

Program at glance



Date	Venue	Time	
		09:00 – 13:00	14:30 – 17:30
July 26	Grand Hall		ACCE Session A
July 27	Grand Hall	ACCE Session C	ACCE Session G
	Council Chamber	ISMET Session A	ISMET Session D
	Conference Hall A	ACCE Session E	ACCE Session I
	Conference Hall B	ACCE Session D	ACCE Session H
	Seminar Room 2	ACCE Session B	ACCE Session F
	Seminar Room 3	ISMET Session B	ISMET Session E
	Seminar Room 4	ISMET Session C	ISMET Session F
July 28	Council Chamber	ISMET Session H	
	Conference Hall A	ACCE Session M	
	Conference Hall B	ACCE Session L	
	Seminar Room 2	ACCE Session J	
	Seminar Room 3	ACCE Session K	
	Seminar Room 4	ISMET Session G	

Program at a glance



July 26

14:00-14:15	Opening remark	Grand Hall
14:15-14:45	Plenary talk 1: Opportunities in Microbial Bioenergy Bruce E. Rittmann, Arizona State University	Grand Hall
15:00-15:30	Special lecture: Maximising the Impact of Sustainability Research Yaoqing Zhang, Senior Editor of Nature Sustainability	Grand Hall

15:30-17:30 Oral session

July 27

09:00-09:30	Plenary talk 2: Advancing Biotechnology for Sustainable Carbon Net-Zero Byung-Kwan Cho, KAIST, Korea	Grand Hall
9:30-12:00	Oral session	
12:00-13:30	Poster session	
13:30-14:30	Lunch (하루정찬, LSCFOOD)	B1 KCCI
14:30-15:00	Plenary talk 3: Photo(electro)catalysis as a Carbon-neutral Technology for Sustainable Environment Wonyong Choi (KENTECH)	Grand Hall

15:00-17:30 Oral session

18:00-20:00 **Banquet & Award** Grand Hall

July 28

09:30-12:00	Oral session	
12:00-12:10	Closing ceremony	Council chamber

Oral sessions



July 26

15:30-17:30

[Session A] English / Venue: Grand Hall

Environmental Biotechnology for Circular Bioeconomy

N-alkane production from anaerobic digestion with syncretic bio- and electrochemical process

Byoung-In Sang, Hanyang University, Korea

Biobased technologies towards circular bioeconomy: Perspective from Norway

Gopalakrishnan Kumar, Univ. of Stavanger, Norway

The transition from the plastic world that started with nylon to a carbon-neutral society

Sang-Hyup Lee, National Institute of Green Technology, Korea

TBD

Joonhong Park, Yonsei University, Korea

July 27

09:30-12:00

[Session B] English / Venue: Seminar Room 2

Nutrient Management and Resource Recovery

Pathways to a net-zero: a non-carbon source energy-extraction from wastewater treatment infrastructure

Sungpyo Kim, Korea University, Korea

Balancing partial denitrification and anammox activities for carbon-neutral mainstream nitrogen removal

Taeho Lee, Pusan National University, Korea

Toward efficient electrochemical lithium recovery: Understanding the electrode behavior and improving the electrode designs

Seoni Kim, Ewha Womans University, Korea

Alternative evaluation methodology for saline nitrogenous wastewaters : Iterative specific ANAMMOX activity assay

Kyungjin Cho, KIST, Korea

Competitive inhibition of NOB in simultaneous nutrient removal pathway for low-strength wastewater treatment: Combination of EBPR and Anammox

Daehee Choi, Yeungnam University, Korea

Fertilizer material recovery from human urine coupled with biogas upgrading

Hanwoong Kim, UNIST, Korea

09:30-12:00

[Session C] English / Venue: Grand Hall

Sustainable Wastewater Management

Carbon financing as a catalyst for facilitating investments in carbon-neutral circular economy projects

Dukwoo Jun, Global Green Growth Institute, Korea

Recent advances in innovative osmotic membranes for resource recovery and energy production in wastewater treatment

Di Wu, Ghent University Global Campus Korea

Electroactive nanowire membranes for enhanced biofouling control in membrane bioreactors

Hyeona Park, Kyungpook National University, Korea

Enhanced biofouling control in anaerobic membrane bioreactors using high-dose quorum quenching bacteria

Syed Salman Ali Shah, Kyungpook National University, Korea

Microbiome enriched in a methane-based membrane biofilm reactor for enhancement of methane mitigation in wastewater treatment plants

Na-Kyung Kim, Korea University, Korea

Performance evaluation of lab-scale electrochemically assisted anaerobic treatment of greywater for biomethane recovery

Smruti Ranjan Dash, Inha University, Korea

July 27

09:30-12:00

[Session D] English / Venue: Conference Hall B

Waste Carbon to Valuable Chemicals

Engineered MOF and CNQD photocatalysts for CO₂ conversion and utilization
Seonghwan (Sam) Kim, University of Calgary, Canada

Polymer sustainability to serve society and safeguard the environment
Tizazu H. Mekonnen, Waterloo University, Canada

Polyhydroxyalkanoates manufacturing process for carbon neutral circular economy
Youngbin Baek, Inha University, Korea

PHA biosynthesis from food wastewater
Aghasa Aghasa, KENTECH, Korea

Sustainable biorefinery approach by upcycling biodiesel-derived crude glycerol to microalgae cultivation for value-added production
Sunah Kim, Pusan National University, Korea

Development of sustainable tobacco wastes treatment strategy using anaerobic digestion
Chaeyoung Rhee, Gyeongsang National University, Korea

10:00-12:00

[Session E] Korean (English) / Venue: Conference Hall A

Special session: ESG (I)

정의롭고 공정한 Net-Zero 달성을 위한 한국중부발전의 전략
Youngkyu Park, KOMIPO Co., Korea

탄소중립 미래형 하수처리시설, Tomorrow Water Project
Munchin Choi, BKT Co., Korea

기후테크와 금융 – 위기에서 기회로
Sangyeob Han, Sopoong Ventures Co., Korea

탄소 중립을 위한 CCUS 기술 개발 및 실증 추진 사례
Jungsoo Mun, Lotte E&C Co., Korea

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15:00-17:30

[Session F] English / Venue: Seminar Room 2

Green Hydrogen and Biogas

Recent advances in Green Hydrogen production and transition in EU and Scandinavia
Gopalakrishnan Kumar, Univ. of Stavanger, Norway

Biohydrogen and biomethane production from food waste using a dynamic membrane bioreactor

Ju-Hyeong Jung, Kunsan National University, Korea

Magnetite particles enhance continuous anaerobic digestion of propionate against ammonia stress: process stability and microbial communities

Joonyeob Lee, Pukyong National University, Korea

Does functional pathways involved in the methanogenesis via direct interspecies electron transfer could be enriched during anaerobic digester operation?

Sang-Hoon Lee, Korea University, Korea

Valorization of domestic food wastes for the feedstock of bioelectrochemical hydrogen production and its practical application

Danbee Kim, Korea Institute of Energy Research

Photocatalytic water-energy nexus systems for solar water remediation coupled with hydrogen or electricity generation

Qingyi Zeng, KENTECH, Korea

15:00-17:30

[Session G] Korean (English) / Venue: Grand Hall

Special session: KENTECH

Research and education at KENTECH pursuing carbon-neutrality

Chinho Park, KENTECH, Korea

Role of hydrogen for carbon neutrality in Korea

Jonghee Han, KENTECH, Korea

Towards a true lithium circular economy - from lithium processing to battery recycling

Ralf B. Wehrspohn, KENTECH, Korea

Carbon neutrality technology: CO₂ conversion and waste plastics degradation into liquid fuels

Young Soo Kang, KENTECH, Korea

[Panel discussion]

Moderator: Hyung-Sool Lee, KENTECH, Korea

Panels: Chinho Park, KENTECH, Korea

Bruce E. Rittmann, KENTECH, Korea

Wonyong Choi, KENTECH, Korea

Ralf B. Wehrspohn, KENTECH, Korea

Jonghee Han, KENTECH, Korea

Youngsoo Kang, KENTECH, Korea

Yaoqing Zhang, Senior Editor of Nature Sustainability

July 27

15:00-17:30

[Session H] Korean (English) / Venue: Conference Hall B

Special session: National Institute of Biological Resources

Trends of bioconversion technology and exploration of indigenous microbial resources for reducing greenhouse gases

Moonsuk Hur, National Institute of Biological Resources, Korea

Current status and perspectives of photobiological H₂ production technology based on light absorption, electron transport, and metalloenzymes

Eui-Jin Kim, Nakdonggang National Institute of Biological Resources, Korea

Strategy for reducing dissolved methane using methane-oxidizing bacteria

Hee-Deung Park, Korea University, Korea

Biosynthesis of biopolymers from formate, a soluble C1 compound

Min-Kyu Oh, Korea University, Korea

Systems and synthetic biology approaches of acetogenic bacteria for sustainable C1 gases bioconversion

Byung-Kwan Cho, KAIST, Korea

[Panel discussion]

Moderator: Che Ok Jeon, Chung-Ang University, Korea

Panels: Young-jin Yang, National Institute of Biological Resources, Korea

Chul Wan Park, Sejoeng University, Korea

Seokmin Yoon, RIST, Korea

Donghyuk Kim, UNIST, Korea

15:00-17:30

[Session I] Korean (English) / Venue: Conference Hall A

Special session: ESG (II)

탄소중립, 순환경제를 위한 환경기술개발(R&D) 추진 방향

Byung-Hoon Kim, Green Technology Development Division, Korea Ministry of Environment

환경 이슈와 해결방안

Hyung Soon (Henry) Kim, Jeollanam-do Environmental Industries Promotion Institute, Korea

Biobased 바이오 플라스틱의 탄소감축 효과에 대한 재조명과 Carbon Credit 평가 논리에 대한 고찰

Jeoung Jun Hwang, Green Plastic Alliance, Korea

탈석탄 1호, 보령시 - 수소, 신재생, 바이오가스 등 그린에너지산업과 탄소중립, 에너지전환 선도하다

이용희 과장, Boryeong City Energy Department, Korea

Analyzing research trends and insights in ESG: Exploring the role of ESG in climate change challenges

TaeJeong Park, Seoul Cyber University, Korea

July 28

09:30-12:00

[Session J] Korean (English) / Venue: Seminar Room 2

Student session: Carbon Neutrality Challenge

Bionic leaf 수전해 전지를 활용한 미생물 바이오매스 생산
조예련, 김지훈, 박주연 (전남대학교)

D-Limonene을 활용한 태양광 패널 재활용 프로세스
최선우, 박수빈, 장지우 (한국에너지공과대학교)

Microwave-initiated plastic decomposition through improved catalyst using stealth technology
김한수, 김창희, 문선우, 박민준 (한국에너지공과대학교)

기후위기 대응을 위한 탄소중립 및 녹색성장 기본법 제2조제5호에 삼불화질소 포함 제안
박힘찬, 홍민기 (연세대학교)

화석연료 이용 저감을 위한 낙엽펠릿 제조 및 활용방안
김현진, 김명성, 박준상 (전북대학교)

돈사 내 바이오가스로 수소생산
유가을, 김규리, 서민지, 강으나 (조선대학교)

미세조류 바이오매스 생산을 위한 분산형 소형 배양 플랜트
정자윤, 김두현 (한국에너지공과대학교)

약취 발생원 제거 및 열병합발전소 CCUS 강화 밸류체인 설계
한서진, 김여원, 유수현, 이인우, 이현화, 정민기 (한국에너지공과대학교)

친환경 바이오 이식 블록
황혜민, 장진영, 김신우, 조은서 (한국해양대학교)

09:30-12:00

[Session K] Korean (English) / Venue: Seminar Room 3

Special session: Korea Institute of Energy Research

Overview of e-methanol production technology and its global market as an ecofriendly alternative marine fuel
HakJoo Kim, Korea Institute of Energy Research

Electrochemical CO₂ reduction technology for carbon neutrality
Wonhee Lee, Korea Institute of Energy Research

Pretreatments for cellulosic biorefinery
Jin-Suk Lee, SugarEn Co., Korea

Microalgae biorefinery process for circular bioeconomy
You-Kwan Oh, Pusan National University, Korea

Value added material production by microbial gas fermentation
Min-Sik Kim, Korea Institute of Energy Research

e-Biorefinery technology for net-zero bio-based production
Soo Youn Lee, Korea Institute of Energy Research

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09:30-12:00

[Session L] Korean (English) / Venue: Conference Hall B

Special session: Korean Society of Water and Wastewater

Advanced oxidation technologies utilizing low-grade heat and waste-derived biochar toward carbon neutrality

Jaesang Lee, Korea University, Korea

Bioelectrochemical system for energy and valuable resource production, and sustainable wastewater treatment towards a carbon-neutral society

Kyu-Jung Chae, Korea Maritime & Ocean University

Technologies for energy saving and recovery in wastewater treatment

Sang-Hyoun Kim, Yonsei University, Korea

Water production and desalination technologies by using the solar energy

Seongpil Jeong, KIST, Korea

기후변화에 따른 신규 지진 위험지역의 상하수도관망 기능유지를 위한 취약점 분석 방법론

Seongjun Park, Hanyang University, Korea

09:30-12:00

[Session M] Korean (English) / Venue: Conference Hall A

Special session: Korean Society on Water Environment

Keep manure fresh, get more!

Dong-Hoon Kim, Inha University, Korea

Role and challenges of wastewater utilities for a decarbonized society

Ilho Kim, Korea Institute of Construction Technology

Roadmap to achieving carbon neutrality in the water sector of the Republic of Korea by 2050

Haejin Han, Korea Environment Institute

Estimation of greenhouse gas emissions from municipal wastewater treatment plants

Jongkeun Lee, Changwon National University, Korea

Poster Session

July 27 (12:00 – 13:30)

No.	Title	Presenter	Affiliation
P1	Utilization of Fruit By-Products as Alternative Carbon Sources for Enhanced Biomass and Beta-Glucan Production in <i>Euglena gracilis</i>	Jaechul Yu	Korea Polytechnics
P2	High-rate anaerobic treatment of domestic sewage in low-temperature expanded granular sludge bed reactor with magnetite-embedded granules	Jihun Park	UNIST
P3	Production of directly applicable peanut hull hydrolysate by understanding the effect of inhibitory compounds on xylitol fermentation	Seunghee Kim	Sangmyung University
P4	Enhancement of dieckol yield from <i>Eisenia bicyclis</i> through optimization of ultrasonic-assisted extraction process via response surface methodology	Jeongho Lee	Sangmyung University
P5	Enhancing anaerobic digester stability and resilience through magnetite-assisted promotion of direct interspecies electron transfer	Hyungmin Choi	UNIST
P6	Evaluating the Economic and Environmental Feasibilities in Syngas Fermentation Towards Sustainable Industrial Implementation	Mungyu Lee	GIST
P7	Characterization of an oleaginous unicellular green microalga, <i>Chlorella</i> sp. KR-11, isolated from Gwangju River, Republic of Korea	Minsuk Park	KIER, KENTECH
P8	Bioremediation of Heavy Metal Contamination Using Heavy Metal Resistant Fungi Isolated from River Sediment	Hyebin Lee	UNIST
P9	Bioremediation of phenol through Co-cultivation of Microalgae and microorganisms	Minkee Cho	UNIST
P10	Hydrogen production from Microbial electrosynthesis (MES) system using tidal flat	Chang-hyun Jeon	Kyungpook National University
P11	Selective separation of cationic and anionic dyes using a deposited layered double hydroxide/diatomite composite	Ali M. Abou-Elanwar	Korea University
P12	Visible Light-Driven Reforming of Glucose into Hydrogen and Value-Added Biochemicals under Benign Condition	Yi Hu	POSTECH
P13	Microalgae-based treatment technology reduces environmental impacts of petroleum contaminated water remediation	Qammer Zaib	University of Ulsan
P14	Variations in organic carbon and soil microbiome in simulated aquifer storage and recovery (ASR) system	Ana Gabriela Chuquer Licto	Korea Institute of Science and Technology
P15	Removal of selenium (Se) by in-situ ferrate treatment for one step selenium removal from industrial wastewater	Seongeom Jeong	Pusan National University
P16	Comparative Study of Fluoride Removal Using Calcium Carbonate: Different Sizes and pH Conditions	Eunseo Choi	Pusan National University

Poster Session

July 27 (12:00 – 13:30)

No.	Title	Presenter	Affiliation
P17	Evaluation of forward osmosis and reverse osmosis hybrid process applicability for carbon neutrality in desalination	Jongmin, Jeon	Pukyong National University
P18	Selective separation of cationic and anionic dyes using a deposited layered double hydroxide/diatomite composite	Oh Jongmin	Korea University
P19	A self-powered integrated wastewater treatment system based on microbial fuel cell and UV disinfection process	Bongkyu Kim	Jeonbuk National University
P20	Operando Monitoring of VOC _s Photodegradation Reaction and Air Purifying Simulation under Atmospheric Moisture Control	Gahye Shin	KENTECH
P21	Operando Spectroscopic Investigation of Platinum Surface during Electrochemical Ammonia Oxidation	Dayoung Kwon	KENTECH
P22	The Potential Applicability of Blue Carbon for Carbon Capture	Hyunsu Kim	Korea Maritime and Ocean University
P23	Valorization of Aronia Juice Processing By-products via Integrated Biorefinery	Kang Hyun Lee	Sangmyung University
P24	Evaluation of Ammonia Recovery Performance in IMD Process by Ultrasonic Application.	Daeho Lee	Korea University
P25	Reusable Hierarchical Porous NiO/CeO ₂ /rGO@SiO ₂ @Fe ₃ O ₄ Composite Microspheres for Continuous Flow and Mass Production CO ₂ Conversion with Superior Photocatalytic Properties	Lee, D.K	KENTECH
P26	DFT Calculation for the First One-Electron Transfer in CO ₂ Activation and Reduction Reaction induced by PVP	Song, M.K	KENTECH
P27	Preparation of antimony-doped tin oxide coating TiO ₂ microrods and resistance properties	Son, Y.S	KENTECH
P28	Wind resource analysis at the ocean with the virtual sensors in digital twin	Oh, J.H	KENTECH
P29	Regulation of antioxidant activity promotes photoautotrophic cell growth of Rhodospirillum rubrum in microbial electrosynthesis	Yu Rim Lee	Korea Institute of Energy Research
P30	Evaluation of odor-reducing agents on swine manure and their effect on the performance of anaerobic digestion	Yun-Ju Jeon	Chungbuk National University
P31	Comparative study on pre-and post-treatment of waste activated sludge for improving biogas productivity on anaerobic digestion	Byung-kyu Ahn	Chungbuk National University
P32	Cultivation of microalgae using anaerobic digestion effluent for biogas conditioning		