



2022 International Conference on Environmental Science and Green Energy (ICESGE-22)

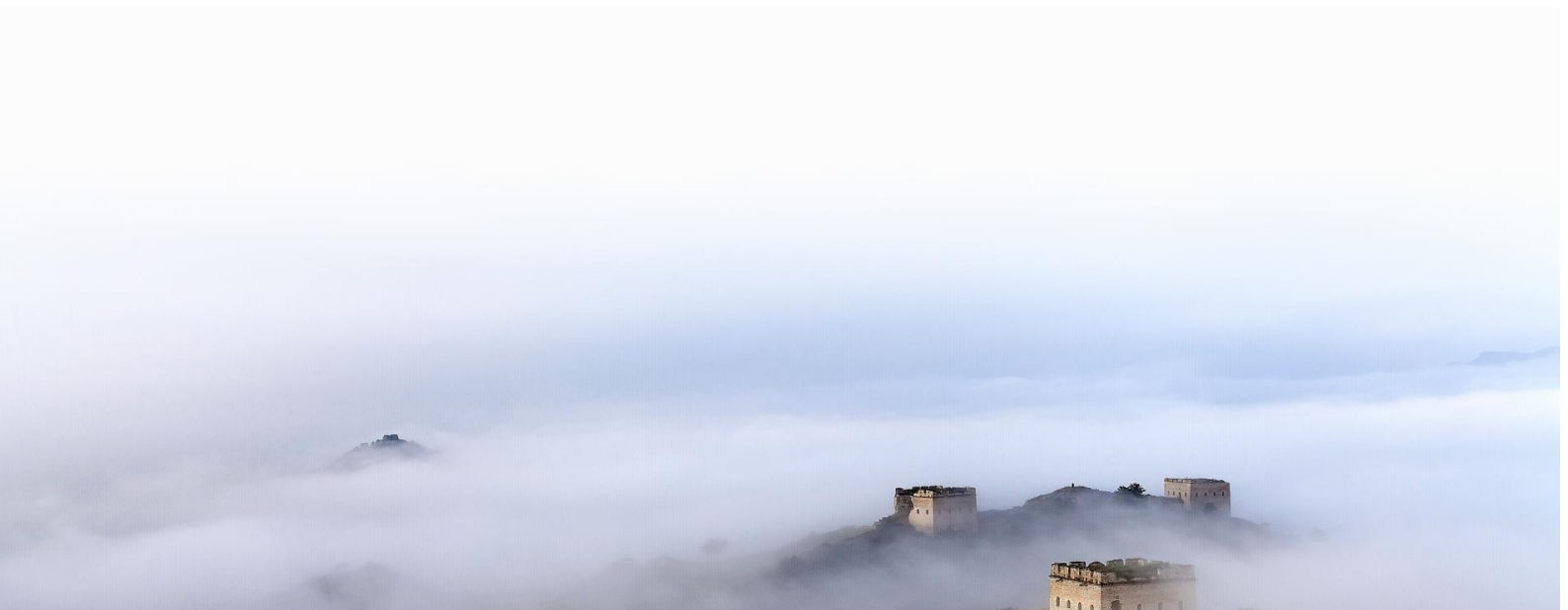


Conference Program

(China Standard Time/Beijing Time, GMT +08)

December 10th-11th, 2022

[Committee Meeting on December 09th, 2022]



Organizers



New Chemical Materials Professional Committee of Liaoning Chemical Society
(辽宁省化工学会化工新材料专业委员会)

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How to Join a ZOOM Meeting

1. Download App:

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[ZOOM for Mac](#)

2. Join the meeting with the specific Meeting ID indicated and the passcode;

3. Click “Join” to join a meeting room, and then please rename with your Real name or Paper ID.

(Note: Please have your microphone switched off or turned to silent when the speaker is talking; keep in mind that turn on your video during the whole conference process.)

ICESGE-22 Main Conference Room

Join Zoom Meeting

Meeting ID: 879 2021 6010

Passcode: 228471

[https://us05web.zoom.us/j/87920216010?pwd=VHdvMVdZS0s3cE9Pb2JMVVlwbS9WU
T09](https://us05web.zoom.us/j/87920216010?pwd=VHdvMVdZS0s3cE9Pb2JMVVlwbS9WU
T09)

Parallel Conference Room

(Be available only in the afternoon, December 11th)

Join Zoom Conference

Meeting ID: 852 2065 7419

Passcode: 232051

<https://us06web.zoom.us/j/85220657419?pwd=TVVUHJCeUJrcjhJN01YcENUeXFqdz09>

ICESGE-22 Online | December 10th-11th, 2022 (GMT +8)

Part I, Conference Schedule

December 10th, 2022, Saturday (GMT +8)

Time	Items
Meeting ID: 879 2021 6010 Passcode: 228471 https://us05web.zoom.us/j/87920216010?pwd=VHdvMVdZS0s3cE9Pb2JMVVlwS9WUT09	
Duration: 09:00-17:40	
09:00-09:05	Opening Ceremony Speech
09:05-09:35	Keynote Speech 1
09:35-10:05	Keynote Speech 2
10:05-10:35	Keynote Speech 3
10:35-11:05	Keynote Speech 4
11:05-12:00	Three Oral Presentations
12:00-13:30	Lunch Time
13:30-14:00	Keynote Speech 5
14:00-14:40	Keynote Speech 6
14:40-15:20	Keynote Speech 7
15:20-16:00	Keynote Speech 8
16:00-17:40	Six Oral Presentations

December 11th, 2022, Sunday (GMT +8)

Time	Items
Meeting ID: 879 2021 6010 Passcode: 228471 https://us05web.zoom.us/j/87920216010?pwd=VHdvMVdZS0s3cE9Pb2JMVVlwS9WUT09	
Duration: 09:00-18:15	
09:00-09:30	Invited Speech 1
09:30-10:00	Invited Speech 2
10:00-10:30	Invited Speech 3
10:30-10:45	Invited Speech 4 (Video)
10:45-12:00	Five Oral Presentations
12:00-13:30	Lunch Time
13:30-13:50	Seventeen Oral Presentations
...	
18:00-18:15	

Parallel Conference Room

Meeting ID: 852 2065 7419 Passcode: 232051 https://us06web.zoom.us/j/85220657419?pwd=TVVUHUJCeUJrcjhJN01YcENUeXFqdz09	
13:30-13:45	Seventeen Oral Presentations
...	
17:50-18:05	

Part II, Keynote Speeches

Keynote Speech 1: Prof. Li Sanxi

Speech Title: Study on preparation and properties of nonisocyanate polyurethane



Prof. Li Sanxi

Former Vice President of Shenyang University of Technology, China

Short Biography

Prof. Li has published more than 100 research papers and authorized more than 20 patents. He was awarded the Shenyang Top Ten Outstanding Young Intellectuals in 2001 and the Shenyang May 4th Medal. The first prize of Liaoning "Youth Science and Technology Award" was awarded in 2002. Awarded as an excellent expert and outstanding professional and technical personnel in Shenyang in 2003. Awarded as one of the top 100 scientific and technological innovators in Shenyang in 2005. Elected as a member of the Bureau of the Eleventh Liaoning Provincial People's Congress in 2008. Elected as the deputy Chairman of the Liaoning Provincial Committee of the Democratic League on July 6, 2017

Abstract: This abstract will be available on presentation.

Keynote Speech 2: Prof. Zhao Zhen

Speech Title: Research Advances in the Efficient Catalysts for the Combustion of Soot Particles from Engine Exhausts



Prof. Zhao Zhen

Institute of Catalysis for Energy and Environment;

Dean of School of Chemistry and Chemical Engineering, Shenyang Normal University, China

Short Biography

Dr. Zhao is a Changjiang Scholar, Distinguished Professor at Shenyang Normal University, Director of the Institute of Energy and Environmental Catalysis at Shenyang Normal University, and PhD supervisor at China University of Petroleum (Beijing). He is the Director of the Liaoning University Energy and Environmental Catalysis Engineering and Technology Research Center, the Director of the International Joint Energy and Environmental Catalysis Research Center of China Association for Science and Technology (CAST), and the Deputy Director of the Catalysis Committee of the Chinese Rare Earth Society, among other positions. He has been selected as a Distinguished Professor of the "Changjiang Scholar Award

Program" of the Ministry of Education, a national candidate for the "Hundred Million Talents in the New Century", an expert of the "Special Allowance of the State Council", a Liaoning Outstanding Science and Technology Worker. He has been selected as a professor of "Changjiang Scholars Programme of China" by the Ministry of Education, an expert of "The new century talents project", "State Department special allowance experts" as well as a Liaoning Outstanding Science and Technology Worker, etc.

He has undertaken 17 national projects, such as the key R&D program project of the Ministry of Science and Technology, 863 project, National Natural Science Foundation of China (NSFC) major research program integration. He has published more than 500 articles with more than 17,000 citations and an *h*-index is 69 (Scopus), and has been listed as one of the most highly cited scholars in China by Elsevier for eight consecutive years from 2014 to 2021, and received the "Rare Earth Resource Utilization Science & Technology Award" in 2018. In addition, he won the First Prize of the China Rare Earth Science and Technology Award, the First Prize of Basic Research Results of the Chinese Chemical Society, and the First Prize of Teaching Achievement of Liaoning University in 2020. In addition, he won the Innovation Award of "Hou Debang Chemical Technology Award" in 2021. He also received the International Union of Pure and Applied Chemistry (IUPAC) Award for Outstanding Contribution to New Materials and Their Synthesis in 2019.

Abstract: This abstract will be available on presentation.

Keynote Speech 3: Prof. Yang Gang

Speech Title: Preparation of Heterogeneous Composites and Their Energy Storage Properties



Prof. Yang Gang

Dean of the College of Materials Engineering, Changshu Institute of Technology, China

Short Biography

Prof. Dr. Yang received his Ph.D. degree from School of Chemistry and Chemical Engineering, Nanjing University in 2005, and worked on lithium battery materials during his postdoctoral work at MIT from 2007 to 2008. From 2010 to 2012, he worked as a collaborative researcher in the Department of Physics, University of Aveiro, Portugal on the safety of lithium batteries.

He was selected as the leader of Jiangsu Province's "Youth and Blue Project", the cultivation target of Jiangsu Province's "Six Talent Summit" and Jiangsu Province's "333 Project". In 2016, he won the second prize of Jiangsu Provincial University Science and

Technology Research Achievement Award.

He is engaged in researching electrode materials for lithium/sodium batteries, intrinsic safety of materials, and the safe recycling of lithium batteries. He has published more than 140 SCI-indexed papers in well-known international journals (cited more than 3000 times), applied for 21 national invention patents (14 authorized), and 1 achievement transformation. In addition, he has presided over the National Natural Science Foundation of China, the Natural Science Foundation of Jiangsu Province, the Major Achievement Transformation Project of Jiangsu Province, the Major Natural Science Project of Jiangsu University, and more than ten projects entrusted by enterprises.

Abstract: This abstract will be available on presentation.

Keynote Speech 4: Prof. Zhang Linnan

Speech Title: Sustainability- Recycling Material in Plastic Parts and CO₂ Emission Reduction



Prof. Zhang Linnan

Vice Dean of the College of Environmental Chemistry, Shenyang University of Technology, China

Short Biography

Jan 2012 - Jun 2012: Visiting Scholar of the Department of Life and Environmental Chemistry, Oregon State University, USA.

July 2006 - September 2008: Postdoctoral Fellow, School of Environment, Peking University, China.

Research Areas: Pollutant separation and resource recovery, recycling and reuse technology, and solid waste pollution control technology. So far, he has published 30 SCI-indexed papers, including 10 along with the first author and corresponding author, 18 Ei-indexed; additionally, 7 times presented at international conferences. In addition, he has been responsible for preparing technical guidelines for cleaner production in two industries of circuit board and electroplating in Shenzhen, and authorized 4 invention patents.

Abstract: Introducing the recycling plastic material into components is one major measure in this working package. Currently recycling plastic material is new to both BMW/BBA and injection suppliers. Partial plastic material suppliers declare that they are capable of the massive production of recycling material. But the whole certification system is not complete yet. Therefore, we need to work together with suppliers to give some audience and direction if necessary.

Keynote Speech 5: Assoc. Prof. Wang Song

Speech Title: Application of Brucite on Improving the Fire Safety of Polymer Materials



Assoc. Prof. Wang Song

Shenyang University of Technology, China

Short Biography

Associate Professor, Member of the Liaoning Chemical Society, Liaoning Non-metallic Mineral Industry Association, Liaoning Energy Research Society, and Liaoning Environmental Protection Industry

Association. A professional in polymer new materials development, energy materials development, and carbon dioxide comprehensive utilization technology. He has supervised and taken part in over 20 research projects, published over 50 papers, received four awards, and authorized over 10 invention patents.

Representative Research: Effect of oleic acid on improving flame retardancy of brucite in low-density polyethylene composite. *Journal of Applied Polymer Science*, 2021, 139, 51862.

Preparation of DOPO-derived magnesium phosphate whisker and its synergistic effect with ammonium polyphosphate on the flame retardancy and mechanical property of epoxy resin. *Journal of Applied Polymer Science*, 2022, e53430.

Brief Abstract: As a natural inorganic flame retardant, brucite is widely used in the industrial production of flame-retardant materials. Using brucite as raw material to produce flame-retardant products with high added value is an important work in the field of development and utilization of brucite. This report briefly introduces some research progress in this field in recent years.

Keynote Speech 6: Prof. Dr. Ambo Tuwo

Speech Title: Seaweed Farming Development to Improve Food Security and Environmental Mitigation



Prof. Dr. Ambo Tuwo

Department of Marine Science and Multitrophic Research Group, Faculty of Marine Science and Fisheries, University of Hasanuddin, Makassar, Indonesia

Short Biography

Prof. Dr. Ambo Tuwo was born in Makassar on November 18, 1962. He earned a bachelor's degree in Fisheries in 1986 at Hasanuddin University, Makassar. He obtained a master's degree in Coastal Resource Management from the Universite

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de Bretagne Occidentale, Brest, France in 1990. He also obtained a Doctorate degree in Marine Ecology from the Universite de Bretagne Occidentale in 1993. He has held the position of Full Professor in Marine Ecology since 2001.

Ambo Tuwo has been a permanent lecturer at the Faculty of Marine and Fisheries Sciences, Hasanuddin University since 1987. He has been a visiting lecturer at several universities in Japan, Canada, Australia, Jamaica, and the Philippines. As a lecturer, he teaches several courses at the undergraduate, master and doctoral levels, namely: Marine Biology, Marine Ecology, Coastal and Marine Ecology, Aquatic Ecology, Tropical Aquatic Ecology, Fish Population Dynamics, Philosophy of Science, Principles of Environmental Science, Contemporary Marine Issues, Coastal and Marine Resource Management, Integrated Ecosystem Management, Ecotourism Fundamentals, Coastal and Marine Ecotourism, and Management of Natural Tourism Areas.

Ambo Tuwo has been a team of experts on several coastal and marine resource management activities at government agencies and institutions and international institutions, such as the Regional Development Planning Agency of South Sulawesi Province, Indonesia. Environmental Impact Management Agency for South Sulawesi Province, Indonesia, Environmental Agency for South Sulawesi Province, Indonesia, Coral Reef Evaluation and Management Program (COREMAP), Marine and Coastal Resources Management Program (MCRMP); Island Sustainability Livelihood and Equity Program (ISLE-CIDA-Canada), Sea Cucumber Program of FAO Rome. He was an advisor to the Governor of South Sulawesi and the Mayor of Makassar. In addition, he was a Senior Advisor to Bomar Food Industry and several management consulting firms. Email: ambotuwo62@gmail.com.

Abstract: The ever increasing demand for food due to an increase in the human population may cause, one day, food will become scarce. Food scarcity can occur when additional food resources are not found. Agricultural land cannot be expanded continuously, so additional food resources are needed, which can be maintained elsewhere, especially in non-paddy or non-land areas. Seaweed can be a future food source. Seaweed has been cultivated for tens or hundreds of years. Seaweed is a fishery commodity that is not technically complicated to cultivate such seaweed cultivation can be carried out by people in developing countries whose low-medium levels of knowledge and work skills. There are four essential roles for seaweed for the present and the future: to strengthen food security, improve environmental mitigation, improve people's welfare, and support sustainable development. Solid food security, a sustainable environment, and better social welfare are the fundamental essence of sustainable development. By this reason, this presentation aims to analyze in a holistic-

integral manner the Seaweed Farming Development to Improve Food Security and Environmental Mitigation using the Subject, Object, and Method Analysis Method (S-O-M Analysis). The main developing problems are (1) high population growth and limited food resources; and (2) limited agricultural lands. Related problems that develop are (1) water scarcity, (2) environmental degradation, and (3) energy shortage. The related paradigms are sustainable development, livelihoods, and equity. Meanwhile, the influential strategic environmental conditions are global warming, climate change, and hunger. The implementation concept to improve food security and environmental mitigation: (1) domestication of wild seaweed; (2) develop multitrophic cultivation; (3) develop seaweed as sea vegetables and other food products; (4) use of seaweed as animal feed; and (5) promote and develop seaweed as raw material for renewable energy production. There are four strategic formulations for Seaweed Farming Development to Improve Food Security and Environmental Mitigation, namely: (1) infrastructure improvements to increase the accessibility of marine farming areas through development, rehabilitation, regulation, and legislation; (2) Improve social and economic coastal and marine areas by development, empowerment, regulation, and legislation; (3) Promote sustainable coastal and marine development by development, rehabilitation, regulation and legislation; and (4) Seaweed industry development by research and development, empowerment, regulation, and legislation.

Keynote Speech 7: Prof. Dr. ilhami COLAK

Speech Title: Impacts of Digital Transformation on Alternative and Green Energies



Prof. Dr. ilhami COLAK

IEEE Senior Member

Department of Electrical and Electronics Engineering, Faculty of Technology, Gazi University, Turkey;

Nisantasi University, Turkey.

Short Biography

Prof. Dr. ilhami COLAK was born in 1962 in Turkey. He received his diploma in Electrical Engineering from Gazi University, Turkey in 1985. Then he did his MSc in Electrical Engineering in the field of Speed Control of Wound Rotor Induction Machines Using Semiconductor Devices at Gazi University in 1991. After that he did his MPhil at Birmingham University in England by preparing a thesis on High Frequency Resonant DC Link Inverters in 1991. Finally, he did his PhD at Aston University in England on Mixed Frequency Testing of Induction Machines Using Inverters in 1994. He became

an assistant professor, an associate professor and a full professor in 1995, 1999 and 2005 respectively.

He has published more than 155 journal papers, 236 conference papers, and 7 books in different subjects, including electrical machines, drive systems, machine learning, reactive power compensation, inverter, converter, artificial neural networks, distance learning automation and alternating energy sources.

More than 266 of his papers have been cited in SCI. His papers have received more than 2714 citations by 2310 papers. His Thomson Reuters *h*-index is 26 and average citation per paper is 10.2.

He published 329 papers in SCOPUS. *h*-index is 33. His 329 papers have received 4277 citations from 3592 documents.

He supervised 23 MSc students and 14 PhD students. He is a *senior member* of IEEE, member of IES, IAS, PELS and PES. Last twenty years, he has been concentrated his studies on renewable energy and smart grids by publishing papers, journals (www.ijrer.org) (www.ijSmartGrid.org) and organizing international IEEE sponsored conferences (www.icrera.org), (icSmartGrid.org). He also spent around 3 years at European Commission Research Centre (JRC) in Netherlands. He served as the head of department, dean and vice rector at Gazi University, Istanbul Gelisim University and Nisantasi University. He is currently a full professor at Nisantasi University.

Professor COLAK achieved a great success of 10% by being included in the ""World's Most Influential Scientists"" 2% list, which was created USA Stanford University considering the ""Works of the Year 2020"".

Abstract: This abstract will be available on presentation.

Keynote Speech 8: Assoc. Prof. Dr. Grzegorz Boczkaj

Speech Title: Towards synergism of cavitation phenomenon and advanced chemical treatment processes for degradation of environmental pollutants



Assoc. Prof. Dr. Grzegorz Boczkaj

Faculty of Civil and Environmental Engineering, Gdansk University of Technology, Poland

Short Biography

Grzegorz Boczkaj (*h*-index: 37, >4500 citations) is an associate professor at the Faculty of Civil and Environmental Engineering, Gdansk University of Technology (GUT), Poland. He obtained a PhD (2012, with honors) in chemical technology (chemical engineering) at GUT and a habilitation in technical analytics (2017). He is the leader scientist of research group working on new

developments in the field of environmental science, separation techniques, chemical engineering as well as analytical chemistry. He was a project manager (principal investigator) of several research projects (in total above 1,5 mln \$). Currently, he is a head of two research projects financed by the National Science Centre (NCN, Poland) – the first focused on new developments based on the application of Deep Eutectic Solvents (DESs) and the second focused on wastewater treatment and chemical transformations taking place under advanced reduction processes. He has published over 150 journal articles, book chapters, and technical reports. He is one of the most active scientists on ResearchGate, with RGscore (2022) exceeding 120. According to Publons, he was recognized as one of the top peer reviewers in several categories.

Abstract: Advanced Chemical Treatment processes are based on Advanced Oxidation Processes (AOPs) or Advanced Reduction Processes (ARPs). A reactive radical species generated under specific conditions provide high effectiveness of degradation of emerging organic pollutants. Such processes can be aided by cavitation phenomenon. Plenty of effective processes were developed for water and wastewater treatment [1-3].

The paper presents an overview of recent developments in the field of cavitation based AOPs and ARPs. A significant recent developments of our research group will be highlighted in respect to effective degradation of several pollutants present in water, industrial effluents and fuels [4-7].

Literature

1. K. Fedorov, et al., (2022) Chem. Eng. J. 432, 134191.
2. G. Boczkaj, A. Fernandes, (2017) Chem. Eng. J. 320, 608.
3. M. Gałol, A. Przyjazny, G. Boczkaj, (2018) Chem. Eng. J. 338, 599.
4. K. Fedorov, M. Plata-Gryl, J. Khan, G. Boczkaj, (2020) J. Hazard. Mater. 397, 122804.
5. K. Fedorov, X. Sun, G. Boczkaj, (2021) Chem. Eng. J. 417, 128081.
6. M. Gałol, E. Cako, K. Fedorov, R. Soltani, A. Przyjazny, G. Boczkaj, (2020) J. Mol. Liq. 307, 113002.
7. E. Cako, R. Soltani, X. Sun, G. Boczkaj, (2022) Chem. Eng. J. 439, 35354.

Part III, Invited Speeches

Invited Speech 1: Mr. ZHOU Mu

Speech Title: Development Status and Suggestions of Sustainable Aviation Biofuel



Mr. ZHOU Mu (ICESGE-2285)

Department of Airworthiness, Civil Aviation Management Institute of China, Beijing, China

Abstract: Sustainable aviation biofuel (SABF) is a promising solution for aviation emission issues, but its sustainability and related technical standards need to be further studied. With sustainability and technical standards as key factors, this work firstly reviewed the mechanism of the Carbon Offsetting and Reduction Scheme for International Aviation and its impact on China; then introduced the International Civil Aviation Organization (ICAO) SABF greenhouse gas (GHG) emission value and emission reduction calculation method, analyzed the similarities and differences between ICAO and China GHG emission reduction calculation, discussed the Chinese and international technical standards for aviation biofuel verification, briefly described the application of aviation biofuel in and outside of China; finally reviewed the main challenges for fostering aviation biofuel in China, such as imbalance between demand and supply. To deal with these problems, some suggestions for SABF development were presented: Enhance integration between international and domestic carbon markets, accelerate the construction of aviation biofuel sustainability certification system, establish the minimum mixing ratio for SABF, etc.

Invited Speech 2: Dr. Muhammad Ikram (Video)

Speech Title: Cellulose/Polyvinylpyrrolidone-doped cadmium sulphide quantum dots and their applications



Dr. Muhammad Ikram

Department of Physics, Government College University Lahore, Pakistan

Short Biography

Muhammad Ikram obtained Master degree (M. Phil Physics) from BZU Multan, Pakistan in 2010. He obtained his PhD degree in Physics from Department of Physics, Government College University (GCU) Lahore through Pak-US joint project between Department of Physics, GC U Lahore, Pakistan and University of Delaware, USA in 2015. In 2017, Ikram joined Department of Physics, GC University

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Lahore as Assistant Professor Physics in 2017. Ikram published over 150 manuscripts in international well reputed journal, 17 book chapters and three international books. Ikram received Seal of Excellence Marie Skłodowska-Curie Individual Fellowship in 2017 and 2020. His research work involves the synthesis and characterization of inorganic semiconductor nanomaterials, sensor, 2D materials for water treatment and optoelectronic applications.

Abstract: Facile and control sized cadmium sulphide (CdS) quantum dots (QDs) and cellulose nanocrystals grafted polyvinylpyrrolidone (CNC-g-PVP) doped CdS QDs were prepared via co-precipitation. Doped and Undoped CdS QDs exhibited excellent optical properties. The proposed method is effective in removing industrial polluted water and bactericidal treatments of organic contaminants such as methylene blue (MB). In order to determine the structural, optical, and morphological properties of the produced samples, a number of different characterization procedures were utilized. The X-ray diffraction (XRD) pattern confirmed the structure to be hexagonal, and there was no discernible shift in the spectrum as a result of the addition of 2, 4, or 6% doping. Doping causes a blueshift in the absorption pattern, which is described by the UV-vis spectrophotometer. This shift leads to an increase in band gap energy (E_g). In comparison to the acidic medium, the findings of the catalytic activity (CA) against MB in basic and neutral media were impressive. In addition, the bactericidal potential of the doped sample (6%), which was tested against *Staphylococcus aureus* (*S. aureus*) and *Escherichia coli* (*E. coli*), both of which are Gram-positive bacteria, exhibited significantly higher inhibition zones. These zones measured 5.25 mm and 4.05 mm, respectively.

Invited Speech 3: Prof. Dr. Mushtaq Ahmad

Speech Title: Green Energy Via Nanotechnology: Future Applications and Perspectives



Prof. Dr. Mushtaq Ahmad

Biofuel and Green Energy Lab, Department of Plant Sciences, Quaid-i-Azam University, Islamabad, Pakistan

Short Biography

Professor Dr. Mushtaq Ahmad is currently working as Director QAU Botanical Garden and Herbarium (ISL), Director Technology Science Park (QAU) and Chairman Department of Plant Sciences, Faculty of Biological Sciences, Quaid-i- Azam University Islamabad. Prof. Dr. Ahmad has over 770 publications (citations ± 13008 , h -index 56, $i10$ -index 294) in diverse fields of Plant Sciences

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including 696 research publications, 23 international books, 20 chapters in books published largely by Elsevier, Springer, Taylor & Francis, Wiley etc. across the world including Asia, Europe, USA and Africa. He has successfully supervised/produced 32 PhD, 100 M.Phil. 55 M.Sc. and 10 BS research scholars in advanced areas of Plant Systematics & Biodiversity. He has also been awarded various national and international awards in recognition of his outstanding contributions in the field of science and technology including Top 2% influential scientist of the World (2020); Young Research Scholar Award by HEC (2019); Highly Cited Research Paper Award by Elsevier and Willey (2019); Young scientist award by CAS – PIFI – China (2018), Young membership award by Pakistan Academy of Sciences, (2016); Productive scientist awards by PCST (2009 to date); TTS Performance based Awards (2010 to date); Post Doc. Fellowship by TWAS-Malaysia (2012); Best book award by HEC (2013); Best research paper award by HEC (2011); Gold Medal award by Pakistan Academy of Sciences (2011). He is the member of many international and national academic bodies. Prof. Ahmad has been awarded with many research grant projects funded by GBIF, BIFA (Japan-USA), NAS-USA, CAS-China, Mevlana-Turkey, PAS, HEC and TWAS. These research grants helped Prof. Ahmad to establish modern digital Herbarium (ISL), Botanical Garden, Technology Science Park, Melissopalynology, Aerobiology, Nutraceutical and Green Biofuel research laboratories. He has organized 12 and attended 75 International/National Conferences as Keynote speaker. He has been hosted a series of TV programs and YouTube Channel (Miracle Herbal Diversity) to aware Global and Pakistani communities, farmers linkages with academia and industries to use plant biodiversity for socio-economic uplifting. He is the active advisory board member in flora of PAN-Himalaya (Asia) & also contributor for medicinal plants naming (MPN), Kew-UK, IUCN member and PAS member. He is the recognized reviewer and editorial board member of many world reputed ISI Journals and Book series. He is the expert member of DTRC, Selection Board, Board of Studies and Examiner in different universities and institutions in the country.

Abstract: The global energy land scape will change more in the next ten years than in the previous hundred. The world is moving towards greener energy obtained from renewable energy sources. Powering A sustainable and profitable energy via green nanotechnology will be a solution to build a greener and more sustainable future. Until now, plants are still highly esteemed all over the world as a rich source of greener energy. Over the past few decades, researchers have focused on green energy, from botanical sources. Green chemistry, as a work philosophy, has contributed to the design and application of safer and green processes and products. This study provides

an overview for the green chemistry and green engineering principles that could be instrumental in sustainable biofuel process development. In the current scenario of energy security, the pursuit of alternative energy sources is very important to utilize the non-edible plant resources via phytochemical screening leads to renewable and cleaner energy. Decarbonization is mission-critical for the planet. A viable solution to present-day problems like fuel crises and environmental pollution is to move away from fossil fuels towards renewable energy resources. The main focus of this project is on the biosynthesis via nanotechnology using advanced analytical techniques (TLC, HPLC, GC-MS, FT-IR, NMR, EDX, SEM) and biological techniques to isolate some novel bioactive phytochemical entities for future applications in cleaner energy production. Currently, academia, society, industry, and government are concerned about the application of greener and cleaner principles. The worldwide concern for the sustainable future requires balanced between legacy systems, emerging technologies, business, economy while better managing assets risk and carbon emissions.

Invited Speech 4: Dr. Stalis Norma Ethica (Video)

Speech Title: Characteristics of Hydrolytic Indigenous Bacteria as Degradation Agent of Hospital Wastewater: A Case Study in Central Java



Dr. Stalis Norma Ethica

Postgraduate Department, Magister Study Program of Clinical Laboratory Science; Universitas Muhammadiyah Semarang, Central Java, Indonesia

Short Biography

Dr. Stalis Norma Ethica is a full-time lecturer and researcher with industrial laboratory experience. She focuses in the utilization of bacterial cells and enzymes as bioremediation, medicinal, and diagnostic agents, supported by encapsulation and genetic engineering technologies. She has been a full-time lecturer (assistant professor) in the Postgraduate Program of Magister of Clinical Medicine since 2019. The Indonesian Ministry of Research and Higher Technology funded her works on developing bioremediation agents for hospital wastewater from indigenous bacteria and developing antithrombosis and antibiofilm agents from marine bacterial enzymes.

Abstract: Hospital wastewater is a source of hazardous matters including toxigenic chemicals and pathogenic microorganisms. In the last few years, the initial steps in developing bioremediation agent to treat hospital wastewater have been initiated. The strategy was focused on degrading organic matters in order to improve BOD

parameter of hospital wastewater and repressing the growth of pathogenic bacteria present in the waste by propagating the population of beneficial bacteria. Recent studies have been conducted to isolate and characterize hydrolytic indigenous bacteria from wastewater samples obtained from hospitals in the Central Java. In the process, it was found that hydrolytic indigenous bacteria demonstrated the desirable characteristics to be used as degradation agent. The characteristics include Low pathogenicity, ability to produce multiple hydrolytic enzyme production, ability to synergically work as consortium, ability to improve BOD (Biological Oxygen Demand) parameter, and versatility to be microencapsulated. Such characteristics make them a great candidate of bioremediation agent.

Part IV, Oral Presentations

Online Live Presentation

- ✧ Online live presentations will be conducted via ZOOM Meeting.
- ✧ Each invited speech is about 35 minutes, including 5 minutes of Q&A.
- ✧ Each regular oral presentation lasts 15-20 minutes, including 5 minutes of Q&A.
- ✧ All presenters are requested to reach the Online Room prior to the scheduled time and complete their presentation on time.
- ✧ All presenters are requested to always remain online to prevent missing their presentation due to unavoidable circumstances.
- ✧ The time of all the presentations is shown in China Standard Time/Beijing Time (GMT +8:00).
- ✧ If a presenter cannot show up on time or have problems with the internet connection, the moderator/chair has the right to rearrange his/her presentation and let the next presentation start.

Pre-recorded Video Presentation

- ✧ A pre-recorded video file (in .MP4 format) is required, and each video duration is 15-20 minutes. Please make the video record and send it to the Organizing Committee in advance.
- ✧ Videos will be played/displayed at the specific session by the moderator/chair.
- ✧ The audience may contact the presenter directly via email for questions and discussions after viewing the video.

Oral Presentations Schedule

Paper ID	Time	Paper Title & Presenter/s
11:05-12:00, December 10th, 2022, Saturday (GMT +8)		
ICESGE-2253	11:05-11:20	<i>Analysis and Optimization of Metal Hydride Reactors Heat Transfer Properties</i> Li Dingjian, Dalian University of Technology, China
ICESGE-2268	11:20-11:35	<i>Influence of Magnetic Pole Ovality on the Unbalanced Magnetic Pull of a 1000MW Hydro-generator Unit installed with High Precision</i> Zhang Jiwen, Department of Energy and Power Engineering, Tsinghua University, China
ICESGE-2235 (Abstract)	11:35-12:00	<i>Energy, economical, Environmental and Medical Applications of Cold Nuclear Fusion of Hydrogen with Powder and Liquid Forms of Metals</i> U.V.S. Seshavatharam ¹ and S. Lakshminarayana ² ¹ Honorary faculty, I-SERVE, Survey no-42, Hitech city, Hyderabad-84, Telangana, India ² Dept. of Nuclear Physics, Andhra University, Visakhapatnam-03, AP, India
16:00-17:40, December 10th, 2022, Saturday (GMT +8)		
ICESGE-2282	16:00-16:20	<i>Modeling and Simulation of Photovoltaic Off-Grid Hydrogen Production System</i> Xu Zhihong, Beijing Jiaotong University, China
ICESGE-2257	16:20-16:35	<i>Haze Risk Assessment and Trend Evolution in Fenwei Plain Based on PCA-XGBoost</i> Dai Hongbin, School of Management, Xi'an University of Architecture and Technology, China
ICESGE-22101 (Abstract)	16:35-16:55	<i>The Utilizability of Non-Flammable Refrigerants with low-GWP in Air-conditioning Systems</i> Vedat Oruç, Department of Mechanical Engineering, Dicle University, Diyarbakır, Turkey
ICESGE-2260 (Video)	16:55-17:10	<i>Prediction and Analysis of Ambient Air Quality in Harbin Based on Time Series Analysis Model</i> Zhang Zhihao, Comprehensive Evaluation Department, Harbin Ecological Environment Monitoring Center of Heilongjiang Province Harbin, China
ICESGE-2221 (Abstract)	17:10-17:25	<i>Effect of Molecular Structure on Switching Properties of CO₂-responsive Oil-in-Water Emulsions</i> Liu Lingfei ¹ , Xu Zhenghe ¹ , Lu Yi ² ¹ Southern University of Science and Technology, China ² University of British Columbia, Canada
ICESGE-2269	17:25-17:40	<i>Investigation on the Potential of Biomethane Production from Abattoir Waste by Mono-digestion and Co-digestion</i> Nhlanhla Othusitse, Botswana International University of Science and Technology, Botswana
10:45-12:00, December 11th, 2022, Sunday (GMT +8)		
ICESGE-2226	10:45-11:00	<i>Effects of Head Variation on Internal Flow Characteristics of a High-quality Installed 1 GW Francis Turbine</i> Liu Chengming, China Agricultural University, China
ICESGE-2233 (Abstract)	11:00-11:15	<i>Is there a Synergy between Transition Toward Sustainable Development and Climate Change in Nigeria? SWOT Analysis</i>

ICESGE-22 Online | December 10th-11th, 2022 (GMT +8)

		<i>Lukman Raimi and Fatimah Mayowa Lukman, Universiti of Brunei Darussalam (UBD), Brunei</i>
ICESGE-2252	11:15-11:30	<i>Research on a Deep Learning Modeling Method of Ionospheric Total Electron Content</i> MA Yu ^{1,2} ¹ National Key Laboratory of Electromagnetic Environment China Research Institute of Radiowave Propagation Qingdao, China ² Kunming Electro-Magnetic Environment Observation and Research Station Kunming, China
ICESGE-2261	11:30-11:45	<i>Mechanistic Study of the Enzymatic Reaction of Chlorinated Organic Compounds with Environmental Pollutants</i> Zhang Ye, School of Pharmaceutical Science and Technology, Tianjin University, China
ICESGE-2265 (Video)	11:45-12:00	<i>Evaluation of Ambient Air Quality Ranking in Harbin Based on Principal Component Analysis and Comprehensive Score Method</i> Zhang Zhihao, Harbin Ecological Environment Monitoring Center of Heilongjiang Province, China
13:30-18:15, December 11th, 2022, Sunday (GMT +8)		
ICESGE-2267	13:30-13:50	<i>Preparation of Surface Molecular Imprinted Materials and Effective Scavenging, Selective Adsorption of Salicylic Acid and Methylene Blue from Wastewater</i> Sun Yongchang, School of Water and Environment, Chang'an University, China
ICESGE-2276	13:50-14:05	<i>Mitigation of Air Pollution Using Pulsed Radio Waves Technology in the Ambient Environment</i> Rohit Kantikar, RF Engineer II, Devic Earth. Pvt. Ltd, Bangalore, India
ICESGE-2217 (Abstract)	14:05-14:20	<i>Spatial and Temporal Distribution and Trade-Offs of Ecosystem Services in the Chengdu-Chongqing Urban Agglomeration from 2000 to 2020</i> Li Yunlin, Beijing Forestry University, China
ICESGE-2208	14:20-14:35	<i>Chronologically-Ordered Quantitative Global Targets for the Energy-Emissions-Climate Nexus, from 2021 to 2050</i> Osama A. Marzouk, University of Buraimi, Oman
ICESGE-2210	14:35-14:50	<i>Improvement of the Transport System Environmental Safety of the Arctic Region</i> Vadim Mavrin, Dept. of Transport Systems Service, Kazan Federal University, Russia
ICESGE-2273	14:50-15:05	<i>Influence of Radial Installation Deviation on the Flow Characteristics of a High-quality 1000 MW Francis Turbine</i> Wang Yifan, College of Water Resources and Civil Engineering(WRCE), Agricultural University, China
ICESGE-2283	15:05-15:35	<i>Analysis of Surface Water pH and Ammonia Nitrogen Seasonal Variation Characteristics in Harbin</i> Li Yunjing, Harbin Ecological Environment Monitoring Center of Heilongjiang Province, China
ICESGE-2270	15:35-15:50	<i>A Review of Life Cycle Assessment Studies in Plastic Waste Management</i> Zvanaka Mazhandu, Chemical Engineering Technology, University of Johannesburg, Johannesburg, South Africa
ICESGE-2271	15:50-16:05	<i>An Overview of Leading Gasification Technologies, Emissions and Mitigatory Measures</i> Zvanaka Mazhandu, Chemical Engineering Technology, University of Johannesburg, Johannesburg, South Africa

ICESGE-22 Online | December 10th-11th, 2022 (GMT +8)

ICESGE-2274	16:05-16:20	<i>Whole Tyre and Crumb Tyre Rubber Utilization, Global Trends, and Markets</i> Nhlanhla Nkosi (Maybe another author), Department of Chemical Engineering Faculty of Engineering and the Build Environment, University of Johannesburg, South Africa
ICESGE-2284	16:20-16:40	<i>Consider Regional and Sectoral Synergistic Abatement Values for Power System Investments</i> Tan Shere, State Grid Energy Research Institute, China
ICESGE-22104	16:40-17:00	<i>Study on Carbon Emission in Ethnic Areas of Chongqing</i> Hao Yanlei, Chongqing Three Gorges University, China
ICESGE-2275	17:00-17:15	<i>Waste Tyre Environmental Impacts and Life Cycle Assessment Review for Reuse, Material Recovery and Energy Recovery Strategies</i> Mohamed Belaid (Maybe another author), Department of Chemical Engineering, Faculty of Engineering and the Build Environment, University of Johannesburg, South Africa
ICESGE-2289	17:15-17:30	<i>Comparative Review and Assessment of Energy Generation Potential from Municipal Solid Waste Generated in Zimbabwe</i> Trust Nhubu, University of Johannesburg, South Africa
ICESGE-2229 (Video)	17:30-17:45	<i>Thermal Design and Verification of a Transport Container for Co-60 Waste Source</i> Zhuang Dajie, China Institute for Radiation Protection, China
ICESGE-2266 (Video)	17:45-18:00	<i>Research on the Calculation Method of Electric Energy Substitution Potential in Zhejiang Province of China during the 14th Five-Year Plan Period</i> Wei Tang, State Grid Energy Research Institute Co., Ltd; State Grid Corporation of China, China
ICESGE-2290 (Video)	18:00-18:15	<i>Study on the Importance of Precise Control of Installation Deviation to the Structural Behavior of the Shaft System of a 1000 MW Hydro-generator Unit</i> Huang Xingxing, Tsinghua University, China

13:30-18:05, December 11th, 2022, Sunday (GMT +8)

Meeting ID: 852 2065 7419

Passcode: 232051

<https://us06web.zoom.us/j/85220657419?pwd=TVIVUHJCeUJrcjhJN01YcENUeXFQdz09>

ICESGE-2286	13:30-13:45	<i>Study on UF₆ Leakage Source Term in Restricted Space</i> Lei Chen, China Institute for Radiation Protection, China
ICESGE-2294	13:45-14:00	<i>The Special Requirements of RepU Recycling from Radiation Protection Viewpoint</i> Wang Pengyi, China Institute for Radiation Protection, China
ICESGE-2216 (Video)	14:00-14:20	<i>Correlation Research between Blue-green Algae and Water Quality Indicators using Unmanned Surface Vehicle</i> Zhang Zixian, School of Advanced Technology, Xi'an Jiaotong-Liverpool University, China
ICESGE-22116 (Video)	14:20-14:35	<i>Noise Mapping and Measurements for Sound Environment Assessment in a Typical Chinese Water-Rich Village</i> Chen Xiaojiang, Jiangsu Environmental Engineering Technology Co., Ltd. Jiangsu Environmental Protection Group Co., Ltd. China

ICESGE-22 Online | December 10th-11th, 2022 (GMT +8)

ICESGE-22117	14:35-14:50	<i>Impact of Landscape Planning on Sound Environments in a Typical Water-rich Village in Eastern China</i> <i>Di Yajing, School of Architecture, Southeast University, Nanjing, China</i>
ICESGE-22118	14:50-15:05	<i>The Viscosity Loss of Partially Hydrolyzed Polyacrylamide Solution Caused by Sulfide Ion</i> <i>Du Chun'an, Shandong Institute of Petroleum and Chemical Technology, China</i>
ICESGE-22109	15:05-15:30	<i>Frequency Characteristics Analysis of the Coastal Power System Considering Onshore-Offshore Wind Power and Flexible HVDC Transmission Involved in Frequency Regulation</i> <i>Li Zheng, The Science and Technology Project of State Grid Jiangsu Electric Power Company, China</i>
ICESGE-22110	15:30-15:45	<i>Frequency Characteristics Analysis of Large-Scale Grid-Connected Photovoltaic Power System Considering Frequency Response of Under-Frequency Load Shedding</i> <i>Fu Hongjun, State Grid Henan Electric Power Company, China</i>
ICESGE-22107	15:45-16:00	<i>A Fuzzy Comprehensive Evaluation Method for Assessing the Carrying Capacity of Distributed PV</i> <i>Hu Xinyu, Dept. Nantong Powe Electric Pr Supply Branch of State Grid Jiangsu ower Co., LTD, China</i>
ICESGE-22108	16:00-16:25	<i>Analysis and Research on Coupling Characteristics of Wind-photovoltaic Power Generation and Load under Typical Scenarios</i> <i>Li Zesen, Economic Research Institute of Jiangsu Electric Power Company, China</i>
ICESGE-22111	16:25-16:40	<i>Fault Diagnosis of Single-Phase Grounding Distribution Network Based on Multi-Source Data Fusion</i> <i>Xi Ruiling, Shanghai University of Electric Power, China</i>
ICESGE-22112	16:40-16:55	<i>Multiple Criteria Based Fault Sections Location for Active Distribution Network</i> <i>Yin Jiaming, Shanghai University of Electric Power, China</i>
ICESGE-2230 (PDF with audio)	16:55-17:05	<i>Formation Process of YBCO Superconducting Phase by Metal Organic Deposition</i> <i>Hong Song Chol, Kim Chaek University of Technology, Pyongyang, Democratic People's Republic of Korea</i>
ICESGE-2234	17:05-17:20	<i>Comparative Study on Hydrological Characteristics between Moso Bamboo and Natural Secondary Forests</i> <i>Zhou Benzhi, Research Institute of Subtropical Forestry, Chinese Academy of Forestry, China</i>
ICESGE-22113	17:20-17:35	<i>Simulation and Field Verification of High Voltage Ride Through Capability of Doubly-fed Induction Generator in Weak Grid</i> <i>Liu Haiwei, State Grid Gansu Electric Power Research Institute, China</i>
ICESGE-22106 (Video)	17:35-17:50	<i>Identification and Quantification of PAHs in Gasoline Soot Using ASE-GC-MS/MS</i> <i>Liu Shujun, Shenyang Fire Research Institute, China</i>
ICESGE-22115 (Video)	17:50-18:05	<i>Effects of Compaction Density on the Electrochemical Performance for Li-S Batteries</i> <i>Hu Qianqian, GAC AION New Energy Automobile Co.LTD. Guangzhou, China</i>