The 9th International Conference on Water Resource and Environment (WRE 2023)

November 21-24, 2023   Matsue, Japan

Conference Program

I-SHOU UNIVERSITY

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Part I Conference Schedule Summary

November 21, 2023 / Japan Standard Time (UTC+9)

14:00-20:00	On-site Registration In front of Meeting Room 501 at Kunibiki Messe
16:00-18:00	MS Teams Online Conference Testing and Ice Breaking *MS Teams Link: http://www.academicconf.com/teamslink?confname=wre2023*

Note for offline registration:

* Please show us your name or paper ID for registration.

* Please pick up all the conference materials at the registration desk (Name Card, Conference Program, Lunch & Dinner Tickets, etc.).

November 22, 2023 / Japan Standard Time (UTC+9)
Location: Meeting Room 501 (Morning Session), 401 (Afternoon Session), Kunibiki Messe
MS Teams Link: http://www.academicconf.com/teamslink?confname=wre2023

Opening Ceremony and Keynote Speeches are chaired by:
Prof. Hrouzková Svetlana, Slovak University of Technology in Bratislava, Slovak Republic

09:00-09:10	**Opening & Welcome Speech** **Dr. Shin-ichi Nishida,** *Professor Emeritus, Saga University, Japan*
09:10-09:45	**Keynote Speech 1:** In Situ Photoelectrochemical Activation of Chloride in Sewage by an Optimized $Mos_2@Bivo_4$ Photoanode for the Simultaneous PPCPs Degradation, H_2 Evolution and *E. Coli* Disinfection **Prof. Irene M. C. Lo**, *Department of Civil & Environmental Engineering, The Hong Kong University of Science & Technology, China*
09:45-10:20	**Keynote Speech 2:** Optimized Biochars Derived from Agriculture Wastes for Adsorptive Cu(II) Removal **Prof. Chih-Huang Weng**, *Department of Civil Engineering, I-Shou University, Taiwan*
10:20-10:50	**Group Photo & Coffee Break**
10:50-11:25	**Keynote Speech 3:** Application of Active Biomonitoring with the Use of Mosses for the Assessment of Air Pollution in Urban Areas **Prof. Maria Wacławek**, *Ecological Chemistry and Engineering Society, Poland*
11:25-12:00	**Poster Session** **(Meeting Room 501)**
12:00-13:10	**Lunch Break** **(Meeting Room 501)**
13:10-18:25	**Oral Session 1: Groundwater Contamination & Wastewater Treatment** **(Meeting Room 401)**
14:45-16:50	**Oral Session 2: Hydrology & Environmental Science** **(Online)**

08:30-12:15	**Oral Session 3: Environmental Protection & Waste Utilization**
12:15-13:10	**Lunch Break**
13:10-17:05	**Oral Session 4: Water Resources System, Hydrology & Ecology**

09:30	**Set off from Kunibiki Messe**
09:40-10:40	**Matsue Castle**
10:50-11:40	**Horikawa Sightseeing Boat**
12:00-12:50	**Lunch at Matsue Kyoragi**
13:20-14:20	**Matsue Vogel Park**
15:00	**Arrive at JR Matsue Station**

Part II Keynote Speeches

Keynote Speech 1: In Situ Photoelectrochemical Activation of Chloride in Sewage by an Optimized Mos2@Bivo4 Photoanode for the Simultaneous PPCPs Degradation, H2 Evolution and *E. Coli* Disinfection

Prof. Irene M. C. Lo
Civil & Environmental Engineering, The Hong Kong University of Science & Technology, China

Biography: Ir Prof Irene Lo, JP is currently a Chair Professor in the Department of Civil and Environmental Engineering at The Hong Kong University of Science and Technology. She is an elected Academician of the European Academy of Sciences and Arts, elected Fellow of the Hong Kong Institution of Engineers, and elected Fellow of the American Society of Civil Engineers. She was appointed by HKSAR Government as Justices of the Peace (JP) in 2017. She was also Adjunct Professor of Tongji University, Tianjin University, Jilin University and Harbin Institute of Technology. She had been Visiting Professor of Technical University of Denmark and the University of Wisconsin at Madison.

She was the recipient of numerous prestigious international research awards, such as 2007 ASCE Samuel Arnold Greeley Award, 2009 ASCE Wesley W Horner Award, and the 2012 ASCE EWRI Best Practice-Oriented Paper Award. In addition, she received the 2019 Higher Education Outstanding Scientific Research Output Awards in the Natural Science/Technology Advancement by Ministry of Education, China. She has been invited to give over 50 plenary/keynote/invited speeches at many international conferences in Asia, Europe, Africa, and North America.

Her research interests include advanced oxidation processes and nanoparticles/nanotechnology for environmental applications. Her citation is 18040+ with H-index 74, as reported by Google Scholar. She was recognized as "Top 2% Scientists in the World" by Stanford university in 2020, 2021 and 2022.

Abstract: Pharmaceuticals and personal care products (PPCPs) are ubiquitous pollutants in sewage posing adverse effects on ecosystems and humans, and escherichia coli (*E. coli*) exists with high density in sewage which may cause several diseases to humans. Driven by solar-light, photocatalysis has been developed for both PPCPs degradation and *E. coli* disinfection. However, the disadvantages of severe secondary pollution caused by the suspension-type photocatalysts, low efficiency because of high charge recombination, and cannot produce high-value products to offset the treatment cost still hold back its practicability. Herein, we have developed a multifunctional photoelectrochemical (PEC) system for simultaneous PPCPs degradation, *E. coli* disinfection, and H_2 evolution via in situ activation of chloride ions in sewage. To this end, we have synthesized MoS_2@BL-$BiVO_4$ photoanode (the photocatalyst was adhered on the conductive glass substrate) with high PEC performance via strategies of reducing bulk and surface recombination. 2 ppm benzophenone-3 and the *E. coli* in sewage can be completely removed by the PEC system using this photoanode in 30 minutes at 1.0 V vs. Ag/AgCl applied voltage under visible light illumination, simultaneously, 89.32 μmol H_2 was produced as the byproduct. Moreover, the PEC system also showed high efficiency for the degradation of ibuprofen and carbamazepine. As a comparison, both electrocatalysis and photocatalysis showed low efficiency toward PPCPs degradation and *E. coli* disinfection, and cannot yield any H_2. The mechanism study

revealed that chloride ions in sewage were activated to be chloride-based radicals (•Cl, •ClO) for sewage treatment and reacted with holes to separate more electrons for H_2 evolution. Suspension solids and natural organic matters are the main sewage components that impeded the PEC reactions since they can compete for active species with PPCPs and *E. coli*, and react with electrons. The cycling test revealed that the PEC system has excellent reusability and stability, guaranteeing its great practicability.

Keynote Speech 2: Optimized Biochars Derived from Agriculture Wastes for Adsorptive Cu(II) Removal
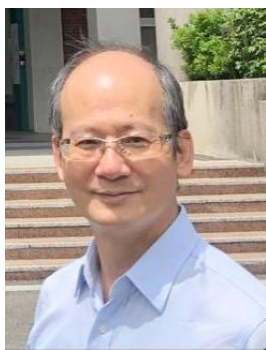
Prof. Chih-Huang Weng
Distinguished Professor, Chairman of the Department of Civil Engineering, I-Shou University, Taiwan

Biography: Distinguished Professor Chih-Huang Weng is the Chairman of the Department of Civil Engineering at I-Shou University, Taiwan. He also served as Vice-President of North Kaohsiung Community University, Taiwan. Prof. Weng received his MS and Ph.D. degrees in 1990 and 1994, respectively, from the Department of Civil Engineering of The University of Delaware, USA. He is serving as the Editor of Water (MDPI) and Editor of Environmental Geochemistry and Health (Springer), and on the Editorial Board Panel Member of Coloration Technology (Wiley). He has also served as a Guest Editor of SCI journals, such as Agricultural Water Management (Elsevier) and Environmental ScPrience and Pollution Research (Springer). He has also organized and chaired several international conferences. Professor Weng was listed in the World's Top 2% of Scientists (Stanford University, 2021 and 2022). His main research interests focus on using advanced oxidation processes and adsorption to treat wastewater and bacteria inactivation, groundwater modeling, and application of electrokinetic technologies to soil remediation/sludge treatment/activated carbon regeneration.

Abstract: Copper (Cu) is a metal that adversely impacts organisms and humans at elevated concentrations. In Taiwan, Cu is the primary metal in contaminated agricultural land and irrigation canal sediments. Most Cu ions originate from industrial wastewater that needs to be properly treated before discharging into receiving water body. If proper adsorbent is selected in conjunction with optimized operating parameters, adsorption can effectively separate Cu(II) from the aqueous solution among the various wastewater treatment techniques. Biochar is a viable adsorbent for contaminant removal compared to activated carbon, owing to the abundant surface functional groups, high specific surface area, and available exchangeable cations on the surface. Agricultural wastes are rich in cellulose, making them ideal biomass for biochar fabrication. Utilizing agricultural wastes to produce biochar is a mutually beneficial solution that removes contaminants while reducing on-site air pollution caused by burning residue waste. For the first time, a systematic investigation of critical pyrolysis parameters of biochar derived from corn waste biochar (CWB), pineapple leaf biochar (PLB), and sugarcane bagasse biochar (SBB) on Cu(II) adsorption was studied. The result showed that heating temperature was the most relevant parameter influencing Cu(II) adsorption based on the response surface methodology (RSM) findings. From Langmuir isotherm fitting, optimized biochar achieved maximum Cu(II) adsorption capacity of 60.7, 36.8, and 35.5 mg g^{-1} by PLB, SBB, and CWB at pyrolysis temperature of 555°C, 559°C, 507°C, respectively, compared with commercial activated carbon (CAC, 40.8 mg g^{-1}). Surface characterizations of optimized biochars confirmed that the Cu(II) removal mechanism was

attributed to the surface complexation formed with surface functional groups, electrostatic interaction, and cation exchange capacity. The presence of humic acid reduced the Cu(II) removal of both CAC and optimized biochars. OPLB remained highly reusable with 87% Cu(II) removal efficiency after five consecutive regeneration cycles with the pressure cooker technique. With ultrahigh Cu(II) adsorption capacity and excellent reusability, agricultural-waste-derived biochars show high applicability potential for treating Cu(II)-laden industrial effluents. This work also provides a framework for better understanding how Cu(II) ions react with biochar.

Keynote Speech 3: Application of Active Biomonitoring with the Use of Mosses for the Assessment of Air Pollution in Urban Areas

Prof. Maria Wacławek
Ecological Chemistry and Engineering Society, Poland;
European Academy of Sciences and Arts, Austria

Biography: Prof. dr hab. inż. Maria Wacławek is a retired Professor at the Institute of Environmental Engineering and Biotechnology at the University of Opole, Poland. She is an elected Academician of the European Academy of Sciences and Arts, Salzburg, Austria and an independent EU expert and reviewer on PV Projects in Brussels, European Commission.

Prof. Maria Wacławek is a President of the Society of Ecological Chemistry and Engineering, Opole, PL (website: ecesociety.com) and a Chairperson of the Organising Committee of Annual Ecological Conferences: Central European Conference ECOpole (1995 -). In the last 12 years, at the Conferences, opening lectures were delivered by 5 Nobel Prize Winners.

She is Editor-in-Chief of two journals: Ecological Chemistry and Engineering S. Its IF (for 2022, WoS) is 1.9 and Chemistry-Didactics-Ecology-Metrology – its IF (for 2022, WoS) is 0.4.

Her research interests include environmental monitoring, biomonitoring and photovoltaics.

Abstract: Air pollution is one of the major problems, because it affects not only the world of fauna and flora, but also people themselves. There is a lack of awareness in society about the level of pollution of atmospheric aerosol, which is the result of occupational and recreational activities of people. A quick, cheap and easy way to study the state of the environment is to use biomonitors - living organisms that indicate the level of environmental pollution.

The objective of this study was to evaluate air pollution in urban areas using three moss species: *Pleurozium schreberi, Sphagnum fallax* and *Dicranum polysetum*. The experiments involved the analysis of air pollution by selected elements during the launching of fireworks on New Year's Eve, the activity of a car workshop and the comparison of pollution from the smoke of different tobacco products. The presented examples indicate the importance of measuring and controlling vital parameters of mosses (e.g. chlorophyll content, photosynthetic activity) during exposure in order to be able to talk about biomonitors - living organisms indicating air quality. The influence of exposure conditions and environmental factors most influences the quality of the result in biomonitoring studies. On the other hand, human activity (based on the practical examples above) indicates the importance of performing biomonitoring studies analyzing air quality and thus provides opportunities to make the public aware of their impact on atmospheric aerosol contamination by selected analytes.

It was shown that of the three species analyzed, *Pleurozium schreberi* moss is the most suitable for

monitoring air pollution in urban areas. It works well with both a few days and several months of exposure to study air pollution in a given area. It is resistant to changing exposure conditions and retains its viability under environmental stress. The moss *Sphagnum fallax*, due to its peat characteristics and the need to function in a moist environment, should only be used in areas where it will have adequate access to water. Dicranum polysetum, on the other hand, should be included in biomonitoring studies for monitoring mercury pollution, where it is the best accumulator of this element compared to other species.

Part III Poster Presentations

Poster Presentation Guidelines

Materials Provided by the Conference Organizer:
➢ X Racks & Base Fabric Canvases
➢ Adhesive Tapes or Clamps

Materials Provided by the Presenters:
➢ Home-Made Posters
➢ Posters Printed by Conference

Requirement for the Posters:
➢ Material: not limited
  Size: W1200*H2100

Display Rack

Best Poster Presentation Selection Procedure

Selection Criteria:
➢ Research Quality
➢ Presentation Skill
➢ Design

Samples of Stickers

Selection Procedure:
➢ 6-8 volunteers will be invited from the participants to serve as the judges to review the posters (Note: A judge would not have a poster or know the participant exhibiting a poster)
➢ 2 red stickers and 2 green stickers will be provided to the judges. The red sticker stands for "Research Quality" with a value of 2 points; the green sticker stands for "Presentation Skill and Design" with a value of 1 point
➢ Each judge will go around the poster session and give the stickers to the poster which he/she thinks is of high quality or well designed and well presented, please be noticed that the judge cannot give 2 red or 2 green stickers to the same poster (one red and one green sticker are acceptable)
➢ After the poster session, the conference secretary will count the points from each poster and ONE best poster presentation with more points will be selected. If there is a tie, the one with more red (Research Quality) stickers wins.

Nature of the Award
➢ This award consists of free registration to the WRE 2024 and a certificate
➢ ONE Best Poster Presenter will be selected after the session finishes with a certificate issued and results announced on WRE 2023 website.

List of Posters

WRE4769	**Potential Effect of Hydropower Dam on Global Warming – A Field Study of Biomethane Formation at Aono Dam** *Dr. Ryunosuke Kikuchi, Ryukoku University, Japan*
WRE4803	**Effectiveness of Nature-Based Solutions in Mitigating Flood Hazard in a Mediterranean Peri-Urban Catchment** *Dr. Ryunosuke Kikuchi, Faculty of Science & Technology, Ryukoku University, Japan*
WRE4811	**Rapid Changes to Glaciers Increased the Outburst Flood Risk in Guangxieco Proglacial Lake in the Kangri Karpo Mountains, Southeast Qinghai-Tibetan Plateau** *Prof. Biao Tian, State Key Laboratory of Severe Weather, Chinese Academy of Meteorological Sciences, China*
WRE4825	**Study on the Long-term Impact of Electric Arc Furnace Slag Applied in Asphalt Concrete on Concentration of Heavy Metals in Groundwater** *Prof. Deng-Fung Lin, Department of Civil Engineering, I-Shou University, Taiwan*
WRE4833	**Multimodal Monitoring of River Jadro Estuary, Croatia** *Ms. Marija Kvesić Ivanković, Center of Excellence for Science and Technology-Integration of Mediterranean Region, University of Split, Croatia*
WRE4862	**Spatio-Temporal Variation of Near-Surface Soil Water Content in China from 1988 to 2016** Dr. Kaihua Liao, Nanjing Institute of Geography and Limnology, Chinese Academy of Sciences, China
WRE4873	**Modeling the Impact of Climate Change on Streamflow in the Arid and Semi-Arid Region of Northwest China** *Prof. Feiteng Wang, Northwest Institute of Eco-Environment and Resources, Chinese Academy of Sciences, China*
WRE4875	**Modeling Glacier Change and Its Contribution to Runoff in the Tianshan River Basin** *Prof. Lin Wang, Northwest Institute of Eco-Environment and Resources, Chinese Academy of Sciences, China*
WRE4740	**Rice Pesticide Contamination During Rice Cultivation in the Natural Park of the Albufera, a Mediterranean Wetland** *Ms. Sara Calvo, Water Ecology Group, Departamento de Ecología, Edificio de Investigación Jerónimo Muñoz, Universitat de València, Spain*
WRE4800	**Initial Evaluation of Water Quality in the Labac River Watershed Segment, Indang, Cavite: A Preliminary Study** *Mr. Aeron Caen V. Vdeña, School of Chemical, Biological, and Materials Engineering and Sciences, Mapúa University, Philippines*
WRE4854	**Water Losses in the Administrative Building at Universidad de las Fuerzas Armadas ESPE Through Data Analysis of a Flowmeter (IoT) and Wastewater Discharge** *Dr. David Carrera-Villacré, Universidad de las Fuerzas Armadas ESPE, Departamento de Ciencias de la Tierra y la Construcción, Ecuador*

Part IV Oral Presentations

General Guidelines

- **All presentation times are shown in Japan Standard Time (UTC+9);**
- Duration for Invited Oral Presentation: 20 Minutes of Presentation, including 3-5 Minutes of Q&A;
- Duration for Regular Oral Presentation: 15 Minutes of Presentation, including 2-3 Minutes of Q&A;
- All presenters are requested to reach the Session Room prior to the scheduled time and complete their presentation on time;
- Presenters should prepare Power Pointer or PDF Files for Presentation with Paper ID (**WRE****)** marked on the last page;
- A signed and stamped presentation certificate will be issued after the presentation.

Offline Oral Presentation Guidelines

Devices Provided by the Conference Organizer:
- Laptops (with MS-Office & Adobe Reader) & Projectors & Screen
- Laser Sticks
- Microphones
- Please send us the PowerPoint once it is ready and have the PPT back up in a U-disk. For presenters who do not send the PowerPoint, please save it in the laptop of the corresponding session 15 min in advance. Kindly tell the Session Chair (before the start of your session) that you are present.

Online Oral Presentation Guidelines

- Online Oral Presentation will be conducted via Microsoft Teams Meeting.
- If a presenter is not able to show up via Teams, the session chair/conference secretary will play the pre-recorded video presentation during his/her scheduled presentation time. If listeners have questions about the presentation, please contact the conference secretary to forward the questions.
- If a presenter cannot show up on time or has a problem with the internet connection, the session chair has the right to rearrange his/her presentation and let the next presentation start.

Best Oral Presentation Selection Procedure

ONE best presentation will be selected from EACH session based on the following criteria:
- ✓ Research Quality
- ✓ Presentation Performance
- ✓ Presentation Language
- ✓ PowerPoint Design
- ✓ Effective Communications

Selection Procedure

- ➢ An assessment sheet (see picture) will be delivered to listeners before the session starts;
- ➢ When the session finishes, each listener is required to fill out the sheet (he/she can vote for two excellent presentations) and give it to the Session Chair;
- ➢ For the online presenters, the assessment sheet would be sent in advance via e-mail. Kindly send us the filled form in electronic version within ONE HOUR after the session is completed;
- ➢ The Session Chair will count the votes and select the best oral presentation with the most votes. If

there is a tie, the Session Chair will make the final decision.

Best Oral Presentations Award

The Best Oral Presenter from each session will receive an official certificate and complimentary registration to the WRE 2024.

Sample of Assessment Sheet

WRE 2023 Oral Presentation Assessment

Dear participants,

After carefully listening to the presentations of this session, please kindly recommend two excellent Oral Presentations with reference to the following evaluation criteria.

The Session Chair will count the votes from each presentation and select ONE Best Oral Presentation in this session. If there is a tie, the Session Chair will make the final decision.

The winner will be announced on the official website after the conference.

You can refer to the following criteria for best oral selection:

Items	Assessment
Content	Right, Logical, Original, Well-Structured
Language	Standard, Clear, Fluent, Natural
Performance	Spirited Appearance, Dress Appropriately, Behaves Naturally
PowerPoint	Layout, Structure, Typeset, Animation, Multimedia
Reaction	Build a Good Atmosphere, Speech Time Control Properly

Please write down the paper ID and give reasons for your recommendation:

Paper ID	Reasons

Evaluated by:_____

Paper ID: _____

Note: Please fill it out and give it to the Session Chair or assistant so that the Best Oral Presentation can be selected.

Oral Session 1: Groundwater Contamination & Wastewater Treatment

Time: 13:10-18:25, November 22, 2023.
Location: Meeting Room 401, Kunibiki Messe
Session Chairs:
(13:10-15:10) Dr. Wong Lai Peng, Department of Environmental Engineering, Universiti Tunku Abdul Rahman, Malaysia;
(15:25-18:25) Assoc. Prof. Xinxin Guo, Department of Environmental Engineering, Universiti Tunku Abdul Rahman, Malaysia

Time	ID	Title / Author
13:10-13:30	**WRE4886**	**Re-Mapping Environmental Protection and Literacy in Taiwan Through an Environmental Documentary, Beyond Beauty: Taiwan from above (2013)** *Dr. Kuo-Wei Lan, I-Shou University, Taiwan*
13:30-13:50	**WRE4836**	**Involved Surface Chemistry for Green Waste Reutilization: Examples of Fluoride Recovery and Functionalization of Waste Beer Dreg** *Assoc. Prof. Tsing-Hai Wang, Department of Chemical Engineering and Materials Science, Yuan Ze University, Taiwan*
13:50-14:10	**WRE4839**	**Catalyzing Indoor Pathogen Control: Effective Photocatalyst on PMMA Substrate for Visible Light Disinfection** *Prof. Yao-Tung Lin, Department of Soil and Environmental Sciences, National Chung Hsing University, Taiwan*
14:10-14:30	**WRE4826**	**Multiclass LC-MS/MS Determination of Organic Micropollutants in Groundwater** *Prof. Hrouzková Svetlana, Slovak University of Technology in Bratislava, Faculty of Chemical and Food Technology, Institute of Analytical Chemistry, Slovak Republic*
14:30-14:50	**WRE4865**	**Optical Field Measurement of UV Light-Emitting Diode Photoreactor by Using Micro-Fluorescent Silica Detector** *Prof. Mengkai Li, State Key Laboratory of Environmental Aquatic Chemistry, Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, China*
14:50-15:10	**WRE4852**	**Facilitated Prediction of Micropollutant Degradation by UV-AOPs in Various Waters via Combining Model Simulation with Portable Measurement** *Prof. Zhimin Qiang, State Key Laboratory of Environmental Aquatic Chemistry, Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, China*
15:10-15:25		**Coffee Break**
15:25-15:45	**WRE4768**	**Kinetic and Economical Evaluation of the Ultrasonicated and Un-Ultrasonicated Anaerobic Digestion Plants Fed with Palm Oil Mill Effluent (Pome)** *Dr. Wong Lai Peng, Department of Environmental Engineering, Universiti Tunku Abdul Rahman, Malaysia*

15:45-16:00	**WRE4829**	**Sulfide Recovery Using Fluidized Bed Homogeneous Crystallization Technology to Produce Nickel Sulfide from Wastewater that Contains Sulfides** *Mr. Po Lin Liao, Department of Chemical Engineering, National Cheng-Kung University, Taiwan*
16:00-16:15	**WRE4832**	**Industrial Wastewater Treatment and Methods for Monitoring Treatment Processes Used to Eliminate Persistent Organic Pollutants** *Dr. Agnesa Szarka, Slovak University of Technology in Bratislava, Faculty of Chemical and Food Technology, Institute of Analytical Chemistry, Slovak Republic*
16:15-16:30	**WRE4837**	**Green Recovery of Fluoride Ions Through the Utilization of Esterified Cellulose Filter Papers Loaded with Calcium and Magnesium Ion Extracted from Seawater** *Ms. Ci-Jing Hung, Department of Chemical Engineering and Materials Science, Yuan Ze University, Taiwan*
16:30-16:45	**WRE4838**	**Case Study of Iron-Loaded Biochar Supported Fenton Catalyst for Low Carbon Emission Industrial Wastewater Treatment** *Mr. Cheng-Yu Li, Department of Chemical Engineering and Materials Science, Yuan Ze University, Taiwan*
16:45-17:00	**WRE4849**	**Utilizing Fluidized-Bed Homogeneous Crystallization Technology to Recover Bismuth as Bi_2O_3 from Synthetic Wastewater** *Mr. Qian Lin, Department of Chemical Engineering, National Cheng-Kung University, Taiwan*
17:00-17:15	**WRE4799**	**Reductive Dehalogenation of Tetrabromobisphenol A by an Anaerobic Enrichment** *Prof. Jiandong Jiang, College of Life Sciences, Nanjing Agricultural University, China*
17:15-17:30	**WRE4818**	**L-Asparagine Modified Chitosan Aerogel for Enhanced Adsorptive Removal of Cu^{2+} Ions in Aqueous System: Exploring Characterization, Kinetics, and Performance** *Mr. RD Hope T. Cayron, Mapua University, Philippines*
17:30-17:45	**WRE4890**	**Remediation of 1,4-Dioxane-Contaminated Groundwater Using Persulfate Coupled with Photothermal Effect and in Vitro Toxicity Assessment of Biochar** *Mr. Hung-Hsiang Chen, Department of Civil Engineering, National Chi Nan University, Taiwan*
17:45-18:05	**WRE4777**	**Characteristics of Natural Stabilizers and Their Effect on Heavy Metal Mobility in Soil-Water Medium** *Assoc. Prof. Xinxin Guo, Department of Environmental Engineering, Universiti Tunku Abdul Rahman, Malaysia*
18:05-18:25	**WRE4879**	**Towards Effective Geospatial Techniques for Watershed Management - A Case Study from Manipur, India** *Dr. Rajkumari Sunita Devi, State Level Nodal Agency for Watershed, Planning Department, India*

Oral Session 2: Hydrology & Environmental Science (Online)

Time: 14:45-16:50, November 22, 2023. (Japan Standard Time UTC+9)
Session Room Link: http://www.academicconf.com/teamslink?confname=wre2023
Session Chair: Dr. Niranjan Kumar, John A. Paulson School of Engineering and Applied Science, Harvard University, USA

14:45-15:00	**WRE4850**	**Water and Soil Conservation Characteristics for Two Typical Subtropical Forests in Southeast China** *Dr. Benzhi Zhou, Research Institute of Subtropical Forestry, Chinese Academy of Forestry, China*
15:00-15:15	**WRE4764**	**Simulating Salinity and Waterlogging Trends Using Modeling Approach for Sustainable Agriculture in Command Area** *Dr. Upma Sharma, Junior Engineer, CAD, KOTA, India*
15:15-15:30	**WRE4814**	**Calibration of Low-Cost Air Sensors in the Presence of Pollutant Interferences: An Outdoor Evaluation** *Mr. Aymane Souani, Paris-Saclay university, France*
15:30-15:50	**WRE4760**	**A 2-D Numerical Modelling of Estuaries Meandering** *Dr. Soufiane Haddout, Department of Physics, Faculty of Science, Ibn Tofail University, Morocco*
15:50-16:10	**WRE4762**	**Monitoring Stream Bank Erosion under Different Riparian Land-Uses Utilizing Various Methodological Approaches** *Assoc. Prof. George N. Zaimes, Geomorphology, Edaphology and Riparian Areas Laboratory (GERi Lab), Department of Forestry and Natural Environment Science, International Hellenic University, Greece*
16:10-16:30	**WRE4894**	**Modelling Approaches for Estimating Water Losses of an Ecosystem Using Light Radionuclides** *Dr. Niranjan Kumar, John A. Paulson School of Engineering and Applied Science, Harvard University, USA*
16:30-16:50	**WRE4812**	**Hydrometeorological Study on the Impact of the Weather State "Rahw" on the Water Resources in Southwestern Regions, Kingdom of Saudi Arabia** *Dr. Yousry Mattar, Water Deputy Ministry, Ministry of Environment, Water and Agriculture, Kingdom of Saudi Arabia*

Oral Session 3: Environmental Protection & Waste Utilization

Time: 08:30-12:15, November 23, 2023.
Location: Meeting Room 401, Kunibiki Messe
Session Chair: Dr. Rajkumari Sunita Devi, State Level Nodal Agency for Watershed, Planning Department, India

08:30-08:50	**WRE4735**	**How Can Fisheries Environmental Policies Help Achieve a Sustainable Blue Economy and Blue Tourism?** *Research Assoc. Yoshihiro Hamaguchi, Department of Economics, Faculty of Economics and Business Administration, Kyoto University of Advanced Science, Japan*
08:50-09:10	**WRE4868**	**Assessing Solute Transport and Pollutant Fate: Insights from Coastal Soil and Water Interactions** *Dr. Ramaraju H K, Department of Civil Engineering, Dayananda Sagar College of Engineering, India*
09:10-09:30	**WRE4846**	**Common-Pool Resources and Their Roles Emerged from Emergency Responses in Fishing Villages in Japan - Focusing on Communal Responses on Abalone Collecting in Sanriku Region after the Great East Japan Earthquake** *Prof. Keiko Yoshino, Tokyo University of Agriculture, Japan*
09:30-09:50	**WRE4889**	**Multi-Scale Policy Diffusion of Marine Emissions Governance** *Prof. Gerald Patchell, Division of Environment and Sustainability, The Hong Kong University of Science and Technology, China*
09:50-10:10	**WRE4749**	**Green and Sustainable Remediation- An Innovative Bioremediation of PCDD/F Contaminated Field Soil** *Prof. Chitsan Lin, Department of Marine Environmental Engineering, National Kaohsiung University of Science and Technology, Taiwan*
10:10-10:30	**WRE4828**	**Synthesis of Polyoxometallic Acids Combined with Phase Transfer Catalysts for Optimizing the Oxidation of Organosulfur Compounds under Sonication** *Prof. Meng-Wei Wan, Department of Environmental Engineering and Science, Chia-Nan University of Pharmacy and Science, Taiwan*
11:30-11:45		**Coffee Break**
10:45-11:00	**WRE4796**	**Research on the Policy Synergy of Supply-Side and Demand-Side Environmental Policies: An Analysis Based on Green Value Chain of Manufacturing Enterprises** *Dr. Chunmei Ye, School of Economics and Management, Southeast University, China*
11:00-11:15	**WRE4804**	**Glacial Debris Flow Blockage Event (2018) in the Sedongpu Basin of the Yarlung Zangbo River, China: Occurrence Factors and its Implications** *Prof. Minghu Ding, State Key Laboratory of Severe Weather, Chinese Academy of Meteorological Sciences, China*

11:15-11:30	**WRE4874**	**Ecological Operations for Three Gorges Reservoir Based on the Pattern of Upwelling Process Adapted to the Reproduction of Four Major Carps** *Ms. Xuanyu Shi, Resources and Hydropower Engineering, Wuhan University, China*
11:30-11:45	**WRE4843**	**A Nash Bargaining Approach to Optimizing Reservoir Operation for Downstream Ecosystem** *Mr. Shuangjun Liu, State Key Laboratory of Water Resources and Hydropower Engineering Science, Wuhan University, China*
11:45-12:00	**WRE4880**	**Application of Solid Waste in Foam Concrete** *Miss Xue Li, Institute of Applied Physics and Materials Engineering, University of Macau, China*
12:00-12:15	**WRE4786**	**Studying urban delta adaptation: The Comparative Analysis for the Urban Morphology to Mitigating Flooding Risk** *Dr. Yu Liu, The Hong Kong Polytechnic University (PolyU), China*

Oral Session 4: Water Resources System, Hydrology, & Ecology

Time: 13:10-17:05, November 23, 2023.
Location: Meeting Room 401, Kunibiki Messe
Session Chair: Dr. Morena Galešić Divić, Faculty of Civil Engineering, Architecture and Geodesy, University of Split, Croatia

13:10-13:30	**WRE4830**	**The Glacier Investigation in Arid Regions in Northwestern China** *Prof. Zhongqin Li, Tianshan Glaciological Station/Norwest Institute Eco-Environment and Resources, Chinese Academy of Sciences, China*
13:30-13:45	**WRE4772**	**Integrating Ecosystem Services into Spatial Decision-Making for Ensuring Water Security** *Ms. Zeynep Türkay, Faculty of Architecture, Urban and Regional Planning Department, Istanbul Technical University, Turkey*
13:45-14:00	**WRE4780**	**Ecosystem Services Integrated Approach for "Watershed Special Provision Plans"** *Ms. Ebru Satilmis, Faculty of Architecture, Urban and Regional Planning Department, Istanbul Technical University, Turkey*
14:00-14:15	**WRE4881**	**Ultralight Foam Concrete** *Mr. Xiaojiang Wu, Institute of Applied Physics and Materials Engineering, University of Macau, China*
14:15-14:30	**WRE4851**	**How Water Manage Could Keep the Balancing Between the Oasification Development and Aeolian Desertification prevention in Arid Region of China** *Prof. Tao Wang, Key Laboratory of Desert and Desertification, Institute of Eco-environment and Resources, Chinese Academy of Sciences, China*

14:30-14:45	**WRE4820**	**Role of Political Connectedness in Mitigating Climate Change Induced Natural Disaster: Impacts on Water Poverty in India** *Ms. Rida Wanbha Nongbri, Indian Institute of Technology Madras, India*
14:45-15:00	**WRE4821**	**Encouraging Woodland Creation for Water Benefits: Towards a UK Woodland Water Code to Encourage Nature-Based Solutions and Climate Change Mitigation** *Dr. Gregory Valatin, Forest Research, UK*
15:00-15:15	**WRE4831**	**The Impact of Water Flow Variability on Brackish Water Distribution in Prokljan Lake, Croatia** *Dr. Morena Galešić Divić, Faculty of Civil Engineering, Architecture and Geodesy, University of Split, Croatia*
15:15-15:30		**Coffee Break**
15:30-15:45	**WRE4847**	**Investigating Properties and Attribution of Streamflow Nonstationary Change on the Loess Plateau of China: Distinguishing the "Greening" Effects** *Dr. Shuqi Zhang, School of Water and Environment, Chang'an University, China*
15:45-16:00	**WRE4822**	**A Novel Framework for Turbidity Source Apportionment of the Urban Lakeside River Network** *Assoc. Prof. Renhua Yan, Nanjing Institute of Geography & Limnology, Chinese Academy of Sciences, China*
16:00-16:15	**WRE4857**	**Research on Restorative Reconstruction Planning of Coastal Space after Typhoon Disaster under Ecological Priority Orientation** *Assoc. Prof. Xiaojun Li, Urban Planning & Design Institute of Shenzhen (UPDIS), China*
16:15-16:30	**WRE4858**	**Planning and Effectiveness of Ecological Rainwater Whole Process Management System in Rainy Areas under the Concept of Sponge City** *Prof. Lu Yu, Urban Planning & Design Institute of Shenzhen (UPDIS), China*
16:30-16:50	**WRE4860**	**Geochemical Evaluation of the Pumqu River Catchments in Central Himalayas** *Prof. Xiang Huang, Department of Chemistry and Environmental Science, School of Ecology and Environment, University of Tibet, China*
16:50-17:05	**WRE4867**	**A Dual Nash—Sutcliffe Model Efficiency Scale: Introducing a Simplest Second Order Autoregressive Process AR2 as an Alternate Benchmark Model** *Mr. John Y. Ding, Professional Engineer, Ontario, Canada*

Part V Conference Venue

Kunibiki Messe
(Shimane Prefectural Convention Center)

The biggest convention center in Shimane prefecture, Kunibiki Messe, is located in the center of Matsue City. There are Exhibition Hall (4,018 sqm), Multipurpose Hall (686 sqm), International Conference Hall (510 sheets), and 19 meeting rooms.
Free Wi-Fi is available in building.

It takes only 7 minutes on foot from JR Matsue Station to Kunibiki Messe

Kunibiki Messe
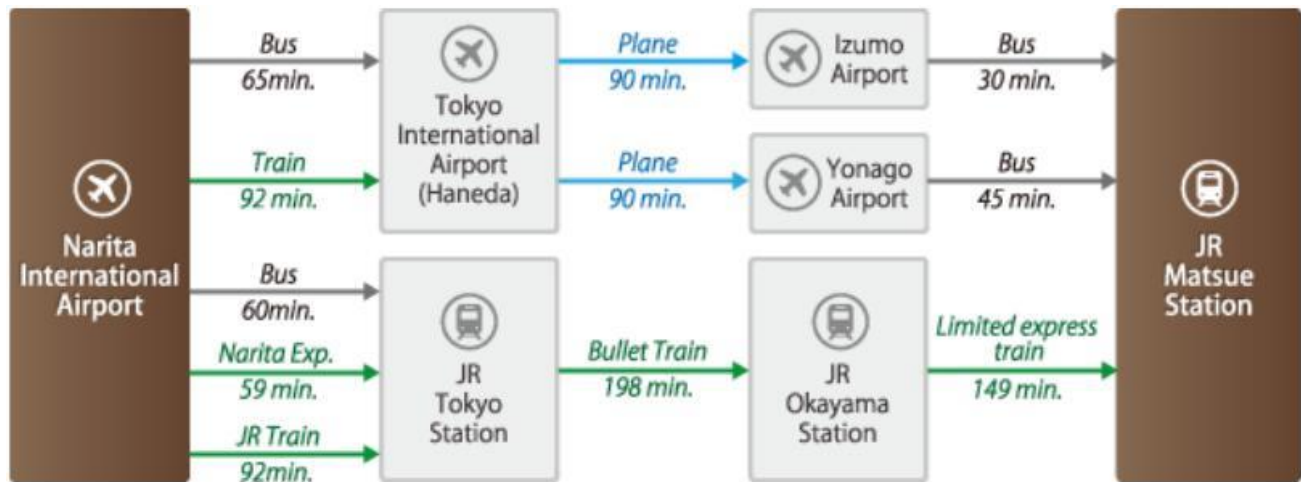**Address:** 1-2-1 Gakuen Minami Matsue City, Shimane, JAPAN 690-0826
Tel: +81+852-24-1111
Fax: +81+852-22-9219
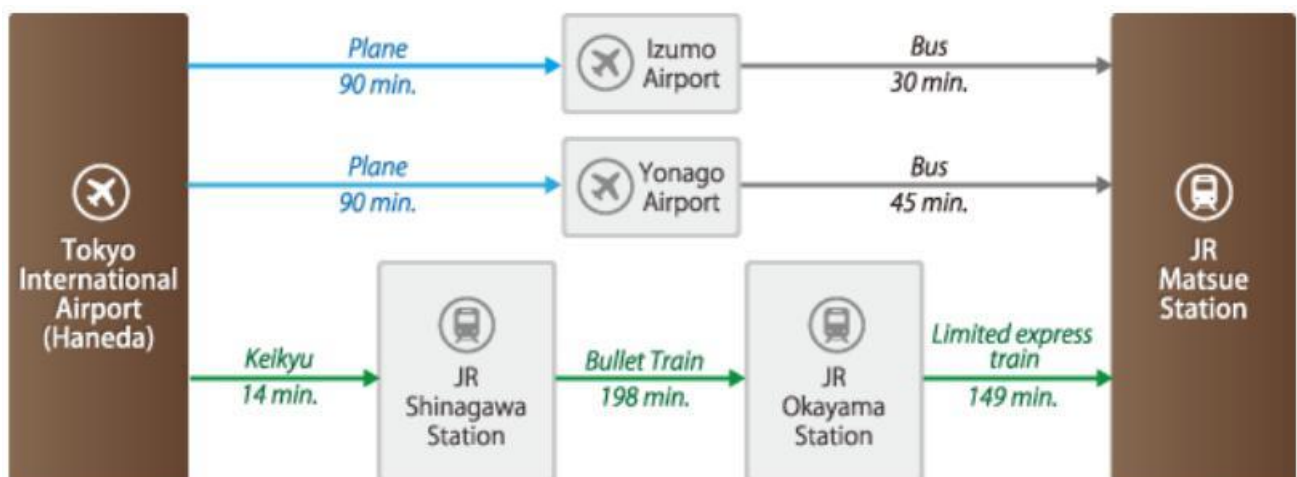**E-mail:** kunibiki@kunibikimesse.jp

Access to JR Matsue Station:

🚃 ➡ Train   🚌 ➡ Bus   ✈ ➡ Plane

1. From Narita International Airport

Narita International Airport	Bus 65min. →	Tokyo International Airport (Haneda)	Plane 90 min. → Izumo Airport — Bus 30 min. →
	Train 92 min. →		Plane 90 min. → Yonago Airport — Bus 45 min. →
	Bus 60min. →	JR Tokyo Station	
	Narita Exp. 59 min. →		Bullet Train 198 min. → JR Okayama Station — Limited express train 149 min. →
	JR Train 92min. →		

Narita International Airport → (Bus 65min. / Train 92 min.) → Tokyo International Airport (Haneda) → Plane 90 min. → Izumo Airport → Bus 30 min. → JR Matsue Station

Tokyo International Airport (Haneda) → Plane 90 min. → Yonago Airport → Bus 45 min. → JR Matsue Station

Narita International Airport → (Bus 60min. / Narita Exp. 59 min. / JR Train 92min.) → JR Tokyo Station → Bullet Train 198 min. → JR Okayama Station → Limited express train 149 min. → JR Matsue Station

2. From Tokyo International Airport

Tokyo International Airport (Haneda) → Plane 90 min. → Izumo Airport → Bus 30 min. → JR Matsue Station

Tokyo International Airport (Haneda) → Plane 90 min. → Yonago Airport → Bus 45 min. → JR Matsue Station

Tokyo International Airport (Haneda) → Keikyu 14 min. → JR Shinagawa Station → Bullet Train 198 min. → JR Okayama Station → Limited express train 149 min. → JR Matsue Station

3. From Kansai International Airport

Kansai International Airport → Bus 75min. → Osaka International Airport → Plane 60 min. → Izumo Airport → Bus 30 min. → JR Matsue Station

Kansai International Airport → JR Train 49 min. → JR shin-Osaka Station → Bullet Train 46min. → JR Okayama Station → Limited express train 149 min. → JR Matsue Station

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Part VI Acknowledgements

On behalf of the WRE 2023 Organizing Committee, we would like to take this opportunity to express our sincere gratitude to our participants. We would also like to express our acknowledgements to the Technical Program Committee members who have given their professional guidance and valuable advice as reviewers. For those who contribute to the success of the conference organization without listing the name below, we would love to say thanks as well.

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