水環境国際招聘賞（いであ招聘賞）（JSWE-IDEA Water Environment International Exchange Award）授賞に関して

本会では，水環境分野の国際交流・国際協力の促進を目的として，いであ株式会社からのご出捐により，水環境国際招聘賞と水環境国際活動賞を設けております。水環境国際招聘賞は本会年会で研究発表を行う海外在住外国人会員に対して，来日費用等の助成を行う制度です。COVID-19 の影響でオンライン開催となった第 56 回年会では，中国から 2 名，韓国から 1 名を招聘し，オンラインにて研究発表を行っていただきました。そこで，受賞者に研究内容や抱負等についてご執筆いただきましたのでご紹介します。なお，今年度の水環境国際招聘賞の募集案内は秋頃に本誌会告に掲載する予定です。

（水環境国際活動賞・招聘賞選考委員会）

JSWE-IDEA Water Environment International Exchange Award

Professor, School of Environmental Science and Engineering,
Suzhou University of Science and Technology（苏州科技大学）
Tianyin Huang（黄天寅）

It's a great honor to be invited to attend the 56th JSWE Annual Conference held online from March 16–18, 2022. I would like to give my gratitude to the Committee on Overseas Member Invitation Program and Awards Committee of Japan Society on Water Environment for awarding me the JSWE-IDEA Water Environment International Exchange Award for the 56th JSWE Annual Conference. Many thanks for all your attention and support from the JSWE organizing committee.

I obtained my doctoral degree of Environmental Engineering from Tongji University in 2004. Then, I continued my post-doctoral in Southeast University, and applied for a visiting Fellowship at Chinese University of Science and Technology and Georgia Institute of Technology, then I worked at Suzhou University of Science and Technology. I have been engaged in wastewater treatment and reclamation for more than 20 years. My research focused on wastewater control, advanced biological treatment, water environment restoration, municipal engineering planning and design. I established the institute of water environment and safety. There are seven full-time teachers and about 50 postgraduate students in my group, and we are working on development of new technologies for wastewater treatment, ecological restoration, rain and flood management. These developed techniques have been applied in many projects including wastewater treatment and reclamation, sponge city construction and municipal wastewater treatment and reuse.

In the 56th Annual Conference of JSWE, I submitted paperwork entitled "A new strategy for the sponge city construction of urban roads: Combines the traditional ability with landscape and drainage". Urban roads play a key role in sponge city construction. However, efficient methods to enhance their drainage performance are still lacking. In the present research, we proposed a new strategy for the urban road design and conducted a pilot study in Suzhou. The present work was conducted on Liangfeng Road in Zhangjiagang, Suzhou, as a pilot project. Generally, by considering the organization of the runoff and the construction of the drainage system (including sponge city (SC) facilities) as the core of the strategy, the drainage and traffic functions were combined. The strategy was based on the characteristics of urban roads, took the organization of the runoff and the construction of drainage system (including SC facilities) as the core, made the road and green spaces for a part of the drainage system, constructed ribbon facilities to meet for various functions of the road. To ensure the runoff rainwater can effectively enter the SC facilities with water storage capability, kerbs are generally set between the pavement and the green belts of urban roads. With the new strategy, the space was optimized, the functions were enhanced and the environment was promoted after the reconstruction of this road. Therefore, combining the traditional basic ability of the road with landscape and drainage function might be a promising strategy for the sponge city construction of urban road.

The JSWE conference was a special event for research dissemination, exchanging ideas, and expanding the network. Again, I really appreciate to this opportunity and very grateful to all those who have supported me. I hope my participation in this event can advance Indonesia and Japan's cooperation, especially in the water and environment sector. Finally, I am looking forward to contributing to future conference activities.

JSWE-IDEA Water Environment International Exchange Award

Professor, Department of Civil and Environmental Engineering
Sejong University
Sung Kyu Maeng

To begin with, let me express my sincere gratitude to the Japan Society on Water Environment (JSWE) for the JSWE-IDEA International Exchange Award. I am honored to receive this award at the 56th Annual Conference of JSWE, which was online between March 16–18, 2022. I would like to extend my sincere appreciation to the JSWE organizing committee.

Let me introduce myself here for a moment. I went to Rensselaer Polytechnic Institute, Troy, New York, U.S. for a Bachelor of Science in Environmental Engineering and graduated in May 1995. To immerse myself in wastewater treatment, I completed a master's degree at Georgia Institute of Technology, Atlanta, Georgia, U.S. (Dec. 1997) where I studied the biological treatment of wastewater from photo-film development. After obtaining my master's degree, I worked as a researcher at Korea Institute of Science and Technology. As part of my pursuit of a lifelong career in environmental engineering research, I received my Ph.D. degree in 2010 after completing a Ph.D. program at Technical University of Delft in the Netherlands.

Toward a better understanding of biological stability in drinking water by treatment steps, I have submitted a review paper entitled "Understanding biostability in drinking water by treatment steps: A brief overview from source to tap". Biostable drinking water, which does not support bacterial growth and community changes, is obtained by removing bacterial growth-promoting nutrients, such as assimilable organic carbon (AOC), through a range of treatment processes. To date, various controlled laboratory bacterial growth tests have been developed using different inoculum types to study the growth-promoting nutrients in water. However, many countries have not considered limiting bacterial growth by reducing the growth promoting nutrients in drinking water, because they primarily use chlorine in their distribution systems. This review provides an overview of the available methods to analyze dissolved growth-promoting nutrients in water and summarizes the current knowledge on nutrients characteristics and concentrations in water from source to tap, through various treatment processes. Bacterial growth-promoting nutrients in surface water are affected by seasonal variables, such as water temperature, precipitation, and algal blooms. The use of groundwater, bank filtration, and artificial recharge of water sources provide low bacterial growth-promoting nutrients concentrations in drinking water. The treatment type as well as operational conditions significantly affect biostable drinking water production. To achieve water biostability, it is important to understand not only the water treatment process but also the distribution conditions, including the impact of pipe materials on the nutrient levels in water. The impact of climate change on biostability as well as the role of complex and particle bound nutrients on microbial growth in drinking water distribution systems should be investigated in future studies.

As a final comment, I would like to see Japan Society on Water Environment and Korean Society of Environmental Engineers continue their collaboration.

JSWE-IDEA Water Environment International Exchange Award

Associate Professor, School of Environment
Beijing Normal University（北京師範大学）
Yu Yang（楊禹）

It is a great honor to be awarded the JSWE-IDEA water environment international exchange award for the 56th JSWE Annual Conference. I am very grateful to the Japan Society on Water Environment for providing a platform for international exchange during the epidemic.

I obtained doctor's degree from the University of Tokyo in 2012, and working in the Beijing Normal University. My main research area are the research and development of drinking water treatment technologies, the application of membrane combination technology in water treatment, membrane fouling control and nanomaterial modified membrane preparation. I have hosted and participated in the National Natural Science Foundation of China, the National Water Pollution Control and Treatment Science and Technology Major Project, the Beijing Municipal Natural Science Foundation, Research Fund for the Doctoral Program of Higher Education of China. These research projects supported us to develop high-efficiency adsorption membranes for heavy metals and radionuclides, and the construction of anti-fouling modified membrane materials and treatment technologies.

At this conference, we presented our recent research entitled "Effect of Pseudomonas quinolone signal inhibitors-mediated quorum quenching on membrane biofouling control". As we know, membrane biofouling is an inevitable problem affecting membrane filtration performance, causing membrane flux reduction, operational costs increase, and permeate quantity variation. Hence, our study innovatively investigated the intrinsic link between the expression of quorum sensing (QS) -related genes and biofouling mitigation induced by Pseudomonas quinolone signal (PQS) inhibitor methyl anthranilate (MA), to clarify the mechanism and pathway of QS regulating biofouling. We clarified that MA interfered with bacterial communication by first suppressing the expression of *pqsA* that initiates PQS biosynthesis, then downregulating *pqsBCDE*, *rhlA* and *lasI*, and finally inhibiting transcriptional regulatory genes *pqsR* and *lasR*.MA-driven QQ led to the disruption of biofilm development and alleviation of membrane biofouling, where the reduction of extracellular polymeric substances (EPS) on membrane surface was in the stages of microbial proliferation and biofilm detachment during biofouling. Protein, polysaccharide and eDNA were reduced by 52%, 59% and 41%, respectively, and biofilm thickness was mitigated by 69%. Thus, membrane flux and membrane biofouling were significantly alleviated. Furthermore, a novel anti-biofouling membrane was fabricated through phase inversion by incorporating with GO/MA nanocomposite into PVDF to improve membrane in situ biofouling resistance. The maximum reduction rates for EPS and total cell fluorescence reached 83% and 68%, respectively. It exhibited higher water permeability and organic retention capacity than virgin PVDF membrane.

The epidemic has caused a lot of inconvenience to international exchanges. Once again, I would like to thank the Japan Society on Water Environment for its contribution in international exchanges and hope to maintain long-term cooperation and exchanges in the future.