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。第51回年会には中国から2名、韓国から1名を招聘し，研究発表を行っていただきました。発表を終えて帰国された受賞者に参加報告を書いて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夏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）

Control Health Risks in Water Environment Hand in Hand

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Yun Lu（陆韻）

It was my great honor to be invited to join the 51st Annual Conference of Japan Society on Water Environment in Kumamoto and to receive the JSWE-IDEA Water Environment International Exchange Award. My several friends had strongly recommended this award before my application, which made me really excited to finally get it.

I got my Ph.D. of Biology in Tsinghua University, and did postdoctoral training in Duke University, USA. I switched my research direction to environmental health when I came back to Tsinghua, since I can solve the environmental problems in a different angle, and I think I did make a correct decision.

In the conference, I presented a new potential risk in the reclaimed water. When the reclaimed water was used in urban, like carwash, garden irrigation, street cleaning, the water will be aerosolized and cause a direct inhalation exposure to human. We found that acute inhalation of reclaimed water could cause strong inflammation in lung, which was best presented by the polymorphonuclear cell proportion in the lavage. To screen the main risk factors in reclaimed water, we first demonstrated that large molecules or particles (>10KD) contain all the inflammation inducing abilities through molecular size-fractionation. Then we used dose-response relationship comparison and polymyxin B affinity chromatography to prove free endotoxin is the major inflammation inducer in the reclaimed water.

This work is pretty new in reclaimed water field. Some Japanese colleagues showed great interests in my topic. One of the discussion focused on the environmental relevance. Actually, we calculated the threshold of acute exposure and found that more than 60% of reclaimed water in the literature had higher endotoxin levels. The main reason is that water treatment is guided by the quality standard, which includes the traditional parameters like COD, BOD, TN, TP, total bacteria, and more, but not endotoxin. This results in the high possibility to have qualified reclaimed water with high levels of endotoxins. Another point was how to remove the endotoxins in reclaimed water. From the study above, we know that ultrafiltration can definitely remove nearly all the endotoxins, but it is relatively expensive. We tested chlorination and found that chlorine could increase the endotoxin activity but partially remove the inflammation inducing ability. One professor gave a good suggestion that ozonation could be a possible way. We are trying this idea these days.

I should say that JSWE provided us a great opportunity to talk to the top water scientists in Japan, and further strengthened the collaboration between Japan and China in water health area. I am happy to be the bridge to introduce JSWE to more Chinese peers, and suggest Chinese Society of Environmental Science to adopt similar approach to solve crucial water problems hand in hand by inviting more Japanese colleagues in the future.

JSWE-IDEA Water Environment International Exchange Award

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Chang WANG（王昶）

I am pleased to win JSWE-IDEA Water Environment International Exchange Award. The 51th annual conference from 15th to 17th March 2017 in beautiful Kumamoto University gave me a deep impression. The conference offered me an opportunity to introduce my research results on sewage treatment in rural area of China over the past decade. Meanwhile, the scientific communication with peers was fruitful. I really appreciate JSWE and my recommenders Prof. Kaiqin XU and Prof. Kensuke FUKUSHI. The international communication not only contributes to global environmental protection, but also develops the friendship between Japan and China.

I was firstly sent to Gunma University as a visiting scholar by Chinese government in September 1986 for one year study, and then was invited by Prof. Kato to the engineering department as a visiting research fellow in September 1991. From April 1992 to March 1995, I studied for a PhD degree in Production Engineering and served as an assistant professor in engineering department after graduation. Since April 1997, I worked in Taiyo-Kogyo Company and was promoted to be the factory director. Finally, in order to develop the friendship between Japan and China, I returned to graduate school of Sino-Japan attached to Tianjin University of Science and Technology recommended by Prof. Sadakata in the University of Tokyo. Now I engage in the teaching and research of environmental science and training youngsters.

Taking advantage of memorandum of cooperation between Tianjin municipal government and the University of Tokyo in 2005 that carried out scientific research and technological development in various fields, I cooperated with Prof. Fukushi in Integrated Research System for Sustainability Science (IR3S) to develop suitable purifying tank technique in treating sewage of rural China. Thus, three demonstration projects of purifying tanks were established in Tianjin rural area since August 2008. The system used a unique bio-filter and special aerobic microorganisms with stable operation and good treating results for 9 years. In 2009, hydrolysis tank and purifying tanks for multi-household were developed to set up a normalization model for sewage treatment, in order to save the cost of investment and operation. Specifically, the prepositive hydrolysis tank has the advantage of purifying tank where sewage is treated by the aerobic zone, anaerobic zone and bio-filter. The solid in sewage is eliminated to let water flow into the sewer and purifying tank with controllable aeration. In 2014, several demonstration projects were established to treat sewage from 2 households, 5 households, 15 households, an apartment building and one village, respectively. The BOD concentration in effluent is less than 20 mg/L. Besides the low cost of investment and operation, there is few sludge produced, which allows the management being very convenient. Recently, the technique attracts the great attention from government and seems to be promoted in China as a classic case.

Due to the long-term stable operation and efficient treatment of these demonstration projects, the technique not only obtained the peers' recognition, but also won the first prize of Chinese Ministry of Agriculture in 2013. These results are symbols of Sino-Japanese friendship and cooperation, with high social and environmental effects. It is a great encouragement for me to get JSWE-IDEA Water Environment International Exchange Award at the annual conference. There is a still need to improve the technique, so I wish to communicate with Japanese experts, professors and students in the future to promote the development of purifying tank and contribute to global environmental protection.

JSWE's annual conference: a unique and valuable experience

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SungKyunKwan University (SKKU), Korea
Am JANG

Before I start, I would like to thank Japan Society on Water Environment (JSWE) committee for giving me a wonderful opportunity to attend the 51st Annual Conference of JSWE, which was held from 15th to 17th of March 2017 in Kumamoto, Japan. Not only it was an honor to be able to give a presentation on one of our research work at the conference, but also, it is indeed a great honor to win JSWE-IDEA Water Environment International Exchange Award.

I have always been interested in attending international conferences, since I can meet specialists in different research areas, including my own, across the world. The 51st Annual Conference of JSWE, certainly was one of the most informative, interesting and active conferences and I could meet and communicate with many researchers from Japan, China and other countries, which I am sure has provided me with numerous opportunities to broaden and polish my research area.

At the conference, I gave presentation about a rotary disc voltammetric (RDV) sensor system for semi-continuous and on-site measurements of Lead(II) (Pb (II)). Pb (II) is one of the main factors contributing to the conditions of the aquatic ecosystems, by affecting the water quality. Pb(II) is found to cause neurological problems, and is toxic to many living organisms, especially to human beings. It is well known that the primary sources of Pb(II) contamination is the anthropogenic activities, such as mining operation and industrial processing. Also, many studies have suggested that the toxic substances from mining operation may be a contributing factor for the heavy metal contamination of the local surface water and groundwater. Therefore, interests in monitoring the water quality has been increasing, especially for the on-site monitoring, and monitoring the amount of the Pb(II) in water would make the controlling of the water quality more accurate, and easy.

Our research objective was to characterize a new type of RDV sensor that has been successfully designed and fabricated for the semi-continuous and on-site determination of trace levels of Pb(II) in non-deoxygenating solutions. Square-Wave Anodic Stripping Voltammetry (SWASV) made a precise determination of heavy metals, and the RDV sensor had a correlation coefficient of 0.998 for the Pb(II) concentration range between 10 nM–10 μM at deposition time of 180 seconds. Moreover, the low detection limit for Pb(II) was 6.19 nM for Pb(II). This advanced monitoring technique may be more beneficial for environmental engineers when creating the effective heavy metals treatment systems. The RDV sensor we developed would provide great opportunity to resolve problems associated with fouling or clogging, which results from the deposition of iron and manganese oxides as well as scaling of poorly soluble salts, for its disposable polymer lab chip. The newly developed sensor by using the microfabrication and polymer micromachining techniques, is ready-to-use, has a high yield, and is cheap, which I believe will significantly contribute to on-site environmental monitoring applications.

It was my very first time to attend the JSWE annual conference, and I must admit that I was quite surprised, and pleased, by the quality of the conference itself. I also had a chance to meet other professors, researchers and experts who are working to make improvements in environments, especially in water. Therefore, I believe that it would be an amazing opportunity for young researchers to build connections and learn from other leading specialists, and that more young researchers should participate and attend the JSWE Annual Conference. Once again, I would like to thank all the JSWE members, conference committees and fellow researchers for nominating me and choosing me as the recipient of JSWE-IDEA Water Environment International Exchange Award, and I am looking forward to attend JSWE's future conferences.