Scientific Program

UNITED RESEARCH FORUM
(CONNECT WITH RESEARCH WORLD)

Joint E-Conference on

Renewable Energy and Sustainability & Geo Sciences and Green Technology

March 15-16, 2023 | Webinar

Theme: Gearing Innovative Green Technologies towards sustainable living

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Scientific Program

Joint E-Conference on

Geo science and Renewable Energy

09:00 to 13:35

GMT (London Time)

Wednesday
March 15, 2023

March 15, 2023

9:00 - 9:10 Introduction

Oral Presentations

9:10 - 9:50 **Study of greenhouse gas emissions at Khankalskoye geothermal station site**

Magomed Shavalovich Mintsaev, Millionshchikov Grozny State Oil Technical University, Russia

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09:50-10:30 **Silicon nanostructured silicon nitride on Si- solar cell: material for Si photovoltaics**

PROF. SANTANU GHOSH, Nanostech Laboratory, Department of Physics, IIT DELHI, New Delhi-110016, India

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10:30-10:55 **Smart irrigation using Satellite data using ALRM for precision irrigation scheduling for different crops**

Ayman Suleiman, Department of Land, Water and Environment, Faculty of Agriculture,University of Jordan,Amman, Jordan

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10:55-11:20 **Biosorption and Optimization of Methylene blue using Rice straw: RSM, Isotherm, Kinetics and Thermodynamics**

Sheetal Kumari , Amity Institute of Environmental Science (AIES), Amity University, Uttar Pradesh, Noida, 201313, India

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11:20-11:45 **Polypropylene-chitosan sponges prepared via thermal induce phase separation used as sorbents for oil spills cleanup**

Dr. Abeer Alassod, Department of Textile Engineering, Mechanical and Electrical Engineering University, Damascus, Syria.

11:45-12:00 **Recent developments in hydrogenation of trains**

Mhd. Fadi Nakrash , Syrian General Corporation for Railways & Damascus university & Higher Institute for Seismic Research and Studies

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12:00-12:15 **Molecular Interaction of Beta-Satellites with Redish Leaf Curl Virus**

Mamoona Jamil , Center of Applied Biochemistry and Biotechnology, University of Agriculture, Faisalabad, Pakistan.

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12:15-12:40 Solar power is an alternative source of renewable energy in Bangladesh: A qualitative literature review

Ashim Kumar Saha, The Leprosy Mission International Bangladesh (TLMI-B)

12:40-13:05 Production of Bioethanol from solid wastepaper by Subsequent fermentation

Aziza Aftab, Mehran University of Engineering and Technology, Jamshoro,Pakistan

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13:05-13:20 MITIGATION OF HEAVY METAL STRESS (Cd) IN MAIZE (Zea mays L.) BY NUTRIENT MANAGEMENT THROUGH DIFFERENT SOURCES.

Sabeela Yaqqob, The University of Agriculture Faisalabad, Punjab, Pakistan.

13:20-13:35 Autonomous 0 Energy, USA

RA Austin

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Closing Session | End of the Day

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Thursday
March 16, 2023

March 16, 2023

9:00 - 9:10 Introduction

Oral Presentations

9:10 - 9:50 **Renewable sources : from municipale wastes to energy**

DELIA TERESA SPONZA, Dokuz Eylül university, engineering faculty, envirinmental eng. Dept.Buca İzmir Turkey

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09:50-10:30 **Co3O4/PMMA nanofibrous membrane Constructed electromagnetically for high-efficiency wave absorption**

Dr. Abeer Alassod, Department of Textile Engineering, Mechanical and Electrical Engineering University, Damascus, Syria.

10:30-10:55 **Estimation of global solar irradiation with Artificial Neural Network in Timimoun city-Algeria**

Djelloul Benatiallah, Faculty of Sciences and Technology, University Ahmed Draia, Adrar, 01000, Algeria

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10:55-11:20 **An inexpensive technology to dissipate seismic energy, explosions and winds in buildings with remote sensing of the state of vibrations of smart city buildings**

Mhd. Fadi Nakrash , Syrian General Corporation for Railways & Damascus university & Higher Institute for Seismic Research and Studies

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11:20-11:35 **TESTING AND INTEGRATING VERMI-FERTILIZER WITH CHEMICAL FERTILIZER AND SIMPLE COMPOST ON MUNG BEAN (VIGNA RADIATA)**

Muhammad MohsinAziz , The University of Agriculture Faisalabad, Punjab, Pakistan

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11:35-11:50 **Nutrient enrichment of vermicompost for soil improvement**

Mehwish Nadeem , Department of Botany, Government College University, Faisalabad, Pakistan.

11:50-12:15 **Developing and Application of Optimization Techniques in Modern Power Systems**

Prof.. Mohamed Mosaad,

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12:15-12:40 **Fresh and mechanical performance of engineered cementitious composite includes High and Low calcium fly ash.**

Prof.. Radhwan Alzeebaree, Highway and Bridge Department, Duhok Polytechnic University Duhok, Iraq.

Magomed Shovalovich Mintsaev

12:40-13:05 **Regional Empirical Chl-a Derivation Algorithms for Phytoplankton Monitoring in the Iloilo City Coastline, Philippines**

Jumar G. Cadondon, Environment And Remote sensing research laboratory, Physics Department, College of Science, De La Salle University Manila, Philippines.

13:05-13:30 **The role of Geographical Information Systems (GIS) on assessing the Impact of Climate Change on Biodiversity (A Case Study of Northern Region Malawi)**

Kizito Thawe, University of Livingstonia

Closing Session | End of the Day

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Magomed Shavalovich Mintsaev
Millionshchikov Grozny State Oil Technical University/Russia

Study of greenhouse gas emissions at Khankalskoye geothermal station site

The deep heat of the Earth is an almost inexhaustible, environmentally friendly and economically attractive resource. Geothermal energy in Russia as an industry is in its infancy, and currently there are no tried and tested, replicable technical solutions for the construction of geothermal plants. Geothermal deposits of the Chechen Republic, the largest of which are Khankalskoye, Novogroznenskoye, Chervlenoye and Kargalinskoye have long attracted close attention in terms of practical use. One of the most studied and promising geothermal deposits considered from the point of view of commissioning is Khankalskoye. In 2011-2015, the project of a unique geothermal station (UGS) for the extraction of deep Earth heat was implemented by GSTOU at the Khankalskoye geothermal deposit. It is the first experience in Russia of creating a UGS using a circulating heat collection system with an independent separation of thermal and consumer circuits through heat exchangers. The paper describes the structure of Khankalskoye experimental-industrial geothermal station. Information is provided on the previously developed GIS module "Geothermy" for monitoring operated geothermal deposits in order to protect the environment from possible negative impacts, including greenhouse gases. In order to analyze the amount and composition of greenhouse gases, a study of soil respiration was conducted on the territory of the Khankalskoye UGS using the G4301 mobile gas analyzer. Maps of the points of the actual values of the measurement of CH4 and CO2 and maps of the isolines of the flows of these gases were constructed using the thin-walled spline algorithm and interpolation.

Biography:

Magomed Shavalovich Mintsaev, graduated from the Moscow Automobile and Road Construction Institute (State Technical University) (MADI) with a degree in "Engineer for automation of technological processes and production (in construction)" in 2001 and the same year he defended his thesis for the degree of Candidate of Technical Sciences at MADI. In April 2010, he defended his dissertation for the degree of Doctor of Technical Sciences at MADI.

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Prof. Santanu Ghosh

Santanu Ghosh, Pariksha Malik, Harsh Gupta and Pankaj Srivastava

Nanostech Laboratory, Department of Physics, IIT DELHI, New Delhi, India

Silicon nanostructured silicon nitride on Si- solar cell: material for Si photovoltaics

Silicon rich silicon nitride (SRNS) films have been coated on Si solar cells as antireflection coating (ARC). A detailed photoconductivity measurements and photovoltaic characteristics have been studied in PV device configuration. A significant enhancement in fill factor (FF) and efficiency have been seen with this ARC. This is understood by critically analysing all parameters of the cell under the framework of two diode model. Lower series resistance, high shunt resistance and high fill factor of this device leads to higher efficiency. Two layers ARC architecture has been examined for PV performance.

The observed carrier lifetime, Jsc values and enhanced efficiency (an increment of ~ 21% with respect to the bare solar cell) shows that the a-SiNx:H double layer would achieve high absorptivity in various optoelectronic devices and hence is a promising antireflection coating for solar cells.

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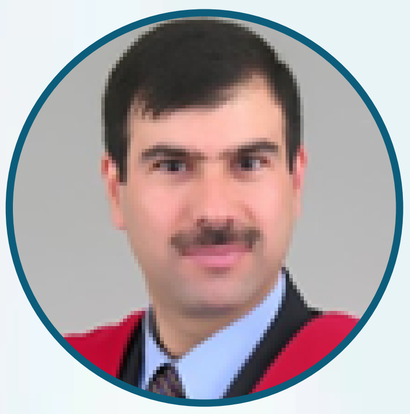

Ayman Suleiman

Department of Land, Water and Environment Faculty of Agriculture University of Jordan Amman, Jordan

Smart irrigation using Satellite data using ALRM for precision irrigation scheduling for different crops

Water scarcity is increasing worldwide especially in Arid and semi-arid areas such Jordan and the different gulf countries such as Saudi Arabia. In these dry regions, most of crops if not all the crops areas under irrigation . In Jordan about 60 % of and 100% of the planted areas in Saudi Arabia are irrigated. The high variability of soil spatially and weather temporally makes the need for smart irrigation valuable for the whole world especially arid regions. There are different methods can be used for smart irrigation such as using soil moisture sensor. The Analytical Land Atmosphere Radiometer Model (ALARM)model calculates the crop water requirements as a residual in the energy budget after computing the sensible heat flux. ALARM model estimates the aerodynamic surface temperature which is needed to calculate the sensible heat flux and does not need hot and cold pixels. In ALARM, fine-scale remotely sensed canopy temperature is used to estimate the actual daily crop water requirements with high accuracy. Many studies on different crop in several countries showed that ALARM gave well reasonable accuracy of 90 for each pixel of 30m. The crop water requirement, soil properties related to irrigation scheduling, irrigation efficiency and leaching requirements are needed for smart irrigation

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Sheetal Kumari

Sheetal Kumari and Manoj Chandra Garg

[1]*Amity Institute of Environmental Science (AIES), Amity University Uttar Pradesh Amity University, Noida, 201313, India*

Biosorption and Optimization of Methylene blue using Rice straw: RSM, Isotherm, Kinetics and Thermodynamics

Methylene blue is one of the waste textile dyes that has become a problem for the environment. In this study, rice straw was utilised to simulate the elimination of the methylene blue dye by biosorption using the response surface methodology (RSM). The pseudo-second-order kinetic model for rice straw was used to describe the methylene blue biosorption process. Two isotherm models—Langmuir and Freundlich were examined to suit the equilibrium data. As a biosorption isotherm, the Langmuir model outperformed the Freundlich isotherm model. Biosorption thermodynamic measurements revealed that Methylene Blue was adsorbing exothermically and spontaneously. The presence of functional groups, which are important binding sites involved in the process of methylene blue biosorption, was confirmed by Fourier Transform Infrared Spectroscopy (FTIR) spectra. SEM analyses were performed to evaluate the physicochemical characteristics of the biosorbent. Laboratory wastewater was processed to the ideal biosorption condition, and rice straw was used to remove methylene blue with an efficiency of 92 per cent. Another promising biosorbent that is affordable, environmentally benign, biodegradable, and cost-effective is rice straw. Thus, this research demonstrates that the dye removal process can be predicted using an RSM strategy and suggests that biosorption onto rice straw could be used as the primary dye removal technique for wastewater.

Biography:

I am a research scholar at the amity institute of environmental science (AIES) at Amity university. I am doing PhD in wastewater treatment at amity university. My recent publication is (Application of RSM for Bioremoval of Methylene Blue Dye from Industrial Wastewater onto Sustainable Walnut Shell (Juglans regia) Biomass) in Water (2022). My research interest includes wastewater treatment technology RSM, biosorption, adsorption, and artificial intelligence.

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Dr. Abeer Alassod

Department of Textile Engineering, Mechanical and Electrical Engineering University, Damascus, Syria.

Polypropylene-chitosan sponges prepared via thermal induce phase separation used as sorbents for oil spills cleanup

Creating inexpensive, highly efficient, and recyclable sponges for water remediation is significant but remains a big challenge. Herein, we report a facile method to fabricate cost-effective, environmentally friendly, and reusable sponges by blending Polypropylene with renewable resources (chitosan) with different ratios via thermal induce phase separation (TIPS). The properties of obtained sponge have been deeply evaluated in terms of the thermogravimetric analyzer (TGA), Fourier transforms infrared measurement (FTIR), and scanning electron microscopy (SEM). Besides, wettability properties of (engine oil -soybean oil) were analyzed. Newly sponges showed better thermal properties than Polypropylene with increased chitosan of more than 20%wt. Chemical characterization confirmed the successfully blending between components.Additionally, the wettability properties were influenced by increasing chitosan loading,where the water contact angle increased more than 130° due to increased surface roughness. These results revealed that new sponges are an ideal alternative sorbent for oil spill cleanup. The sorption was increased with an increased chitosan loading, where spongePP40CH registered the highest sorption, more than 700%, with oil retention of more than 80%. The obtained sponge could be used as a promising filter screen for separating oils and organic liquid from contaminated water with more than 90% separation efficiency.Thermal induce phase separation is an easy, eco-friendly, cost-effective, and practical way to produce a blend sponges with great potential usage prospects in purification and oil spill cleanup and make new sponges more competitive and promising candidates than commercial absorbents.

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Mhd. Fadi Nakrash

Syrian General Corporation for Railways & Damascus university & Higher Institute for Seismic Research and Studies

Recent developments in hydrogenation of trains

Last year was a strong year for green hydrogen - although its production varies greatly due to its high cost, and on the one hand, the amount of green hydrogen did not decrease, not because the European Union was able to generate 40 Giga watts of capacity to produce this clean energy source, but hydrogen trains new.

Hydrogen faces significant barriers to joining the current fuel flow, one being cost and the other a lack of infrastructure. This is clearly seen in the hydrogen car industry. There are a few models of hydrogen-powered passenger cars, and despite their attractive features, they remained unpopular. The first reason is their high price, then the lack of a fuel supply network. Even electric cars have the same problem. Although the United States and the European Union are pursuing plans to build such fuel networks, hydrogen has been more or less abandoned. The need for gas stations is another reason why rail transport is an ideal testing ground for hydrogen use. Trains do not need to refuel at both stations and need several strategic refueling stations

Electric trains are good for the environment, but they are not the cheapest mode of transportation. Without government assistance, electric trains might have been forgotten under the pressure of market participants. But hydrogen trains are cheaper than electric trains. In this sector, hydrogen fuel cell technology appears poised to shine, and at some point is likely to pique investor interest in using hydrogen in other parts of the transportation sector.

It's hard to predict how long it will take for green hydrogen to become economical for trains according to Oil Price. Although green hydrogen is the end point in the hydrogen revolution, it is not the first step. The first step is to find a place where hydrogen can shine, and rail transport seems to have found such a place

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Mamoona Jamil

Mamoona Jamil[1], Dr. M. Shah Nawaz ur Rehman[1], Dr. Muhammad Mubin[1], Dr. Zubair Aslam[2], Wajeeh Ur Rehman[2], Muhammad Abdullah Saleem[2], Ayesha Nawaz[3]

[1] *Center of Applied Biochemistry and Biotechnology, University of Agriculture, Faisalabad, Pakistan.*
[2] *Department of Agronomy, University of Agriculture, Faisalabad, Pakistan.*
[3] *Department of Microbiology, University of Agriculture, Faisalabad, Pakistan.*

Molecular Interaction of Beta-Satellites with Redish Leaf Curl Virus

Radish (Raphanus Sativa L.) is a part of very important vegetable family, Brassicaceae. Recently, Radish leaf curl virus with an unknown beta molecule was reported in Pakistan. It is a ssDNA virus with monopartite genome from genus Begomovirus and spread by whitefly (Bemisia tabaci). This study was designed to check the molecular interaction of betasatellites with Radish leaf curl virus. For this purpose, in 2021 symptomatic leaves collected from virology lab and then were subjected to genomic DNA extraction by CTAB method. Extracted DNA was amplified by PCR using Beta01 and Beta02 primers and then ligating it in a cloning vector pTZ57R. This cloned viral DNA was subjected to sequencing followed by BLAST analysis. This clone has 1350bp size and was given number 885 molecule. For dimer construction, this 885 clone was double digested using Kpn1 and Sal1 restriction enzymes to make its partial clones in pTZ57R vector. The partial clones were of the 2.2kb and 0.6kb and given the number, 885a and 885b respectively. These partial clones were then cloned in pTZ57R by a restriction digestion of both partial clones and vector, by same endonucleases enzyme i.e. Kpn1 and Sal1. Finally, the full length 885 clone was ligated with already shifted 885 and 8885 clones in pTZ57R by restricting them with Sal1 restriction enzyme and then ligated using T4 DNA ligase to complete the dimer. Hence, the constructed infectious clone or dimer was inoculated in model host plant Nicotiana banthamiana via Agrobacterium mediated transformation, for infectivity analysis.

Keywords: Solar radiation, CSP, ANN, Solar energy, Artificial neural network

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Ashim Kumar Saha

The Leprosy Mission International Bangladesh (TLMI-B)

Solar power is an alternative source of renewable energy in Bangladesh: A qualitative literature review

Bangladesh has given prime priority on renewable sustainable energy for securing natural sources solar, wind, hydro, biomass and conventional energy oil, gas, coal etc. Natural Gas is the main source of producing electricity in Bangladesh. According to the report of BPDB, the country generates about 68% of total electricity from natural gas. Moreover, rapid economic growth means creating demand for electricity. The energy demand in Bangladesh is increasing up concurrently due to rapid urbanization and industrialization. In Bangladesh, a large number of population usually live in rural and hard-to-reach hilly areas, where unavailable access to grid electricity. Moreover, approximately 30% of total citizens who live in rural areas are still deprived of grid electricity. This scarcity should be minimized by generating electricity from renewable solar energy. Bangladesh is a typical south asian country where it makes up to 2,500 hours of sunshine each year but with humid and hot climatic condition. Solar home system has got much popularity due to fewer cost and easier installation facility. Renewable solar energy is becoming a broadest alternative source of electricity where it widely expanded in charland, coastal and hilly areas. Since 2016, floating solar panels on water bodies have seen rapidly growth in different countries due to benefits of higher efficiency, cost effectiveness and land savings. Studies suggested that there are high risk factors of established solar plan in coastal, char land for facing recurrent riverbank erosion and flooding. Those barriers force people to relocate the alternative renewable energy network development and policy.

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Dr. Aziza Aftab

Dr. Aziza Aftab, Ahmed Shaikh

Mehran University of Engineering and Technology Jamshoro Pakistan

Production of Bioethanol from solid wastepaper by Subsequent fermentation

Focusing on biomass energy as a green energy under the umbrella of green technologies bio-ethanol is one of the most important alternative energy sources that substitute the fossil fuels. Acceptablealternative, eco-efficient and sustainable method of bio-ethanol production is by the fermentation process from waste papers under the influence of microorganisms. Bioethanol production from wastepaper is the most appropriate and environmentally friendly need of the current time and is designed to apply a sustainable approach as a renewable source. As it not only contributes to overcoming energy deficiency and fuel burden but is also capableof recycling solid wastepaper together with reducing the greenhouse gas emissions in the best possible way. Our current study is done under controlled parameters in laboratory conditions.

The best conditions for acid hydrolysis of 10 g of wastepaper which was soaked in different amounts of H2SO4 (5% weight): 200 and 300 mL [98% sulfuric acid (by volume to water) was diluted to 5% concentration]. The mixture was placed in an autoclave at 121 °C. The influence of time on the processwas determined in the range of 60-180minutes. The whole fermentation process was operated under control parameters in between the temperature range of 20oC to 30oC, and the PH range from 4.5 to 5.5, at 700to 800 rpm, and carbon source15%. After the fermentation with Saccharomyces cerevisiae, 0.8 mL of Bioethanol/g was obtained. Finally, some properties were measured according to the standards and the obtained bioethanol conforms to the set limit. Based on the obtained results. it can be concluded that waste paper is a suitable raw material for bio-ethanol production. It was found that conversion of waste paper to ethanol plant was feasible from the economic point of view and can make multi-million dollar profit, with payback time being less than three years. Therefore, Ethanol production from wastepaper is doubtlessly an attractive business from economic and environmental point of view. This technology can be used as an alternative solution for sustainable waste management and material / energy recovery.

Keywords: Wastepaper, Hydrolysis, Fermentation, Distillation and Bio-ethanol, Biological Activation.

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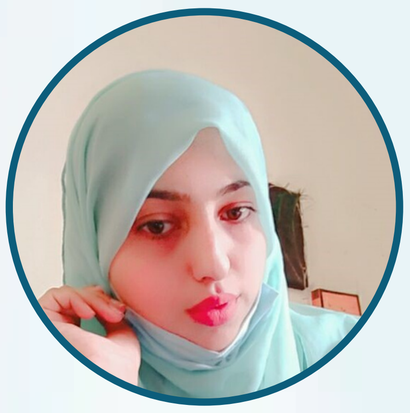

Sabeela Yaqoob

Sabeela Yaqoob, Zubair Aslam, Muhammad Saqlain

The University of Agriculture Faisalabad, Punjab, Pakistan

Mitigation Of Heavy Metal Stress (Cd) In Maize (Zea Mays L.) By Nutrient Management Through Different Sources.

The objective of this study was to analyze the impact of vermicompost on soil fertility and to observe its effects to reduce cadmium stress on maize crops. The trial was organized in a completely randomized design (CRD) having three replications. The investigation included 12 treatments. i.e. Recommended dose of chemical fertilizer (NPK 250:125:125 kg/ha), CdCl2 15 mg/kg soil; CdCl2 30 mg/kg soil; Biochar 2 tonn/ha, Vermicompost 2tonn/ha, CdCl2 15 mg/kg soil + Biochar 2 tonn/ha, CdCl2 30 mg/kg soil + Biochar 2 tonn/ha, CdCl2 15 mg/kg soil + Vermicompost 2 tonn/ha, CdCl2 30 mg/kg soil + Vermicompost 2 tonn/ha, CdCl2 15 mg/kg soil + Biochar 1 tonn/ha + VC at 1 tonn/ha, CdCl2 30 mg/kg soil + Biochar at 1 tonn/ha + VC at 1 tonn/ha, CdCl2 15mg/kg soil + NPK (250:125:125 kg/ha,); CdCl 30 mg/kg soil + NPK (250:125:125 kg/ha). Parameters regarding soil fertility and the impact of vermicompost application on plant development and the biochemical and physical properties of plants in response to the applied vermicompost was analyzed that treatment T3 (BC 2 t ha^{1}) and T4 (VC 2 t ha^{1}) show better results than all other treatments in all parameters. While To (Cd 15 mg/kg + VC 1tonn/ha + BC 1 tonn/ha), shoot root length increases from the control condition under heavy metal contaminated soil. So, concluded that T4 (VC 2 tonn/ha) reduce the uptake of Cd in roots under heavy metal-contaminated soil. The maximum decrease of Cd in root, shoot, vermicompost and biochar-contaminated soil.

Biography:

Sabeela Yaqoob, To describe myself I would say that I am a humble person with flexible nature, fully disciplined and self-motivated. The most beautiful thing about me is I am always ready to accept good changes in me. I am now in 4th semester of my Ph.D. Agriculture (Agronomy) from University of Agriculture, Faisalabad Pakistan. Throughout my education I have shown good results in my academics. Now it's my keen desire to continue my research to enhancing maize productivity in response to organic fertilizer under heavy metal stress at student research area under University of Agriculture, Faisalabad.

RA Austin

Autonomous 0 Energy, USA

At Autonomous 0 Energy we have created the first potential and constant energy source. An energy source that has no emmisions, generates more energy than it consumes, and has the highest proficiency rate for any form of energy known to humans. If you watch our videos, you will see the unit is not connected to anything, and generates a constant 120v AC, and generates less heat than the human body. No, this is not cold fusion, it is a form of wireless energy. There is no boost boards or capacitors. The lower unit is the actual device, the upper part is just for energy storage and DC to AC conversion. Thus the fans on the top unit. In conclussion, you are seeing a constant energy generator, not only creating enough power to run all those electrical devices, to also put out another 120V AC on top of it. There it is in the videos, not hiding anything like the Cold Fusion scammers of the 80's. It's real and there it is. The longer the world takes to except it, the more destructive in the name of green the world will become. This is supposed to be a micro-grid energy source, not macro-grid, it can also be buried instead of taking up natural space. It is now the only energy source that can go in the darkness of space, and under oceans and still generate power. I know, amazing!

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Delia Teresa Sponza

Environmental Engineering Department,Engineering Faculty, Dokuz Eylül University, İzmir- Turkey

Renewable sources : from municipale wastes to energy

Waste generation is extensively growing in developing countries due to the continuous growth of industrialization, urbanization, and population. Management of municipal solid waste (MSW) not only has negative environmental effects but also causes the risk to public health. Therefore, it is essential to urgently enhance the handling of waste collection, segregation, and safe disposal. Waste-to-energy technologies such as pyrolysis, gasification, incineration, and biomethanation can convert MSW, as an appropriate source of renewable energy, into useful energy (electricity and heat) describing the challenges of MSW managemen. In this paper, several waste to energytechnologies (pyrolysis, gasification, incineration, and biomethanation) were discussed in detail.

What will audience learn from your presentation?
(Try to list 3-5 specific items)

- Explain how the audience will be able to use what they learn?
- How will this help the audience in their job? I WİLL SHARE MY STUDİES
- Is this research that other faculty could use to expand their research or teaching? YES
- Does this provide a practical solution to a problem that could simplify or make a designer's job more efficient?
- Will it improve the accuracy of a design, or provide new information to assist in a design problem? YES
- List all other benefits.

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Abeer Alassod

Abeer Alassod[1*] , Ibrahim Abdalla[2]

[1]*Department of Mechanical Engineering of Textile industries and their technologies,Faculty of Mechanical and Electrical Engineering, Damascus University , Syria.*

[2]*State Key Laboratory for Modification of Chemical Fibers and Polymer Materials, College of Materials Science and Engineering, and Key Laboratory of Textile Science and Technology, Ministry of Education, College of Textiles, Donghua University, Shanghai 201620, China.*

Co3O4/PMMA nanofibrous membrane Constructed electromagnetically for high-efficiency wave absorption

With the quick advancement of modern communication technology, electromagnetic wave (EM) absorption materials have become increasingly indispensable to daily life and even national strategic areas. However, fabricating and developing highly lightweight and efficient adsorption materials is still a big challenge. Here, we proposed a new route to produce new nanofibers, Co3O4/PMMA using the electrospinning technique. The particular porous structure of the new composite nanofiber enhances the high-efficiency absorbing abilities. The results indicated that magnetic Co nanoparticles are uniformly dispersed along nanofibers. SEM observations reveal that the fibers are lengthy and uniform and are loaded with well-distributed Co(acac)3 nanoparticles, which are evidenced by XRD. The minimum reflection loss (RL min) value was investigated to be -12 dB at 16.50 GHz with a matching thickness of 2.5 mm. the new nanofiber composite considers promising for resolving the problems of weak absorption in the low-frequency range and narrow bandwidth absorption.

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Djelloul Benatiallah

Laboratory of Sustainable Development and Computer Science (LSDCS), Faculty of Sciences and Technology, University Ahmed Draia, Adrar, 01000, Algeria

Estimation of global solar irradiation with Artificial Neural Network in Timimoun city-Algeria

Information on solar radiation and its components at a certain place is crucial for the design and study of solar energy system. Solar engineers, CSP, architects, farmers, and hydrologists need information on solar radiation for a variety of uses, including solar heating, cooking, drying, and interior lighting for structures. In this study, four models developed using meteorological and astronomical parameters inputs data for training and testing the ANN model. Data was collected during an 11-year period (2010-2021) in the city of Timimoun (Latitude 29.15 N, longitude 0.15 E) in the southern Algerian. Average temperature, wind speed, relative humidity, atmospheric pressure, extraterrestrial solar irradiation, sunshine duration, and others are the inputs parameters. This study makes use of the feed forward back-propagation technique. The mean bias error (MBE), mean absolute error (MAE), root-mean-square error (RMSE), and correlation coefficient (R) assessment methods are used to evaluate how effectively these models perform. Model 4 provided the best combination of global solar radiation for estimating, according to the statistical analysis of the data, with a coefficient of correlation (R) higher than 0.93, a mean absolute error of less than 7%, and a relative RMSE of less than 10%, in comparison to other models. This model can be used when information is available to build solar energy systems in Sahara climate regions, such as for heating and cooling.

Keywords: Solar radiation, CSP, ANN, Solar energy, Artificial neural network

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Mhd. Fadi Nakrash

Damascus university & Higher Institute for Seismic Research and Studies

An inexpensive technology to dissipate seismic energy, explosions and winds in buildings with remote sensing of the state of vibrations of smart city buildings

This scientific paper shows a new technique in the dissipation of seismic energy, explosions and winds in small metal sheets that are planted in the floor heights of buildings. Earthquake These plates can be replaced with new plates, and these plates can be linked with thermal balls that measure the impact of earthquakes or explosions on buildings to be taken into consideration in the design of other smart cities.

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Muhammad Mohsin Aziz

Muhammad Mohsin Aziz, Zubair Aslam, Saddam Hussain, Nabeel Khan Niazi, Sabeela Yaqoob, Wajeeh Ur Rehmamn, Muhammad Saqlain

The University of Agriculture Faisalabad, Punjab, Pakistan

Testing And Integrating Vermi-Fertilizer With Chemical Fertilizer And Simple Compost On Mung Bean (Vigna Radiata)

Mung bean (Vigna radiata L.) is a short-duration crop that delivers a source of protein. Like leguminous crops in nature, mung bean requires little nitrogen but other essential elements. Mung bean productivity and nutrition value are not increasing to meet the requirements of the population. Vermicompost increases the chemical and physical properties of soil as well as the availability of nutrients to plants. An experiment was conducted at Student Research Farm, Department of Agronomy, University of Agriculture, Faisalabad. The sequence of experiments was randomly replicated thrice to minimize the error under the Randomized Complete Block Design (RCBD). An experiment was comprised of seven different compost, vermicompost and chemical fertilizers treatments. Data regarding emergence parameters, agronomic parameters and the biochemical parameter was observed. The observed data were analyzed through analysis of variance and treatment means at 5% productivity level by LSD test. The results obtained from the analysis of data were significant. T1 treatment showed maximum results as compared to other treatments. Highly significant result of agronomic parameters was observed. T1 showed maximum crop emergence (115.33m-2), Plant Height (58cm), Trifoliate Size of the fifth leaf (41cm2), Number of viable nodules/plant (24), Number of Branching per Plant (7.667), Pod Length (11.667cm), Number of Pods per Plant (31), Number of Grains per Pod (13), Thousand Grain Weight (46.667g), Biological Weight (5.34kg ha-1), Grain Yield (1.7967kg ha-1), Harvest Index (33.64%). This experiment highlights the opportunity of using vermicompost as organic fertilizer which enhances the growth and yield of mung bean.

Mehwish Nadeem

Mehwish Nadeem[1], Dr. Zubair Aslam[2], Wajeeh Ur Rehman[2], Muhammad Sajjad[2], Sabeela Yaqoob[2], Ahsan Jamil[2], Muhammad Saqlain[2], Muhammad Abdullah Saleem[2], Abid Shehzad[2], Mamoona Jamil[3]

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[3] *Center of Applied Biochemistry and Biotechnology, University of Agriculture, Faisalabad, Pakistan*

Nutrient enrichment of vermicompost for soil improvement

Wheat (Triticum aestivum.L) isagreat grain crop that is adversely affected by nutrient deficiency. The purpose of this research was to enrich the vermicompost with chemical fertilizer and analyze its impacts on wheat growth and soil fertility. A pot experiment wasplannedat the Student Research Farm, Department of Agronomy, University of Agriculture Faisalabad. The trial was organized in completely randomized design with three replications. The investigation was included 10 treatmentsi.e. T0= Control (with no vermicompost); T1= Vermicompost of pure FYM @ 5t/ha; T2= Vermicompost of FYM + urea 2% @ 5t/ha; T3 = Vermicompost of FYM + urea 4% @ 5t/ha; T4 = Vermicompost of FYM + NP 2% @ 5t/ha; T5= Vermicompost of FYM + NP 4% @ 5t/ha T6= Vermicompost of FYM + SOP 2% @ 5t/ha; T7= Vermicompost of FYM + SOP 4% @ 5t/ha; T8= Vermicompost of FYM + SSP 2% @ 5t/ha; T9= Vermicompost ofFYM + SSP 4% @ 5t/ha.Parameters regarding soil fertility and the impact of vermicompost application on plant development and the bio-chemical and physical parameters of plants in response to the applied vermicompost wereanalyzed. The data for germination percentage (%), plant height (cm), number of leaves per plant, fresh seedling weight (g), dry seedling weight (g), shoot length, root length was observed highest in all other treatments as compared to control treatment T0. N, P, K level also increased as compare to control. The collected data was compared by using Least Significant difference (LSD) test at 5% probability level.Present study was helpful for screening the best vermicompost levels that can improve soil fertility and plant growth.

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Prof. Mohamed Mosaad

Developing and Application of Optimization Techniques in Modern Power Systems Operation, Optimization and Control of Renewable Energy Generation Systems

Nowadays, the solution of complex problems related to modern power systems based on optimization techniques is continuously increasing. Moreover, developing effective optimization algorithms and its application in solving power systems problems is still a hot research topic. This Special Issue will deal with developing and applying optimization techniques for solving different power systems problems.
Topics tat will be covered in this presentation:

- Optimal allocation of FACTS devices in power systems.
- Modern optimization techniques for improving the integration of renewable energy sources into the grid
- Application of optimization techniques in microgrids
- Energy storage systems installed in smart grids, supporting their optimal operation.

Keywords: Optimization, Metaheuristics, Power systems, Single and multi-objective, Renewable energy, FACTS Optimal power flow, Microgrids, Smart grids, Energy storage

Biography:

Mohamed I. Mossad, SMIEEE received his BSc and MSc degrees from Zagazig University, Egypt, and the PhD degree from Cairo University, Egypt, all in electrical engineering. Currently he is an associate professor in the Department of Electrical and Electronic Engineering Technology, YIC, KSA, author of more than 100 high-ranked journal and conference papers. His research interests include power system stability, control, optimization and renewable energy. He is the editor-in chief for YJES. He is a reviewer for the IEEE transaction on power delivery, IEEE transaction on energy conversion, IET electric power application journal, IET generation transmission & distribution journal, IET journal of engineering, IET system integration, Journal of cleaner production, Electric power system components, International Journal of Industrial Electronics and Drives (IJIED), IEEE access journal, Electric power system research, energies, Alexandria journal of Engineering, Ain Shams journal of Engineering, Asian journal of control, and International Journal of Energy Engineering (IJEE). He achieved a great success 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, 2021".

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Radhwan Alzeebaree

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Fresh and mechanical performance of engineered cementitious composite includes High and Low calcium fly ash.

This paper presents the performance of Engineered Cementitious Composites (ECC) that contain high percentages of fly ash. ECC is a newly developed high-performance fiber-reinforced cementitious composite with substantial benefits in both high ductility in excess of 3% under uniaxial tensile loading and improved durability due to intrinsically tight crack width. For this concrete mix was designed as ECC-45. The polyvinyl alcohol (PVA) fiber with a fraction of 2% was used in the research. Two different PVA-ECC concretes were produced using low lime fly ash (LCFA) and high lime fly ash (HCFA) with a fly ash-to-OPC ratio of 1.2. The effect of Fly ash on the fresh properties and setting time of ECC mixes were evaluated. The mechanical properties were also conducted by evaluating the compressive strength and flexural tensile strength. Scanning electronic analysis (SEM) was also conducted to clarify the bond strength of PVA fibers within the matrix of ECC specimens. The research findings demonstrated that ECC includes high calcium fly ash exhibits less workability than ECC includes low calcium fly ash. The mechanical performance of specimens including high calcium fly ash exhibits mechanical performance much more than low calcium fly ash due to the high bond strength between the PVA fibers and ECC matrix.

Keywords: Engineering Cementitious Composite, High calcium fly ash, High calcium fly ash, Compressive strength, and Flexural tensile strength.

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Jumar G. Cadondon

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Regional Empirical Chl-a Derivation Algorithms for Phytoplankton Monitoring in the Iloilo City Coastline, Philippines

Climate change has been widely observed not only in the world but also in the Philippines. UN sustainable development goals (SDGs) aim to provide understanding on the urgent needs of the environment and society. This paper provides a solution to several SDGs on clean water and sanitation, and climate action. The Iloilo City coastline has been considered as recreational water by the Department of Environment and Natural Resources. It has been regularly monitored for physico-chemical parameters such as dissolved oxygen, temperature, pH, phosphates, oil and grease, and fecal coliform. In this study chlorophyll-a (Chl-a) concentrations were derived from the remote sensing reflectance, measured from the Iloilo city coastline. In-situ fluorometric derived Chl-a dataset were used as the true data. Standard empirical data derived from MODIS OC3M and SeaWIFS OC4V4 algorithms showed low correlation. On the other hand, Near Infrared (NIR) and red three-band model showed higher correlation which is known in estimating Chl-a in turbid waters. This model provides better estimation even with the limitations in satellite- imagery, proximity, turbidity in the different coastal areas in the Philippines.

Biography:

Jumar G. Cadondon, is currently a PhD Physics student in the De La Salle University Manila, Philippines. He is also affiliated with the University of the Philippines Visayas. He focuses on environmental monitoring specifically in fluorescence and LiDAR applications. He had published several papers on water quality monitoring, absorbance and fluorescence measurements, and fluorescence LiDAR systems. He is also part in different projects that aim to solve and answer UN sustainable development goals. He had developed a portable LED fluorescence LiDAR system that estimates the chlorophyll-a concentration of an algae in natural waters.

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Kizito Thawe

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The role of Geographical Information Systems (GIS) on assessing the Impact ofClimate Change on Biodiversity (A Case Study of Northern Region Malawi)

Globally, Climate change has been recognized as one of the biggest challengesthat humanity is facing today. Climate change is happening due to natural factor and human activities. It has serious worldwide implications on biodiversity,economic development, food security, and poverty eradication for developing countries. Malawi is amongst developing countries in Southern Africa. It's socioeconomic development continues to be affected by the impacts of climate change. Due to climate change, distributions of species have shifted to higherelevations at a median rate of 11.0 m and 16.9 km per decade to higher latitudes. Accordingly, extinction rates of 1103 species under migration scenarios, provide21–23% with unlimited migration and 38–52% with no migration. In response to Climate change as a global threat, international countries introduced severalefforts such as European Green Deal, Paris Agreement, and Green Climate Fund. The government of Malawi also introduced various actions as a key priority atnational level to increase resilience of its vulnerable population and ecosystems. The following measures have been put in place, National Climate ManagementPolicy, The National Climate Change Investment Plan and National Climate Change Resilience Strategy. In Nkhata Bay one of the district in the Northernregion of Malawi several measures have been put in place to mitigate the impact of climate change such as adoption of environmentally sustainable farming,building resilience to climate change, promoting stewardship of forest conservation and management and increase household income through forestfriendly enterprises. This paper examines the role GIS as a tool for Environmental Planning and Management. The capabilities of GIS is perceived in the followingperfective, environmental information data collection and management(Input, update and retrieval, display and visualization of digital environmental information, and spatial analysis of environmental information.

Biography:

I recently graduated with a Bachelors Degree in Education and Humanities in 2020 at the University of Livingstonia where I specialized in Geography and English. Before this, I worked as a certified teacher in Primary Education which I got from Karonga Teachers Training College. I worked for a few years as a primary school teacher before going back to University for my degree. I also worked as a Radio Reporter for about a year for a local community radio station where I interviewed people and reported on different events happening in our town. Along the way I picked up so many skills. Poetry has also been a huge part of my life; I use it as a form of self-expression. When I'm not doing any work related activities I enjoy sports and I can play basketball and volleyball.

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