

TUESDAY, 5 DECEMBER 2023

Time	SKY 17, Global Plaza, Kyungpook National University
18:30-20:00	Welcome Reception

WEDNESDAY, 6 DECEMBER 2023

Time	Grand Ballroom B
10:00-11:20	KIWW Opening

Time	Room 324
11:30-11:50	Opening Remarks
11:50-12:20	<p>PL1 Lead service line water pipe replacements initiative in USA Nasrin Kashefi, NSF, USA</p> <p>Chair: Kwang-Ho Choo, Kyungpook National University, Korea</p>
12:20-12:50	<p>PL2 Electrochemical recovery of phosphorus from wastewater sludge Zhen He, Washington University in St. Louis, USA</p> <p>Chair: Kwang-Ho Choo, Kyungpook National University, Korea</p>

12:50-14:15	Lunch & Poster
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Time	Room 324
14:15-15:45	<p>TS 1-1 Membrane technologies for water treatment Chair: Hyun-Suk Oh, Seoul National University of Science and Technology, Korea</p>
14:15-14:45	<p>KEYNOTE Quorum quenching in anaerobic membrane bioreactors for biofouling control –system configuration, membrane selection and genetic insights Yeyuan Xiao, Shantou University, China</p>
14:45-15:05	<p>Self-assembled coatings for repairing polyamide layers and their applications for lithium-magnesium separation Miao Tian, Northwestern Polytechnical University, China</p>
15:05-15:25	<p>Cluster-forming artificial water channels: a new type of bioinspired water channels to overcome permeability-selectivity tradeoffs in desalination membranes Woochul Song, Pohang University of Science and Technology, Korea</p>
15:25-15:45	<p>Silk derivative-coated polyamide thin-film composite membranes with anti-scaling properties Jaewoo Lee, Jeonbuk National University, Korea</p>

Time	Room 323A
14:15-15:45	<p>TS 1-2 Leading-edge technologies for wastewater analysis and treatment Chair : Pyung-Kyu Park, Hanyang University, Korea</p>
14:15-14:35	<p>Oil adsorbents and membrane technologies for industrial wastewater reuse Sanghyun Jeong, Pusan National University, Korea</p>
14:35-14:55	<p>Wastewater-based epidemiology for COVID-19 and other infectious diseases Masaaki Kitajima, Hokkaido University, Japan</p>

- 14:55-15:15 **Exploring a novel means for microbial control in water: the effects of high-frequency, low-intensity alternating electric fields on activated sludge characteristics**
Tobino Tomohiro, The University of Tokyo, Japan
- 15:15-15:35 **Biodegradation of petroleum-based biodegradable plastics in aquatic environment along plastic pollution pathways**
Jaewook Myung, Korea Advanced Institute of Science and Technology, Korea
- 15:35-15:45 **Discussion**

Time	Room 323B
14:15-15:45	TS 1-3 Circular economy and water management Chair : Demetris Francis Lekkas, University of the Aegean, Greece
14:15-14:45	KEYNOTE Water-energy-food-ecosystems (WEFE) nexus: An assessment of policy integration stepping to improve water governance Maria Papadopoulou, Natural Environment and Climate Change Agency, Greece
14:45-15:05	Proposing smart application to boost circularity Antonis Zorpas, Open University of Cyprus, Cyprus
15:05-15:25	Understanding water consumption related to food waste in hotels Eleftheria Klontza, University of the Aegean, Greece
15:25-15:45	Food industry wastewater valorization for microalgae biomass production Demetris Francis Lekkas, University of the Aegean, Greece
15:45-16:05	Coffee Break

Time	Room 324
16:05-17:35	TS 2-1 Navigating the oasis: UAE's innovations in water sustainability Chair : Shadi Wajih Hasan, Center for Membranes and Advanced Water Technology, UAE
16:05-16:15	Welcoming - Introduction to CMAT Research Activities Shadi Wajih Hasan, Center for Membranes and Advanced Water Technology, UAE
16:15-16:35	Functionalized 2D material enabled high-performance mixed matrix membranes for water treatment Mahendra Kumar, Khalifa University, UAE
16:35-16:55	Comparison of qPCR and metagenomic sequencing methods for quantifying antibiotic resistance genes in wastewater Ahmed Yousef, Khalifa University, UAE
16:55-17:15	A seed for water: recent advances on bio-based activated carbon in water treatment Naeema Al Darmaki, United Arab Emirates University, UAE
17:15-17:35	Recent advances in electrospun nanofiber-based forward osmosis membranes for desalination and wastewater treatment: future research recommendations Parashuram Kallam, Abu Dhabi University, UAE

Time	Room 323A
16:05-17:35	TS 2-2 Sustainable environmental technology for a better future: innovative technologies in water treatment and water resource management Chair : Sungyun Lee, Kyungpook National University, Korea

- 16:05-16:20 **Chitosan based nanocomposites for carbon neutrality in water treatment**
Fitri Khoerunnisa, Indonesia University of Education, Indonesia
- 16:20-16:35 **Investigation into biologically mediated flocculation of the microalgae- and clay-containing suspension in the eutrophic water condition**
Byung Joon Lee, Kyungpook National University, Korea
- 16:35-16:50 **Combination of H₂O₂-producing microbial desalination cells and UV/H₂O₂ advanced oxidation process: water salinity reduction and microbial inactivation**
Euntae Yang, Gyeongsang National University, Korea
- 16:50-17:05 **Colloidal zeolites as antioxidant additives for lubricant oil**
Eng-Pho Ng, University of Sains Malaysia, Malaysia
- 17:05-17:20 **Application of machine learning for forward osmosis membrane technology**
Mita Nurhayati, Kyungpook National University, Korea
- 17:20-17:35 **Discussion**

Time	Room 323B
16:05-17:35	TS 2-3 Wastewater analysis and treatment Chair : Sungyup Jung, Kyungpook National University, Korea

- 16:05-16:20 **Design and applications of MOF-derived hierarchical materials for catalytic wastewater treatments**
Kun-Yi Andrew Lin, Chung Hsing University, Taiwan
- 16:20-16:35 **Roles of microbiome for energy neutral wastewater treatment**
Hyokwan Bae, UNIST, Korea
- 16:35-16:50 **Cycling of phosphorus from wastewater to fertilizer using calcium-rich organic waste**
Seong-Jik Park, Hankyong National University, Korea
- 16:50-17:05 **Case studies using biomolecules analysis from different aquatic organisms and samples**
Tae-Yong Jeong, Hankuk University of Foreign Studies, Korea
- 17:05-17:20 **Wastewater utilization in the microalgal industry: necessity and approaches**
Wonkun Park, Konkuk University, Korea
- 17:20-17:35 **Discussion**

17:35-18:30	Poster Session (Room 324B)
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Time	Grand Ballroom B
19:00-21:00	KIWW Welcome Dinner

THURSDAY, 7 DECEMBER 2023

Time	Room 324
09:00-10:30	TS 3-1 Wastewater treatment and nutrient removal & recovery (from research to application) Chair : Pongsak (Lek) Noophan, Kasetsart University, Thailand
09:00-09:30	KEYNOTE 4R approach to sustainable nitrogen cycle Satoshi Okabe, Hokkaido University, Japan
09:30-09:50	Anaerobic membrane bioreactor as the core technology for future decentralized wastewater treatment plants Peiyong Hong, King Abdullah University of Science and Technology, Saudi Arabia
09:50-10:10	Partial nitrification and anammox processes with attached-growth media in WW from BNR laboratory-to full-scales Pongsak (Lek) Noophan, Kasetsart University, Thailand
10:10-10:30	Integrated approaches in bioponics and aquaponics systems: nutrient recovery, microbial dynamics, and environmental implications for sustainable agriculture Sumeth Wongkiew, Chulalongkorn University, Thailand
Time	Room 323A
09:00-10:30	TS 3-2 Greenhouse gases and green energy gases from water media Chair : Vincenzo Naddeo, University of Salerno, Italy
09:00-09:20	Bioelectrochemical leach bed reactor (BLBR) for enhanced methane production from food waste Katakojwala Ranaprathap, Korea Institute of Energy Technology, Korea
09:20-09:40	Evaluation and development of oxygen-enriched carbon dots using green synthesis for solar fuel production and its possible application for water treatment Do-yeon Lee, Yonsei University, Korea
09:40-10:30	Discussion
Time	Room 323B
09:00-10:30	TS 3-3 Bio-electro-photocatalytic techniques for water and wastewater Chair : Zarra Tiziano, University of Salerno, Italy
09:00-09:30	KEYNOTE Reciprocating membranes with quenching microbial signaling minimizes membrane fouling and energy consumption Kwang-Ho Choo, Kyungpook National University, Korea
09:30-09:45	Integrated moving bed biofilm reactor (MBBR) and algal membrane PhotoBioReactor (aMPBR) to achieve the carbon neutrality in wastewater treatment plants Zarra Tiziano, University of salerno, Italy
09:45-10:00	Electrocatalytic nanowire membranes for enhanced fouling mitigation in membrane bioreactors Hyeona Park, Kyungpook National University, Korea
10:00-10:15	Study the treatment of seafood processing wastewater using anaerobic membrane bioreactor (AnMBR) Tran Le Luu, Vietnamese German University, Vietnam
10:15-10:30	Q&A
10:30-10:50	Coffee Break

Time	Room 324
10:50-12:20	TS 4-1 Wastewater treatments: from waste to resource Chair : Chi-Wang Li, Tamkang University, Taiwan

10:50-11:20 **Potable wastewater reuse in the circular economy and carbon neutrality era**

Paolo Roccaro, University of Catania, Italy

11:20-11:50 **Green production of nanoscale zero-valent iron (nZVI) for complete nitrogen removal**

Chi-Wang Li, Tamkang University, Taiwan

11:50-12:05 **Greening greywater: optimizing anaerobic biomethane generation via electrochemical methods**

Smruti Ranjan Dash, Inha University, Korea

12:05-12:20 **Discussion**

Time	Room 323A
10:50-12:20	TS 4-2 Advances in water oxidation and disinfection technologies Chair : Yunho Lee, Gwangju Institute of Science and Technology, Korea

10:50-11:15 **KEYNOTE**

Facilitated Prediction of Micropollutant Degradation by UV-AOPs in Water via Combination of Model Simulation with Portable Measurement

Zhimin (George) Qiang, Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, China

11:15-11:40 **Disinfection of waterborne viruses: kinetics, inactivation mechanisms, and implications for water treatment**

Shotaro Torii, The University of Tokyo, Japan

11:40-12:00 **Persulfate activation as the potential technical option for carbon-neutral oxidative water treatment**

Jaesang Lee, Korea University, Korea

12:00-12:20 **Copper-based redox systems for microbial inactivation**

Changha Lee, Seoul National University, Korea

Time	Room 323B
10:50-12:20	TS 4-3 Deionization and metal removal from diverse water sources Chair : Yong-Ha Kim, Louisiana State University, Korea

10:50-11:10 **Desalination using polymeric membrane incorporating functionalized copper oxide nanoparticles**

Ahmad Saud Jawed, Khalifa University of Science and Technology, UAE

11:10-11:30 **A novel functionalized multiwalled carbon nanotubes embedded in PVDF polymeric membranes for efficient photothermal membrane distillation**

Lobna Nassar, Khalifa University, UAE

11:30-11:50 **Effective removal of iron and manganese from groundwater using regenerable iron oxide-coated beads**

Jinwoo Kim, Kyungpook National University, Korea

11:50-12:10 **Long-term operation of capacitive deionization for desalination and treatment of radioactive water**

Yong-Ha Kim, Louisiana State University, Korea

12:10-12:20 **Discussion**

12:20-13:30 **Lunch & Poster**

Time	Room 324
13:30-15:00	TS 5-1 Climate technology: waste/wastewater to X Chairs : Jeonghwan Kim, Inha University, Korea Changsoo Lee, Ulsan National Institute of Science and Technology, Korea

- 13:30-13:50 **Development of a bioelectrochemical CO₂ reduction valuable product (acetic acid) production process**
Satoshi Okabe, Hokkaido University, Japan
- 13:50-14:10 **Towards closed-loop production of biodegradable plastics from wastewater: using multi-meta-omics and quantum computing analyses to improve VFA to PHA production pathways**
Po-Heng (Henry) Lee, Imperial College London, United Kingdom
- 14:10-14:30 **A paradigm-shifting, fully-integrated, compact wastewater-to-resource facility for coastal city**
Di Wu, Ghent University, China
- 14:30-14:50 **Production of medium-chain length polyhydroxyalkanoate from food wastewater**
Hyung-Sool Lee, KENTECH, Korea
- 14:50-15:00 **Discussion**

Time	Room 323A
13:30-15:00	TS 5-2 Sustainable drinking water treatment and management Chair : Tran Le Luu, Vietnamese-German University, Vietnam

- 13:30-14:00 **KEYNOTE**
Redox flow deionization: a novel approach for water reuse and resource recovery
Choonsoo Kim, Kongju National University, Korea
- 14:00-14:15 **Electrochemical lithium recovery from various water sources**
Seoni Kim, Ewha Womans University, Korea
- 14:15-14:30 **The existing of emerging contaminants compounds and other pollutants in drinking water source in Vietnam**
Tran Le Luu, Vietnamese-German University, Vietnam
- 14:30-14:45 **Development of integrated FPF(Flash pressurized flotation) for algae removal on drinking water**
Minsoo Maeng, Dankook University, Korea
- 14:45-15:00 **Capacitive deionization with ag coating to improve performance and ion selectivity**
Hongsik Yoon, Korea Institute of Machinery & Materials, Korea

Time	Room 323B
13:30-15:00	TS 5-3 Contaminants of emerging concerns in wastewater and seawater Chair : Vincenzo Naddeo, University of Salerno, Italy

- 13:30-14:00 **KEYNOTE**
Living membrane bioreactors (LMBRs) for the sustainable control of microplastics in wastewater
Vincenzo Naddeo, University of Salerno, Italy
- 14:00-14:15 **Application of optimized assays using methylene blue and sodium biphenyl for total PFAS quantification in water**
Cong-Hau Nguyen, Gwangju Institute of Science and Technology, Korea
- 14:15-14:30 **UV degradation kinetics of 16S rRNA gene of indigenous bacteria: implications for UV reactor validation in WWTP effluents**
Sujin Shin, Gwangju Institute of Science and Technology, Korea

14:30-14:45 **Design of eco-friendly bio membrane for the efficient removal of cationic dye from aqueous solution**
Sabarish Radoor, Jeonbuk National University, Korea

14:45-15:00 **Discussion**

15:00-15:20 **Coffee Break**

Time	Room 324
15:20-16:50	TS 6-1 Stabilization technology for the remediation of heavy metals contaminated sediment in Andong lake Chair : Won Sik Shin, Kyungpook National University, Korea
15:20-15:35	Stabilization of hydrophobic organic compounds in sediment using alkali-activated rice husk biochar Quynh Thi Ngoc Le, Pusan National University, Korea
15:35-15:50	Acid-base modified activated carbon for heavy metal adsorption Jae-Woo Park, Hanyang University, Korea
15:50-16:05	Assessment of stabilization efficiency of bentonite and iron coated sand in heavy metal contaminated sediment Jae-Young Choi, Korea Institute of Science and Technology, Korea
16:05-16:20	Treatment cation/anion heavy metals contaminated water and magnetic separation using magnetized zeolite Young-Hun Kim, Andong National Univeristy, Korea
16:20-16:35	Effect of sediment organic matter on the effectiveness of in-situ sorbent amendment to stabilize heavy metals in sediment Yongju Choi, Seoul National University, Korea
16:35-16:50	Discussion

Time	Room 323A
15:20-16:50	TS 6-2 Membrane technology for advancing water-energy nexus Chair : Woochul Song, Pohang University of Science and Technology, Korea
15:20-15:40	Tailoring nanofiltration membrane with asymmetric selectivity for groundwater remediation Wulin Yang, Peking University, China
15:40-16:00	Toward zero liquid discharge treatment of semiconductor wastewaters with a hybrid system integrating forward osmosis and multistage-nanofiltration Chanhee Boo, Korea Advanced Institute of Science and Technology, Korea
16:00-16:20	Biomimetic soft materials from block copolymer self-assembly Chao Lang, South China University of Technology, China
16:20-16:40	Water electrolysis membranes for green hydrogen production Jae Hun Lee, Korea Institute of Energy Research, Korea
16:40-16:50	Discussion

Time	Room 323B
15:20-16:50	TS 6-3 Evaluation and management of diverse water qualities Chair : Paolo Roccaro, University of Catania, Italy
15:20-15:50	KEYNOTE Spectroscopic based approach for DBPs control in drinking water Paolo Roccaro, University of Catania, Italy
15:50-16:10	Assessment and prediction of the elimination of micropollutants during pilot-scale ozonation of municipal wastewater effluent Hyunjin Kim, Gwangju Institute of Science and Technology, Korea
16:10-16:30	Performance of novel sericin doped reduced graphene oxide membrane for forward osmosis based membrane crystallization application Priyamjeet Deka, Indian Institute of Technology Guwahati, India
16:30-16:50	Discussion
16:50-17:10	Coffee Break

Time	Room 324
17:10-17:40	PL3 The situation of water treatment and management in Spain and the use of additional water resources such as harvested stormwater and reclaimed water Daphne Hermosilla Redondo, Polytechnic University of Madrid, Spain Chair: Kwang-Ho Choo, Kyungpook National University, Korea
17:40-18:10	PL4 Current status and future prospect of seawater desalination: digital transformation and brine mining Sang-ho Lee, Kookmin University, Korea Chair: Kwang-Ho Choo, Kyungpook National University, Korea

Time	Room 324
18:10-18:40	Award & Closing Ceremony

FRIDAY, 8 DECEMBER 2023

Time	Korea Water Cluster & Dalseong Wetland
09:00-12:30	Technical Tour (Korean Water Cluster)
12:30-13:30	Lunch
13:30-16:00	Cultural Tour (Dalseong Wetland & ECO Learning Center)