



November 15-16, 2025  
Kyoto, Japan

# The 3rd International Conference on Bioprocess and Sustainability (ICBS2025)

Organized by



京都大学  
KYOTO UNIVERSITY



Supported by



筑波大学リサーチユニット  
生物資源コロイド工学  
University of Tsukuba Research Unit  
Colloid Engineering in Bio-resources

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# Preface

On behalf of the International Society of Bioprocesses and Sustainability (ISBS), I am delighted to extend a warm welcome to all participants of the 3rd International Conference on Bioprocess and Sustainability (ICBS2025). This event will be held from November 15-18, 2025, at the International Conference Halls of Kyoto University's Clock Tower, set in the picturesque city of Kyoto, Japan. We are excited to have you with us for this significant occasion, which promises to be an extraordinary convergence of individuals committed to advancing biotechnology and sustainability.

The ISBS was founded with the aim of nurturing talent in the realms of biotechnology and sustainability. Our organization is dedicated to promoting the exchange of innovative technical knowledge and equipping skilled professionals who can meet the dynamic demands of the industry. We strive to make a meaningful impact on the development of waste and wastewater reclamation practices that foster a circular economy, not just in Japan and Asia, but on a global scale. This flagship conference series, ICBS, provides a vital platform for experts across various disciplines to share their most important research outcomes and engage in insightful discussions regarding the future of sustainable practices. Throughout the upcoming days, you will have the chance to listen to prominent researchers, engage in stimulating sessions, and discover innovative solutions that can address the human resource gaps faced by both academia and industry.

I would like to express my sincere appreciation to our co-organizers and sponsors, whose invaluable support has made this conference a reality. To all attendees, thank you for your presence and your commitment to the pursuit of knowledge and innovation. Your participation enhances our discussions and contributes to our shared goal of achieving a more sustainable future. I encourage you to fully engage with the diverse programs we have organized, including the two-day excursion and field survey, which will offer unique perspectives on the practical applications of our discussions. Lastly, I want to acknowledge the hard work of our teams at Kyoto University, University of Tsukuba, and other partner institutions. This conference would not have been possible without your dedication and effort.

Once again, welcome, and I hope you enjoy the conference!



A stylized, handwritten signature in black ink, appearing to read 'DJL'.

Duu-Jong Lee

Chairman, International Society of Bioprocesses and Sustainability (ISBS)

14th November 2025

## Schedule

|                                                |                              |
|------------------------------------------------|------------------------------|
| 18:00 (JST), 14th November (Fri) 2025          | End of Registration          |
| 15th November (Sat) ~ 16th November (Sun) 2025 | Conference days              |
| 17th November (Mon) ~ 18th November (Tue) 2025 | Field excursion (applicable) |

## Organizer

International Society of Bioprocess and Sustainability (ISBS)

## Co-organizers

Kyoto University, Japan

University of Tsukuba, Japan

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Chair: Dr. Noguchi, Ryozi: Professor, Kyoto University, Japan

Vice chair: Dr. Hidaka, Taira: Associate Professor, Kyoto University, Japan

Vice chair: Dr. Lee, Duu-Jong: Professor, City University of Hong Kong, China

Vice chair: Dr. Lei, Zhongfang: Professor, University of Tsukuba, Japan

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### ▪ Supporters

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Dr. Adachi, Yasuhisa: Emeritus Professor, University of Tsukuba, Japan

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China

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Dr. Nguyen, Thu Huong: Postdoctoral Researcher, Kyoto University, Japan

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Dr. Otsuka, Toshihiko: Assistant Professor, Toyo University, Japan

Dr. Pan, Shu-Yuan: Associate Professor, National Taiwan University, Taiwan

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Dr. Toyofuku, Masanori: Associate Professor, University of Tsukuba, Japan  
Dr. Utsumi, Motoo: Professor, University of Tsukuba, Japan  
Dr. Wang, Linbo: President, Life Science Research Institute Co., Ltd Venture  
Company of University of Tsukuba, Japan  
Dr. Wang, Qian: Postdoctoral Researcher, Ocean University of China, China  
Dr. Yabar, Mostacero Helmut Friedrich: Associate Professor, University of Tsukuba,  
Japan  
Mr. Yasuda, Tadashi: President, Yasuda Co., Ltd, Ibaraki, Japan  
Dr. Yamaji, Keiko: Professor, University of Tsukuba, Japan  
Dr. Yang, Shengjiong: Associate Professor, Xi'an University of Architecture and  
Technology, China  
Dr. Yang, Xiaojing: Lecturer, Guangdong University of Technology, China  
Dr. Yuan, Tian: Assistant Professor, University of Tsukuba, Japan  
Dr. Zhao, Yingxin: Professor, Tianjin University, China  
Dr. Zhao, Ziwen: Associate Researcher, South China Institute of Environmental  
Sciences, Ministry of Ecology and Environment of the People's Republic of China

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Dr. Abubakar, Laila: Professor, Technical University of Mombasa, Kenya  
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Dr. Guo, Wenshan: Professor, University of Technology Sydney, Australia

Dr. Khanal, Samir Kumar: Professor, University of Hawaii-Manoa, USA

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Dr. Ngo, Huu Hao: Professor, University of Technology Sydney, Australia

Dr. Pandey, Ashok: Professor, CSIR-Indian Institute of Toxicology Research, India

Dr. Park, Chul: Professor, University of Massachusetts Amherst, USA

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Dr. Show, Kuan-Yeow: Professor, Puritek Research Institute, Puritek Co. Ltd.,  
Nanjing, China

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Dr. Tang, Yue-Qin: Professor, Sichuan University, China

Dr. Tong, Yen Wah: Professor, National University of Singapore, Singapore

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China

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Dr. Chen, Xingyu: Postdoctoral Researcher, City University of Hong Kong, China

Dr. Wang, Jixiang: Engineer, Shanghai Academy of Environmental Sciences, China

Dr. Zhao, Yankai: Research Associate, University of Tsukuba, Japan

# International Conference on Bioprocess and Sustainability 2025 (ICBS 2025)

14th – 18th November 2025

International Conference Halls, Kyoto University's Clock Tower, Kyoto, Japan

| Venue         | Hall 1                                                                                                                                          | Hall 2  | Hall 3                 |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------|---------|------------------------|
| 2025. 11. 14  | 14th November 2025 (Fri.)                                                                                                                       |         |                        |
| Time (JST)    | Program                                                                                                                                         | Program | Program                |
| 13:00 – 18:00 | Onsite Registration<br>International Conference Halls, Kyoto University’s Clock Tower, Kyoto, Japan                                             |         |                        |
| 2025. 11. 15  | 15th November 2025 (Sat.)                                                                                                                       |         |                        |
| 9:00 – 9:30   | Onsite Registration<br>International Conference Halls, Kyoto University’s Clock Tower, Kyoto, Japan                                             |         |                        |
| 9:30 – 10:00  | Opening Ceremony<br>Prof. Ryozo Noguchi (Kyoto University, Japan)<br>Prof. Duu-Jong Lee (Chairman of ISBS, City University of Hong Kong, China) |         | Online Synchronization |
|               | Plenary Speech<br>Chair: Prof. Duu-Jong Lee (City University of Hong Kong, China)                                                               |         |                        |
| 10:00 – 11:00 | K1 Development of Aerobic Granular Sludge processes<br>Prof. Mark C.M. van Loosdrecht, Delft University of Technology, The Netherlands          |         |                        |
|               | Keynote Speech<br>Chairs: Profs. Taira Hidaka (Kyoto University, Japan) and Fabrizio Adani (University of Milan, Italy)                         |         |                        |
| 11:00 – 11:30 | K12 - Harnessing Algae for Enhanced Performance in Membrane Bioreactors<br>Prof. Huu Hao Ngo, University of Technology Sydney, Australia        |         |                        |

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| 11:30 – 12:00 | <b>K6 Microalgae-driven Negative Carbon and CO<sub>2</sub> to X Technologies</b><br>Prof. Jo-Shu Chang, Tunghai University, Taiwan                                                            |                                                                                                                                                                                                       |
| 12:00 – 13:00 | <b>Lunch Break</b>                                                                                                                                                                            |                                                                                                                                                                                                       |
|               | <b>Keynote Speech</b><br><b>Chairs:</b> Profs. Yu Liu (Nankai University, China) and Shuchen Hsieh (National Sun Yat-sen University, Taiwan)                                                  | <b>Keynote Speech</b><br><b>Chairs:</b> Profs. Brendan T. Higgins (Auburn University, USA) and Yue-Qin Tang (Sichuan University, China)                                                               |
| 13:00 – 13:30 | <b>K-17 Facultative Sulfide-Oxidizing Heterotrophic Denitrification for Enhanced Nitrogen and Sulfide Removal</b><br>Prof. Duu-Jong Lee, City University of Hong Kong, China                  | <b>K-22 Integrated Resource Recovery from Food Waste: Biogas Generation and Carbon Source Production</b><br>Prof. Qiyong Xu, Peking University, China                                                 |
| 13:30 – 14:00 | <b>K-8 Microbial Granulation and Lessons from Oxygenic Photogranules (OPGs)</b><br>Prof. Chul Park, University of Massachusetts Amherst, USA                                                  | <b>K-19 Substrate Dependent Response to Exogenous CO<sub>2</sub> Injection in Anaerobic Digestion</b><br>Prof. Suyun Xu, University of Shanghai for Science and Technology, China                     |
| 14:00 – 14:30 | <b>K-21- Towards Controlling the Microbial Community</b><br>Prof. Masanori Toyofuku, University of Tsukuba, Japan                                                                             | <b>K-24 Mechanistic Insights into the Role of Tannic Acid-modified Iron-biochar Composites for Enhanced Methane Production in Anaerobic Process</b><br>Prof. Xiaoyuan Zhang, Nankai University, China |
|               | <b>Oral Presentation</b><br><b>Chairs:</b> Profs. Fan Lyu (Tongji University) and Shu-Yuan Pan (National Taiwan University)                                                                   | <b>Oral Presentation</b><br><b>Chairs:</b> Profs. Yen Wah Tong (National University of Singapore, Singapore) and Fuqing Xu (Xi'an Jiaotong University, China)                                         |
| 14:30 – 14:40 | <b>O-A-2 Performance of a Pilot-scale Sand Moving Bed Biofilm Reactor for Nitrogen Removal in a Seawater Recirculating Aquaculture System</b><br>Prof. Weiwei Huang, Hainan University, China | <b>O-F-5 Organic carbon-equivalent inputs in paddies: Impacts on GHG reduction, rice productivity, and soil health</b><br>Prof. Xian Xiao, Changzhou University, China                                |

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| 14:40 – 14:50 | <b>O-A-16 Multidimensional Insights into the Impact Mechanisms of Toxicant Stress on Anammox System</b><br>Prof. Yingxin Zhao, Tianjin University, China                                                   | <b>O-F-3 Biochar Preparation and Carbon Sequestration and Emission Reduction Technologies in Paddy Fields</b><br>Prof. Yuhu Zhang, Capital Normal University, China                                                      |
| 14:50 – 15:00 | <b>O-B-10 Basic Research on Hydrogen Generation Using Cow Dung and Livestock Waste</b><br>Prof. Toshihiko Otsuka, Toyo University, Japan                                                                   | <b>O-E-1 Algal-bacterial Granule System Achieves Negative Non-CO<sub>2</sub> Greenhouse Gas Emissions by Off-gas Circulation</b><br>Dr. Jixiang Wang, Shanghai Academy of Environmental Sciences, China                  |
| 15:00 – 15:10 | <b>O-A-17 Delineation of Microbial Nitrogen-metabolic Network in an Anammox Driven Full-scale Wastewater Treatment Plant</b><br>Prof. Ji-Dong Gu, Guangdong Technion Israel Institute of Technology, China | <b>O-F-4 Assessing the Impact of Spent Coffee Grounds Compost on Reducing Greenhouse Gas Emissions and Improving Soil Carbon in Short-Cycle Crop Production.</b><br>Dr. Chengchun He, National Taiwan University, Taiwan |
| 15:10 – 15:20 | <b>O-A-6 Biogas-Driven Denitrification Efficiency and Mechanisms in Membrane Biofilm Reactors</b><br>Prof. Lei Zhao, Harbin Institute of Technology, China                                                 | <b>O-E-2 Microalgae-Driven Optimization of Algal-Bacterial Granular Sludge for Saline Aquaculture Wastewater Remediation</b><br>Dr. Qian Wang, Ocean University of China, China                                          |
| 15:20 – 15:30 | <b>O-A-5 Partial Nitrification and Anammox for Saline Sewage Treatment</b><br>Prof. Xiaowu Huang, Guangdong Technion-Israel Institute of Technology, China                                                 | <b>O-H-5 Green Design for Low-carbon Ethylene Production via Electrochemical Carbon Dioxide Reduction</b><br>Mr. Suraj Negi, National Taiwan University, Taiwan                                                          |
| 15:30 – 16:00 | <b>Official Group Photo* and Poster Preparation</b>                                                                                                                                                        |                                                                                                                                                                                                                          |
| 16:00 – 17:30 | <b>Dinner Preparation</b>                                                                                                                                                                                  | <b>Poster Presentation</b>                                                                                                                                                                                               |
| 17:30 – 18:00 | <b>Break</b>                                                                                                                                                                                               |                                                                                                                                                                                                                          |

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|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 18:00 – 20:00       | <b>Dinner Party</b>                                                                                                                                                                                                      |                                                                                                                                                                                                                                               |                                                                                                                                                                       |
| 20:00 – 21:00       | <b>Venue Setup</b>                                                                                                                                                                                                       |                                                                                                                                                                                                                                               |                                                                                                                                                                       |
| <b>2025. 11. 16</b> | <b>16th November 2025 (Sun)</b>                                                                                                                                                                                          |                                                                                                                                                                                                                                               |                                                                                                                                                                       |
| 9:00 – 9:30         | <b>Onsite Registration</b><br>International Conference Halls, Kyoto University's Clock Tower, Kyoto, Japan                                                                                                               |                                                                                                                                                                                                                                               |                                                                                                                                                                       |
|                     | <b>Keynote Speech and Oral Presentation</b><br><b>Chairs:</b> Profs. Wenshan Guo (University of Technology Sydney, Australia) and Weiwei Huang (Hainan University, China)                                                | <b>Keynote Speech and Oral Presentation</b><br><b>Chairs:</b> Profs. Jo-Shu Chang (Tunghai University, Taiwan) and Xiaoyong Qian (Shanghai Academy of Environmental Sciences, China)                                                          | <b>Keynote Speech and Oral Presentation</b><br><b>Chairs:</b> Profs. Caixia “Ellen” Wan (University of Missouri, USA) and Qiyong Xu (Peking University, China)        |
| 9:30 – 10:00        | <b>K-25 Scaling up of Polyhydroxyalkanoates (PHA) Production from Toxic feedstock: Influence of Operational modes</b><br>Prof. Yi Zhang, Fudan University, China                                                         | <b>K-13 Cultivation of Microalgae on Thermal Hydrolysate from Rendering of Poultry Dissolved Air Flotation (DAF) Solids</b><br>Prof. Brendan T. Higgins, Auburn University, USA                                                               | <b>K-20 Upcycling of Food Waste Digestate into Solid Fertilizer with Biochar and Encapsulation</b><br>Prof. Yen Wah Tong, National University of Singapore, Singapore |
| 10:00 – 10:30       | <b>K-7 Integrating Biochar and Advanced Oxidation for Effective Removal of Emerging Contaminants from Waste Activated Sludge</b><br>Prof. Cheng-Di Dong, National Kaohsiung University of Science and Technology, Taiwan | <b>K-11 Resource and Energy Recovery from Wastewater and Organic Waste Using Anaerobic Digestion with Sunlight-Driven Phototrophic Microorganisms</b><br>Prof. Taira Hidaka, Kyoto University, Japan                                          | <b>K-3 Renewable Fertilizers from Anaerobic Digestion Promoting Circular Economy in Agriculture</b><br>Prof. Fabrizio Adani, University of Milan, Italy               |
| 10:30 – 10:40       | <b>O-A-4 Development and Application of a Three-Loop Recirculating Freshwater Aquaculture System</b><br>Prof. Fei Yang, Hainan University, China                                                                         | <b>O-H-1 Surface Confinement Boosts the In-situ Formation of Peroxydisulfate Metastable Complexes on Assembled Hollow N-rich Carbon Plates for Water Purification</b><br>Prof. Rongzhi Chen, University of Chinese Academy of Sciences, China | <b>K18 Structure of Phage Communities and Their Interaction with Prokaryotic Microbiome in Anaerobic Digesters</b><br>Prof. Yue-Qin Tang, Sichuan University, China   |

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|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10:40 – 10:50 | <b>O-C-1 Sustainable Antioxidant Platform Based on FeCu–Lychee Wood-Derived Carbon Dot Functionalized Biochar from Agricultural Waste</b><br>Prof. Shuchen Hsieh, National Sun Yat-sen University, Taiwan                                                                 | <b>O-B-1 Mechanistic Insights into C-S-Fe-P Transformations in Anaerobic Co-digestion of Iron–phosphorus Compounds Containing Sludge with Sulfur-containing Biomass</b><br>Prof. Yongmei Li, Tongji University, China |                                                                                                                                                                                                                           |
| 10:50 – 11:00 | <b>O-G-5 Combined Exposure to Polyethylene Microplastics and Elevated Seawater Temperature Induces Oxidative Imbalance and Histopathological Damage in Coral Briareum Violacea</b><br>Prof. Ya-Ting Chen, National Kaohsiung University of Science and Technology, Taiwan | <b>O-B-5 Growing Duckweed in Swine Wastewater and its Conversion to Biofuel</b><br><br>Dr. Weihua Cui, China University of Geosciences (Beijing), China                                                               |                                                                                                                                                                                                                           |
| 11:00 – 11:10 | <b>O-H-9 A Chemical-biological Process Based on H<sub>2</sub>O<sub>2</sub>/O<sub>3</sub> Lysis and Cryptic Growth for in-situ Reduction of Waste Activated Sludge</b><br><br>Dr. Zhu Liang, Tsinghua University, China                                                    | <b>O-H-3 Application of GOx-based Enzymatic Bioleaching for Co and Ni Recovery from Spent Lithium-ion Batteries</b><br>Ms. Anusha Vishwakarma, Indian Institute of Technology Patna, India                            | <b>O-C-7 Thermophilic Aerobic Digestion of Wastewater Sludge for Producing Class A Biosolids and Effects of Digestion on Sludge Dewaterability</b><br>Prof. Jianpeng Zhou, Southern Illinois University Edwardsville, USA |
| 11:10 – 11:20 | <b>O-C-5 Cultivation of Protein-rich Microalgae Using Swine Wastewater in Pilot-scale Study and Development of Microalgae-based Animal Feed</b><br>Dr. Hui Liu, Shanghai Academy of Environmental Sciences, China                                                         | <b>O-C-8 Nutrients Recovery and Functional Biomaterials Production by Hydrothermal Treatment of Algal-bacterial Granular Sludge</b><br>Ms. Rammuni Silva, University of Tsukuba, Japan                                | <b>O-B-3 - Evaluation of An Anaerobic Digestion/Pyrolysis Co-processing System for Sustainable Food Waste Valorization</b><br>Prof. Fuqing Xu, Xi'an Jiaotong University, China                                           |
| 11:20 – 11:30 | <b>O-A-15 Co-cultivation of Cyclotella and a Filamentous Fungus for Effective Treatment of Palm Oil Mill Effluent</b><br>Dr. Jingnan Li, Kyoto University, Japan                                                                                                          | <b>O-B-11 Comparative Evaluation of Hydrothermal Carbonization and Pyrolysis of Cinnamon Leaf Biomass for Solid Fuel Production</b><br>Mr. Rasanja Asela Ranasinghe, University of Tsukuba, Japan                     | <b>O-D-1 Regulating the Carbon-to-Nitrogen Ratio for Enhanced Reconstruction Efficiency in <i>Litopenaeus vannamei</i> Aquaculture Systems</b><br>Prof. Pengfei Cheng, Ningbo University, China                           |
| 11:30 – 12:30 | <b>Lunch Break</b>                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                       |                                                                                                                                                                                                                           |

|               | <b>Keynote Speech and Oral Presentation</b><br><b>Chairs:</b> Profs. Chul Park (University of Massachusetts Amherst, USA) and Yi Zhang (Fudan University, China)                                                           | <b>Keynote Speech and Oral Presentation</b><br><b>Chairs:</b> Profs. Huu Hao Ngo (University of Technology Sydney, Australia) and Yongmei Li (Tongji University, China)                                                                                      | <b>Keynote Speech and Oral Presentation</b><br><b>Chairs:</b> Profs. Hongtao Wang (Tongji University, China) and Ayana Ito (Kyoto University, Japan)                                                                                             |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12:30 – 13:00 | <b>K-16 Circular Carbon Chemistry for Net-Zero Bioeconomy</b><br><br>Prof. Shu-Yuan Pan, National Taiwan University, Taiwan                                                                                                | <b>K-14 Nitrogen and Phosphorus Recovery Potential from Japan's Food Loss and Waste: Implications for Resource Circularity and Carbon Neutrality</b><br><br>Prof. Bin-Le Lin, National Institute of Advanced Industrial Science and Technology (AIST), Japan | <b>K-23 Miscanthus Sinensis Andersson at Mine Sites; the Metal Tolerant Mechanism, the Symbiosis with Functional Root Endophytes, and the Important Ecological Roles as Pioneer Herb</b><br><br>Prof. Keiko Yamaji, University of Tsukuba, Japan |
| 13:00 – 13:30 | <b>K-9 Data-centric Water Engineering for Sustainable Urban Wastewater Management</b><br><br>Prof. Guangtao Fu, University of Exeter, United Kingdom                                                                       | <b>K-5 Functional Materials from Biomass for Sustainability and Environmental Remediation</b><br><br>Prof. Caixia “Ellen” Wan, University of Missouri, USA                                                                                                   | <b>K-2 Initial Stage Flocculation of Colloidal Particles in the End-over-end Mixing Device Induced by the Deposition of Oppositely Charged Colloids</b><br><br>Prof. Yasuhisa Adachi, University of Tsukuba, Japan                               |
| 13:30 – 14:00 | <b>K-10 Recent Advances in Conversion of Biowaste to Value-added Products and Their Applications</b><br><br>Prof. Wenshan Guo, University of Technology Sydney, Australia                                                  | <b>K-4 Resource Recovery from Diverse Biogenic Waste Needs a Focus Shift towards Nitrogen Stabilization</b><br><br>Prof. Jonas Baltrusaitis, Lehigh University, USA                                                                                          | <b>K-15 Liquid Digestate: Characterization, Resource Recovery and Treatment</b><br><br>Prof. Fan Lyu, Tongji University, China                                                                                                                   |
| 14:00 – 14:10 | <b>O-A-7 The Treatment Efficiency and Mechanism Analysis of Activated Sludge in a Slightly Bulking State for Wastewater with Different Carbon-to-Nitrogen Ratios (C/N)</b><br><br>Dr. Yuliang Wu, Hainan University, China | <b>O-B-7 Performance of Proton-Coupled Electron Transfer using Neutral Red Reversible Redox-active Material for Electrochemical Biogas Upgrading</b><br><br>Mr. Chin Hao Yeh, National Taiwan University, Taiwan                                             | <b>O-H-12 Overcoming Data Scarcity: KM-Bagging for Accurate Coagulant Dosage Prediction</b><br><br>Prof. Feng Xiao, North China Electric Power University, China                                                                                 |

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|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 14:10 – 14:20 | <b>O-A-18 PAC-Enhanced MBCR for Rural Wastewater Treatment in Warm Climates: Achieving Superior Nutrient Removal and Membrane Fouling Mitigation</b><br>Dr. Yuliang Chen, Hainan University, China | <b>O-C-2 - Valorizing Spent Coffee Residue as Carbon-based Catalysts for Low Carbon Urea Electrosynthesis from Nitrate and Bicarbonate</b><br>Ms. Aishwarya Rani, National Taiwan University, Taiwan | <b>O-A-12 Recirculating Aquaculture Systems under Artificial Intelligence Control for High-Density cultivation: A Case Study of <i>Litopenaeus vannamei</i></b><br>Dr. Yankai Zhao, University of Tsukuba, Japan   |
| 14:20 – 14:30 | <b>O-B-2 Odorous Gas Generated during Food Waste Biotreatment: Emission Characteristics, Health Risks, and Treatments</b><br>Dr. Yujing Wang, Tongji University, China                             | <b>O-F-1 Carbon Emissions Calculation and Driving Factors Analysis of Sewer Systems in China</b><br><br>Ms. Yating Sun, Tongji University, China                                                     | <b>O-G-3 Next-Generation Pig Husbandry: Environmental Impact Reduction via Feed Improvement and Biogas Valorization</b><br>Dr. Yu-Jen Lee, National Institute of Advanced Industrial Science and Technology, Japan |
| 14:30 – 15:00 | <b>Break</b>                                                                                                                                                                                       |                                                                                                                                                                                                      |                                                                                                                                                                                                                    |
|               | <b>Oral Presentation</b><br><b>Chairs:</b> Profs. Xiaoyuan Zhang (Nankai University, China) and Cheng-Di Dong (National Kaohsiung University of Science and Technology, Taiwan)                    | <b>Oral Presentation</b><br><b>Chairs:</b> Profs. Toshihiko Otsuka (Toyo University, Japan) and Jianpeng Zhou (Southern Illinois University Edwardsville, USA)                                       | <b>Oral Presentation</b><br><b>Chairs:</b> Profs. Miao Li (Tsinghua University, China) and Jonas Baltrusaitis (Lehigh University, USA)                                                                             |
| 15:00 – 15:10 | <b>O-H-1 PIV-Based Investigation of Oil Droplet Distribution and Critical Separation Size in a Grease Trap</b><br>Dr. Teng Li, Kyoto University, Japan                                             | <b>O-G-1 Research Framework for Low-carbon Urban Development: A Case Study of Shanghai, China</b><br><br>Mr. Gengyu Gao, Tongji University, China                                                    | <b>O-E-3 Impact of Morphological Variations and Microbial Growth Imbalance on Algal-bacterial Aerobic Granular Sludge: Performance and Mechanisms</b><br>Dr. Xingyu Chen, City University of Hong Kong, China      |
| 15:10 – 15:20 | <b>O-A-8 Role of Comammox Nitrospira in an oxygen-limited DHS reactor</b><br>Mr. Sota Kabasawa, Nagaoka University of Technology, Japan                                                            | <b>O-B-4 Integrated Biogas Upgrading and Fertilizer Production using Electrochemical pH Swing Technology</b><br>Ms. Yu-Ning Chen, National Taiwan University, Taiwan                                 | <b>O-H-8 Analyzing the Effect of Oxygen-rich Torrefaction on Hydrogen Peroxide-pretreated Bamboo Using Analysis of Variance</b><br>Mr. Wei-Syuan Lin, National Chung Kung University, Taiwan                       |

|               |                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                              |                                                                                                                                                                                                                             |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 15:20 – 15:30 | <b>O-A-13 Construction of Stable Niches for Denitrifiers Using 3D Bioprinting for Efficient Nitrogen Removal</b><br>Mr. Yinuo Liu, Tianjin University, China                                                                                  | <b>O-H-11 A Novel Dual-Ligand Zn(II) MOF with Bidirectional Channels Exhibiting Enhanced CO<sub>2</sub> Adsorption</b><br>Ms. Furong Ji, Tongji University, China                                                                            | <b>O-H-4 Synergistic Confinement and Polar Recognition in a Methyl-Engineered Ultramicroporous MOF for boosted Xe/Kr separation</b><br>Mr. Zhiheng Lu, Tongji University, Shanghai, China                                   |
| 15:30 – 15:40 | <b>O-B-12 Direct Utilization of Ammonia-containing Liquid Digestate Enhances Lettuce Quality and Nutrient Uptake in pH-controlled Hydroponic Systems</b><br>Ms. Jing Xu, University of Tsukuba, Japan                                         | <b>O-B-9 Enhancing High-solid Anaerobic Digestion with In-situ Nanobubble Generation via Biogas Recirculation</b><br>Mr. Wenbo Gu, University of Tsukuba, Japan                                                                              | <b>O-H-10 Sustainable Recovery of Spent Lithium-ion Batteries (LIBs) Using Hydrogen Evolution Reaction Catalysts and Metal Recovery</b><br>Mr. Jing-Xian Chen, National Taiwan University of Science and Technology, Taiwan |
| 15:40 – 15:50 | <b>O-A-3 New Insights into How Carbon Substrates Shape Nutrient Removal and Microbial Community Assembly Mechanisms in an Integrated Simultaneous Methanogenesis-Feammox-denitrification System</b><br>Ms. Qing Xia, Hainan University, China | <b>O-G-9 Sustainable Supply Chain Seaweed Production Based on Life Cycle Assessment Perspective: South Sulawesi Case Study</b><br>Ms. Afifah Nurmala Karima, National Research and Innovation of the Republic of Indonesia (BRIN), Indonesia | <b>O-H-7 The Characteristics and Evaluation of Factors Influencing the Change of Dissolved Organic Carbon in Arctic Rivers</b><br>Ms. Ruxin Gong, North China Electric Power University, China                              |
| 15:50 – 16:00 | <b>O-C-4 Mitigating PAH Formation and Enhancing Oxidative Degradation Using Pineapple Leaf Biochar in Sludge Treatment</b><br>Mr. Jia-Wei Cheng, National Kaohsiung University of Science and Technology, Taiwan                              | <b>O-C-11 Integrated Co-hydrothermal Carbonization of Microalgae and Microplastics</b><br>Mr. Shu-Ya Yeh, National Cheng Kung University (NCKU), Taiwan                                                                                      | <b>O-C-10 Valorization of Liquid Digestate-derived Humic Substances as Microalgal Biostimulants: Insights into Dose-response and Structure–response Relationships</b><br>Ms. Xiaoyu Zhao, University of Tsukuba, Japan      |
| 16:00 – 16:10 | <b>O-C-9 NH<sub>4</sub><sup>+</sup> Adsorption Capacity of Biochars Derived from Coffee Husk and Sugarcane Bagasse in Water Treatment</b><br>Ms. Hang Ho, University of Tsukuba, Japan; Dalat University, Vietnam                             | <b>O-B-13 Enhanced Biogas Production and Microbial Metabolic Pathways of Electro-Anaerobic Digestion under Different Applied Voltages</b><br>Mr. Jyi Yong Chai, National Taiwan University, Taiwan                                           | <b>O-D-2 Ultrasensitive Detection of Antibiotic Resistance Genes Using Core-shell Au@Ag-Au SERS Nanotag-based Lateral Flow Assay</b><br>Ms. Yuxi Wang, Southeast University, China                                          |

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| 16:10 – 16:20 | <b>O-A-14 Regulation of Microcurrent on Carbon and Nitrogen Metabolism in Denitrification under Low Carbon-to-nitrogen Ratio: Optimizing Carbon Flux Distribution</b><br>Ms. Jiaojiao Niu, Tianjin University, China | <b>O-B-8 Enhancing Sewage Sludge Anaerobic Digestion via Hydrogen and CO<sub>2</sub> Co-Feeding: A Mesophilic and Thermophilic Comparison</b><br>Ms. Ching Yi Kwang, Kyoto University, Japan     | <b>O-F-2 Quantifying Urban Food Nitrogen Flows in Tokyo: Urban Nitrogen Management Insights</b><br>Ms. Yue Zhang, University of Tokyo, Japan                                                 |
| 16:20 – 16:30 | <b>O-G-8 Life Cycle Perspective of Seaweed-Based Bioplastics: Environmental Implications and Biorefinery Opportunities</b><br>Mr. Arief Setiawan, National Research and Innovation Agency (BRIN), Indonesia          | <b>O-A-9 Phosphorus Recovery and Microcystin Degradation from Water Blooms by the Sediment-Based Biofilm Treatment System</b><br>Mr. Kohsuke Takanashi, University of Tsukuba, Japan             | <b>O-G-2 Comparative Life Cycle Assessment of Conventional, Environmentally Friendly, and Organic Rice Production Systems</b><br>Ms. Sintia Pradita, Kyoto University, Japan                 |
| 16:30 – 16:40 | <b>O-A-11 The Enhanced Degradation Mechanism of 17 <math>\alpha</math> - Ethynylestradiol by Group Induction in Microbial Electrochemical Systems</b><br>Mr. Junren Yao, Southeast University, China                 | <b>O-B-6 Effects of Fluctuations in Hydrogen Partial Pressure on In-Situ Biomethanation</b><br>Mr. Hibiki Adachi, Kyoto University, Japan                                                        | <b>O-G-4 Powering Sustainability with Biofertilizer: 3E Life Cycle Assessment in Acidic Rice Systems</b><br>Ms. Adilah Surimin, Kyoto University, Japan                                      |
| 16:40 – 16:50 | <b>O-H-2 Removal of Perfluorooctanoic Acid using Biopolymer Functionalized Graphene Oxide Nanocomposite</b><br>Mr. Byomkesh Mahanty, Indian Institute of Technology Patna, India                                     | <b>O-G-6 Tissue-Specific Distribution of Rare Earth Elements in Rays Collected from Southwestern Taiwan</b><br>Mr. Yao-De Huang, National Kaohsiung University of Science and Technology, Taiwan | <b>O-A-1 Electrodialysis-Based Approaches for Simultaneous Water Reclamation and Resource Reuse from Brackish Wastewater</b><br>Ms. Yu-Chi Cheng, National Taiwan University, Taiwan         |
| 16:50 – 17:00 | <b>O-A-10 Advanced High-rate Wastewater Treatment: Key Insights from Anammox-HAP in IC Reactor</b><br>Mr. Liwen Cao, University of Tsukuba, Japan                                                                    | <b>O-H-6 Polystyrene Nanoplastics Exposure Induces Oxidative Stress on Lung Cancer Cells</b><br>Mr. Thai-Khuong Le, National Kaohsiung University of Science and Technology, Taiwan              | <b>O-C-6 Phages-bacteria Interactions Underlying the Dynamics of Polyhydroxyalkanoates-producing Mixed Microbial Cultures via Metaomics Study</b><br>Mr. Jian Yao, Sichuan University, China |
| 17:00 – 17:30 | <b>Break and Data Collection (Evaluation Results and Budget Balance)</b>                                                                                                                                             |                                                                                                                                                                                                  |                                                                                                                                                                                              |
| 17:30 – 18:00 | <b>Closing ceremony (Hall 1 and Hall 2)</b>                                                                                                                                                                          |                                                                                                                                                                                                  |                                                                                                                                                                                              |
| 18:00 – 20:00 | <b>Cleaning up</b>                                                                                                                                                                                                   |                                                                                                                                                                                                  |                                                                                                                                                                                              |

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| <b>2025. 11. 17</b> | <b>**17th November 2025 (Mon)</b>                                                    |
| 8:30 – 17:00        | Field survey 1-Yuge Farm                                                             |
| <b>2025. 11. 18</b> | <b>**18th November 2025 (Tue)</b>                                                    |
| 9:00 – 18:00        | Field survey 2-Experimental Farm of Graduate School of Agriculture, Kyoto University |

**Notes: \* Nov. 15, 4:00 pm: Group photo for all participants in front of the Clock Tower.**

**\*\* Field surveys during Nov. 17-18 only for applicable participants.**

# List of Posters and Their Exhibition Time Slots

**Time: 15:30-17:30, 15th November 2025**

**Venue: Hall 3, International Conferences, Kyoto University's Clock Tower, Kyoto, Japan**

## Theme I: Biological waste/wastewater treatment

P-A-1 - Effect of pH on the Performance of a Simultaneous Methanogenesis-Fermentation-denitrification System Treating Aquaculture Wastewater

○Biao Zhang, Qing Xia, Jun Cheng, Fei Yang, Xuesong Yi, Weiwei Huang\*

P-A-2 - Preparation of Gel Granular Sludge and Its Application in Marine Aquaculture Wastewater Treatment

○Yongjie Liu, Weiwei Huang\*

P-A-3 - Impact of Fe(III)/N Ratio on Organic Matter and Nitrogen Removal in Integrated Anaerobic Systems Treating Aquaculture Wastewater

○Qingzhen Qiu, Qing Xia, Weiwei Huang\*

P-A-4 - Seasonal Dynamics of Microcystin Degrading Bacteria and Degradation Ability in Natural Lake

○Saki Uchida, Huyen Thi Khanh Nguyen, Lin Thida, Qintong Li, Kazuya Shimizu, Motoo Utsumi\*

P-A-5 - Exploring Sulfur Uptake by Cyanobacteria under Varying Nutrient Conditions in Sulfur-containing Wastewater

○Jihan Sun, Tian Yuan\*, Zhongfang Lei, Zhenya Zhang\*

P-A-6 - Microbial Colonization and Succession on Polylactic Acid Microplastics (PLA MPs) in Mangrove Forests - the Role of Environmental Conditions and Plastic Properties

○Xueyi Song, Yini Ma\*

P-A-7 - Optimizing Vanadium(V) Removal in Groundwater with Machine Learning Predictions

○Liting Hao\*, Miao Li\*

P-A-8 - Potentials of Electrochemical-sulfate Reducing Bacteria (SRB) Hybrid Systems for Heavy Metals Removal from Wastewater

○Po-Chun Yang

P-A-9 - Antibiotic Characterization in Livestock and Aquaculture Wastewater via Excitation-emission Matrix Fluorescence Spectroscopy: Current Challenges and Future Perspectives

○Leilei He, Wei Zheng, Rui Liu\*, Lujun Chen

P-A-10 - Functions of Complex Carbon Sources in Granular Sludge Formation: Granule Development, EPS Excretion and Microbial Community: A Mini Review

○Li Wen Liew, Ziyin Ai, Jian Dong, Yuechong Fan, Tian Yuan, Zhongfang Lei\*

P-A-11 - Shifting Nitrogen Pathways toward Nitrogen Assimilation with Enhanced Protein Production in Activated Sludge via Nitrification Suppression

○Yuechong Fan, Ziyin Ai, Li Wen Liew, Tian Yuan, Zhongfang Lei\*

P-A-12 - Beyond Filter Cake Filtration: New Insights into Secondary Dewatering of Drinking Water Centrifuge Sludge Through Cell Lysis and Release of Bound Water

P-A-13 - Synthesis and Characterization of High-porosity Polyurethane Foam for Immobilization of Nitrifying Bacteria in Wastewater Treatment

○Chengyu Jiang, Tian Yuan\*, Baoqi Gao, Zhenya Zhang\*, Zhongfang Lei

P-A-14 - Microbial Immobilization on PVA/LDH Composites for Enhanced Nitrogen Removal from Aquaculture Wastewater

○Baoqi Gao, Tian Yuan\*, Zhenya Zhang\*, Zhongfang Lei

P-A-15 - Structural Extracellular Polymer-sodium Alginate Immobilized Aerobic Denitrifying Bacteria for the Treatment of Nitrogen-containing Wastewater

○Zhihao Chen, Dongfang Liu, Wenli Huang\*

P-A-16 - Recirculating Aquaculture Systems with Efficient Aquaculture Wastewater Treatments under Low Ammonia Loading: A Case Study on *Litopenaeus vannamei* Farming

○Yuanyuan Zhang, Yankai Zhao, Tian Yuan\*, Zhenya Zhang, Guohua Cao, Yanfei Cheng, Akio Shoji

## Theme II: Bioenergy and Resource Recovery

P-B-1 - Selective Enhancement of Methane Production and Phosphorus Recovery by Mg-Fe Layered Double Hydroxides in Anaerobic Digestion of Food Waste

○Yiming Shen, Yi Liu, Tian Yuan\*, Zhenya Zhang, Zhongfang Lei

P-B-2 - Fertilizer Potential of Solid Digestate from a High-solid Anaerobic Digestion System with Liquid and Biogas Recirculation

○Jize Yang, Wenbo Gu, Yuxiao Li, Baibing Li, Zhongfang Lei, Zhenya Zhang, Tian Yuan\*

P-B-3 - An Integrated System of Anaerobic Digestion and Recirculating Aquaculture for Sustainable Shrimp Farming

○Yanfei Cheng\*, Zhenya Zhang, Akio Shoji, Tian Yuan, Yugo Arisaka, Kendo Iida, Ayaka Ishizawa, Yankai Zhao

P-B-4 - Effects of Liquid Digestate from Different Types of Food Waste as Fertilizer on the Growth of Hydroponic Lettuce

○Yun Luo, Tian Yuan\*, Jing Xu, Zhongfang Lei, Zhenya Zhang

P-B-5 - Permeability Test in Dry Methane Fermentation

○Yugo Arisaka\*, Yanfei Cheng, Zhenya Zhang, Akio Shoji, Akira Umezu, Yankai Zhao

P-B-6 - Controlling Factors on the Co-recovery of Structural Extracellular Polymeric Substances and Volatile Fatty Acids from Anaerobic Fermentation of Food Waste

○Rungen Zeng, Zhongfang Lei, Chen Shi, Zhenya Zhang, Kazuya Shimizu, Tian Yuan\*

P-B-7 - Enhanced Biogas Production from High-solid Anaerobic Digestion of Rice Husk by Adding Air Nanobubble Water

○Baibing Li, Wenbo Gu, Yuxiao Li, Jize Yang, Zhongfang Lei, Zhenya Zhang, Tian Yuan\*

P-B-8 - Integrating Heterotrophic Nitrification and Algal Assimilation in A High-solid Anaerobic Digestion System with Liquid Recirculation for Methane Enhancement and Nitrogen Recovery

○Yuxiao Li, Wenbo Gu, Baoqi Gao, Zhuo Xie, Baibing Li, Jize Yang, Zhongfang Lei, Zhenya Zhang, Tian Yuan\*

P-B-9 - Effect of Applied Voltage Level and Timing on Methane Production in A Microbial Electrolysis Cell-assisted Anaerobic Digestion System Treating Pig Manure

○Yi Liu, Tian Yuan\*, Zhenya Zhang\*, Zhongfang Lei

P-B-10 - Coupled Fouling Dynamics of Particulates and Dissolved Organic Matter in Digestate Treatment: Insights from Real-time Optical Coherence Tomography

○Qiyong Xu\*, Yuxin Qu

P-B-11 - The study on the Mechanisms Underlying the Enhancement of Anaerobic Digestion of High-lipid Substrates through the Regulation of Unsaturated Fatty Acid Degradation via ECI Enzymes

○Jinku Liu, Chenxi Li\*

### Theme III: Biomass Reclamation and Utilization

P-C-1 - Modified Biochar Mitigates Nitrogen Loss in Distilled Grain Waste Composting by Modulating Microbial Community Assembly and Function

○Zhao-Yong Sun\*, Yang Xu, Shi-Peng Wang, Yue-Qin Tang

P-C-2 - Utilization of Concrete Wash Water (CWW) for Enhanced Microalgae Cultivation

○Guoran Liu, Tian Yuan\*, Zhongfang Lei, Zhenya Zhang\*, Yanfei Cheng, Akio Shoji

P-C-3 - Regulatory Mechanism of Haa1p and Hap4p in *Saccharomyces cerevisiae* to Mixed Acetic Acid and Formic Acid When Fermenting Mixed Glucose and Xylose

○Xinyu Xiao, Yue-Qin Tang\*

P-C-4 - Use of Waste Algal–bacterial Granular Sludge as Potential Soil Amendments

○Han Shao, Xinyu Lyu, Tian Yuan, Zhongfang Lei\*

P-C-5 – Biostimulating Effect of Dissolved Organic Matter (DOM) in Anaerobic Digestate on Hydroponic Cultivation

○Wanqing Hu, Tian Yuan\*, Zhongfang Lei, Zhenya Zhang

P-C-6 - Fermenting Fruit Peel Waste Substrates with *Bacillus subtilis* for Growth Performance of Black Soldier Fly Larvae, *Hermetia illucens* (LINNAEUS) in CEBU City

○Vince Marc G. Padoa\*, Paul John L. Geraldino

P-C-7 - Ultrasound Assisted Freezing Pretreatment and Isomalto-oligosaccharides for Enhancing Maceration Efficiency, Quality, and Volatile Metabolites of Japanese Apricot Syrup

○Dan Cheng, Ximeng Lin, Hongliang Wu, Yike Wang, Aoting Li, Chengdong Ma, Pengyu Zhou, Xiao Huang, Yuying Lu, Fanfan Liu, Liping Tong, Zhaojun Ni, Zhihong Gao\*, Ting Shi\*

### Theme IV: Biosystems and Bioassay

P-D-1 - Effects and Solutions of Carbon Dioxide on Fish in Recirculating Aquaculture Systems

○Shengnan Cang, Xinglan Lv, Xin Hu, Guozhi Luo\*

P-D-2 - Effect of Dissolved Inorganic Carbon on Hydroponic Lettuce Growth

○Junqi Yan, Jing Xu, Tian Yuan\*, Yun Luo, Yi Liu, Zhongfang Lei, Zhenya Zhang

P-D-3 - Comparison of the Environmental Impact of Hydroponic Cultivation and Conventional Cultivation of Soybeans

○Ayana Ito\*, Ryozi Noguchi, Reo Kageyama

P-D-4 - Evaluation of The Growth Performance and 16s Metabarcoding Analysis of The Cecal Gut Bacteria in Broiler Chickens Under A *Bacillus Subtilis* (Atcc 6051)-Fermented *Halymenia Durvillei* Bory De Saint Vincent (Rhodophyta) Supplemented Feeds Diet

○Clint Daryll C. Suarez\*, Paul John L. Geraldino

## Theme V: Microalgal-bacterial Consortium and Its Advancements

- P-E-1 - Nitrogen Metabolism May Control Phosphorus Fate and Recovery in Algal-bacterial Granular Sludge-based Wastewater Treatment System  
○Xinyu Lyu, Xi Zhao, Han Shao, Zhichen Li, Tian Yuan, Motoo Utsumi, Zhongfang Lei\*
- P-E-2 - Preliminary Examination of Resilience and Resource Recovery of Algal-bacterial Granular Sludge from Extreme Acidic and Alkaline Wastewaters  
○Ge Gao, Ziyin Ai, Xingyu Chen, Wenjun Liu, Zhongfang Lei\*, Tian Yuan, Motoo Utsumi, Kazuya Shimizu, Duu-Jong Lee
- P-E-3 - Distinct Phosphorus Speciation and Distribution in Algal-bacterial Aerobic Granular Sludge-based Wastewater Treatment Systems Under Different Nitrogen Conversion Pathways  
○Xinyu Lyu, Xi Zhao, Han Shao, Zhichen Li, Tian Yuan, Motoo Utsumi, Zhongfang Lei\*
- P-E-4 - Shrimp Aquaculture Wastewater Treatment in a Continuous-flow Algal-bacterial Granular Sludge Bioreactor: Effects of Light and Stocking Density on Performance and Resource Recovery  
○Jian Dong, Wenjun Liu, Li Wen Liew, Yunqiang Fan, Sicheng Zhang, Tian Yuan, Motoo Utsumi, Zhongfang Lei\*
- P-E-5 - Phosphorus Accumulation Performance and Recoverability of Algal-bacterial Granular Sludge under Low Light Conditions  
○Sicheng Zhang, Yihao Huang, Jian Dong, Tian Yuan, Motoo Utsumi, Zhongfang Lei\*
- P-E-6 - Enhanced Phosphorus Removal by Algal-bacterial Granular Sludge System Coupling pH Control with Acetic Acid: Closed-loop Resource Management in Recirculating Aquaculture System  
○Wenjun Liu, Jian Dong, Ziyin Ai, Ge Gao, Tian Yuan, Motoo Utsumi, Zhongfang Lei\*
- P-E-7 - Nitrogen Assimilation May Facilitate Enhanced Nitrogen Removal and Reservation in Algal-bacterial Granular Sludge  
○Ziyin Ai, Yuechong Fan, Jian Dong, Xinyu Lyu, Weiwei Huang, Tian Yuan, Motoo Utsumi, Zhongfang Lei\*
- P-E-8 - Preliminary Analysis of Nutrients Reclamation from Waste Algal-bacterial Granule Sludge for Komatsuna Farming  
○Xi Zhao, Xinyu Lyu, Zhongfang Lei\*
- P-E-9 - Algal and Bacterial Extracellular Polymeric Substances (EPS): Similarities, Differences, and Synergistic Prospects for Environmental Remediation – A Review  
○Zhuo Xie, Tian Yuan\*, Zhongfang Lei, Zhenya Zhang\*
- P-E-10 - Evaluation and Comparison of Shrimp Farming Wastewater Treatment Using Bacterial and Algal-bacterial Granular Sludges in the Context of Vietnam  
○Vu Thi Kieu Loan, Yunqiang Fan, Zhongfang Lei\*, Tian Yuan, Yabar Helmut
- P-E-11 - Self-sufficiency of Carbon Source in Bacterial and Algal-bacterial Granular Sludge-based Wastewater Treatment Systems Coupling with Anaerobic Fermentation of Waste Granular Sludge  
○Yunqiang Fan, Zhichen Li, Vu Thi Kieu Loan, Jian Dong, Zhongfang Lei\*, Tian Yuan, Motoo Utsumi
- P-E-12 - A Mini Review on Algal-bacterial Aerobic Granular Sludge for Emerging Pollutants Removal  
○Sizhou Liang, Zhongfang Lei\*, Weiguo Zhang\*
- P-E-13 - Tidal Fluctuation of Dissolved Oxygen in Algal-bacterial Granular Sludge: Visualizing O<sub>2</sub> Penetration and Distribution under Different Oxygenation Strategies  
○Zhichen Li, Qian Wang, Xinyu Lyu, Zhongfang Lei\*, Tian Yuan, Motoo Utsumi, Chul Park, Duu-Jong Lee, Mark

## **Theme VI: Greenhouse gases emission/mitigation and carbon/nitrogen neutrality**

P-F-1 - Functionalized Carbon Nanotubes Catalysts Achieve Efficient CO<sub>2</sub> Conversion

○Zichen Li, Fengting Li\*

P-F-2 - Comprehensive Evaluation of GHG Impacts and Eco-environmental Benefits of Rice Straw Dry Anaerobic Fermentation in Yangtze River Delta Paddy Fields

○Hongchang Zhang\*, Min Zhang, Shuangqing Hu

P-F-3 - The Carbon and Nitrogen Footprint in Application of Algal-bacterial Granular Sludge Technology to Municipal Wastewater Treatment

○Kyosuke Higa, Bin-le Lin\*, Kazuya Inoue, Zhongfang Lei\*

P-F-4 - How Can ASEAN Countries Move to Low-carbon Development Pathways

○Shasha Tian, Gengyu Gao, Yihui Ding, Xia Li, Fengting Li\*

P-F-5 - High Light Intensity and Transmittance Enhances C4 and CAM Pathways for CO<sub>2</sub> Concentrating in Attached Chlorella: Proteomic Insights into Regulatory Mechanisms

○Yaoqi Hou, Weiwei Huang, Chunfeng Song\*

P-F-6 - Research on the Impact of Industrial Digitalization on Emission Reduction in Guangdong Province from a Sectoral Perspective

○Jiao Jingren\*, Helmut Yabar

P-F-7 - Role of Extracellular Polymeric Substances in Enhancing High Bicarbonate Tolerance in CO<sub>2</sub> Absorption-microalgae Conversion System via Attached Cultivation: A Metabolomic Perspective

○Yaoqi Hou, Weiwei Huang, Chunfeng Song\*

P-F-8 - Optimizing Light Intensity Strategies in CO<sub>2</sub> Absorption-microalgae Conversion System: Towards Efficient Carbon Utilization and Sustainable Protein Biorefining

○Yaoqi Hou, Yizhen Wei, Dantong Wang, Zhan Hu, Yutaka Kitamura, Chunfeng Song\*

P-F-9 - Transcriptomics Reveals Enhanced Carbon Fixation Mechanism in CO<sub>2</sub> Absorption-microalgae Conversion System under Batch Feeding Mode

○Yaoqi Hou, Weiwei Mao, Chunfeng Song\*

## **Theme VII: Sustainable Management and Analysis**

P-G-1 – Digital Development of China's Ecological Environment Is Needed under the Coordinated Landscape

○Jiangyi Yan, Yihui Ding, Fengting Li\*

P-G-2 – Large-scale Sustainable Utilization of Bauxite Slag (Red Mud): Properties, Hazards and Recycling Perspectives

○Tingting Song, Fengting Li\*

P-G-3 – The Influence of Human Activities on Water Quality Changes in the Taihu Basin: A Study on Management Strategy Optimization

○Xianfeng Yang, Yabar Mostacero Helmut Friedrich\*

P-G-4 – Coastal Saltmarsh Sustainability Governance: Multilevel Social Ecological Networks for

## Theme VIII: Biogeochemistry and flocculation in water

P-H-1 - Coagulant Selection and Multimodal Process Design for High Turbidity Raw Water Treatment: A Multi-scale Experimental Study

○Weijie Wang, Junsen Wang, Hongtao Wang\*

P-H-2 - Effect of Turbulent Flow on the Aggregation Kinetics of Polystyrene Colloidal Particles

○Jing Gao, Motoyoshi Kobayashi\*, Takuya Sugimoto

P-H-3 - Research on Enhanced Sludge Dewatering by Electrolysis Coupled with Peracetic Acid in a Pyrite-based Three-dimensional Electrode System

○Junsen Wang, Mengfei Yao, Weijie Wang, Hongtao Wang\*

P-H-4 - Microbial Response to Different Types of Shear Force in Granulation of Flocculent Activated Sludge

○Taiki Umebayashi, Zhichen Li, Zhongfang Lei\*

P-H-5 - Unlocking Centrifugal Sludge Secondary Dewatering via Organic Polymer Flocculants: Macropores Expansion and Drainage Networks

○Yu Wang, Na Liu, Misha Liu, Chenwei Yuan, Fajiao Zou, Jiaxin Han, Canxuan Fan, Fengting Li, Jie Li\*

P-H-6 - Flocculation of Anaerobic Digestate for Enhanced Microalgae Cultivation and Nutrient Recovery

○Yuxuan Yang, Tian Yuan\*, Zhongfang Lei, Zhenya Zhang\*

P-H-7 - Lignin-based Barrier Breaking Caused Supernatant Deterioration: A Molecular-level Characterization of DOM for Exploration of Sludge-flocculant Interfacial Processes

○Chenwei Yuan, Fajiao Zou, Misha Liu, Yu Wang, Na Liu, Jiaxin Han, Canxuan Fan, Fengting Li, Jie Li\*

## Theme IX: Other Systems or Conversions Relating to Sustainability

P-I-1 – High-Efficiency Extraction of Al and SiO<sub>2</sub> from High-alumina Coal Fly Ash via Na<sub>2</sub>CO<sub>3</sub> Roasting Activation and HCl Leaching

○Xueting Bai, Fengting Li\*

P-I-2 – Protective Effects of *Sargassum Crassifolium* Extract Against Oxidative Stress Induced by Co-exposure to Polystyrene Nanoplastics and Cadmium in Clone 9 Cells

○Ting-Yu Chang, Ya-Ting Chen, Chun-Yung Huang, Cheng-Di Dong, Chiu-Wen Chen, Shu-Ling Hsieh\*

P-I-3 – Efficient Adsorption Removal of Phosphate from Aquaculture Effluent by Waste Eggshell-modified Peanut Shell Biochar Microspheres Adsorbent Materials

○Cancan Xu, Rui Liu\*, Peng Zhang

P-I-4 – Sustainable Purification Strategies for Carbon Nanotubes: Tailoring Methods to SWCNT/MWCNT Structures and Impurities

○Ziying Wu, Fengting Li\*

P-I-5 - Gram-scale Ammonia Synthesis via Electrochemical Nitrate Reduction Using Enzyme-inspired Dual-atomic Cu Catalyst

○Qingshuo Li, Yahui Li, Bincheng Xu, Jianping Yang, Ying Wang\*

P-I-6 – CNTs with Encapsulated Co<sub>3</sub>O<sub>4</sub> and MnO<sub>2</sub>: Elucidating the Synergism of Nanoconfinement and Bimetallic Oxides in Activating Peroxymonosulfate for Water Decontamination

○*Chunling Li, Yihui Ding, Fengting Li\**

P-I-7 - Synthesis of COF-MOF Bilayer Membrane at Room Temperature for Efficient Recovery of Lithium Ions

○*Wuyue Geng, Furong Ji, Joseph Tinega, Jie Li, Fengting Li\**

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