PEERS ALLEY MEDIA

4th Global Conference on

Advanced Nanotechnology and Nanomaterials

SEPTEMBER 19-20, 2024

BARCELONA, SPAIN

Theme:

Unlocking the Infinite Potential of Nanotechnology and Nanomaterials; Multidisciplinary Approaches for a Nano-centric Future and Crafting Tomorrow's Sustainable Solutions

2
DAYS WITH MORE THAN 45 SESSIONS, KEYNOTES & ORAL PRESENTATIONS

12+
INNOVATIVE FEATURED SPEAKERS

20+
HOURS OF NETWORKING EVENTS

60+
INTERNATIONAL SPEAKERS

125+
EDUCATIONAL SESSIONS

NANO Intellects 2024

https://nanointellects.peersalleyconferences.com/

2 DAYS WITH MORE THAN 45 SESSIONS, KEYNOTES & ORAL PRESENTATIONS

INNOVATIVE FEATURED SPEAKERS 12+

20+ HOURS OF NETWORKING EVENTS

INTERNATIONAL SPEAKERS 60+

125+ EDUCATIONAL SESSIONS

WHO SHOULD ATTEND?

Nanotechnology Professionals | Materials Engineers | Materials Scientists | Physicists and Chemists | Metallurgists | Geotechnical Engineers | Biomedical Engineers | Academicians and Students | Policy Makers | Clinical Investigators | Industries | Entrepreneurs | Students | Materials Science Colleges | Materials Companies | Nanotechnology Companies | Training Institutes | Associations | Chemical Companies | Experts and Researchers (of Biotechnology, Physics, Materials Science, Nanotechnology, Biology, Environment, Medicine, Pharma, Ceramics, Energy, Liquid Crystals, Plasma, Polymers Semiconductors and many more...)

WELCOME MESSAGE

Philip G. Penketh

Yale University School of Medicine, USA

The 4th Global Conference on Advanced Nanotechnology and Nanomaterials (September 19-20, 2024 Barcelona, Spain) offers a superb opportunity to introduce cutting edge research and innovation to the global community. To meet and share ideas with experts in the field and possibly strike up valuable collaborations in this burgeoning field. Nanotechnology/Nanomaterials offer huge benefits for almost every industry, and for the planet's ecosystem, and for the careers of scientists who become early adopters in this field.

I believe that this two-day scientific event, featuring discussions and presentations by world-leading experts, as well as showcasing the latest research by young scientists, will create an ideal blend of knowledge and innovation in the field of nanotechnology and nanomaterials.

I am confident that participants, including delegates, experts, students, researchers, professionals from nano, chemical, and materials industries, policymakers, and healthcare providers, will greatly benefit from the insightful discussions and interactions at this congress, which is designed to foster a warm and collaborative atmosphere.

Your active participation and contributions will undoubtedly contribute to the outstanding success of this congress in advancing all aspects of nanotechnology.

Best Regards,

Philip G. Penketh

The 4th Global Conference on Advanced Nanotechnology and Nanomaterials (Nano Intellects 2024) offers a great opportunity to share the ground–breaking discoveries in advanced nanotechnology and nanomaterials among the renowned scientists from various universities and industries worldwide. The objective is to disseminate and debate about everything that is happening in the related research fields, including but not limited to, Nanoscience and Technology, Nano Polymers, Nanotubes and Nano Porous Materials, Functional Nano Materials, Nano Structures, Nano Chemistry, Nanotechnology and Energy, Nano Biotechnology, Nano Medicine, Nano Biotechnology, Nanotoxicology, Nanobots, Nanosensors, Nanotechnology in Military Applications, Nano-systems, Commercialization of Nanotechnology, and so on. The Nano Intellects 2024 also provides a unique platform to meet new colleagues and develop international connections and further cooperation for both attendees and scientific community in general.

Nano Intellects 2024 will be held on September 19–20, 2024 in Barcelona, Spain. We kindly invite speakers and delegates from all around the world to attend this fascinating conference and present their latest studies and discoveries. Scientific presentations in Nano Intellects 2023 held in last year included, nano drug targeting, nano biology, nano biosensors, nanomaterials, synapses, energy storage, piezo–phototronics, nanomaterials in batteries, nano functional films to mention a few.

We look forward to receiving your abstracts soon, as well as meeting you at the 4th Global Conference on Advanced Nanotechnology and Nanomaterials (Nano Intellects 2024), Barcelona, Spain.

Best Regards,

Dr. Wenbo Peng

Dr. Wenbo Peng

School of Microelectronics,
Xi'an Jiaotong University, China

WELCOME MESSAGE

Dear Esteemed Guests,

We are excited to announce the much-anticipated 4th Global Conference on Advanced Nanotechnology and Nanomaterials (NANO Intellects 2024). This flagship event is scheduled for September 19-20, 2024, in the vibrant city of Barcelona, a hub of innovation and technology.

This premier conference serves as a vibrant platform, bringing together esteemed scientists, engineers, clinicians, entrepreneurs, researchers, and enthusiasts from academia and industry. At the forefront of nanotechnology and nanoscience research, we are uniting a distinguished cohort of experts keen on spearheading advancements in this field.

Our objective is to facilitate a rich exchange of cutting-edge research and developments, foster new friendships, and build robust networks that will pave the way for collaborative future research. Moreover, participants will have the opportunity to garner invaluable feedback on their work from peers and leaders in the sector.

Under the inspiring theme "Unlocking the Infinite Potential of Nanotechnology and Nanomaterials; Multidisciplinary Approaches for a Nano-centric Future and Crafting Tomorrow's Sustainable Solutions" we are committed to presenting an innovative and inventive program. The conference will feature an array of sessions encapsulating the latest in nano-scale materials applications, modern electronic devices, renewable energy developments, medical advancements, and beyond. We are geared up to explore the ever-expanding realm of nanotechnology, where continuous innovations and improvements are the norm.

In addition to a stimulating scientific program, we invite you to immerse yourself in the rich culture and history of Barcelona, Spain. We trust that your interaction with like-minded professionals will ignite a fruitful exchange of ideas and offer a personally rewarding experience.

We look forward to your participation in what promises to be a groundbreaking conference.

Best regards,

NANO Intellects 2024

Organizing Committee

Peers Alley Media

1126 59 Ave East, V5X 1Y9,

Vancouver, BC, Canada

PRESENTATION FORUM

KEYNOTE FORUM / MINI-PLENARY SESSIONS

Presentations under Keynote Forum or Mini-Plenary Sessions includes abstracts with remarkable research value selected by the program committee. These significant speeches are delivered by globally recognized honorable speakers and it is open to all registrants.

DISTINGUISHED SPEAKERS FORUM (ORAL ABSTRACT SESSIONS)

In this forum, speakers and experts of the research field gets an opportunity to showcase their noble research work that involves comprehensive research findings. These formal oral presentations include a wide range of talks covering basic research to advanced research findings in accordance to the theme and scientific sessions of the conference.

STUDENT FORUM

POSTER SESSION

This session is particularly introduced to encourage more number of student participation at international conferences, however it is not restricted only to students since it is also available for the participants with language barrier. There are specific guidelines to be followed to prepare the poster. Poster topic should be selected only from relevant scientific sessions with in-depth technical details.

YOUNG INVESTIGATORS FORUM

An exclusive opportunity for students and young investigators to present their research work through a formal oral presentation. Young Investigators Forum provides a global platform for young researchers and scholars to showcase their valuable contribution to the scientific world and to get acknowledged by the global scientific community of experts. It is an excellent opportunity to recognize young scientific assets with promising research ideas. These oral presentations are of shorter time duration with 10-15 minutes of informative and precise presentations in relevant scientific sessions.

EDUCATIONAL WORKSHOPS/ RESEARCH WORKSHOPS/ CORPORATE WORKSHOPS/MINI-SYMPOSIA

With an aim of transferring knowledge among the participants, workshops are introduced as a part of international conferences. These interactive and occasionally practical sessions gives an opportunity for participants to engage in detail discussion. Workshops are mostly scheduled for 60 to 90-minutes. It may range from learning about a specific topic relevant to international education, products and research which sometimes involves practical demonstration. It helps in enhancing skills, knowledge and understanding of the research field in depth through interactive discussions.

HIGHLIGHTS OF THE DAY SESSIONS

“Highlights of the Day Sessions” is introduced to discuss and focus a ray upon previous day ORAL ABSTRACT presentations by experts to summarise the key findings. It helps in getting better insights into the various dimensions of the topic.

MEET THE PROFESSOR @ NETWORKING SESSIONS

This session involves open discussion between the experts and session attendees, it gives enough time for getting answers to specific questions and doubts. It is an opportunity for attendees to increase their professional networking, sometimes also leads to an excellent collaboration opportunity.

EDUCATIONAL SESSIONS/ TRAINING PROGRAMS

Educational Sessions or training programs are specifically designed for a better understanding of the latest findings and technologies. These are generally 45-minute sessions that gives an exposure to the multidisciplinary field, that provides in-depth learning experiences and address educational needs.

TYPES OF ACADEMIC REGISTRATIONS

- Speaker Registration
- COMBO A (Registration + 2 Night Accommodation)
- COMBO B (Registration + 3 Night Accommodation)
- Delegate Registration

TYPES OF BUSINESS REGISTRATIONS

- Speaker Registration
- COMBO A (Registration + 2 Night Accommodation)
- COMBO B (Registration + 3 Night Accommodation)
- Delegate Registration

TYPES OF STUDENT REGISTRATIONS

- Registration
- YIF
- COMBO A (Registration + 2 Night Accommodation)
- COMBO B (Registration + 3 Night Accommodation)
- Posters

TYPES OF ADDITIONAL REGISTRATIONS

- Accompanying Person
- E-Poster
- Virtual Presentation
- Workshops
- Start-Ups

Register & Participate in NANO INTELLECTS 2024

https://nanointellects.peersalleyconferences.com/

TIME TO CONNECT

WITH YOUR PEERS

CONCURRENT EDUCATIONAL SESSIONS

THURSDAY
SEPTEMBER 19
2024

- Nanoscience and Technology
- Novel Drug Delivery

- Nano Polymers, Nanotubes and Nano Porous Materials
- Nano Physics
- Nano Weapons

GROUP PHOTO | COFFEE BREAK

- Nano-Surgery
- Functional Nano Materials
- Graphene and Fullerenes

- Properties of Nanomaterials
- Materials Science and Engineering
- Nano Structures

LUNCH BREAK

- Nano Chemistry
- Molecular Nanotechnology
- Nanotechnology in Cancer Treatment

- Advancing Cellulose-based Nanotechnology
- Nano Mechanics
- Forensic Nanotechnology

COFFEE BREAK

- Nanotechnology and Energy
- Nanostructures and Nanofilms

- Nano Medicine
- 3D Printing
- Carbon Nanotubes

CONCURRENT EDUCATIONAL SESSIONS

FRIDAY
SEPTEMBER 20
2024

- Fuel Cells
- Lipid Nanotechnology
- Nano Biotechnology

- Nano Pharmaceuticals
- Nano Polymers
- Nanotechnology in Tissue Engineering

GROUP PHOTO | COFFEE BREAK

- Nanotechnology in Urology
- Robotics
- Nanotoxicology

- Nanotribology
- Nano Products
- Commercialization of Nanotechnology

LUNCH BREAK

- Artificial Intelligence
- Nanobots

- Nanosensors
- Nanodentistry
- Self-healing materials

COFFEE BREAK

- Nanotechnology in Materials Science
- Nanotechnology in Military Applications

- Fight Against Climate Change
- Nano and Big Data
- Nanographene
- Nano-systems

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4TH GLOBAL CONFERENCE ON
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FEATURED TALKS

Title: Temporal Dynamics of Lung-Deposited Surface Area (LDSA) in Central Los Angeles: Diurnal and Seasonal Patterns

Speaker Name: Constantinos Sioutas

Affiliation: University of Southern California, USA

Abstract:

In this study, we investigated concentrations of lung-deposited surface area (LDSA), elemental carbon (EC), organic carbon (OC), and particle number concentration (PNC) in Los Angeles. Hourly data were gathered using Discmini and Scanning Mobility Particle Sizer (SMPS) for PNC and LDSA, while OC, OC volatility fractions, and EC concentrations were measured by the Sunset Lab Monitor. Our findings revealed diurnal patterns with early morning peaks in PNC and EC during rush hour, corroborating prior research that associates a significant fraction of EC with ultrafine particles. During high solar radiation periods, PNC increased, likely due to nucleation and new particle formation, whereas EC concentrations did not show a corresponding rise, suggesting a weaker linkage to solar radiation compared to PNC. Evening peaks in PNC, alongside heightened $PM_{2.5}$ levels, were attributed to atmospheric conditions that impede particle dispersion, such as lower mixing heights and cooler temperatures. Additionally, midday peaks in OC levels, particularly OC_4, pointed to secondary photochemical processes occurring with increased solar radiation. Comparing LDSA measurements, we found that Discmini-reported levels were consistently higher than those from SMPS, indicating a significant presence of irregularly shaped ultrafine particles, particularly during morning traffic hours. Also, LDSA levels measured by Discmini were consistently 2.5-3 times higher than those by SMPS in warmer months, a trend likely attributable to the influence of lower relative humidity, which tends to decrease particle water adsorption. The study also noted a strong correlation between EC and PNC across different months, with prominent peaks during weekday mornings, highlighting the influence of vehicular emissions on air quality.

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FEATURED TALKS

Title: CE-LIF Analysis of Fluorescent Dyes for Detection of Nanoplastics among Metal Oxide Nanoparticles

Speaker Name Edward Lai

Affiliation Carleton University, Canada

Abstract:

Capillary electrophoresis (CE) was set up with laser-induced fluorescence (LIF) detection for the analysis of fluorescent dyes ranging from coumarin to rhodamine B and rhodamine 6G. These aromatic dyes interacted with transition metal oxide nanoparticles (TMONPs) and polystyrene nanoplastics present in a water sample, prior to CE-LIF analysis. Their concentrations were determined with high sensitivity based on efficient binding that caused a decrease of CE peak height. Fused silica capillaries, albeit unconditioned, produced repeatable peak heights despite small variations in the migration times. Selectivity was improved by choosing more dyes such as 4-dicyanomethylene-2-methyl-6-4-dimethyl-aminostyryl-4H-pyran (DCM) for the binding test. Sensitivity was maximized by conducting the binding tests at an optimal pH level. This method was further validated by high-performance liquid chromatography (HPLC) with fluorescence detection (FLD), which is commonly accessible, for the versatile control of water quality in public health and safety regulations.

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FEATURED TALKS

Title: Controlled Excitation of Colour Centres in Nanodiamonds Integrated on a Chip

Speaker Name Hamidreza Siampour

Affiliation Queen's University Belfast

Abstract:

In this talk, I highlight recent advancements in the field of nanodiamond integration and their potential for quantum sensing and networking.

In the first part, I discuss the development of integrated quantum optical devices based on dielectric-loaded plasmonic waveguides with accurately positioned nanodiamonds containing single vacancy centres (1-4). By combining resonant and plasmonic enhancement, we significantly increase the spontaneous emission rate of single photons.

Moving on to the second part, I present a chiral nanophotonic platform with embedded single emitters that enables both Purcell-enhanced emission and strong chiral coupling. We observe record-high Purcell factors for quantum dots emitting in the slow-light spectral region and demonstrate chiral routing of spin-carrying photons with exceptional Purcell factors (5). These advancements, combining plasmonic and photonic crystal waveguide modes, enable strong bonding through radiation coupling in a shared mode. They pave the way for nanoscale functional quantum sensors and scalable quantum optical networks.

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FEATURED TALKS

Title: Enhanced visible light-driven photocatalytic activity and stability of novel ternary ZnO/CuO/MoO3 nanorods for the degradation of rhodamine B and

Speaker Name Muhammad Khalid Hussain

Affiliation Australian National University

Abstract:

A newly developed photocatalyst, ZnO/CuO/MoO3 (ZnO/CuO/M), composed of nanorods, was synthesized through a straightforward hydrothermal treatment. The nanorods were thoroughly characterized, including an examination of their surface morphology, optical properties, and the dynamics of separating photoexcited charge carriers. In terms of photocatalytic performance under visible light, the ZnO/CuO/M nanorods exhibited substantial improvement compared to pristine ZnO, CuO, MoO3, and a binary CuO/M composite. Notably, the nanorods demonstrated superior degradation of organic pollutants, particularly achieving a 97% degradation of rhodamine B (RhB) and a 79% degradation of alizarin yellow (AY) within 120 minutes. Comparative analyses revealed a remarkable enhancement, with the ZnO/CuO/M nanorods surpassing pristine MoO3 by 57 times for RhB and 64 times for AY in terms of photocatalytic activity. This enhanced performance is attributed to the advantageous heterojunction structure of the ZnO/CuO/M nanorods, which facilitates the efficient and rapid transfer and separation of photoexcited charge carriers.

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FEATURED TALKS

Title: Antiviral Property of Nanoclusters-grafted Photocatalysts under Indoor Light Illumination

Speaker Name Masahiro Miyauchi

Affiliation Tokyo Institute of Technology

Abstract:

Photocatalysis is an effective technology for preventing the spread of pandemic-scale viruses. This paper reports an efficient visible light-sensitive photocatalyst, i.e., copper oxide nanoclusters grafted titanium dioxide (CuxO/TiO2) towards the anti-virus function. Figure 1 (a) shows the TEM image of CuxO/TiO2. The CuxO nanoclusters are several nanometers in size and consist of the valence states of Cu(I) and Cu(II). The Cu(I) species denaturalizes the protein of the virus, thereby resulting in significant antiviral properties even under dark conditions. Moreover, the Cu(II) species in the CuxO nanocluster serves as an electron acceptor through photo-induced interfacial charge transfer, which leads to the formation of an anti-virus Cu(I) species and holes with strong oxidation power in the valence band of TiO2 under visible-light irradiation. Figure 1 (b) shows the antiviral property of CuxO/TiO2 versus the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) viruses of the Delta variant. The antiviral function of the CuxO/TiO2 photocatalyst was maintained under dark condition, and its antiviral property was enhanced under visible light irradiation. Based on the enzyme-linked immunosorbent assay (ELISA) and the real-time reverse transcription quantitative polymerase chain reaction (RT-qPCR), we confirmed that both spike proteins and RNAs of SARS-CoV-2 viruses were damaged by the exposure to the CuxO/TiO2 photocatalyst even under dark condition. The CuxO/TiO2 photocatalyst can thus be used to reduce the infectious risk of COVID-19 in an indoor environment, where light illumination is turned on during the day and off during the night.

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FEATURED TALKS

Title: The application of generalized Rayleigh equation for description of periodic intramolecular rearrangements.

Speaker Name Vladimir Kirillovich Voronov

Affiliation Irkutsk National Research Technical University, Russia

Abstract:

This work is devoted to the substantiation of a fundamentally new idea of controlling a quantum dot and a method for its synthesis from paramagnetic molecules that are characterized by intramolecular rearrangements, in particular, valence tautomerism. The primary task of the study was to select a model that would allow the experimental implementation of such an idea. In this regard, the possibility of using the self-oscillatory system described by the Rayleigh equation to describe intramolecular periodic oscillations was analyzed. Such a self-oscillating process is nothing but the periodic overcoming of the energy barrier separating the states between which the transitions of the place take place. These states can be realized for molecular systems whose behavior at the macrocosm level is associated with the manifestation of nonlinearity of intramolecular processes. Analysis of the coefficient before the second term of the generalized Rayleigh equation using the Prigogine-Lefebvre model shows that oscillations can be stable over time with very real energy barriers characteristic of intramolecular motions. It is concluded that the generalized Rayleigh equation, in principle, makes it possible to determine specific molecular systems that can be used as starting materials for the creation of quantum dots characterized by states with significantly different magnetic properties. Coordination compounds containing atoms with empty 3d-, 4f-, and 5f- shells are suitable for this purpose. In particular, due to the peculiarities of the electronic and spatial structure of such complexes, nonlinearities of intramolecular rearrangements occur, which provide the periodicity of changes in the parameters characterizing these multielectron systems. Based on the Prigogine-Lefebvre model, a quantum dot that works on the principle of self-organization can control the work of a nanotrigger. Such a nanotrigger is an inverter capable of independently performing the logical operation NOT and ensuring the execution of the quantum counting procedure.

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FEATURED TALKS

Title: Morphology, particle size and properties of nanostructures obtained using pulsed plasma and interfacial energies.

Speaker Name E.T. Murzabekova

Affiliation Institute of Chemistry and Phytotechnology, Russia

Abstract:

Synthesis in heterophase liquid systems, which involves the occurrence of chemical processes at the interface between liquids, is of great interest, which is currently called interfacial synthesis. “The reaction can occur on a flat surface separating immiscible liquids or on a non-planar surface in microemulsions. Surface energy is concentrated at the interphase surface (phase boundary) and is excess compared to the energy in the volume. There are quite a few chemical methods for obtaining nanostructures on the interfacial surface, but due to the existing advantages, each method also has a number of disadvantages. First of all, this requires a lot of time, energy, reagents, and expensive equipment. The proposed method for obtaining nanostructures using the total energy of the interfacial surface and the energy of pulsed plasma can be an alternative method for obtaining nanostructures on the interfacial surface. Water-benzene or water-toluene liquids, which are immiscible under normal conditions, are capable of forming microemulsions with intense stirring. We have synthesized nanostructures of copper, zinc, cadmium, aluminum, and indium at the interface of two immiscible liquids, water-benzene and water-toluene, using pulsed plasma energy. A phase and electron microscopic analysis of the resulting nanostructures was carried out. The photoactivity of ZnO nanorods and indium nanostructures has been studied. The specific surface area and pore size of aluminum and aluminum oxide nanoparticles from microemulsion (water-benzene) were determined.

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FEATURED TALKS

Title: The effect of doping on the properties of a new kind of C50 solid

Speaker Name Ang-Yang Yu

Affiliation Beijing University of Technology, China

Abstract:

In this work, a new kind of fullerene solid is constructed using carbon cluster C50 with D5h symmetry. It is found that this solid is softer than the diamond through the comparision of bulk modulus. This new type of semiconductor has the indirect band gap of 0.338 eV. The stability of this solid is further confirmed by the phonon spectra calculation, which indicates that it is a new metastable configuration of carbon. After doping nitrogen atoms into this stable solid, we find that the N-doped system still remains to be the semiconductor, the band gap of which increases to 0.469 eV. The formation energy of the N-doped system is -1.090 eV/cage. Moreover, the lattice parameters of this N-doped system differ little from those of the undoped C50 system, which means that the doped system and the undoped C50 system can connect along some crystal orientations, forming the semiconductor heterojunction.

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FEATURED TALKS

Title: Road damage detection algorithm YOLOv5s-DSG based on YOLOv5s

Speaker Name Haichen Wang

Affiliation Chang'an University, China

Abstract:

Automatic detection and classification of road damages are critical for the timely maintenance and repair of road surfaces. To address issues in road damage detection, such as single detection type, low detection efficiency, low-resolution detection objects, and difficulty in detecting small target features, this paper proposes an improved road damage detection algorithm YOLOv5s-DSG based on YOLOv5s. First, optimize the depth and width of the network structure to reduce the impact on road damage image detection performance. Second, the Ghost module replaces the traditional convolution to reduce the number of model parameters, making the model lightweight and improving the detection rate. Finally, the Space-to-depth-Conv module is introduced to adapt to low-resolution and small object detection tasks. Numerous experiments on datasets such as Road Damage Dataset 2022 demonstrate that the improved model's average accuracy increased by 1.1% compared to the original model, FPS increased from 85 to 90, and the parameter quantity decreased by 21.7%. It effectively alleviates problems in recognizing small targets. Compared to existing algorithms, it has significant advantages in road damage detection and classification.

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FEATURED TALKS

Title: Piezo-Phototronic Effect in Multi-Layer Structured Optoelectronic: Bilateral Piezoelectric Charge Modulation

Speaker Name Wenbo Peng

Affiliation Xi'an Jiaotong University, China

Abstract:

Piezo-phototronic effect utilizes the strain induced piezoelectric charges inside the piezoelectric semiconductors to modulate the local energy band diagram at the interface of junctions, thus controlling the photo-generated carriers' behaviors and the performance of optoelectronic devices. Since its invention in 2010, piezo-phototronic effect is vastly demonstrated in photodetectors, light-emitting diodes, and solar cells, where only one interface is modulated by piezoelectric charges. In 2018, we first propose to construct multi-layered structure for efficient utilization of piezoelectric charges with both polarities and obtain better performance optimization by piezo-phototronic effect [1], which we recently name as *Bilateral Piezoelectric Charge Modulation* [2]. Here, we summarize the recent progresses of our researches on bilateral piezoelectric charge modulation, including both experimental results and analytical theories.

An n-ZnO/p-Si/n-ZnO double heterojunction bipolar phototransistor is designed, and the regulation of bilateral piezoelectric charges on bipolar phototransistor's performances is studied from the perspectives of theoretical derivation and experimental research simultaneously. A theoretical model of n-ZnO/p-Si/n-ZnO double heterojunction bipolar phototransistor is established, and the influence of four polar combinations of piezoelectric charges induced by different strains formed at the interface of two heterojunctions on the characteristics of phototransistor is carefully studied. The theoretical calculation results show that, when positive piezoelectric charges are generated at both two interfaces, the regulation of strain on the phototransistor is a superposition of two positive effects, which can significantly improve the performances of phototransistor. Then an n-ZnO/p-Si/n-ZnO double heterojunction bipolar phototransistor is experimentally prepared. By rationally designing the device structure, positive piezoelectric charges could be simultaneously generated at the two heterojunction interfaces when an external compressive strain is applied. The saturation current of phototransistor is significantly improved, and the photoresponsivity is also improved to a certain extent by the applied compressive strain. To further optimize the performances, the effects of interdigitated electrode's size, substrate and ZnO layer on the strain regulation of device performance are carefully studied. The experimental results show that when the p-Si substrate is used, the size of interdigitated electrodes is chosen as channel width W_0 = 80 μm, the channel length L = 5 μm, and the number of electrodes N = 14, and the ZnO nanowires layer prepared by low temperature hydrothermal growth method is used as both emitter and collector, the strain induced bilateral piezoelectric charges regulation of the obtained bipolar phototransistor is the best. At a compressive strain of -1.37%, the photoresponsivity is enhanced about 2000%, indicating the significant modulation of applied strain on the performances of heterojunction bipolar phototransistor.

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FEATURED TALKS

Title: Synthesis of Mo2Ti2C3Tx MXene Electrodes by Lewis Acid Molten Salt Route for Energy Storage

Speaker Name Daniel Q. Tan

Affiliation Guangdong Technion-Israel Institute of Technology, China

Abstract:

MXenes, a class of two-dimensional transition metal carbides and nitrides, hold significant promise for electrochemical energy storage applications due to their exceptional electronic conductivity, tunable surface chemistry, and pseudocapacitive charge storage mechanisms. In this study, we demonstrate a novel one-step approach of in-situ deposition of Mo and Ti-dual oxide nanoparticles in $Mo_2Ti_2C_3T_x$ MXene (non-conventional nanomaterials) using the Lewis acid molten salt method (LAMS), with meticulous optimization of annealing conditions. The Mo, Ti dual oxide incorporation prevents the collapse of the MXene's layered structure and then results in the remarkable electrochemical performance of supercapacitors in aqueous electrolyte. Remarkable outcomes include a specific capacity of 434 C g^{-1} at 5 mA cm^{-2}, exceptional cycle life with 94% capacity retention after 5000 charge-discharge cycles at 50 mA cm^{-2}, and high-rate capability in 3M KOH aqueous electrolyte. This research underpins the potential of Mo and Ti-based MXenes as high-rate charge storage electrodes and paves the way to design next-generation electrode materials through sustainable synthesis routes.

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FEATURED TALKS

Title: TPPII depletion causes presenile dementia in female mice by downregulating CYP19A1 through ATF6-SYVN1-UCHL1 axis-mediated autophagy pathway

Speaker Name Jisen Huai

Affiliation Xinxiang Medical University, China

Abstract:

Tripeptidyl peptidase II (TPP2) is generally considered as a cytosolic protein which forms the largest known protease complex in eukaryotic cells to operate mostly downstream of proteasomes for degradation of longer peptides by removing tripeptides from free amino termini. However, this canonical function of TPP2 cannot explain its role in a wide variety of biological processes. The mechanistic interrelationships and hierarchical order of these processes have yet to be clarified. Here we show that TPP2 independent of its enzymatic activity is a key maintainer of intracellular calcium (Ca2+) homeostasis and thereby plays a key role in the biosynthesis of Phosphatidylcholine (PC). By generating and exploring the TPP2 knockout 293T cells and ubiquitous/excitatory neuron-specific TPP2 knockout mice, we found that TPP2 gene ablation leads to intracellular Ca2+ dyshomeostasis, PC deficit, and endoplasmic reticulum (ER) stress, which result in ATF6-SYVN1-UCHL1 axis-mediated autophagic CYP19A1 (Aromatase) degradation and ultimately estrogen depletion. Both ubiquitous and excitatory neuron-specific TPP2 knockout mice displayed impairment in learning and memory characterized with presenile dementia. This work therefore uncovers a new working mechanism of TPP2 which is not only of great significance for elucidating the pathogenesis and future treatment of dementia, but also for interpreting the role of TPP2 in other system and treatment of the related disorders.

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FEATURED TALKS

Title: 2D magnetic memory based on graphene nanoribbons spin-valves

Speaker Name Wen-Jeng Hsueh

Affiliation National Taiwan University, Taiwan

Abstract:

Using two-dimensional (2D) materials presents a significant leap forward in developing spintronic devices, offering a superior alternative to spin management. The primary focus of this effort is advancing non-volatile memory technologies, particularly magnetic random-access memories (MRAMs), by incorporating 2D materials. Crucial to the writing mode of MRAMs is achieving a substantial spin current density capable of state switching. Overcoming the challenge of surpassing critical values, approximately 2 MA/cm^2, for spin current density in 2D materials at room temperature is a formidable hurdle. In response, we introduce a gate-controllable spin-valve founded on armchair graphene nanoribbons (GNRs) designed to generate a substantial spin current density, which allows us to switch the magnetization state without the aid of an applied magnetic field at room temperature. Dirac Hamiltonian and Landauer–Büttiker formalism are used to simulate the spin-dependent transport properties and performances of the proposed device. Controllable gate voltage proves instrumental in achieving the critical spin current density, with the highest density reaching an impressive 14 MA/cm^2 through adjustments to the band gap energy of GNRs and exchange strength in our proposed gate-controllable spin-valve, as shown in Fig. 1. Moreover, our proposed GNR spin-valve satisfies reading mode criteria, consistently maintaining magnetoresistance (MR) ratios exceeding 100%. Furthermore, realizing an exceptionally low writing power requirement stands as a great advantage offered by the proposed GNR spin-valve. To sum up, this innovation allows for ultralow writing power, overcoming challenges traditional magnetic tunnel junction (MTJ) based MRAMs face. We believe these encouraging results can pave the way for the feasibility of spintronic devices based on 2D materials, indicating potential breakthroughs in integrating spintronics into non-volatile memory technologies.

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SEPTEMBER 19-20, 2024 I BARCELONA, SPAIN

FEATURED TALKS

Title: Gold Nanoparticles in Silica Aerogels

Speaker Name István Lázár

Affiliation University of Debrecen, Debrecen, Hungary

Abstract:

Gold nanoparticles (AuNPs) combine beauty with functionality, exhibiting unique properties due to their size and shape, and displaying vibrant colors in red and purple hues. Their exceptional stability and biocompatibility make them ideal for medical imaging, targeted drug delivery, fuel cells, or chemical catalysis.

Nitrophenols are increasingly contaminating surface and ground water due to the extensive use of dyes, pesticides and pharmaceuticals. On short-term contact, p-nitrophenol (PNP) may cause eye and skin irritation, longer exposure may result in methemoglobinemia, cyanosis, genotoxicity, and chromosome aberrations. The decontamination of PNP may be performed by several methods including reduction to p-aminophenol with sodium borohydride in the presence of metallic nanoparticles, for example iron, silver, or gold naoparticles. The recovery of high-cost AuNPs is a crucial step that cannot be performed efficiently. [1]

Aerogels are extremely porous and lightweight solids made of a large variety of inorganic, organic or natural materials. Silica aerogels are the most widely studied and used ones exhibiting special tunable surface properties, good mechnical strength, transparency and inertness in chemical reactions.[2]

Immobilization of AuNPs in a very porous matrix can preserve their activity and provide easy access to the catalitically active particles without letting them leach in the solution, and facilitate their recovery by traditional filtration/sedimentation and centrifugaion methods. [3]

The purpose of our research was to make catalytically active silica aerogles with embedded gold nanoparticles in order to decontaminate PNP solutions with a managable and scalable process. In the lecture, we shall present the direct and the reverse-engineered synthesis of gold naoparticle-containg silica aerogels, characterization of the particles with SEM, TEM, optical microscopy, UV-Vis spectroscopy, and demonstrate their catalytic efficiencies, recovery and life cycles in batch reactions, as well as in a newly developed continuous-flow reactor.

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FEATURED TALKS

Title: Characterization, antibacterial, and cytotoxic activities of silver nanoparticles using the whole biofilm layer as a macromolecule in biosynthesis

Speaker Name Aghapy Yermans Yakoup

Affiliation Zewail City of Science and Technology, Egypt

Abstract:

Recently, multi-drug resistant (MDR) bacteria are responsible for a large number of infectious diseases that can be life-threatening. Globally, new approaches are targeted to solve this essential issue. This study aims to discover novel antibiotic alternatives by using the whole components of the biofilm layer as a macromolecule to synthesize silver nanoparticles (AgNPs) as a promising agent against MDR. In particular, the biosynthesized biofilm-AgNPs were characterized using UV-Vis spectroscopy, electron microscopes, Energy Dispersive X-ray (EDX), zeta sizer, and potential while their effect on bacterial strains, and normal cell lines was identified. Accordingly, biofilm-AgNPs have a lavender-colored solution, spherical shape, with a size range of 20–60 nm. Notably, they have inhibitory effects when used on various bacterial strains with concentrations ranging between 12.5 and 25 µg/mL. In addition, they have an effective synergistic effect when combined with phage ZCSE9 to inhibit and kill Salmonella enterica with a concentration of 3.1 µg/mL. In conclusion, this work presents a novel biosynthesis preparation of AgNPs using biofilm for antibacterial purposes to reduce the possible toxicity by reducing the MICs using phage ZCSE9.

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FEATURED TALKS

Title: Review on structural and electrical properties of Co- Mn -Zn ferrite and its applications

Speaker Name Asmaa Reda

Affiliation Sadat City University, Egypt

Abstract:

Several years of worldwide revolutionary developments in nanoscience, combining physics, chemistry, material science, theory and even biosciences, have brought us to another level of understanding. The remarkable progress in science and technology is established with the advancement in nanoscience and nanotechnology. Basically, ferrites are ceramic materials, dark grey or black in appearance and very hard and brittle. Ferrites may be defined as magnetic materials composed of oxides containing ferric ions as the main constituent. Ferrites have much less electrical conductivity compared to metallic ferro magnets, continues to be the most important magnetic materials in various high-frequency applications, having repressed eddy currents and lowered energy loss in high-frequency use. Therefore, ferrites are playing a great role in many devices of every-day life (ac and dc motors, power distribution systems, video and audio applications, microwave devices, antenna rods, loading coils, core material for power transformers in electronics, high-frequency devices, memory devices such as hard disks, floppy disks, capacitor electrode, catalysis, drug delivery, water treatment, and gas sensor.

Ultrafine Cobalt Zinc ferrite powders have been synthesized by co-precipitation method. Moreover, the effect of substituting Mn^{2+} ions on the crystal structures, microstructure, and dialectical properties of Co-Zn ferrites were studied. The effect of this dopant on the average of crystallite/grain size, lattice parameter, density, the purity of the formed phase, and morphology of the synthesized nanoparticles was determined. The prepared powders were characterized using X-ray diffraction, Fourier Transformation, Infrared Spectra, Transmission electron microscopy, and LCR Bridge. We obtained an improvement in the dielectric properties of the prepared samples, making them suitable for use in high-frequency applications due to the substitution by Mn ions.

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FEATURED TALKS

Title: Approaches in line with human physiology to prevent skin aging

Speaker Name Nazlı Karimi

Affiliation Hacettepe University, Turkey

Abstract:

Skin aging is a complex process that is influenced by intrinsic and extrinsic factors that impact the skin's protective functions and overall health. As the body's outermost layer, the skin plays a critical role in defending it against external threats, regulating body temperature, providing tactile sensation, and synthesizing vitamin D for bone health, immune function, and body homeostasis. However, as individuals age, the skin undergoes structural and functional changes, leading to impairments in these essential functions. In contemporary society, there is an increasing recognition of skin health as a significant indicator of overall wellbeing, resulting in a growing demand for anti-aging products and treatments. However, these products often have limitations in terms of safety, effective skin penetration, and potential systemic complications. To address these concerns, researchers are now focusing on approaches that are safer and better aligned with physiology of the skin. These approaches include adopting a proper diet and maintaining healthy lifestyle habits, the development of topical treatments that synchronize with the skin's circadian rhythm, utilizing endogenous antioxidant molecules, such as melatonin and natural products like polyphenols. Moreover, exploring alternative compounds for sun protection, such as natural ultraviolet (UV)-absorbing compounds, can offer safer options for shielding the skin from harmful radiation. Researchers are currently exploring the potential of adipose-derived stem cells, cell-free blood cell secretome (BCS) and other endogenous compounds for maintaining skin health. These approaches are more secure and more effective alternatives which are in line with human physiology to tackle skin aging. By emphasizing these innovative strategies, it is possible to develop effective treatments that not only slow down the skin aging process but also align better with the natural physiology of the skin. This review will focus on recent research in this field, highlighting the potential of these treatments as being safer and more in line with the skin's physiology in order to combat the signs of aging.

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FEATURED TALKS

Title: Ecologically Sustainable Graphene Aerogel fortheeffective Adsorption of Indoor Air pollutants

Speaker Name Aryan Singh

Affiliation Indian Institute of Petroleumand Energy

Abstract:

The hazardous nature of volatile organic compounds (VOCs) and toxic gases (TGCs), which are produced from diverse natural and anthropogenic activities, poses a serious threat to human health.[1] Consequently, it is essential to implement effective methods for the removal of TGCs like adsorption, absorption, condensation and membrane separation.[2] Adsorption is preferred over conventional methods because of its selectivity, regenerability, versatility and compact environmental friendly. Graphene aerogel (GA) has gained importance because of its remarkable adsorption capability and unique structural characteristic.[3] Herein, the synthesis of ultra-light weight, coarse pore structure nitrogen doped-GA (N-GA) from biomass (Guava) is reported. Further, The N-GA was used as adsorbent for the effective adsorption of TGCs. These N-GA exhibit high adsorption of TGCs with high recyclability due to high porosity and surface area. N-GA show fairly good adsorption of TGCs such as NH3 (~408 mg g-1), formaldehyde (~332.03 mg g-1), carbon disulfide (~186.4 mg g-1), hydrochloric acid (~319.7 mg g-1), acetone (~341.8 mg g-1), ethanol (~184.5 mg g-1). The results indicate that N-GA exhibit considerable potential for diverse applications in air purification.

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FEATURED TALKS

Title: Synthesis of Multi-position 3-PRS Manipulator based on Spherical Constraints by Eliminating the PARA

Speaker Name Srinivasa Rao Pundru

Affiliation Mahatma Gandhi Institute of Technology

Abstract:

This work presents synthesis of 3-PRS manipulator based on spherical constraints by eliminating the PARA. The PARA can occur due to constrained mobility of the manipulator. The 3-constrained variables of manipulators are rotational freedom along z-axis and 2-translational freedom about x and y-axis of the fixed reference frame. The PARA motions are usually nonzero and are determined by the geometrical parameters of the manipulator. These PARA motions cause crucial problems in some cases. In general the amplitude of PARA motions are very small, but shows more impact on precision of motion, quality and accuracy of the mirror images of 3-PRS manipulator. To prevent these undesirable PARA motions, the synthesized architectural parameters of 3-PRS manipulator are identified by eliminating the PARA motions. The prospective application of this manipulator is in mirror image telescopic process used for alignment applications where tip, tilt and image focus of primary and secondary mirrors and positions are important

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FEATURED TALKS

Title: Development of Super Sensitive Moisture Sensor by Ceramic Nanoporous Thin Film: A Comparative Study

Speaker Name Manju Pandey

Affiliation Ajeenkya D.Y. Patil University, India

Abstract:

In this paper we report super sensitivesensitive capacitive humidity sensor whose stability and response is completely unaffected in toxic ambience.The developed sensor has fast response and recovery time, and high selectivity for moisture. Standard characterization techniques such as AFM, FESEM, BET,XRD and impedance spectroscopy were employed for micro-structural and electrical characterization of RH sensor. The nano porous alumina film developed by sol-gel technique undergoes a huge change in dielectric upon adsorption of moisture, ensuring large change in capacitance. The prototype instrument can be used for sub ppm level moisture detection in highly toxic environment for different applications. Response and recovery time of developed sensor are in seconds. Novelty of this sensor is ,its performance remains same in toxic environment which is confirmed by experiments.

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FEATURED TALKS

Title: ACBSO: a hybrid solution for load balancing using ant colony and bird swarm optimization algorithms

Speaker Name Yogita Yashveer Raghav

Affiliation K R Mangalam University

Abstract:

In order to balance the load in cloud comput- ing, this study suggests a hybrid technique called "ACBSO" that uses both ant-colony and bird swarm optimization techniques. Comparative analysis of the proposed hybrid algorithm has been done with Ant-colony optimization and bird swarm optimization techniques. Simulation results show that the hybrid approach outperforms both the ant-colony optimization approach and the bird swarm optimization approach.Comparison has been done based on primary factors such as makespan, throughput, ftness score, and resource consumption. To obtain the outcomes of the necessary simulations,the cloudsim simulator is employed.

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FEATURED TALKS

Title: Nanofluid Based Pipe Flow Analysis in Absorber Pipe Of Flat Plate Solar collector: Effectes of Inclination and Porosity

Speaker Name Lipika Panigrahi

Affiliation Gandhi institute for education and technology

Abstract:

Nanofluid applications in solar collectors are an emerging area for enhanced heat transfer resulting in heat gain for domestic and industrial use. In the present work, the performance of a Flat Plate Solar Collector (FPSC) having water-CuO-based nanofluid has been studied. The effect of the tilting angle of cylindrical pipe and porosity of porous material is investigated for this nanofluid-based FPSC. A numerical approach has been adopted to stimulate the governing equations in the tube. The similarity transformation simplifies the model (PDEs) into ordinary differential equations (ODEs). The governing non-dimensional PDEs along with their appropriate boundary conditions are solved numerically using the 4th order Runge-Kutta method cum shooting technique. The impacts of significant and relevant physical parameters and physical quantities of interest are analyzed. From the present study, it is observed that amplification of tilting angle and curvature parameter ameliorates the heat transfer rate while that of porosity parameter controls it effectively. A similar approach can be employed for other solar collectors to assess the heat transfer augmentation by using nanofluids instead of existing fluids.

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FEATURED TALKS

Title: Adaptive Fuzzy Clustering Based Atom Search Optimization Segmentation for Accurate Alzheimer's Disease Detection on Magnetic Resonance Images

Speaker Name Nirupama S. Patodkar

Affiliation MGM University

Abstract:

The algorithm incorporates adaptive fuzzy clustering to enhance the precision of cluster assignments, allowing for a more nuanced representation of neuroanatomical structures. The integration of Atom Search Optimization further refines the segmentation process, optimizing the spatial distribution of clusters and improving the overall accuracy of region-of-interest identification.

The research outlines the algorithm's architecture, detailing the implementation steps involved in applying ASO for neuro-imaging data segmentation. A comprehensive evaluation is conducted using local and global datasets, demonstrating the algorithm's effectiveness in accurately segmenting brain regions relevant to Alzheimer's pathology. The results showcase the algorithm's potential in achieving improved sensitivity and specificity in comparison to existing segmentation methods.

By introducing this innovative algorithmic approach, the research contributes to the advancement of Alzheimer's Disease detection methodologies, specifically focusing on the critical step of accurate segmentation. The proposed technique holds promise for enhancing the precision of neuroimaging analyses, ultimately leading to more reliable early detection and diagnosis of Alzheimer's Disease.

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FEATURED TALKS

Title: Antibacterial, Antioxidant, Visible light-induced dye degradation potential of green synthesized Ag/ZnO Nanocomposites utilizing seeds of Girardinia

Speaker Name Aayasha Negi

Affiliation Department of Chemistry IFTM University Moradabad

Abstract:

Growing concerns over the toxicity of metallic nanocomposites synthesized using physical and chemical techniques seems to be a major hurdle for researchers.Green synthesis of NCs is one of the promising, eco friendly and safer methods. Ag/ZnO NCs were prepared by green method. The obtained NCs were characterized by UV-Vis, XRD, FT-IR, TEM and EDX. The results indicated that high purity of nanosized Ag and ZnO-NCs were successfully obtained having cubic and hexagonal crystalline structures respectively. The band gap energies of Ag/ZnO NCs were estimated using UV-visible absorption spectra using tauc plot. In addition, the photocatalytic property of these nanocomposites were divulged by their rose bengal, Methylene blue dye degradation potential. The residual concentration of dyes was monitored using UV-visible absorption spectrometry. In this case the degradation efficiency of the photocatalyst nanoparticles after 2h irradiation time was about 93% with a reaction rate of 3.61×10^{-3} min^{-1}. Further, these NCs rrevealed antimicrobial effects against clinical pathogens such as *Staphylococcus aureus*, *Escherichia coli* and *Klebsiella pneumoniae*. The research further evaluated the antioxidant capabilities of these NPs using H_2O_2 radical scavenging assay.

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FEATURED TALKS

Title: SEE Failure Analysis of Hi-rel ASIC for Spacecraft Applications

Speaker Name Padmapriya K

Affiliation U R Rao Satellite Centre

Abstract:

Miniaturized electronic devices are essential to improve the performance, reduce the weight and volume, and improve reliability of electronic packages in a spacecraft. With technology scaling, a prime reliability challenge for CMOS devices used in spacecrafts is the occurrence of soft errors due to the propagation of Single Event Transients (SETs) in the space radiation environment. ASICs undergo stringent quality tests to ensure reliable operation of the spacecraft during its mission life. In general, Single Event Effect (SEE) tolerance qualification tests estimate the heavy ion radiation tolerance of CMOS devices for space application. A new SEE test methodology using available scan structure in digital ASICs is presented. Here, different patterns are loaded in the scan chain which helps to differentiate between Single Event Upset (SEU) and SET-induced SEU soft errors, and localize SEU fault location by test data analysis. The SEE test methodology combines both static and dynamic testing in the two modes viz., scan test mode and functional mode of testing. Two different ASIC designs realized in 180 nm CMOS technology are tested successfully in this methodology. Failure analysis of multifunctional configurable ASIC is carried out using logged test data and know-how of functionality and structural implementation of the design. The identified SET susceptible cell is replaced with four different structures, re-fabricated and tested again to ensure the correctness of the analysis. This methodology can be used for complex designs, designs incorporating radiation mitigation, as well as to evaluate the logic cells in a new standard cell library for radiation tolerance.

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FEATURED TALKS

Title: Biotoxicity of Achrostichum aureum L. synthesized Zinc Oxide Nanoparticles against Aedes albopictus, and impact on predation efficiency of

Speaker Name Roni.M

Affiliation University of Calicut

Abstract:

Millions of people worldwide are at risk of death from diseases carried by mosquitoes. India is currently dealing with the threat posed by *Aedes* mosquitoes, which spread the arboviruses that cause dengue and Chikungunya and instill fatal terror in the population throughout the world. Control of arthropod pests in growing countries is a key issue with different aspects. Therefore, in this research, we synthesized ZnONPs from *Achrostichum aureum* L. to manage mosquito vectors. The synthesized ZnONPs were characterized by using SEM and TEM, with a size ranging from 36.8 nm to 68.4 nm. Further, XRD analysis indicates the crystalline nature of the face-centered cubic structures of synthesized ZnONPs. Also, the FTIR confirms the role of a variety of phytoconstituents that are involved in binding with nanomaterials in order to stabilize them for a long period of time. Insecticidal assays showed that both ethanolic leaf extract of *A. aureum* and its fabricated ZnONPs had significant toxicity on different life stages of targets with LC_{50} values were 15.65-I instar, 17.07-II instar, 18.59-III instar, 18.35-IV instar, and 19.50-puape respectively. Concerning non-target effects, the predatory potency for *Gambusia affinis* was 46.73%, and 32.87% on III and IV larval instars of *A. albopictus* in standard laboratory settings while in ZnONPs treated aquatic environmental settings, the predatory efficiency of fish was boosted to 60.06%, and 40.86%, respectively. In conclusion, this research explored that both *A. aureum* extract and its fabricated ZnONPs may be considered as an alternative tool against dengue vector.

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FEATURED TALKS

Title: Cognitive Therapy for Human Mental illness Detection using Naïve Bayes Algorithm

Speaker Name Shahid Naseem

Affiliation Division of Science and Technology, University of Education

Abstract:

Mental Stress and anxiety are a necessary part of our lives and can have both beneficial and negative effects. The stress response is primarily determined by our perception of an event, transition, or problem. Finding a balance in our lives and managing our stress can be an immense challenge. WHO forecasted that one in four people will suffer from mental and other neurological disorders in near future. Thus, the computation, detection, and providing a solution for stress anxiety and depression has become an important point of focus for the researchers and also for the psychologists. Psychologists utilized various scales to quantify a degree of mental issue. On the other hand, to measure such an Illness level, we are dealing with a knowledge-based expert system that will be used to process such an illness level among students and employees who are not associated with technology by surveying among them. Many methods for detecting the cause of these mental issues and stress computation have been introduced by various researchers. This paper focuses on the use of one of the AI methods like naïve Bayesian for predicting sentiments. Our developing and ever-evolving human society has become a great cause of stress and mental issues for its natives. These mental stress and anxiety issues have been a critical point of focus for the researchers because of their endless and strong effects on human behavior. Many methods for detecting the cause of these mental issues and stress computation have been introduced by various researchers.

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FEATURED TALKS

Title: Hepatoprotective role of thymoquinone coated zinc oxide nanoparticles against aflatoxins induced hepatotoxicity

Speaker Name Huma Mujahid

Affiliation University of Veterinary and Animal sciences

Abstract:

Aflatoxins (AFs) are the group of highly carcinogenic mycotoxins produced primarily by the fungus *Aspergillus flavus.* Feed contamination might increase the risk of aflatoxins spreading into animal-derived goods resulting in major economic losses, refusal of supplies for national or international exchange, as well as causing human and animaldeaths. Conjugation of TQ with Zinc Oxide Nanoparticles and to analyze the hepatoprotective effect of thymoquionone laded ZnONPs against aflatoxins induced hepatotoxicity in albino rat.Thymoquinone loaded ZnO nanoparticles have hepatoprotective effect against the aflatoxin inducedhepatotoxicity.Thymoquinone solution (2 mg/mL), 10 mg ZnO nanoparticles in 1 mL acetone. Adding thymoquinone to ZnO. TLC and HPLC measured toxin extracted in acetonitrilewater. After the estimation of the toxin, a 28-day feeding trial was conducted at the Animal House, UVAS, Lahore. One month old, 20 albino rats were randomly selected and divided into 5 groups, each including 4 rats. Group A was given (normal feed), B (aflatoxin contaminated feed), C (aflatoxin contaminated feed +25ppb ZnONPs), D (aflatoxin contaminated feed +10ppb TQ), E (aflatoxin contaminated feed + 25ppb TQ-ZnONPs). Experimental rats were slaughtered and blood was drawn for biochemical testing and liver tissue samples were collected for histopathological observations. All the results were analyzed statistically by one way ANOVA and means were compared by Duncan's Multiple Range test. The P-value < 0.05 was considered as significant. Results of Biochemical evaluation showed that thymoquinone coated zinc oxide nanoparticles improved the liver function tests ALT (28±1.00) and AST (35±4.00). Histopathological findings of liver also showed that thymoquinone coated zinc oxide nano particles treated group retained the normal architecture of cells as compared to aflatoxin treated group. In conclusion thymoquinone coated zinc oxide nano particles effectively reduced the hepatotoxic effects caused by aflatoxins present in animal feed.

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FEATURED TALKS

Title: Predicting the physicochemical properties of drugs for the treatment of Parkinson's disease using topological indices and MATLAB programming

Speaker Name Mehri Hasani

Affiliation Semnan University

Abstract:

In this study, we analyzed twelve drugs used to treat Parkinson's disease. We created graphs of the drugs' structures and used computational techniques, and vertex and edge partitioning methods to calculate the topological indices derived from the M-polynomial. To simplify calculations and data analysis, a computer-based computing technique along with the algorithm has been employed. Topological indices are numerical values that describe the properties of chemical compounds based on their molecular structure and connectivity. These indices can be used to predict various physicochemical properties of compounds such as boiling point, flashpoint, enthalpy of vaporization, molar refractivity, molar volume, polarizability, surface tension, and surface area. Analyzing drugs used in treating a specific disease through topological indices is a valuable technique to reduce unnecessary laboratory expenses. We utilized linear, quadratic, cubic, logarithmic, inverse, power, compound, s-curve, growth, and exponential regression model analyses to create QSPR models between the topological indices and eight physicochemical properties of the drugs to determine their effectiveness. Confidence intervals at a 95% level were computed for both the slope and intercept of the linear regression models. Additionally, based on the maximum R^2, optimal equations for estimating the boiling point, enthalpy of vaporization, molar refractivity, polarizability, and molar volume using different indices have been determined, and linear, quadratic, and cubic equations have been specified. For example, the optimal equation for estimating Molar volume (MV) using the harmonic index is a cubic equation with a maximum R^2 of 0.931 and a maximum F value of 60.95. Calculated feature values are strongly correlated with actual values, indicating reliable predictive capabilities of the indices. For statistical analysis and to determine if there is a significant difference between the averages of the two groups, we used either an independent T-test or Welch's T-test. The results indicate that the p-value is less than 0.05, showing that the mean difference between the samples is statistically significant.

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FEATURED TALKS

Title: Vibration analysis of laminated composite beams reinforced with different fractions of nano-particles

Speaker Name Saman Momeni

Affiliation Sharif University of Technology

Abstract:

Composite structures (beams) are being used in many engineering applications, especially in high technology, including wind turbine blades, helicopter blades, industries, etc. The dynamic response of laminated composite beams reinforced with nano-particles has been investigated in the present work. Most of the existing works on the effects of nano-particles on the stiffness of composite structures are limited to very low-weight fractions, around 3% to 5%. This work studies the effect of a higher percentage of nanoparticles (up to 10%) on the dynamic behavior of the composite structures via experimental tests. Adding nano clay up to 3% of weight fraction increases the natural frequency; beyond that, up to 5 %, the natural frequency slightly decreases, and at 10%, a sharp reduction in natural frequency is observed. An in-house experimental setup has been developed to validate the experimental results with theoretical ones. Another feature of importance is the increasing damping coefficient of the laminated beam when the amount of nano-particles reaches 10%.

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FEATURED TALKS

Title: Treadmill exercise with nanoselenium supplementation afects the expression of Irisin/FNDC5 and semaphorin 3A in rats exposed to cigarette smoke

Speaker Name Fatemeh Rostamkhani

Affiliation Islamic Azad University

Abstract:

In the current study, we investigated the impacts of 6 weeks of aerobic interval training (AIT) with selenium nanoparticles (SeNPs) on muscle, serum, and lung irisin (FNDC5) and Sema3A in rats exposed to cigarette smoke extract (CSE). To this end, 49 male Wistar rats (8 weeks old) were divided into seven groups: control, SeNPs (2.5 mg/kg b.w by oral gavage, 3 days/week, 6 weeks), AIT (49 min/day, 5 days/week for 6 weeks, interval), SeNPs+AIT, CSE (150 µL by IP injection, 1 day/week for 6 weeks), CSE+AIT, and CSE+SeNPs+AIT. The CSE group showed a signifcant reduction in irisin and Sema3A serum levels, as well as a decrease in FNDC5 and Sema3A gene expression in lung tissue ($p<0.05$). A combined treatment (AIT with SeNPs) signifcantly increased the serum level and the expression of muscle and lung irisin (FNDC5) and Sema3A in CSE received groups ($p<0.05$). There was a positive and signifcant correlation between muscle FNDC5 and lung FNDC5 in the CSE+SeNPs+AIT group ($r=0.92$, $p=0.025$). In addition, there was a positive and signifcant correlation between serum Sema3A and lung Sema3A of CSE+SeNPs+AIT group ($r=0.97$, $p=0.004$). Seemingly, performing aerobic exercises with the antioxidant and anti-infammatory supplement nano-selenium in the model of lung damage (similar to COPD) can boost myokine irisin and Sema3A, especially in serum and lung tissue. These results displayed the paracrine/ endocrine regulatory function of these myokines on other tissues. In other words, these interventions emphasized the creation of crosstalk between skeletal muscles and damaged lung, focusing on its recovery; however, further research is needed.

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FEATURED TALKS

Title: The use of keratin-7 antisense represents a novel and highly effective strategy to suppress tumorigenesis and promote apoptosis in cases of breast cancer

Speaker Name Hamed Hosseinalizadeh

Affiliation Guilan University of Medical Sciences

Abstract:

Expression of the keratin-7 (KRT7) is upregulated in breast cancer, and has been shown to correlate with cancer's poor prognosis; however, the precise mechanisms underlying its involvement in tumorigenesis and apoptosis are largely unexplored. In the present study, by using specific oligonucleotide antisense against KRT7, in combination with KRT7-AS overexpression, we investigated the in vitro effects of the knockdown of KRT7 on tumorigenesis and apoptosis of breast cancer cell lines. According to the results, antisense targeting KRT7 exerted a dose-dependent inhibitory effect on the viability of MDA-MB-468 and MCF-7 cell lines, whereas no cytotoxic effect was observed in normal cells. Our results suggest that KRT7 plays a significant role in directed migration, invasion, and proliferation during tumor growth, leading us to interpret that KRT7 is a metastasis-associated protein and has regulatory activity in EMT and subsequent cancer metastasis. In addition, our cellular studies showed that this approach resulted in a remarkable decrease in mammosphere formation (37% in mammosphere's number and 25% in size; in comparison to the control group of MDA-MB-468 and MCF-7 cells), as well as a decrease in cancer cells migration and an increase in cancer cell apoptosis (48% and 45%, respectively). Altogether, our findings have effectively established the involvement of KRT7 in the advancement of breast cancer through its regulation of the post-transcriptional sense mRNA.

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FEATURED TALKS

Title: Enhanced Zeolite/Activated-Carbon Composite for the Removal of Volatile Organic Compounds from Indoor Air in Hospital Environments

Speaker Name Imen Amri

Affiliation University of Gabès

Abstract:

In this study, we investigated the potential of a newly developed synthetic Na-P1 zeolite/activated carbon composite as an effective adsorbent for volatile organic compounds (VOCs) such as chloroform and dimethyl disulfide. The Na-P1 zeolite was synthesized from local Illito-Kaolinitic clay sourced from the Tejra region in South-east Tunisia, while the innovative activated carbon was derived from waste generated by wooden tongue depressors collected from hospitals during the initial wave of the COVID-19 pandemic.

The mineralogical properties of the raw clay and the synthesized materials were determined using X-ray diffraction (XRD) and Attenuated Total Reflectance-Fourier Transform Infrared (ATR-FTIR) spectroscopy. Morphological characteristics were examined through scanning electron microscopy (SEM), revealing a high level of particle size uniformity in Na-P1 zeolite and a well-defined structure in the activated carbon.

The Na-P1 zeolite exhibited a remarkable cation exchange capacity, reaching 279 meq/100 g. The BET (N2 adsorption–desorption) analysis of the synthesized activated carbon revealed a high specific surface area of 1511.842 m^2/g and a mean pore volume of 0.621 cc/g.

The addition of synthesized activated carbon to Na-P1 zeolite enhanced its mesoporous characteristics, increasing adsorption capacity. Kinetic data fitted well to the pseudo-second order, and the Langmuir model showed the Na-P1-activated carbon composite's maximum adsorption capacity: 54.13 mg/g for chloroform and 28.16 mg/g for dimethyl disulfide. These findings underscore the composite's potential for efficient VOC removal, making it a promising solution for hospital indoor air purification.

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FEATURED TALKS

Title: Porous hexagonal RuSe2 thin films are obtained at low temperature using the simple spray pyrolysis

Speaker Name Beya Ouertani

Affiliation University of Carthage

Abstract:

The aim goal of the present work is to develop the field of low cost materials for highly efficient hydrogen evolution electro-catalysis, photo-catalysis, and low cost solar cells applications, thin films of transition metal dichalcogenide materials ($RuSe_2$, $FeSe_2$, RuS_2, FeS_2, etc) are promising candidates especially. Indeed, thin films of transition metal dichalcogenide (TMD) materials, such as $RuSe_2$, are promising alternatives to platinum (Pt) for the hydrogen evolution reaction (HER). Herein, growth of $RuSe_2$ thin films, having desired properties for several applications, using the simple and non-cost technique, spray pyrolysis, makes the main object of this work. In a first step, an aqueous solution of $RuCl_3.3H_2O$ (0.03M) was sprayed for 5 min onto ordinary glass substrates pre-heated at 350°C. Dark amorphous thin films were obtained. After that, the as obtained amorphous thin films were heat treated under selenium atmosphere (~10^{-4}Pa) at various temperatures (450, 500, and 550°C) for 3hours in RTP oven. A single hexagonal $RuSe_2$-phase (h-$RuSe_2$) was picked up by the XRD analysis. The obtained layers presented a high absorption coefficient (□ > $6x10^4 cm^{-1}$ for the layers selenized at 450°C, and □ > $10^6 cm^{-1}$, □<1000nm for the layers selenized at 500 and 550°C). The plots of (□.h.□)^2 vs (h.□) showed direct band gaps corresponding to the photon energies of about 1.56 eV, 1.75 eV, and 1.86 eV of the layers selenized at 450, 500, and 550°C, simultaneously. Surfuce morphology was treated by SEM: clustred structure was observed for the layers obtained after selenization at 450°C, and grannular structures were observed for the layers abtained at 500 and 550°C. The grain size becomes so large for the layers obtained at 550°C; that confirms their high absorbance. The interesting obtained results provide for improving more the domain of low-cost materials having encouraging properties for several applications domains (photovoltaic, hydrogen evolution, electrocatalysis and photocatalysis) using the spay pyrolysis technique.

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FEATURED TALKS

Title: Analysis Of the Spatial and Temporal Variability Of Direct Rainfall In Lake Tana

Speaker Name Eshete Getasew Derso

Affiliation Bahir Dar Institute of Technology

Abstract:

The Blue Nile's source, Lake Tana, is the biggest lake in Ethiopia and offers multiple services to local, regional, and international communities. The first step to effectively, efficiently, and sustainably utilize the services that the lake may provide is to analyse its water balance using accurate estimations parameters, including direct rainfall.

Direct rainfall to Lake Tana is one of the most important water balance terms of the Lake that needs precise estimate. This study tries to analyse the spatial and temporal variability of direct rainfall to the Lake and estimate the mean annual and mean monthly direct rainfall to the lake using sufficient data and appropriate methodologies. Thirty years (1986–2015) monthly and mean annual data from 13 meteorological stations were collected and used to analyse the spatial and temporal variability.

Spatial and statistical tools were used for data processing, analysis, and presentation. Five interpolation techniques: Thiessen polygon, spline, isohyetal, inverse distance weighting, and Kriging were considered, and their performances were assessed with evaluation criteria. The results indicate that the isohyetal method is better than the other four methods to implement in a geographic information system (GIS) with Geostatic Analysis in ArcGIS. Further, the analysis has shown that the mean annual direct rainfall to Lake Tana is 1313.43 mm. In addition, we find significant spatial and temporal variability of direct rainfall on Lake Tana. In terms of spatial variability, the Lake gets maximum direct rainfall in the south-eastern part and a minimum value in northwest part with an annual mean value of 1720 mm and 860 mm, respectively. In terms of temporal variability, maximum direct rainfall is estimated in July as 374.11 mm in the summer season and the minimum is less than 12.3 mm in December to March in winter season.

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FEATURED TALKS

Title: Application of count regression models for factors of antenatal care (ANC) utilization in Ethiopia

Speaker Name Zemene Yohannes Ayalew

Affiliation Ethiopian Policy Studies Institute

Abstract:

Adequate antenatal care is necessary to improve the health status of peoples in a country as it contributes the reduction of infant and maternal mortalities. The coverage and the quality of antenatal care plays significant role in maternal health.
Ethiopia has witnessed an encouraging improvement in the ANC coverage (at least one visit) in the last decade from 62% in 2016 to 74% in 2019. But only 43% of women had at least four ANC visits during their last pregnancy. The purpose of this study is to identify factors that affect antenatal care visits based on 2019 Ethiopia Mini Demographic and Health Survey (EMDHS) dataset using count regression model. A total of 8,885 women aged 15-49 years were asked for the EMDHS-2019 out of which 3,927 women were illegible and asked for their ANC experiences for their last pregnancy. This empirical study aimed at investigating the impacts of the socioeconomic and demographic characteristics on the utilization of antenatal care. To investigate the impacts of the factors on the number of ANC visits, count models such as Poisson, Negative Binomial (NB), Zero Inflated Poisson (ZIP) and Zero-inflated negative binomial (ZINB) models were examined to select the best fitted model. The selection criterion Akaike information criterion (AIC), Bayesian information criterion (BIC) and Log Likelihood were applied to select the best model. The ZIP model was found to be the best fitted model for the data. Based on ZIP model, the explanatory variables region, age, place of residence, education, religion, wealth index and marital status were statistically significant factors on the frequency of ANC visits. Hence, efforts are still required to put on creating and expanding awareness on the utilization of ANC. The policy makers along with both private sectors and civil societies have to facilitate the increase of awareness and the experiences of the utilization of ANC in consideration of households within different groups of a society.

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FEATURED TALKS

Title: Influence of Axle Load on the Wear of Railway Wheel Material

Speaker Name Hewan Getachew Yenealem

Affiliation Addis Ababa University

Abstract:

This study investigated the influence of axle load on the wear rate of railway wheel material. Excessive wear of wheel/rail materials and reduced service life of the wheel/rail system might be caused by the increase in axle load and traffic volume. Two kinds of rail and wheel steels have been studied against different axle load steps, simulating them for wear performance analysis using multibody simulation software (SIMPACK) and MATLAB programming (table 1). The simulation model results are validated against the vehicle's specifications and wear depth measured on Ethiopia—Addis Ababa Light Rail Transit (LRT), and experimental results from the literature. The result shows that the wear rate increases proportionally with the increasing of applied load and that the proportionality coefficient is 0.1393, which has a very good agreement with the experimental results from the works of literature. Likewise, the estimated total tread wear amount after a mileage of 52,000 km is 2% larger than the measured one in LRT, which is indeed an excellent result taking into account the inaccuracy of the wheel diameter gauge used to measure the wheel transversal profile. In normalized UIC 50 kg/m rail and S1002 wheel profile, the wear rate increases linearly from 5110.02, 9997.87, and 18990.17 mm3 /km on 11, 21, and 30 tones applied load, respectively. Apparently, on the hardened UIC 60 kg/m and S1002 wheel profiles, the wear rate has been improved by 14.5%, 10.8%, and 7.5% on 11, 21, and 30 tones applied load, respectively, in comparison to normalized rail/wheel match (figure 1). Briefly, the wheel wear rate is highly influenced by the increasing applied load, referring proportionality coefficient of 0.1393.

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FEATURED TALKS

Title: Modeling rock slope stability using kinematic, limit equilibrium and finite-element methods along Mertule Maryam–Mekane Selam road, central Ethiopia

Speaker Name Addisu Bekele

Affiliation Bule Hora University

Abstract:

Slope failures are among the most common natural geohazards in the world's hilly and mountainous terrains causing loss of life and damage to infrastructures. The road connecting Mertule Maryam and Mekane Selam towns in central Ethiopia passes through extremely rugged terrain with steep hills and deep valleys/gorges. The purpose of this study is to identify and model the stability of selected rock slope sections along the road. For this, a detailed field investigation, including discontinuity survey, in situ rock testing, rock sampling, measuring slope geometry, and orientation, were carried out. From field observations, eight critical rock slope sections were identified for stability modeling using kinematic, limit equilibrium and finite-element methods. Kinematic modeling, which was performed with dips software, showed wedge and toppling modes of failures at slope sections RSS1 and RSS4, respectively, while planar mode of failure for RSS5 and RSS7. Moreover, limit equilibrium method (LEM) and finite-element method (FEM) models were used to determine the factor of safety (FoS) and the stress reduction factor (SRF), respectively, using Swedge, Rocplane, and Roctopple softwares for wedge, planar, and toppling failures, respectively. These modeling approaches were conducted for static dry, static saturated, dynamic dry, and dynamic saturated conditions. The modeling results at these critical rock slope sections showed that these slopes are stable if FoS/SRF > 1 and unstable if FoS/SRF < 1. The performance of remedial measures at different slope profiles based on LEM modeling showed that reducing the slope angle, slope height, and benching a slope have improved the overall stability of rock slopes. Moreover, this study also recommends the application of shotcrete, rock bolts, anchors, and retaining walls to prevent the failure of the critical rock slope sections along the road.

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FEATURED TALKS

Title: Assessment And Characterization of Agricultural Salt-Affected Soils Around Abaya and Chamo Lakes, South Ethiopia Rift Valley

Speaker Name Azmera Walche Mengesha

Affiliation Arba Minch University

Abstract:

Soil salinity/sodicity is becoming a challenge for crop production in Ethiopia's semi-arid and arid regions. However, more information on soil salinity/sodicity needs to be available around Abaya and Chamo Lakes, South Ethiopia Rift Valley. This study aimed to assess and characterize soil salinity/sodicity and determine salt-affected soils' morphological, physical, and chemical properties. The representative soil pits that were 60*60*60cm in size were examined, and samples were taken from 0-20, 20-40, and 40-60 cm depths based on the criteria set for agricultural salt-affected soil studies. The soil properties determined include soil color, structure, consistency, bulk density, particle density, porosity, texture, pH, EC, SAR, ESP, CEC, BS, OC, TN, available P, $CaCO_3^-$, exchangeable bases, and soluble ions (Na^+, Ca^{2+}, Mg^{2+}, K^+, Cl^-, SO_4^{-2}, NO_3^-, $CO_3^{-2}$and HCO_3^-). The soil analyzed results was rated and interpreted following a guide to standardized analysis methods for soil data. The results of this study reveal that the soils had considerable heterogeneity in soil morphological, physical, and chemical properties. The soils of the study site were highly alkaline and had very high sodium content, very high CEC value, and low levels of organic carbon and exchangeable calcium. The dominant soluble cation was sodium, followed by magnesium, calcium, and potassium in all soil depths of the pits. Similarly, Cl^- was dominant among the anions throughout the soil depth, followed by HCO_3^-, SO_4^{2-}, and NO_3^-. The findings of this study imply that removing sodium and salts from the soil depth may improve the salt-affected soils' productivity in the study area. Application of organic amendments, including manures and crop residues, may also be beneficial in increasing fertility and organic matter content

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FEATURED TALKS

Title: The Impact of Zn2+ Ions on Dielectric Properties and Initial Permeability of Ba-Ni Ferrite Nanoparticles through Nonmagnetic Doping

Speaker Name Sadiq Hassan Yahya Khoreem

Affiliation Al-Razi University

Abstract:

The effects of composition, temperature, and frequency-dependent dielectric properties of barium-nickel-based ferrites have been investigated. The conventional ceramic technique prepared the compositions BaNi2-xZnxFe16O27 (at x = 0.0, 0.4, 1.2, and 2). According to the frequency and Zn concentration, the dielectric parameters were properly set. Overall, the dielectric properties of this sample make them a suitable candidate for flexible super capacitors and are best suited for high-frequency region applications. The initial magnetic permeability of the prepared sample was increasing as the Zn ions contents increase. The produced samples were suitable for application as microwave absorbers, data storage appliances, and magnetic recording mediums. Generally, the decrease in dielectric parameters such as loss tangent and increased dielectric constant resulting from the incorporation of Zn+2 ions advocate appropriation of these materials in high-frequency applications such recording media, sensors, circulators, microwave devices, electronic devices, and phase shifters. The samples' frequency-dependent ac conductivity has grown as their frequencies got higher. The samples' initial permeability to magnetic fields showed an upward trend as Zn concentrations rose and displayed ferromagnetic activity. As Zn2+ ion replacement increases, the initial magnetic permeability increases. This might be accounted for by magnetic Ni2+ ions replacing non-magnetic Zn2+ ions. Based on the generated samples may be employed in microwave absorbent and data storage devices based on their magnetic characteristics.

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FEATURED TALKS

Title: Penile amputation after neonatal circumcision: a case report

Speaker Name Omar Adam Sheikh Nur

Affiliation Somali National University

Abstract:

In children, one of the most common surgical procedures worldwide is circumcision, which has strong religious implications and is frequently performed for non-therapeutic reasons. Circumcision is typically associated with old customs. Complete penile amputation is extremely uncommon, and the prognosis is little understood.

Casepresentation

A 7-day-old male term baby was circumcised with a cauter by an unexperienced practitioner, and the patient was admitted to the department of pediatric surgery. Both the glans and the body had become discolored and necrotic. The patient was taken into the theatre and given general anesthesia. We removed the debridement and inserted a catheter into the urethra to prevent urethral stenosis.

Discussion

The procedure of circumcision has several medical benefits and is widely performed for religious, cultural, and medical reasons. It is generally agreed that circumcision prevents against Sexually transmitted diseases, penile and cervical cancer in adults, as well as urinary tract infections in children.

Partial or complete penile amputation injuries are rare and frequently the result of psychotic self-harm. Operators must correctly conduct the circumcision in order to prevent the potential complications that can happen when the procedure is performed out by untrained hands.

The most common cause of penile amputation injuries, whether partial or total, is psychotic self-harm. Operators must carry out the procedure carefully to prevent the potential complications that can happen when circumcision is performed by untrained hands.

Conclusion

We present here a case of a 7-day-old boy who had ritual circumcision with a cauter complicated by an entire penile amputation, which was treated with the insertion of a catheter to prevent the closure of urethra. The patient reported his penis was circumcised with cautery one day later the glans and the entire penis became discolored and necrosis, unfortunately, the entire penis was lost with the overlying skin.

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