



ICCEFA **ICESA**
2021 2021

(ICCEFA'21) & (ICESA'21) PROGRAM

November 21, 2021 - November 23, 2021 | Virtual Conference

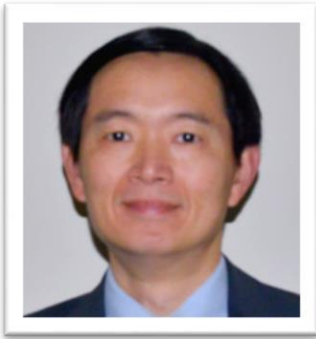
**OUR PROGRAM SCHEDULE IS BASED ON EASTERN STANDARD
TIME (EST - OTTAWA TIME)**

November 21

November 22

November 23

ICCEFA'21 & ICESA'21 CHAIRS:



Dr. Zhi Chen

Concordia University, Canada
Conference Chair

[Website](#)



Dr. Charles Lee

The University of Newcastle, Singapore
Conference Chair

[Website](#)

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NOVEMBER 21

10:00 AM - 12:00 PM

Registrations

NOVEMBER 22

8:00 AM - 9:00 AM	Registrations
9:00 AM - 9:15 AM	Official Opening
	Dr. Charles Lee, The University of Newcastle, Singapore
9:15 AM - 10:15 AM	ICESA PLENARY LECTURE
	<u>Practical Implementation of Green Infrastructure Strategies</u> Dr. John Gulliver, University of Minnesota, USA
10:15 AM - 11:00 AM	ICCEFA KEYNOTE LECTURE
	<u>Development of Virtual Modelling Techniques in Civil Engineering</u> Dr. Dee Wu, University of Technology Sydney, Australia
11:00 AM - 11:10 AM	Break
11:10 AM - 12:40 PM	SESSION <u>Environmental Sustainability and Development</u>
12:40 PM - 01:10 PM	Lunch Break

NOVEMBER 22

01:10 PM - 02:10 PM ICESA PLENARY LECTURE

Harnessing the Novel Feammox Bacterium, Acidimicrobium sp. Strain A6, for PFAS Defluorination: The Path from Discovery to Applications

Dr. Peter Jaffé, Princeton University, USA

02:10 PM - 03:40 PM

SESSION

Traffic Engineering

03:40 PM - 03:50 PM

Break

03:50 PM - 04:50 PM

SESSION

Civil Engineering I

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PLENARY LECTURE

NOVEMBER 22 | 9:15 AM - 10:15 AM | SESSION CHAIR: DR. CHARLES LEE, THE UNIVERSITY OF NEWCASTLE, SINGAPORE



Title: Practical Implementation of Green Infrastructure Strategies

Dr. John Gulliver, University of Minnesota, USA

[View Abstract](#)

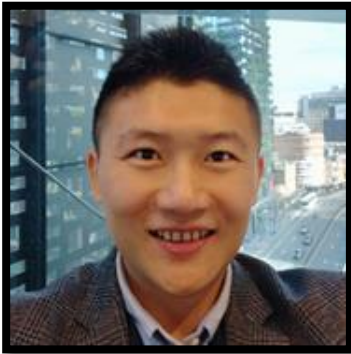
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John Gulliver is a Professor of Civil, Environmental and Geo-Engineering at the University of Minnesota, performing his research at the St. Anthony Falls Laboratory. His major research interests are mass transport in environmental systems and stormwater pollution prevention. Current research involves the development of technology to treat stormwater runoff, an assessment of stormwater infiltration practices, the prediction of runoff from small, urban watersheds and remediation of internal phosphorus loading in stormwater ponds.

Much of Dr. Gulliver's research, in conjunction with other faculty, involves the development of new technology for the treatment of road runoff and assessment of field performance of stormwater treatment practices, including the SAFL Baffle, the Iron-Enhanced Sand Filter, and the MPD Infiltrometer. He is a co-author of the book, *Optimizing Stormwater Treatment Practices: A Handbook of Assessment and Maintenance*, published by Springer.

KEYNOTE LECTURE

NOVEMBER 22 | 10:15 AM - 11:00 AM | SESSION CHAIR: DR. CHARLES LEE, THE UNIVERSITY OF NEWCASTLE, SINGAPORE



Title: Development of Virtual Modelling Techniques in Civil Engineering
Dr. Dee Wu , University of Technology Sydney, Australia

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Dr Di Wu completed his PhD training at University of New South Wales Sydney in 2015. Since 2019, he has appointed as a lecturer at School of Civil and Environmental Engineering, University of Technology Sydney (UTS). He has published 70 SCI journal papers. He works in research areas that bring together computational stochastic/nonstochastic mechanics, machine learning, and engineering design with implementation of new composite materials. Di has also developed frameworks for machine-learningaided engineering safety assessment, nondeterministic methods for isogeometric analysis with polymorphic uncertainties, as well as approaches for designing composite material via AI techniques.

SESSION

ENVIRONMENTAL SUSTAINABILITY AND DEVELOPMENT

NOVEMBER 22 | 11:10 AM - 12:40 PM | SESSION CHAIR: DR. NICHOLAS V SCOTT, RIVERSIDE RESEARCH, USA

Title: Effects Of Attapulgite Clay On The Phytoremediation Capacity Of Indian Mustard And Vetiver Grass In Al And Mn Contaminated Water

ICESA 113

Time: 11:10 AM - 11:25 AM

Presenter: Beatrice Omonike Otunola, University of the Free State, South Africa

Authors: Beatrice Omonike Otunola, Makhosazana Aghoghovwia, Melusi Thwala, Alba Gómez-Arias, Rian Jordan, Julio Castillo Hernandez, Olusola Oluwayemisi Ololade

Title: Carbon Policy as a Strategy to Jointly Address Climate Change, Prevent Wildfires and Biodiversity Loss: A Portugal Case Study

ICESA 115

Time: 11:25 AM - 11:40 AM

Presenter: Renata Pacheco, Universidade do Porto, Portugal

Authors: Renata Pacheco, João Claro

Title: Creation of Geographical Information System for Highways of Kvemo Kartli (Georgia)

ICESA 119

Time: 11:40 AM - 11:55 PM

Presenter: Mariam Elizbarashvili, Ivane Javakhishvili Tbilisi State University, Georgia

Authors: Mariam Elizbarashvili, Bela Kvirkvelia, Shalva Elizbarashvili, Tamar Khuntselia, Marina Tatanashvili, Maia Kimeridze

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SESSION

ENVIRONMENTAL SUSTAINABILITY AND DEVELOPMENT

NOVEMBER 22 | 11:10 AM - 12:40 PM | SESSION CHAIR: DR. CHARLES LEE, THE UNIVERSITY OF NEWCASTLE, SINGAPORE & DR. NICHOLAS V SCOTT, RIVERSIDE RESEARCH, USA

Title: Paringin Pit Lake: Key Success Factors of Creating a Pit Lake of Ex-Coal Mined Pit

ICESA 140

Time: 11:55 AM - 12:10 AM

Presenter: Didik Triwibowo, PT Adaro Indonesia, Indonesia

Authors: D. Triwibowo, T. Roberts, C.C. Lee

Title: Review of Toxicokinetics of Nanogold through in Vivo and in Vitro Studies

ICESA 141

Time: 12:10 PM - 12:25 PM

Presenter: Kavitha Palaniappan, The University of Newcastle, Australia

Authors: Kavitha Palaniappan

Title: Using a Novel Swampy Forest System as a Strategy to Meet Coal Mine Wastewater Discharge Compliance in Indonesia

ICESA 144

Time: 12:25 PM - 12:40 PM

Presenter: Ihsan Noor, Universitas Lambung Mangkurat, Indonesia

Authors: I. Noor, Y.F. Arifin, B.J. Permadi, A. R. Saidy, T. Roberts4, C.C. Lee

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PLENARY LECTURE

NOVEMBER 22 | 01:10 PM - 02:10 PM | SESSION CHAIR: DR. ZHI CHEN, CONCORDIA UNIVERSITY, CANADA



Title: Harnessing the Novel Feammox Bacterium, *Acidimicrobium* sp. Strain A6, for PFAS Defluorination: The Path from Discovery to Applications

[Dr. Peter Jaffé, Princeton University, USA](#)

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Prof. Peter Jaffé joined the Department of Civil and Environmental Engineering at Princeton University in 1985, and has three concurrent appointments with the Princeton Environmental Institute, the Andlinger Center for Energy and the Environment and the Princeton Institute for the Science and Technology of Materials. He served as chair of the Department of Civil and Environmental Engineering from 1999 to 2005 and was director of graduate studies in the same department from 2009 to 2012.

His research interests relate to the physical, chemical, and biological processes that govern the transport and transformation of pollutants in the environment and their application toward the remediation of contaminated systems. Areas of current emphasis include: laboratory and field experiments, as well as mathematical simulations of biogeochemical processes in porous media, such as: (1) understanding the mechanism as well as environmental distribution of the Feammox process (ammonium oxidation under iron reducing conditions); (2) Applications of the Feammox process for ammonium removal in engineered systems and for the cometabolical degradation of recalcitrant organics such as PFAS; (2) biogeochemically mediated dynamics of trace metals, metalloids, and radioisotopes in sediments, wetland soils, and groundwater; (4) nitrogen processing in urban settings coupled to urban hydrology; and (5) design of novel biological waste treatment processes.

SESSION

TRAFFIC ENGINEERING

NOVEMBER 22 | 02:10 PM - 03:40 PM | SESSION CHAIR: DR. ZUNAIRA ASIF, CONCORDIA UNIVERSITY, CANADA

Title: Application of Local and Global Eigenface Decompositions for Vehicular Detection during the COVID-19 Health Pandemic: Preliminary Results

ICCEFA 125

Time: 02:10 PM - 02:25 PM

Presenter: Nicholas V. Scott, Open Innovation Center, Dayton Research Center, USA

Authors: Nicholas V. Scott, Linnette M. Martinez

Title: Application of Tiny YOLOv2 Car Detection for Traffic Flow Quantification during the COVID Health Pandemic: Preliminary Results

ICCEFA 126

Time: 02:25 PM - 02:40 PM

Presenter: Nicholas V. Scott, Riverside Research, Open Innovation Center, USA

Authors: Linnette M. Martinez, Joseph P. Salisbury, and Nicholas V. Scott

Title: Classification of Barriers to Implementing the Car-Sharing System. Case study for Tehran

ICCEFA 131

Time: 02:40 PM - 02:55 PM

Presenter: Siamak Ahmadian, Iran Construction Engineering Organization, Iran

Authors: Siamak Ahmadian, Grzegorz Sierpiński

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SESSION

TRAFFIC ENGINEERING

NOVEMBER 22 | 02:10 PM - 03:40 PM | SESSION CHAIR: DR. ZUNAIRA ASIF, CONCORDIA UNIVERSITY, CANADA

Title: Generalised Cost Function of Integrated Multimodal Transport

ICCEFA 132

Time: 02:55 PM - 03:10 PM

Presenter: Paritosh Nandi, EnVERT Group, India

Authors: Paritosh Nandi, Grzegorz Sierpiński

Title: Evaluating Potential Customers' Perspectives for Success of Electric Vehicles in Poland: Fuzzy Multi-Criteria Decision Making Model

ICCEFA 133

Time: 03:10 PM - 03:25 PM

Presenter: Shohreh Moradi, Iran University of Science & Technology, Iran

Authors: Shohreh Moradi, Grzegorz Sierpiński

Title: Modelling of Delay for Protected/Permitted Left Turning Vehicles using Multigene Genetic Programming

ICCEFA 134

Time: 03:25 PM - 03:40 PM

Presenter: Nemanja Dobrota, University of Pittsburgh, USA

Authors: Nemanja Dobrota, Aleksandar Stevanovic

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SESSION

CIVIL ENGINEERING I

NOVEMBER 22 | 03:50 PM - 04:50 PM | SESSION CHAIR: DR. ZUNAIRA ASIF, CONCORDIA UNIVERSITY, CANADA

Title: Seismic Assessment and Retrofitting Of Damaged Quarry Stone Buildings in Nepal

ICCEFA 110

Time: 03:50 PM - 04:05 PM

Presenter: Simon Mühlbauer, Technical University Munich, Germany

Authors: Simon Mühlbauer, Dimitris Diamantidis, Josef Schneider

Title: Investigation of the Turbulent Schmidt Number Effects On Numerical Modelling Of Vortex-Type Stormwater Retention Ponds

ICCEFA 116

Time: 04:05 PM - 04:20 PM

Presenter: S. M. Yamini, K.N. Toosi University of Technology, Iran

Authors: S. M. Yamini; H. Shamloo; S. H. Ghafari

Title: A Decision Support System for Estimating Allowable Soil Bearing Capacity for Mobile Crane Work

ICCEFA 122

Time: 04:20 PM - 04:35 PM

Presenter: Ghulam Muhammad Ali, University of Alberta, Canada

Authors: Ghulam Muhammad Ali, Asif Mansoor, Shuai Liu, Ahmed Bouferguene, and Mohamed Al-Hussein

Title: A Simplified Hybrid Model For Cyclic Loaded Strip Footing On The Granular Materials

ICCEFA 124

Time: 04:35 PM - 04:50 PM

Presenter: Muhittin Babaoglu, Middle East Technical University, Turkey

Authors: Muhittin Babaoglu, H. Ercan Tasan, Sinan Turhan Erdogan

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NOVEMBER 23

9:00 AM - 9:45 AM

ICESA KEYNOTE LECTURE

Functionalization of Renewable Materials for Energy, Environment, and Healthcare

Dr. Rajan Jose, University Malaysia Pahang , Malaysia

9:45 AM - 10:30 AM

ICESA KEYNOTE LECTURE

Degradation of Micropollutants Using Advanced Oxidation Processes - From Process Fundamentals to Municipal and Industrial Wastewater Applications

Dr. Mohamed Gamal El-Din, University of Alberta, Canada

10:30 AM - 10:40 AM

Break

10:40 AM - 11:40 AM

SESSION
Civil Engineering II

11:40 AM - 11:50 AM

Break

11:50 AM - 12:25 PM

SESSION
Greenhouse Effect, Global Warming, and Climate Change

12:25 PM - 12:55 PM

Lunch Break

NOVEMBER 23

12:55 PM - 01:40 PM

ICCEFA KEYNOTE LECTURE

Infrastructure Asset Management – A Systems Engineering Perspective

Dr. Fuzhan Nasiri, Concordia University, Canada

01:40 PM - 03:00 PM

SESSION

Environmental Pollution and Treatment

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KEYNOTE LECTURE

NOVEMBER 23 | 9:00 AM - 9:45 AM | SESSION CHAIR: DR. CHARLES LEE, THE UNIVERSITY OF NEWCASTLE, SINGAPORE



Title: Functionalization of Renewable Materials for Energy, Environment, and Healthcare
Dr. Rajan Jose, University Malaysia Pahang, Malaysia

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Professor Rajan Jose supervises the Nanostructured Renewable Energy Materials Laboratory in the Universiti Malaysia Pahang (UMP) and is the Associate Editor-in-Chief of the Springer Nature journal “Materials Circular Economy” (<https://www.springer.com/journal/42824?IFA>). He has served as the Dean of Research of UMP during Feb 2016 – Aug 2019 and a member of various committees of UMP and Ministry of Higher Education, Malaysia.

He has investigated nanostructured perovskite ceramics for microwave and superconducting electronics during doctoral research at the Council of Scientific and Industrial Research (CSIR), Trivandrum, India and has received PhD degree in the year 2002. He has contributed to the science and engineering of diverse range of materials including metals and alloys, luminescent quantum dots for biological and energy applications, glass and glass ceramics for quantum electronics, and electrochemical materials for energy conversion and storage.

For more information please visit: <https://esaconference.com/program/>

KEYNOTE LECTURE

NOVEMBER 23 | 9:45 AM - 10:30 AM | SESSION CHAIR: DR. CHARLES LEE, THE UNIVERSITY OF NEWCASTLE, SINGAPORE



Title: Degradation of Micropollutants Using Advanced Oxidation Processes - From Process Fundamentals to Municipal and Industrial Wastewater Applications

Dr. Mohamed Gamal El-Din, University of Alberta, Canada

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Dr. Mohamed Gamal El-Din is a Professor in the Department of Civil and Environmental Engineering at the University of Alberta. His research focuses on the fundamentals of advanced and innovative treatment approaches for water and wastewater (municipal and industrial such as oil and gas). Since 2011, he holds an NSERC Senior Industrial Research Chair (IRC) in Oil Sands Tailings Water Treatment. He is also one of the Theme Leads of the Future Energy Systems (FES) theme on Resilient Reclaimed Land and Water Systems, a 75-million multidisciplinary research from the Canada First Research Excellence Fund. Because of his contributions in the area of oil sands process water treatment/reclamation, in 2017, Dr. Gamal El-Din received the Alberta Science and Technology Leadership (ASTech) Foundation Award for Innovation in Oil Sands Research. In 2019, he was appointed Jinshan Distinguished Professor at Jiangsu University and in 2020 he was awarded Research Chair in Environmental Engineering, College of Environmental Science and Engineering at Tongji University (China). His research work has resulted in important advancements in the area of advanced oxidation and ozone treatment, membrane separation and biological processes. Another part of his research program has centered on the development of new materials and their applications in water and wastewater treatment.

For more information please visit: <https://esaconference.com/program/>

SESSION

CIVIL ENGINEERING II

NOVEMBER 23 | 10:40 AM - 11:40 AM | SESSION CHAIR: DR. CHARLES LEE, THE UNIVERSITY OF NEWCASTLE, SINGAPORE

Title: Benefits and Limitations of the Built Environment's Work Integrated Learning in Undergraduate Education

ICCEFA 136

Time: 10:40 AM - 10:55 AM

Presenter: Ju Yang Neoh, Newcastle Australia Institute of Higher Education, Singapore

Authors: J. Neoh, C.C. Lee

Title: Improved Adaptive Neuro-Fuzzy Inference System Based on Particle Swarm Optimization Algorithm for Predicting Labor Productivity

ICCEFA 117

Time: 10:55 AM - 11:10 AM

Presenter: Nehal Elshaboury, Housing and Building National Research Centre, Canada

Authors: Nehal Elshaboury, Ghasan Alfalah, Abobakr Al-Sakkaf, Eslam Mohammed Abdelkader

Title: Pedestrian Induced Vibration Control of Bridges Based on MTMD

ICCEFA 128

Time: 11:10 AM - 11:25 AM

Presenter: Kenknan Talant, Beijing University of Technology, China

Authors: Kenknan Talant, Kun xu

Title: Erosion Protection by Polymer Additive

ICCEFA 112

Time: 11:25 AM - 11:40 AM

Presenter: Mohamed Bader Algadwi, Tathbeet, Saudi Arabia

Authors: Mohamed Bader Algadwi, Emmanouil Spyropoulos, Bassim A. Nawaz

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SESSION

GREENHOUSE EFFECT, GLOBAL WARMING, AND CLIMATE CHANGE

NOVEMBER 23 | 11:50 AM - 12:25 PM | SESSION CHAIR: DR. ZHI CHEN, CONCORDIA UNIVERSITY, CANADA

Title: Dangerous and Adverse Weather Events in Kvemo Kartli (Georgia)

ICESA 120

Time: 11:50 AM - 12:05 PM

Presenter: Mariam Elizbarashvili, Ivane Javakhishvili Tbilisi State University, Georgia

Authors: Mariam Elizbarashvili, Bela Kvirkvelia, Elizbar Elizbarashvili, Shalva Elizbarashvili, Tamar Khuntselia

Title: Simulation of Temperature and Precipitation Climatology for Georgia using RegCM4

ICESA 121

Time: 12:05 PM - 12:20 PM

Presenter: Mariam Elizbarashvili, Ivane Javakhishvili Tbilisi State University, Georgia

Authors: Mariam Elizbarashvili, Magda Tsintsadze, Tsezari Mshvenieradze

Title: Development of Tier 2 Estimation Method for Carbon Absorption of Biomass in Grassland to Respond Climate Change Adaptation

ICESA 127

Time: 12:20 PM - 12:25 PM

Presenter: Sle-gee Lee, Chonnam National University, South Korea

Authors: Sle-gee Lee, Jeong Gwan Lee, Du Hee Lee, Hyun-Jun Kim

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KEYNOTE LECTURE

NOVEMBER 23 | 12:55 PM - 01:40 PM | SESSION CHAIR: DR. ZHI CHEN, CONCORDIA UNIVERSITY, CANADA



Title: Infrastructure Asset Management – A Systems Engineering Perspective
[Dr. Fuzhan Nasiri, Concordia University, Canada](#)

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Dr. Fuzhan Nasiri is an associate professor at the Department of Building, Civil, and Environmental Engineering (BCEE) at Concordia University. He is a systems engineer with deep interest in investigating the emerging challenges in the design and operation of complex (physical) systems (such as facilities, infrastructure, and buildings) and their interactions with and impact on the environment and society from risk, resilience, and reliability (3Rs) perspectives. Dr. Nasiri is directing the Infrastructure Systems Modeling & Simulation (SEISE) lab. Dr. Nasiri is also affiliated with Institut Nordique du Québec (INQ). His research has been funded by Natural Science & Engineering Research Council (NSERC) of Canada, MITACS, and several partnership projects with industry partners. He is currently collaborating with the International Energy Agency under Annex 37 (Smart Energy Storage Systems). Dr. Nasiri is serving as associate editor and member of editorial board for several scientific journals including Sustainable Cities and Society, Environmental Systems Research, Energy and Built Environment, and Pipeline Science & Engineering. Dr. Nasiri has been involved in organizing several conference streams with CSCE, INFORMS and CORS.

For more information please visit: <https://iccefa.com/program>

SESSION

ENVIRONMENTAL POLLUTION AND TREATMENT

NOVEMBER 23 | 01:40 PM - 03:00 PM | SESSION CHAIR: DR. NICHOLAS V SCOTT, RIVERSIDE RESEARCH, UNITED STATES

Title: Assessment of a Soil Washing Process for Copper (Cu), Zinc (Zn), and Lead (Pb) Contaminated Soil Using High Pressure Water

ICESA 131

Time: 01:40 PM - 01:45 PM

Presenter: Deok Hyun Moon, Chosun University, Republic of Korea

Authors: Sang Hyeop Park, Deok Hyun Moon

Title: Stabilization of Firing Range Soil Using Cuttlefish Bone

ICESA 133

Time: 01:45 PM - 01:50 PM

Presenter: Deok Hyun Moon, Chosun University, Republic of Korea

Authors: Deok Hyun Moon

Title: Adsorptive Removal of Disinfection Byproduct (DBP) Precursors by Carbon Nanotubes

ICESA 114

Time: 01:50 PM - 02:05 PM

Presenter: Betul Aykut-Senel, Suleyman Demirel University, Turkey

Authors: Betul Aykut-Senel, Cihan Ozgur, S. Sule Kaplan-Bekaroglu, Nuray Ates

Title: Removal of Natural Organic Matter by Using Original and Chemically Modified Adsorbents

ICESA 125

Time: 02:05 PM - 02:20 PM

Presenter: Betul Aykut-Senel, Suleyman Demirel University, Turkey

Authors: Betul Aykut-Senel, Cihan Ozgur, Sehnaz Sule Kaplan-Bekaroglu, Nuray Ates

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SESSION

ENVIRONMENTAL POLLUTION AND TREATMENT

NOVEMBER 23 | 01:40 PM - 03:00 PM | SESSION CHAIR: DR. NICHOLAS V SCOTT, RIVERSIDE RESEARCH, UNITED STATES

Title: Use of Frozen Silt Mat, an Alternative to Crane Timber Mat to Minimize Energy as Ninth Waste and to Reduce CO2 Emissions

ICCEFA 123

Time: 02:20 PM - 02:35 PM

Presenter: Ghulam Muhammad Ali, University of Alberta, Canada

Authors: Ghulam Muhammad Ali, Habiba Zahir Imam, Sahar Rana, Rafiq Ahmad, Ahmed Bouferguene, and Mohamed Al-Hussein

Title: Heavy Metals Concentrations (Al, As, Cr, Cu, Fe, Mn, Ni, Pb, And Zn) In An Urban Artificial Lake In Chennai, India (Sembakkam Lake) Under Drought Conditions

ICESA 126

Time: 02:35 PM - 02:40 PM

Presenter: Daniel Rosado, Kiel University, Germany

Authors: Daniel Rosado, Franco Castillo, Indumathi Nambi, Nicola Fohrer

Title: Analysis Of Air Pollution Concentrations On Expressway Roadside

ICESA 128

Time: 02:40 PM - 02:45 PM

Presenter: Hyejin Kang, Korea Expressway Corporation Research Institute, South Korea

Authors: Hyejin Kang

Title: Understanding Green Purchase Behavior. Is Gender Important?

ICESA 112

Time: 02:45 PM - 03:00 PM

Presenter: Sara Sousa

Authors: Elisabete Correia, Sara Sousa, Manuela Larguinho and Clara Viseu

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