from Crude Bio-Oil *Y.Q. Lee, H.S. Lee, X.K. Wong, S. Thangalazhy-Gopakumar, J. Ooi, N.G. Chemmangattuvalappil**	Prof. Chemmangattuvalappil
PRES25.0138	Harnessing AI for Sustainability: Evidence on Energy Efficiency and Green Innovation *Y. Zhou, W. Bu*, S.L. Ngan, D. Zhao*	Dr. Zhou
PRES25.0162	Impact of Biomass Co-Firing on Flame Temperature and Pollutant Emissions in a 300 MW Coal-Fired Boiler: A Computational Fluid Dynamics Analysis *M.N. Zulkifle*, S. Yusup*	Mr. Zulkifle
PRES25.0183	Introducing the Time-Based GCC for Visualising the Natural Variation in Cold Utility Availability *R.K. Yadav*, S. Bandyopadhyay, A. Hoadley, R. Dargaville*	Mr. Yadav
PRES25.0278	Eco-Friendly Guava Wine Fermentation: Insights from Spectrophotometry and Cyclic Voltammetry *K. Anonuevo, J. Balisnomo, J. Ortenero**	Prof. Balisnomo
PRES25.0316	Aligning Hazardous Waste Sitting with Circular Economy and SDG Priorities: A Monte Carlo- Validated Framework for Developing Countries *M.K. Wang*, H.L. Lam*	Ms. Wang
PRES25.0319	Heat Exchanger Network Synthesis Using a Segmented MINLP Superstructure: Enhancing Integration and Reducing Design Multiplicity *A. Nemet*, E. Ahmetović, Z. Kravanja*	Dr. Nemet

Day 2, Tuesday, 26th August 2025

Paper ID	Paper Title	Presenter
PRES25.0180	An Integrated Assessment of CO2 Capture Processes in Various Techniques *Y.S. Chen, B.Y. Yu**	Mr. Chen
PRES25.0182	Overview of Various CO2 Utilization Processes: Process Design, Technical Economic and Life Cycle Assessment *H.C. Hua, B.Y. Yu**	Dr. Hua

PRES25.0184	Regularities of stabilization of the active component of oxide catalysts in deep oxidation of methane *M. Zhylkybek*, T. Baizhumanova, S. Tungatarova, M. Zhumabek, K. Kassymkan, R. Orazbekova, B. Mustakym, M. Erkibaeva*	Ms. Zhylkybek
PRES25.0188	Extraction of carbon-containing concentrate from fly ash and its application *R. Kulumbegov, L. Delitsyn, O. Popel, M. Sulman**	Prof. Sulman
PRES25.0198	Optimization Model for Progressive Industrial Decarbonization *K. Aviso, D. Foo, G. Poplewski, R.R. Tan**	Prof. Tan
PRES25.0200	Risk Analysis of LNG Cold Energy Power Generation System Based on Fuzzy Analysis and Bayesian Network *Y. Zhou, B. Wang**	Mr. Zhou
PRES25.0201	A study on the rapid prediction method for geothermal reservoir and extracted water temperature fields base FNO model. Y. Zhang, J. Gong, Y. Chen*, K. Jiao, B. Wang, Q. Liao, D. Han	Ms. Zhang
PRES25.0204	Effect of Halides on the Morphology and Electrocatalytic Activity of Nickel Zinc Selenide Towards Hydrogen Production *A. Flaviano, J. Ortenero*, P.R. Morente, M.B. Owogowog, J. Balisnomo*	Mr. Owogowog
PRES25.0206	Investigation on the Vertical Interaction of Outdoor - Indoor PM 2.5 Concentrations via In-situ Monitoring *K. Cantonao, J.R. Lustro**	Ms. Cantonao
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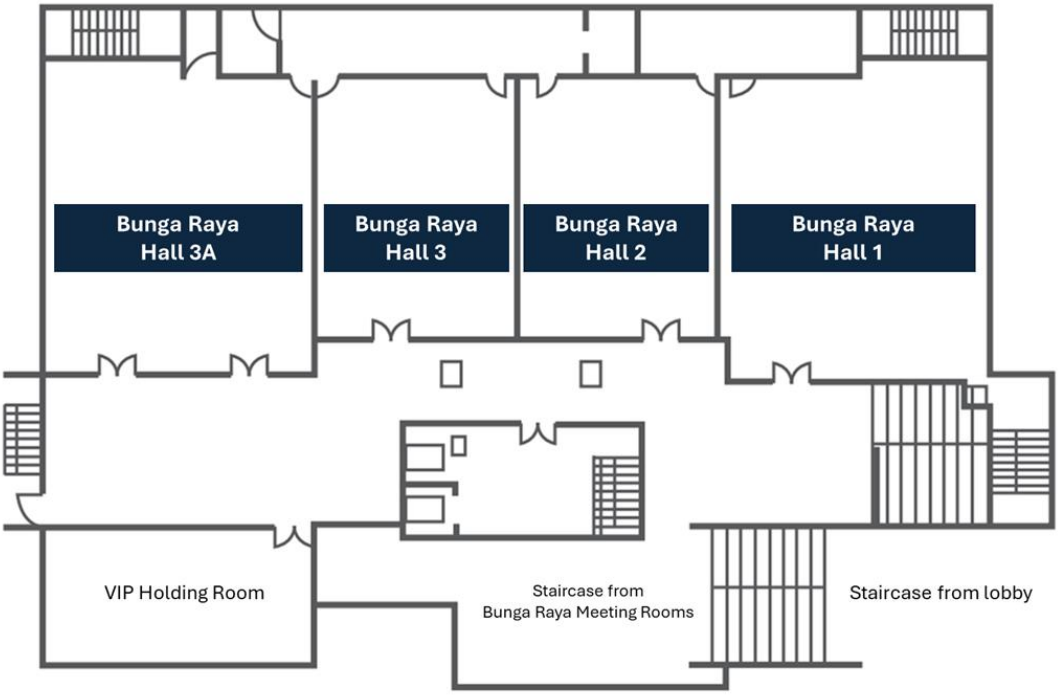
Bunga Raya Hall 3A
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VIP Holding Room
Staircase from Bunga Raya Meeting Rooms
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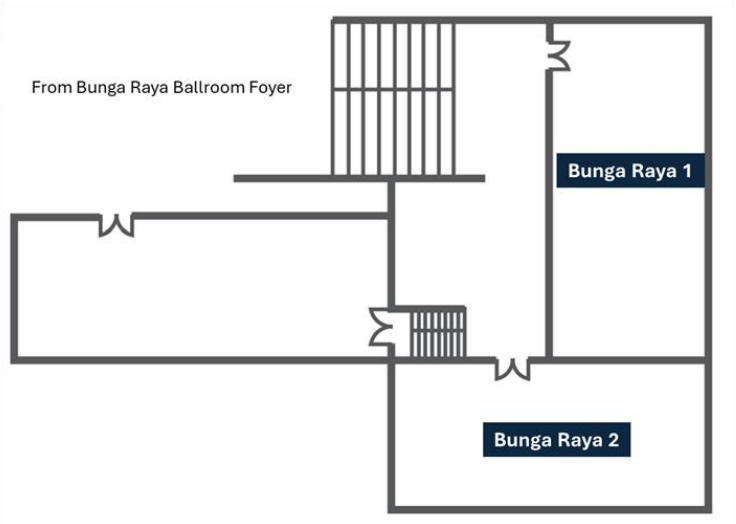
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Bunga Raya 1
Bunga Raya 2

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