



# Program

The 2024 International Conference on  
Sustainable Energy and Environment Technology  
for Circular Economy

*Sponsored by*



*Organized by*



## About the conference

The International Conference on Sustainable Energy and Environment for Circular Economy (SEECE-2024) will be organized by the Faculty of Engineering in collaboration with Kasetsart University Research and Development Institute, Kasetsart University, in Bangkok, Thailand from Sunday, August 4<sup>th</sup> to Tuesday, August 6<sup>th</sup>, 2024.

The primary objective of this conference is to serve as a distinguished forum for the presentation of pioneering breakthroughs and research outcomes within the theoretical, experimental, and practical spheres of Energy, Materials, Environment, Biomass Conversion, and Renewable Energy.

Furthermore, it functions as an exceptional international forum where researchers and educators can present and deliberate on innovations, trends, concerns, and the practical challenges encountered, including the implementation of solutions. The conference will bring together world-renowned researchers, engineers, and scientists from around the world in this field of Interest.

# **Conference academic committee**

## **Chair and Co-chairs**

### **Chair**

**Assoc. Prof. Chinnathan Areeprasert**

Director of Energy and Environmental Engineering Center, Faculty of Engineering, Kasetsart University, Thailand

### **Co-chair**

**Assoc. Prof. Warapa Mahakarnchanakul**

Director of Kasetsart University Research and Development Institute, Kasetsart University, Thailand

**Asst. Prof. Gasidit Panomsuwan**

Assistant to Dean, Faculty of Engineering, Kasetsart University, Thailand

**Assoc. Prof. Weerachai Chaiworapuek**

Head of Department of Mechanical Engineering, Faculty of Engineering, Kasetsart University, Thailand

### **Secretary**

**Dr. Chanoknunt Khaobang**

Energy and Environmental Engineering Center, Faculty of Engineering, Kasetsart University, Thailand

## **Advisory Committee Member**

**Prof. Dokrak Marod**

Vice President for Research and Internationalization, Kasetsart University, Thailand

**Prof. Wanchai Yodsudjai**

Dean of Faculty of Engineering, Kasetsart University, Thailand

**Prof. Ruey-an Doong**

Dean of College of Nuclear Science, National Tsing Hua University, Taiwan

**Prof. Nyan-Hwa Tai**

Senior Vice President, National Tsing Hua University, Taiwan

**Prof. Kedar Prasad Rijal**

Dean of Faculty of Science, Health and Technology, Nepal Open University, Nepal

**Prof. Melito Baccay**

Director of Integrated Research and Training Center, Technological University of the Philippines, Philippines

**Prof. Kunio Yoshikawa**

School of Environment and Society, Tokyo Institute of Technology, Japan

**Prof. Jeffrey Cross**

School of Environment and Society, Tokyo Institute of Technology, Japan

**Prof. Fabrizio Scala**

Department of Chemical, Materials and Production Engineering, University of Naples Federico II, Italy

**Prof. Weihong Yan**

Department of Materials Science and Engineering, KTH Royal Institute of Technology, Sweden.

**Prof. Rex B. demafelis**

Chairman of UPLB Interdisciplinary Biofuels Research Study Center, University of the Philippines Los Baños, Philippines

**Prof. Jit Kang Lim**

School of Chemical Engineering, Universiti Sains Malaysia, Malaysia

**Organizing committee member**

**Assoc. Prof. Suchart Leungprasert**

Vice Dean for Management, Faculty of Engineering, Kasetsart University, Thailand

**Prof. Siripon Anantawaraskul**

Vice Dean for Research, Faculty of Engineering, Kasetsart University, Thailand

**Assoc. Prof. Chart Chiemchasri**

Department of Environmental Engineering, Faculty of Engineering, Kasetsart University, Thailand

**Prof. Orathai Jongprateep**

Department of Material Engineering, Faculty of Engineering, Kasetsart University, Thailand

**Dr. Deepshikha Bhargava**

Department of Mechanical Engineering, Faculty of Engineering, Kasetsart University, Thailand

**Prof. Ho Ngo Anh Dao**

Dean of Faculty of Environment and Labor Safety, Ton Duc Thang University, Ho Chi Minh, Viet Nam

**Assoc. Prof. Hui Lin Ong**

Faculty of Chemical Engineering & Technology, Universiti Malaysia Perlis, Malaysia

**Assoc. Prof. Remya Neelancherry**

School of Infrastructure, Indian Institute of Technology Bhubaneswar, India

**Dr. Bernadette Tongko**

Department of Chemical Engineering, University of the Philippines Los Baños, Philippines

**Asst. Prof. Narayan Babu Dhita**

Department of Environmental Science, Patan Multiple Campus-Tribhuvan University, Nepal

### **Academic Committee Member**

**Prof. Metta Chareonpanich**

Department of Chemical Engineering, Faculty of Engineering, Kasetsart University, Thailand

**Prof. Thongthai Witoon**

Department of Chemical Engineering, Faculty of Engineering, Kasetsart University, Thailand

**Prof. Tanakorn Wongwuttanasatian**

Department of Mechanical Engineering, Faculty of Engineering, Khon Kaen University, Thailand

**Prof. Nakorn Tippayawong**

Department of Mechanical Engineering, Faculty of Engineering, Chiang Mai University, Thailand

**Prof. Navadol Laosiripojana**

The Joint Graduate School of Energy and Environment, King Mongkut's University of Technology Thonburi, Thailand

**Assoc. Prof. Naragain Phumchusri**

Department of Industrial Engineering, Faculty of Engineering, Chulalongkorn University, Thailand

**Prof. Anil Ghule**

Department of Chemistry, Shivaji University, India

**Dr. Wen Da Oh**

School of Chemical Sciences, Universiti Sains, Malaysia

**Prof. Yen San Chan (Stephanie)**

Head of Department of Chemical Engineering, Faculty of Engineering and Science, Curtin University, Malaysia

**Prof. Kentaro Umeki**

Department of Engineering Science and Mathematics, Lulea University of Technology, Sweden

**Prof. Lu Ding**

Institute of Clean Coal Technology, East China University of Science and Technology, China

**Prof. Mi Yan**

Institute of Energy and Power Engineering, Zhejiang University of Technology, China

**Prof. Zhao Peitao**

School of Electrical and Power Engineering, China University of Mining and Technology, China

**Prof. Yong-Song Chen**

Department of Mechanical Engineering, National Chung Cheng University, Taiwan

**Prof. Her-Terng Yau**

Department of Electrical Engineering, National Chung Cheng University, Taiwan

**Assoc. Prof. Pandji Prawisudha**

Department of Mechanical Engineering, Faculty of Mechanical and Aerospace Engineering, Bandung Institute of Technology, Indonesia

**Assoc. Prof. Dachao Ma**

School of Resources, Environment and Materials, Guangxi University, China

**Assoc. Prof. Papis Wongchaisuwat**

Department of Industrial Engineering, Faculty of Engineering, Kasetsart University, Thailand

**Asst. Prof. Phantisa Limleamthong**

Department of Chemical Engineering, Faculty of Engineering, Kasetsart University, Thailand

## Day 1 - 4<sup>th</sup> August 2024 Registration

Time	Title	Venue
1:00 to 6:00 pm	Registration	19 <sup>th</sup> Floor, Building 6 (Mechanical Engineering)

## Day 2 - 5<sup>th</sup> August 2024 Opening Ceremony

Time	Title	Speaker	Venue
8:00 to 9:00 am	Registration	-	19 <sup>th</sup> Floor, Building 6 (Mechanical Engineering)
9:00 to 9:10 am	Welcome remark	Assoc. Prof. Dr. Weerachai Chaiworapeuk  Co-Chair and Head of Mechanical Engineering Department, Kasetsart University	
9:10 to 9:20 am	Introductory remark	Prof. Dr. Wanchai Yodsudjai  Dean of Faculty of Engineering, Kasetsart University	
9:20 to 9:30 am	Opening speech	Dr. Chongrak Wachrinrat  Acting President of Kasetsart University	
9:30 to 10:00 am	Waste-to-energy: High-quality solid fuel production from biomass and wastes	Prof. Dr. Kunio Yoshikawa  Professor Emeritus of Tokyo Institute of Technology	
10:00 to 10:30 am	Group photo & Coffee break & Exhibition tour		
10:30 to 11:00 am	Japan's basic hydrogen strategy and hydrogen separation using membranes	Prof. Dr. Jeffrey Cross  Department of Transdisciplinary Science and Engineering, School of Environment and Society, Tokyo Institute of Technology	
11:00 to 11:30 am	Applications of complex signal processing in renewable energy systems	Prof. Dr. Her-Terng Yau  Director of Advanced Institute of Manufacturing with High-tech Innovations, National Chung Cheng University	
11:30 to 12:00 pm	Biochar production and application	Dr. Sakprayut Sinthupinyo Siam Research and Innovation Co., Ltd., The Siam Cement PCL, Thailand.	
12:00 to 1:30 pm	Lunch	Room 61802-61804 18 <sup>th</sup> Floor Building 6 (Mechanical Engineering)	

## Day 2 - 5<sup>th</sup> August 2024

### Academic presentation

Room 61801 18<sup>th</sup> Floor Building 6 (Mechanical Engineering)

### **Session 1: Biomass Conversion Technology**

**Chairman:** Prof. Ir. Dr. Yen San Chan, Curtin University

Time	Title	Submission ID	Presenter
1:30 to 1:50 pm	Honeycomb-like tubular biochar derived from corn stalks as a potential adsorbent for VOCs removal	Chair of session	Prof. Ir. Dr. Yen San Chan  Curtin University
1:50 to 2.10 pm	An investigation on the efficiency of the carbonization process in beachside waste management	#5	Tanaporn Thapsamut  Kasetsart University
2:10 to 2:30 pm	Characterization of microwave-assisted pyrolysis of rice husk and teak wood powder	#17	Asst. Prof. Dr. Fredy Surahmanto  Yogyakarta State University
2:30 to 2:50 pm	Enhancing the utilization of agricultural waste by using hydrothermal treatment	#32	Asst. Prof. Dr. Pandji Prawisudha  Institut Teknologi Bandung
2:50 to 3:00 pm	Coffee break		
3:00 to 3.20 pm	Effect of biochar and hydrochar on physiochemical properties of unsuitable soils and germination rate of Khon Kean 3 sugarcane bud seed under terrible condition	#6	Kor Taweengern  Kasetsart University
3:20 to 3:40 pm	Hydrogen-rich syngas production from CO <sub>2</sub> /O <sub>2</sub> biochar gasification	#8	Nutthaphon Yutthakarn  Kasetsart University
3:40 to 3:50 pm	Close session	Chair of session	
4:30 to 6.00 pm	Travel to dinner		
7:30 to 9:30 pm	Dinner (Cruise on the Chao Phraya River with an international buffet)		



## Day 2 - 5<sup>th</sup> August 2024

### Academic presentation

Room 61803 18<sup>th</sup> Floor Building 6 (Mechanical Engineering)

### **Session 2: Renewable Energy Technology**

**Chairman:** Asst. Prof. Dr. Sasipa Boonyubol, Tokyo Institute of Technology

Time	Title	Submission ID	Presenter
1:30 to 1:50 pm	Harnessing waste for sustainable energy: Innovations in biodegradable composite phase change material for thermal energy storage	Chair of session	Asst. Prof. Dr. Sasipa Boonyubol Tokyo Institute of Technology
1:50 to 2:10 pm	Co-pyrolysis of waste plastics and used engine oil to produce alternative liquid fuel	#37	Asst. Prof. Dr. Mochamad Syamsiro Janabadra University
2:10 to 2:30 pm	Removal of halogen compound in pyrolysis oil from e-waste adsorptive pyrolysis using fly ash from biomass and coal power plant as an alternative adsorbent	#38	Dr. Chanoknunt Khaobang Kasetsart University
2:30 to 2:50 pm	Impact of building shading on solar energy potential of rural building clusters: A case study of Nanjing, China	#45	Jiang Liu Southeast University
2:50 to 3:00 pm	Coffee break		
3:00 to 3:20 pm	The effect of heat input and heat rejection on a horizontal gamma-type Stirling engine performance	#10	Chen Surapantanakorn Kasetsart University
3:20 to 3:40 pm	One-dimensional carbon/nitrogen-doped carbon composites as efficient electrocatalysts for oxygen reduction reaction	#26	Kasidit Janbooranapinij Kasetsart University
3:40 to 4:00 pm	Readiness analysis for implementing green diesel as sustainable aviation fuels in Indonesia	#56	Jeesica Hermayanti Pratama Sepuluh Nopember Institute of Technology
4:00 to 4:10 pm	Close session	Chair of session	
4:30 to 6:00 pm	Travel to dinner		
7:30 to 9:30 pm	Dinner (Cruise on the Chao Phraya River with an international buffet)		

## Day 2 - 5<sup>th</sup> August 2024

### Academic presentation

Room 61805 18<sup>th</sup> Floor Building 6 (Mechanical Engineering)

### **Session 3: Material Technology for Energy and Environment**

**Chairman:** Assoc. Prof. Dr. Hui Lin Ong, Universiti Malaysia Perlis

Time	Title	Submission ID	Presenter
1:30 to 1:50 pm	Paddy waste utilization as sustainable separator for high performance supercapacitors	Chair of session	Assoc. Prof. Dr. Hui Lin Ong Universiti Malaysia Perlis
1:50 to 2:10 pm	Particulate matters from rice straw burning with Kaolin	#21	Ratima Srivoraphantu Kasetsart University
2:10 to 2:30 pm	Activation of bagasse fly ash for producing of economical ammonia adsorbents using in poultry farm	#7	Tulakarn Ketwong Kasetsart University
2:30 to 2:50 pm	Effect of cerium oxide-magnesium oxide-porous silica composite supported Ni-based catalyst via dry reforming reaction	#14	Dr. Orrakanya Phichairatanaphong Kasetsart University
2:50 to 3:00 pm	Coffee break		
3:00 to 3:20 pm	Controlled doping as a viable strategy for developing energy-efficient photocatalyst for degradation of multiple aquatic pollutants	#19	Prof. Dr. Subhankar Paul National Institute of Technology Rourkela
3:20 to 3:40 pm	Sustainable production of carbon nanotubes from carbonaceous waste via one-pot catalytic pyrolysis: Impact of catalyst design and operational parameter	#59	Dr. Wen Da Oh Universiti Sains Malaysia
3:40 to 3:50 pm	Close session	Chair of session	
4:30 to 6:00 pm	Travel to dinner		
7:30 to 9:30 pm	Dinner (Cruise on the Chao Phraya river with an international buffet)		

## Day 3 - 6<sup>th</sup> August 2024

### Academic presentation

Room 61801 18<sup>th</sup> Floor Building 6 (Mechanical Engineering)

#### **Session 4: Material Technology for Energy and Environment**

**Chairman:** Prof. Dr. Ruey-an Doong, National Tsing Hua University

Time	Title	Submission ID	Presenter
9:00 to 9:20 am	MXene nanocomposite as an effective electrode material for inorganic and metal ions removal and recovery	Chair of session	Prof. Dr. Ruey-an Doong National Tsing Hua University
9:20 to 9:40 am	Synergistically enhanced organic pollutant mitigation using 3D-printed SiO <sub>2</sub> -BaTiO <sub>3</sub> -polymeric composite	#44	Prof. Dr. Oratai Jongprateep Kasetsart University
9:40 to 10:00 am (Online)	Removal of congo red and methylene blue from aqueous solution using alkali-modified commingled food waste biochar	#30	Assoc. Prof. Dr. Remya Neelancherry Indian Institute of Technology Bhubaneswar
10:00 to 10:20 am (Poster)	Synergistic effects of soluble and solid catalysts on performance of lithium-air batteries	#43	Akihito Shio Shibaura Institute of Technology
10:20 to 10:30 am	Coffee break		
10:30 to 10:50 am (Online)	Assessment of amine-based grinding aids in terms of grinding efficiency CO <sub>2</sub> emission, and environmental impact	#39	Assoc. Prof. Dr. Ali Mardani Uludağ University
10:50 to 11:10 am	Synthesis of activated carbons from corncob biomass waste as electrode materials for supercapacitors	#27	Chanatip Sunprasit Kasetsart University
11:10 to 11:30 am	Synthesis of steam-activated carbons from coconut coir dust as electrode materials for supercapacitors	#25	Jirayu Kongtip Kasetsart University

<b>Time</b>	<b>Title</b>	<b>Submission ID</b>	<b>Presenter</b>
11:30 to 11:50 am	Solution plasma synthesis of gold nanoparticles incorporated into electrospun polyvinyl alcohol nanofibers	#28	Jidapa Chantaramethakul Kasetsart University
11:50 to 1:30 pm	Lunch	Room 61802-61804 18 <sup>th</sup> Floor Building 6 (Mechanical Engineering)	
1:30 to 1:50 pm	Mitigation of alkali silica reaction by using fine powder of reactive aggregate	#33	Thanawat Meesak Kasetsart University
1:50 to 2:10 pm (Online)	Visible light induced photocatalytic degradation of methylene blue by magnetically recyclable biochar supported bismuth oxybromide nanocomposite	#31	Assoc. Prof. Dr. Remya Neelancherry Indian Institute of Technology Bhubaneswar
2:10 to 2:30 pm	Sustainable utilization of macadamia shell waste for the production of KOH-activated carbons in supercapacitor applications	#29	Nattapat Chaiammart Kasetsart University
2:30 to 2:50 pm (Poster)	Fabrication of MXene-based cathode materials for aluminum-ion secondary battery	#42	Yuna Fujiwara Shibaura Institute of Technology
2:50 to 3:00 pm	Coffee break		
3:00 to 3:20 pm (Online)	Impact of pH value and utilization rate variation on grinding efficiency of polycarboxylate-based grinding aids	#40	Dr. Veysel Kobya Uludağ University
3:20 to 3:40 pm	Pretreatment and optimization of circle leaching and deashing of eucalyptus bark for clean solid fuel preparation	-	Assoc. Prof. Dr. Dachao Ma Guangxi University
3:40 to 4:00 pm	A study on the use of food-grade and non-food grade reagents in the extraction of cellulosic fibers from bamboo species in Baguio city, Philippines	#58	Jennifer Bando Antonio University of the Philippines Baguio
4:00 to 4:10 pm	Close session	Chair of session	

## Day 3 - 6<sup>th</sup> August 2024

### Academic presentation

Room 61803 18<sup>th</sup> Floor Building 6 (Mechanical Engineering)

#### **Session 5: Optimization and AI in Energy and Environment/ Energy Management, Policy and Economics**

**Chairman:** Assoc. Prof. Dr. Papis Wongchaisuwat, Kasetsart University

Time	Title	Submission ID	Presenter
9:00 to 9:20 am	Application of AI in environmental sustainability	Chair of session	Assoc. Prof. Dr. Papis Wongchaisuwat Kasetsart University
9:20 to 9:40 am	Secure data analytics in smart grids: preserving - privacy and enabling advanced monitoring	#24	Dr. Mayur Rele IT and Cybersecurity, Parachute Health, Princeton
9:40 to 10:00 am	Environmental endeavors of corporate social responsibility and firms performance in Nepalese companies	#9	Asst. Prof. Dr. Sudip Wagle Tribhuvan University
10:00 to 10:20 am	Life cycle carbon emissions analysis of a detached house in Thailand	#18	Nattaya Sangngamratsakul King Mongkut's University of Technology Thonburi
10:20 to 10:30 am	Coffee break		
10:30 to 10:50 am	Enhanced bio-oil production and fatty acid extraction from pyrolyzed spent coffee ground using Box-Behnken design optimization	#41	Asst. Prof. Dr. Sasipa Boonyubol Tokyo Institute of Technology
10:50 to 11:10 am	Assessing the performance and environmental impacts of an electric plastic densifier as a waste utilization technology in the Philippines	#49	Asst. Prof. Dr. Ma. Brida Lea Diola University of The Philippine Diliman

<b>Time</b>	<b>Title</b>	<b>Submission ID</b>	<b>Presenter</b>
11:10 to 11:30 am (Poster)	Life cycle assessment of a community-based dual-drum composter: A case for an urban barangay in the city of Manila, Philippines	#50	Asst. Prof. Dr. Ma. Brida Lea Diola  University of The Philippine Diliman
11:30 to 11:50 am	Bayesian-optimized neural networks and ensemble models for enhanced BOD prediction in full-scale sequencing batch reactor plant	#51	Harvey B. Lechago  University of the Philippine Diliman
11:50 to 12:10 pm	Advanced IoT-driven energy efficiency technologies for smart building	#53	Dr. Muhammad R Ahmed  Military Technological College
12:10 to 12:20 pm	Close session	Chair of session	
12:00 to 1:30 pm	Lunch	Room 61802-61804 18 <sup>th</sup> Floor Building 6 (Mechanical Engineering)	

## Day 3 - 6<sup>th</sup> August 2024

### Academic presentation

Room 61805 18<sup>th</sup> Floor Building 6 (Mechanical Engineering)

#### **Session 6: Energy Efficiency/Green Manufacturing**

Chairman: Asst. Prof. Dr. Worapong Sawangsri, Kasetsart University

Time	Title	Submission ID	Presenter
9:00 to 9:20 am	Application of real-time tool wear condition monitoring system	Chair of session	Asst. Prof. Dr. Worapong Sawangsri Kasetsart University
9:20 to 9:40 am	Solar radiation estimation based on a Quasi-Monte Carlo optimized transformer forecasting mode	#35	Yen Wen Chen National Chung Cheng University
9:40 to 10:00 am	Experimental study on the effect of electrode configuration on the performance of high temperature proton exchange membrane fuel cells	#22	Pongsapak Treegosol National Chung Cheng University
10:00 to 10:20 am	Effect of the structure of microporous on the performance of high temperature proton exchange membrane fuel cells	#23	Asna Widiastuti National Chung Cheng University
10:20 to 10:30 am	Coffee break		
10:30 to 10:50 am	The ethical implications of carbon emission offsetting	#55	Assoc. Prof. Dr. Mohamad Alnajem Gulf University for Science & Technology
10:50 to 11:10 am	Study on the degradation of H <sub>2</sub> /O <sub>2</sub> PEMFC with a dead-end gas management during long-term operation	#16	Panida Kanha National Chung Cheng University
11:10 to 11:30 am	Manufacturing parameter optimization for carbon emissions reduction during machine tool processing	#36	Yen Wen Chen National Chung Cheng University
11:30 to 11:50 am	Digital engagement in preventing food waste to promote a circular economy	#54	Assoc. Prof. Dr. Mohamad Alnajem Gulf University for Science & Technology

Time	Title	Submission ID	Presenter
11:50 to 12:10 pm	Enhancing packing processes through an ergonomic worker study using digital human modeling and environmental assessment	#34	Pratzanee Sungkaratn  Sukhothai Thammathirat Open University
12:10 to 12:30 pm	Circular economy implementation: A study in Indonesian textile and apparel industry	#57	Evtriyandani  Sepuluh Nopember Institute of Technology
12:30 to 12:40 pm	Close session	Chair of session	
12:40 to 1:30 pm	Lunch	Room 61802-61804 18 <sup>th</sup> Floor Building 6 (Mechanical Engineering)	

## Venue:



## Contact:

For more inquiries, please contact

Conference chair: Assoc. Prof. Chinnathan Areeprasert

Email : [fengcta@ku.ac.th](mailto:fengcta@ku.ac.th)