Conference Welcome Remarks

It is a tremendous pleasure and privilege to welcome you to The3rdInternational Conference on Basic and Applied Sciencewith this year's theme, "Toward Green Science". We are honored to have a diverse group of thought leaders, innovators, and passionate minds from across the world, all gathered here to advance our knowledge and understanding of sustainable Science.

As we embark on the journey of this conference, we are faced with a global imperative: the pressing need to transition toward greener, more sustainable practices across every scientific discipline. This gathering represents our shared commitment to harnessing the power of basic and applied Sciences for a sustainable future. Each of you here plays a critical role in this endeavor, and your insights, innovations, and research are vital to paving the way for transformative change.

This event serves as a platform for the exchange of ideas, fostering collaboration across disciplines and borders, and inspiring solutions that address our most pressing environmental challenges.As we listen to and learn from one another, let us be motivated to take these lessons beyond the walls of this conference, transforming them into real-world applications that drive sustainable progress.

Once again, welcome to The 3rd International Conference on Basic and Applied Science. Thank you for your dedication to a greener, healthier world, and thank you for being here. Let's work together toward a future where Science leads us to harmony with our planet.

Thank you, and let's make this a memorable and impactful conference.

Prof. Dr. Samia Abo Farha

Dean of Faculty of Science

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Conference Schedule (ICBAS 2024)
First day: 25-11-2024

8.30– 10.00	**Registration**			
10.00-1.00	**Opening Ceremony**			
1.00-1.30	**Conference Photos - Pray & Coffee Break**			
1.30- 3.10	**Session 1 Chemistry & Material Science**	**Session 2 Biology & Agriculture**	**Session 3 Nanomaterials & and its applications**	**Session 4 Mathematics & Computer Science**
Place	**Hall Al-Fostat**	**Hall 1**	**Hall 2**	**Hall 3**
3.10-4.00	**Pray & Lunch break**			
4.00– 6.00	**Session 5 Chemistry, and Material Science**	**Session 6 Biology& Agriculture**	**Session 7 Physics and Cosmology**	**Session 8 Mathematics & Computer Science**
Place	**Hall Al-Fostat**	**Hall 1**	**Hall 2**	**Hall 3**
	Second day: 26-11-2024			
9.00–11.30	**Session 9 Chemistry & Biochemistry**	**Session 10 Artificial Intelligence & its Applications**	**Session 11 Biomaterials & Photonics and its Applications**	**Session 12 Poster**
Place	**Hall Al-Fostat**	**Hall 1**	**Hall 2**	**Second Floor**
11.30-12.00	**Coffee break**			
12.00-1.00	**Closing Ceremony**			

Conference Schedule (ICBAS 2024)

First day: 25-11-2024

8.30 – 10.00	**Registration**			
10.00 -1.00	**Opening Ceremony**			
1.00-1.30	**Conference Photos - Pray & Coffee Break**			
1.30 - 3.10	**Session 1** **Chemistry and Material Science**	**Session 2** **Biology & Agriculture**	**Session 3** **Nanomaterials & and its applications**	**Session 4** **Mathematics & Computer Science**
Place	**Hall Al-Fostat**	**Hall 1**	**Hall 2**	**Hall 3**
Chairperson	**Prof. Dr. Smia Abo Farha** **Prof. Dr. Enas Elsabagh** **Prof. Dr. Gehan Mekky** **Prof. Dr. Carmen Shraby**	**Prof. Dr. Amal Hassan** **Prof. Dr. Maha Gazy** **Prof. Dr. Said Bakry** **Prof. Dr. Alaa Abd El-Kareim**	**Prof. Dr. Alaaedin Bahgat** **Prof. Dr. Mohammed El-Sherbiny** **Prof. Dr. Manal A. Mahdy**	**Prof. Dr. Ahmed El-Kholy** **Prof. Dr. Afaf Abo Elftoh** **Prof. Dr. Gaber Al-Shaarawy**
1:30-1:55	**Greening the Industry** **Prof. Dr. Ibrahim Mohamad Ghayad** *President of Central Metallurgical Research And Development Institute (CMRDI)*	**Nutraceutical Potential and Conservation of Untapped Wild Edible Fruits through Green Science: A Biotechnological Approach to Advancing Circular Economy in Food Security and Sustainability** **Prof. Dr. Muhammad Zafar (Online)**	**Multifunctional Semiconductor Nanomaterials and its Potential Application in Clean Energy Production** **Prof. Dr. Iman A. Mahdy** *Physics Department, Faculty of Science, Al-Azhar University (Girls Branch)*	**A New Triggering Method of IoT Controllers** **Prof. Dr. Hesham Nabih Elmahdy** *Ex-Vice Dean Faculty of Computers and Artificial Intelligence, Cairo University*

		Department of Plant Sciences, Quaid-i-Azam University Islamabad (**Pakistan**)		
1:55-2:20	**Innovative Smart Nanosystems for Advancing Disease Treatment, Early Diagnosis, and Tissue Engineering from Laboratory to Societal Application** **Prof. Dr. Ibrahim M. El-Sherbiny** *Chair Professor of Nanotechnology & Nanomedicine, Director of the Center of Materials Science, Zewail City of Science and Technology*	**Gut microbiota and health disorders: Significance of healthy gut in protection against metabolic and mental disorders** **Ass. Prof. Hatem A. Elsahabrawy (Online)** *Molecular and Cellular Biology Department, College of Osteopathic Medicine, Sam Houston State University, Conroe, Texas* ***(USA)***	**Emerging Trends in Semiconductor Research** **Ass. Prof. Afaf. El-Sayed (online)** *Centro de Fisíca de Materiales (CFM), San Sebastían,* ***(Spain)***	**Some special functional identities involving Jordan derivations in rings** **Prof. Shakir Ali (Online)** *Mathematics Department, Faculty of Science, Aligarh Muslim University, Aligarh* ***(India)***
2:20 -2:45	**Green Synthesis of Nanoparticles and Their Energy Storage, Environmental, and Biomedical Applications** **Prof. Dr. Ahmed M. Hashem** *Inorganic Chemistry Department, National Research Centre*	**Potential roles of zinc and selenium upplem-entation in two different forms to improve the quality cryopreserved rabbit sperm** **Prof. Nehal Abu El-Naga (oral)** Zoology and Entomology Department, Faculty of	**Application of MXene in Flexible Sensor (online)** **Prof. Dr. Zheng Zhong** *Hubei University of Technology, P.R.* ***(China)***	**On Certain Identities in Prime and Semiprime Rings** **Prof. Dr. Nadeem Ur Rehman (Online)** *Department of Mathematics, Aligarh Muslim University, Aligarh* ***(India)***

		Science, Al-Azhar University (Girls Branch)		
2:45- 3.10	**Cost-effective and Efficient Biomaterials** **Prof. Dr. Esmat M. A. Hamzawy** *Glass Research Department, National Research Centre*	**Entomopathogenic Fungi** **Prof. Ibrahim E. Abdel Rahman** *Plant Protection Department, Faculty of Agriculture, Al-Azhar University, Cairo*	**Preparation and Characterization of Cobalt and Zinc Oxide Nanoparticles using Green Synthesis method for technological development** **Fatma Abdel Aziz Sultan** *Physics Department, Faculty of Science, Al-Azhar University (Girls Branch)*	**Noncommutative polynomials, Fibonacci polynomials, operations that are not commutative, or not associative, or not distributive** **Prof. Dr. Alberto Facchini (Online)** *University of Padova, Italy*
3.10-4.00	**Pray & Lunch break**			

4.00 – 6.00	Session 5 Chemistry and Material Science	Session 6 Biology & Agriculture	Session 7 Physics and Cosmology	Session 8 Mathematics & Computer Science
Place	Hall Al-Fostat	Hall 1	Hall 2	Hall 3
Chairperson	Prof. Dr. Karema Salem Prof. Dr. Rabab Abo Shohba Prof. Dr. Abeer Emam	Prof. Dr. Rawhia Abd Elatif Prof. Dr. Karima Metwaly Prof. Dr. Ahmed Galhom	Prof. Dr. Alexey Golovnev Prof. Dr. Taghreed Z. Amer Prof. Dr. Iman A. Mahdy	Prof. Dr. Kamal A. El Dahshan Prof. Dr. Hoda A. Ali
4.00 – 4.25	**Valorization cost-effective starting materials for high performance sustainable applications in energy, water and environment** **Prof. Mohamed Mohamed Rashad** *Advanced Materials Institute, Central Metallurgical Research and Development Institute*	**Morphological Description and Molecular Characterization of Ascaridia columbae (Gmelin, 1790) Infecting Domestic Pigeons, Columba livia domestica, in Gharbia Governorate, Egypt, Based on ITS rDNA Sequences** **Ass. Prof. Ayman Elsayed** *Zoology department, faculty of Science, Al-Azhar University*	**General Relativity and Modified Gravity** **Prof. Dr. Alexey Golovnev (Russia)** *Centre for Theoretical Physics, British University in Egypt*	**Hyperbolic Fuzzy Sets: Bridging Traditional and Modern Approaches in Decision-Making for Complex Environments** **Ass. Prof. Palash Dutta** (Online) *Dibrugarh University, Assam* ***(India)***

4.00 – 6.00	Session 5 Chemistry and Material Science	Session 6 Biology & Agriculture	Session 7 Physics and Cosmology	Session 8 Mathematics & Computer Science
4.25–4.50	**Mechanical Metamaterials: From Nature to Nanotechnology** **Ass. Prof. Hassan Sadek** *Department of Chemistry, Faculty of Science, Al-Azhar University*	**Antimicrobial activity of biogenic silver nanoparticles synthesized with the aid of Citrus peel** **Ass. Prof. Reham Shams Eldeen** *Botany and Microbiology Department, Department, Faculty of Science, Al-Azhar University (Girls Branch)*	**Searching Life Forms in Exoplanets** **Prof. Dr. Sultana N. Nahar (online)** *Department of Astronomy, The Ohio State University, Columbus* ***(USA)***	**Basic Science Driving Innovation in Artificial Intelligence** **Prof. Mohammed A. Azize A. Razek** *Mathematics Department, Faculty of Science, Al-Azhar University*
4.50-5.15	**Scaling up Nanoparticle Preparations and Electrospinning Technology: Perspectives in Biomedical Applications** **Ass. Prof. Hassan Nageh** *Head of "Advanced Nanomaterials, Polymeric, and Industrial Catalysis" research group,*	**N-doped quantum dots promote rice germination and enhance its drought tolerance at seedling stage** **Ass. Prof. Bardees Mohammad Mickky** *Botany Department, Faculty of Science, Mansoura University*	**Negative Ion Resonances Lifetime and Electron Loss Cross Sections at Low Energy Interactions.** **Prof. Dr. Guillermo Hinojosa***(online)* *Institute of Physical Sciences at the National Autonomous University of* ***Mexico*** *(UNAM)*	**Developing a Predictive Machine Learning Model for Prognosis in Elderly Patients with Non-Small Cell Lung Cancer Undergoing Chemotherapy** **Ass. Prof. Mehmet Akif Cifci (Online)** *Engineering and Informatics Department, KlaipėdosValstybinėKolegija/Higher Education Institution, Klaipeda* ***(Lithuania)***

4.00 – 6.00	Session 5 Chemistry and Material Science	Session 6 Biology & Agriculture	Session 7 Physics and Cosmology	Session 8 Mathematics & Computer Science
5.15–5.40	**Construction of a highly efficient three-dimensional bioanode in a microbial fuel cell for electric current generation and organic contaminates removal.** **Asst. Prof. Mohamed Mahmoud** *Galala University National Research Centre*	**Practical Considerations for Starting In Vitro Embryo Production Programs in Goats** **Dr. Amira Salim AbdElKhalek** *Zoology and Entomology Department, Faculty of Science, Al-Azhar University (Girls Branch)*	**Laser Processing and Green Synthesis of Smart Nano-Composites for Environmental Protection and Sustainable Energy Applications** **Prof. Dr. Ahmed Asaad** *National Institute of Laser Enhanced Sciences (NILES), Cairo University*	
5.40-6.00			**Radiation Shielding Development Increases Radiation Safety Standards Around Cobalt-60 Irradiations in Several Countries** **Marwa Abdel Elazeem Mohammed** *Physics Department, Faculty of Science, Al-Azhar University (Girls Branch)*	

Second day: 26-11-2024

9.00 – 11.30	Session 9 Chemistry & Biochemistry	Session 10 Artificial Intelligence & its Applications	Session 11 Biomaterials & Photonics and its Applications
Place	**Hall Al-Fostat**	**Hall 1**	**Hall 2**
Chairperson	**Prof. Dr. Amina Hamada** **Prof. Dr. Eman Kandil** **Prof. Dr. Walaa Husien**	**Prof. Dr. Abeer Desuky** **Prof. Dr. Ashraf Al-Marakeby** **Ass. Prof. Nahed El Desouky**	**Prof. Dr. Cem Bulent Ustundag** **Prof. Dr. Aida Salam** **Prof. Dr. Mohammed Farhat**
9:00-9:25	**Innovative Nanocomposites and Nanosystems as Promising Antimicrobial Agents** **Prof. Dr. Hassan M. E. Azzazy** *Chemistry Department, School of Sciences & Engineering, The American University in Cairo*	**Artificial Intelligence Applications in the Green Science** **Prof. Dr. Ashraf Al-Marakeby** **Professor of AI and machine learning** *Faculty of Engineering, Al-Azhar University*	**Transforming Personalized Medicine: The Role of Hybrid Scaffolding Technologies in Tissue Engineering and Drug Delivery** **Prof. Dr. Cem Bulent Ustundag** *Department of Bioengineering Yildiz Technical University, (**Türkiye**)*
9:25-9:50	**Electrochemical Energy Storage Technology: Recent Trends and Challenges** ***Prof. Dr. P. Ragupathy* (Online)** *Electrochemical Research Institute, Karaikudi **(India)***	**Green ICT: Advanced Topics Evolution** **Prof. Hesham Nabih Elmahdy** *Ex-Vice Dean Faculty of Computers and Artificial Intelligence Cairo University*	**4D-AFM: Transforming the Future of Bio-Nanomedicine** **Assoc. prof. Hosam Gharib Abdelhady** *Houston State University **(USA)***

9.00 – 11.30	Session 9 Chemistry & Biochemistry	Session 10 Artificial Intelligence & its Applications	Session 11 Biomaterials & Photonics and its Applications
9:50-10:15	**Impact of miR-155 rs767649 Polymorphism on Rheumatoid Arthritis Activity in Egyptian Patients** **Dr. Mohamed Elghouneimy** *Benha Health Administration*	**Role of Artificial intelligence to tackle Climate change** **Asst. prof. Heba Abd Elgalil** *Assistant Professor of Community and Occupational Medicine, Faculty of Medicine for Girls,Al-Azhar University.*	**Tuning the Interactions of Nanoparticles with Light Using Self-Assembly** **Asst. Prof. Talha Erdem (online)** *Department of Electrical-Electronics Eng.* *Abdullah Gül University, (**Türkiye**)*
10:15-10:40	**Diluted Magnetic Semiconductor Nanostructures for Spintronic Applications** **Prof. Dr. Fatma. A. Taher** *Chemistry Department, Faculty of Science,* *Al-Azhar University (Girls Branch)*		**Preparation and Applications of Emerging Nanomaterials for Ultrafast Photonics** **Prof. Dr. Sulaiman Wadi Harun (Online)** *Department of ElectricalEng., Faculty of Engineering, University of Malaya,* ***(Malaysia)***
10.40-11.05	**Study On Organic Antioxidants from Green Tea (Camellia sinensis) As Environmentally Friendly Corrosion Inhibitor for Alpha-Brass in Nitric Acid Solution** **Ass. Prof. Seham Shahen** *Chemistry Department, Faculty of Science, Al-Azhar University (Girls Branch)*		**Introduction to Silicon Integrated Photonics: Design Flow** **Prof. Dr. Mohamed Farhat Othman** *Director of Center for Nanotech., and Director of Nanotech. and Nanoelec. Engineering Program, Zewail City of Science and Technology (Egypt)*

9.00 – 11.30	Session 9 Chemistry & Biochemistry	Session 10 Artificial Intelligence & its Applications	Session 11 Biomaterials & Photonics and its Applications
11:05-11:30			**Photonics: Basics, modeling, applications and future trends** **Prof. Dr. Salah Obayya (Online)** *Director-General of Research Institutes, Zewail City of Science and Technology*
9.00- 11.30	**Poster**		
11.30-12.00	**Coffee break**		
12.00-1.00	**Closing Ceremony**		

KEYNOTE SPEAKERS

Biography

Prof. Dr. Sulaiman Wadi Harun
Department of Electrical Engineering, Faculty of Engineering, University of Malaya, 50603 Kuala Lumpur, Malaysia
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Prof. Dr. Sulaiman received B.Eng. Electrical and Electronics System Eng. From Nagaoka University of Technology, Japan in 1996, and received MSc from University of Malaya, Malaysia in 2001, he also received PhD from University of Malaya, Malaysia in 2004. He works now as a Professor and Head of Department of Electrical Engineering, Faculty of Engineering, University of Malaya, Kuala Lumpur, Malaysia, He got many national/international awards including URSI Young Scientist Award 2005, Malaysian Brain Gain Fellowship 2008, and Malaysia's Rising Star Award 2016 for best international collaboration and outstanding performance (Malaysian Ministry of Higher Education, Scopus and SciVal). He worked as an Associate Professor, University of Malaya and as a Professor at University of Malaya from 2010. Dr. Sulaiman had many experiences include, Associate Dean of postgraduate research, Faculty of Engineering 2017 – 2019 and Head of Department of Electrical Engineering –2021. He published More than 950 journal ISI articles Citations: More than 9000

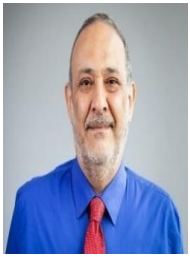
Preparation and Applications of Emerging Nanomaterials for Ultrafast Photonics

Abstract

Nanomaterials with exceptional optical, mechanical, and electrical properties are transforming various fields, including optoelectronics, sensors, biomedicine, and ultrafast photonics. Their nonlinear optical characteristics, rapid recovery times, and broadband capabilities make them particularly suitable as saturable absorbers in ultrafast pulsed lasers. Over the past few decades, a diverse array of nanomaterials has been developed for this purpose, significantly enhancing laser performance. Therefore, it is crucial for researchers to delineate the applications of nanomaterials in ultrafast photonics, especially in light of recent advancements. This discussion explores the integration and application of nanomaterials in ultrafast photonics. We begin by detailing the preparation and characterization of various emerging saturable absorber nanomaterials. Next, we summarize the ultrafast applications of these materials, including carbon-based nanomaterials (such as carbon nanotubes and graphene), typical 2D materials (including topological insulators, transition metal dichalcogenides, black phosphorus, and MXenes), and metal-based nanomaterials (like gold, silver, copper, and metal oxides). Key parameters of ultrafast lasers and the distinctive features of each nanomaterial are presented in parallel. Finally, we discuss the future perspectives of nanomaterials in the continued evolution of ultrafast photonics.

Keywords: Nanomaterials, Optoelectronics, Sensors, biomedicine, Ultrafast photonics

Biography



Prof. Dr. Hassan M. E. Azzazy

Department of Chemistry, School of Sciences & engineering, The American University in Cairo, New Cairo, Egypt
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Dr. Hassan Azzazy is a tenured Distinguished University Professor at the American University in Cairo (AUC). Dr. Azzazy joined AUC in 2003 and has chaired the department of Chemistry and served as associated dean of graduate studies and research. Before joining AUC, Dr. Azzazy was a Postdoctoral fellow and assistant professor at the departments of Pathology and Medical & Research technology at University of Maryland School of Medicine, Baltimore, Maryland, USA. Dr. Azzazy is the President of the National Biochemistry & Molecular Biology Committee. He is a Fellow of the Royal Society of Chemistry (UK), Dr. Azzazy is an inventor on several patent families granted by USPTO and EU patent office. Dr. Azzazy received many prizes include a prestigious Research Award from Alexander von Humboldt Foundation, Germany.

Innovative Nanocomposites and Nanosystems as Promising Antimicrobial Agents

Abstract

The escalating microbial infections and the relevant emergence of antimicrobial resistance pose alarming global health challenges which warrant the development of novel antimicrobial agents. Several nanostructure-based materials were developed and exhibited potent antimicrobial activities. In one study, sodium titanate nanotubes (TNTs) decorated with Ag and Au nanoparticles were fabricated and characterized using XRD, FTIR, HRTEM, and DLS. The plasmonic nanoparticle-decorated nanotubes showed remarkable activity in the dark against Gram positive and negative bacterial strains. When exposed to sunlight, Ag/Au-TNTs caused a complete reduction of *P. aeruginosa* and *E. coli*. In a second study, essential oils extracted from *Pistacia lentiscus* were encapsulated into 2-hydroxypropyl-beta-cyclodextrin. The obtained complexes had a size range of 22-63 nm, entrapment efficiency of 90%, and were characterized by FE-SEM, UHR-TEM, ^{1}H NMR, NOESY, and DSC. The prepared nanosystem encapsulating *Pitacia* essential oils exhibited substantial broad antibacterial activity against Gram positive and Negative strains as compared to free oils. Finally, nanomicelles containing benzalkonium chloride and benzoyl peroxide were prepared and had a size of <80 nm and surface charge of 45 mV. The efficacy of killing bacteria upon contact and long-term disinfection of surfaces were tested. Nanomicelles containing the two disinfectants demonstrated overall surface protection for 4 weeks, upon a single spray, against *P. aeruginosa*, *E. coli*, and *S. aureus*.

The prepared nanomicelle spray represents a potential effective solution for prolonged surface protection against multiple pathogens. In conclusion, the development of nanostructure-based antimicrobials shows potential to overcome the growing threats of bacterial infection and antibiotic resistance. Notably, development of innovative antimicrobial nanostructures serves multiple goals of the UN SDGs including good health, innovation, and sustainable communities.

Keywords: Nanomicelle, Antimicrobials, SDGs, Nanostructures. *E. coli,* Nanoparticles

Biography

Prof. Mohamed Mohamed Rashad
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Prof. Rashad works a dean of Advanced Materials Institute, CMRDI, Egypt, Board of Nanotechnology Research Center, Ain Shams University, he published about 225 papers in prestigious Journals, 180 presentations in international and local conferences, and 5 books chapters, 60 MSc and PhD. He had many awards include the State Prize of Excellence in Advanced Science and Technology 2014, the Egyptian Academy Award in Environmental Studies 2014, and the First State Incentive Award for Advanced Sciences 2006. Prof. Rashad is the Principal Investigator, Co-PI, members of many multidisciplinary projects ~ 35 projects (International Joint Projects with USA, Sweden, Italy, Germany, South Africa, Belorussia, and India) in addition to Local projects. Prof. Rashad works deals with nanomaterials and nanotechnology, energy production and storage, magnetic materials, piezoelectric materials, optical materials, fuel cell, electronic & magnetic devices and smart materials.

Valorization cost-effective starting materials for high performance sustainable applications in energy, water and environment

Abstract.
Energy-water-environment ligament is very paramount for the sustainable goals that reinforce the economic growth and the human prosperity. Herein, we are focused on strategy towards inexpensive photovoltaic cells. In these regards, we underpinned on the second-generation solar cells, the dye sensitized solar cells (DSSCs) and the perovskite solar cells (PSCs) as the source of energy instead of costly silicon solar cells. Meanwhile, low-cost transport conducting oxides based on mayenite C12A7, zinc oxide and barium strontium titanate instead of expensive FTO and ITO were also considered. Otherwise, adaption of nanomaterials for removal of organic dyes, pesticides and heavy metals ions from waste water was described. Eventually, low grade ores and secondary resources can be converted to high value- added materials including magnetic, optical and electronic materials for different industrial applications

Keywords: Electronic materials, Energy-water, Photovoltaic cells, Silicon solar cells

Biography

Prof. Dr. Muhammad Zafar

Professor of Plant Sciences (Plant Systematics Biodiversity & Conservation, Palynology and Biotechnology)
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Dr. Muhammad received M.Sc in biology from PMAS, Arid Agriculture University Rawalpindi Pakistan and he had M.Phil and Ph.D in Plant Systematics & Biodiversity from Quaid-i-Azam University Islamabad Pakistan. Dr. Muhammad had many awards include Best Performance Award (Highly Cited Scientist, 2023), Quaid-i-Azam University Islamabad, Best Research Paper Award 2022, Samarkand State University, Uzbekistan., Gold Medal (Prof. Dr. Zabta Khan Shinwari Award) from Pakistan Academy of Sciences (PAS) in the field of Biotechnology in 2021 for outstanding research work in the subject and TTS Performance Based Awards for year 2016-2020. He published about 360 papers with impact factor and about 39 books. Dr. Muhammad Productive Scientist of Pakistan (PCST) for year 2010-2017.

Nutraceutical Potential and Conservation of Untapped Wild Edible Fruits through Green Science: A Biotechnological Approach to Advancing Circular Economy in Food Security and Sustainability.

Abstract

The exploration and innovative application of green Science in the context of nature, bioresource utilization, and sustainable development underscore the significance of untapped Wild Edible Fruits (WEFs) in advancing the circular economy. These underutilized fruits, found particularly in food-insecure regions, represent a critical component of biodiversity, contributing to human well-being, environmental conservation, and sustainable economic growth. This study focuses on the conservation and biotechnological exploitation of WEFs such as *Celtiscaucasica*, *Elaeagnusungustifolia*, *Ficuspalmata*, *Ficusracemosa*, *Lindera benzoin*, *Murrayapaniculata*, *Physalisperuviana*, *Prunuspersica*, *Vitisvinifera*, and *Ziziphusnumularia*. These fruits are rich in essential nutrients, including carbohydrates, proteins, lipids, and vital minerals. The research provides comprehensive data on the proximal and physicochemical properties of these fruits, with Lindera benzoin showing the highest moisture content and *Prunuspersica* displaying elevated protein levels. The study also highlights the importance of integrating these WEFs into the circular economy, thereby enhancing food security and sustainability, particularly within the Himalayan biodiversity hotspots.

Keywords: Green Science, Nutraceuticals, Circular economy, Wild Edible Fruits, Food security, Sustainable development

Biography

Prof. Salah Sabry Ahmed
Professor, Director-General of Research Institutes at Zewail City of Science and Technology

Prof. Dr. Salah is an Egyptian – British distinguished Professor, Salah has joined Zewail City of Science and Technology (ZC) in 2012 initially as Chair Professor and he is now Director-General of Research Institutes at ZC. Prior to ZC, he spent almost 15 years in the UK taking up senior academic positions, with his most recent position was "Chair" of Photonics, University of South Wales. Internationally – recognized as he is, fellowships of prestigious societies of IEEE, OSA, SPIE, APS, AAS, ACES, HEA, IEE and IOP. He recently won African Union Kwame Nkrumah Continental Award for Scientific Excellence, the top ranked prize in Africa last year, OPTICA award for the 2023 Diversity and Inclusion Advocacy Recognition, UNESCO Chair. In his leisure time, he enjoys reading, listening to music and watching movies. Salah is Alumni of Brunel University (PGCERT), and he was awarded (DSc) from City University of London.

Photonics: Basics, modelling, applications and future trends

Abstract

Nowadays photonics occupies a significantly great portion of the global market, since almost every single daily application is shaped by photonics. So, how these teenagers of photonic will grow up in the future. Is a question of tremendous importance? Some key issues will be addressed in this task paving the way towards funding some answers to this question. How photonic devices are essentially modelled, and subsequently designed to address current (and future) global challenges is the central topic of this task

Keywords: Global market, Photonics, Global challenges, Future trends

Biography

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Dr. Ibrahim M. El-Sherbiny is a Tenured Professor of Nanotechnology and nanomedicine, and he is the Founding Chairman of Nano and Materials Sciences Programs and the Founding Director of the Center of Materials Science (CMS) at Zewail City of Science and Technology. El-Sherbiny earned his Bachelor's degree, and Master's degree from Mansoura University, and his PhD in Smart drug delivery systems from Massey University, New Zealand in 2007. From 2008 to 2009. Dr. El-Sherbiny has received more than 70 national and international honoring and local, regional, and international scientific awards, including, for instance, the Order of the Egyptian Republic in Science and Arts of the first class and an honor from the Egyptian President. El-Sherbiny was selected by the 500-Committee of the Government of the Chilean Republic in October 2020 as one of a group of innovators worldwide to receive an honor and Magellan Prize.

Innovative Smart Nanosystems for Advancing Disease Treatment, Early Diagnosis, and Tissue Engineering from Laboratory to Societal Application

Abstract

Nanomedicine, the application of nanotechnology in the various fields of medicine, involves the use of nanoscale-materials and nanodevices to diagnose, treat, and prevent diseases. For instance, it offers controlled (targeted and sustained) drug delivery, reducing undesirable side effects and improving treatment efficacy through specific delivering of medication directly to affected cells and tissues. Nanomedicine also improves diagnostic techniques, enabling earlier and more accurate detection of diseases including cancer. Besides, its vital role lies in its potential to revolutionize healthcare by making treatments more precise, personalized, and effective. Smart nano-scale materials represent a very favorable class of materials that are able to change their properties in response to specific

stimuli such as pH, temperature, magnetic field, light, certain biological molecules, etc.

More recently, the concurrent fast and considerable stimuli-response of these nano-structured smart nanomaterials will allow new opportunities to avoid various challenges, magnify the scope of their applications, and suggest improved performance in their uses particularly in the biomedical fields.

The talk will give an overview of nanomedicine, and will describe the development, and biological, pre-clinical, as well as some preliminary clinical evaluation of several new smart nano and nano-in-micro systems for treatment and early diagnosis of different types of diseases as well as their advanced use in tissue engineering and regenerative medicine applications.

Keywords: Nanomedicine, Nanotechnology, Diagnostic techniques, Smart nano-scale

Biography

Prof. Mohamed Farhat

Professor, Director of Center for Nanotechnology, Zewail City for Science, Technology and Innovation, 6th of October City, Giza, Egypt

Dr Mohamed Farhat is a full professor, Director of Center for Nanotechnology, and Director of Nanotechnology and Nanoelectronics Engineering Program at Zewail City of Science and Technology. He is also a founding member of Center for Photonics and Smart Materials (CPSM) at ZC. Based on his research work, 200 journal papers, mostly in IEEE and IEE journals, have been published, and 150 conference papers have been presented in the best national and international meetings. Additionally, two books have been published by the world-leading scientific publishers; Wiley (Computational Liquid Crystal Photonics: Fundamentals, Modelling and Applications, 2016) and Springer (Computational Photonic Sensors, 2018). Dr. Farhat is a member of the National Committee for Education, Science and Culture at ASRT (2022-2025).. Dr Farhat has also been awarded Shoman prize for computational physics (2021), State Prize for Excellence in Engineering Sciences from the ASRT, Khalifa Award for Distinguished Arab professors (2022), Zewail City Awards of Excellence in Scientific Research (2023), and Excellence in Teaching (2024).

Introduction to Silicon Integrated Photonics: Design Flow

Abstract

Silicon Integrated Photonics is a cutting-edge field that combines silicon technology with photonics to revolutionize data transfer capabilities beyond traditional electronic methods. Therefore, silicon photonics finds applications in different fields including sensing, imaging, optical interconnects, and biomedical applications. In this talk, a comprehensive introduction is given through the process of designing a manufacturable Photonic Integrated Chip (PIC). The design flow will start from the basic idea, design capture and simulation, layout design, fabrication and testing. Additionally, the main components of the PIC will be introduced such as silicon on insulator (SOI) optical waveguides, bent waveguides, directional couplers, optical splitters/couplers and interferometers. Further, the input/output coupling of silicon waveguides and circuit design layout will be explained thoroughly. Therefore, this presentation serves as an excellent starting point for students and researchers venturing into the dynamic realm of Silicon Integrated Photonics field.

Keywords: Silicon, Integrated Photonics, electronic methods, Chip

Biography

Prof. Sultana Nurun Nahar

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Prof. Sultana N. Nahar studies atomic processes. She is a member of the International Opacity Project. They are studying bio-signature spectroscopy of exo-planets and broad emission features of heavy elements that have been seen in the electromagnetic waves following the detection of gravitational waves in the merger of two neutron stars. They are also engaged to biomedical applications of high-energy X-ray that are similar to study of black holes. She is an author with A.K. Pradhan for the textbook "Atomic Astrophysics and Spectroscopy" (Cambridge University press, 2011) widely used all over the world She is the founder of the atomic database NORAD-Atomic-Data.After her study from University of Dhaka in Bangladesh as the top most student of her class, both in B.Sc.Hons. and M.Sc., she moved to USA for her Ph.D. degree from Wayne State University, Michigan where she received many awards, including the Distinguished Alumni Award.

Earching Life Forms In Exoplanets

Abstract

For decades we have been searching for extra-terrestrial life with very little success. The search has been largely through detecting any consistent signal. Since continual discoveries of exo-planets, one important objective has been finding spectral lines of bio-signatures elements or molecules, such as O, P, CH_4, CO_2, PH_3, present in the exo-panetary atmosphere. Although lines of bio-signature elements are found in astrophysical spectra, phosphorus has been scarce even during supernova explosions where it is created. It is surprisingly abundant in our solar system. Due to lack of existence, phosphorus has been a least studied element. Phosphorus is a highly reactive element, but it is also a basic element of life. Its compound phosphate is a component of DNA, RNA. With more sophisticated space observatories, phosphorus is found in various objects. The interest has grown considerably with detection of more exo-planets. I will present the underlying Science of atomic processes for interpretation of the observed lines and features of the specific process of photoionization being studied recently of P I.

Keywords: Exo-panetary atmosphere, Extra-terrestrial life, Compound phosphate

Biography

Prof. P. Ragupathy

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Dr P. Ragupathy ia an associate Professor at Academy of Scientific and Innovative Research (AcSIR) & Council of Scientific and Industrial Research (CSIR). He received B. Sc., M. Sc and M. Phil in Chemistry from Dept. of Chemistry, St. Joseph's College, Bharathidasan University, Tiruchirappalli 620 002 India and he received his Ph. D. in Materials Electrochemistry, Solid State and Structural Chemistry Unit, Indian Institute of Science, Bangalore – 560 012 India. He was a research fellow in Materials Science & Engineering, at Nanyang Technological University, Singapore and Post Doctoral Fellow in Materials Science & Engineering Program, Texas Materials Institute, Department of Mechanical Engineering, Cockrell School of Engineering, The University of Texas at Austin, USA. he had many awards include the Fr. Ehrhart Silver Jubilee Medal for outstanding academic performance in Allied Mathematics.

Electrochemical Energy Storage Technology: Recent Trends and Challenges

Abstract

The paradigm requisite for sustainable energy storage systems providing to the need of storing intermittent energy obtained from renewable energy resources, mainly solar and wind is of great interest and importance in the current scenario. The major and abundant contributor for energy production is from non-renewable energy resources in specific fossil fuels. Approximately, every year tones of various substituents of fossil fuels are used for electricity production. Its impact on global climate is devastating, owing to large emission of CO_2 and other consequences leading to a greater threat to society. Moreover, as we burn fossil fuels at the current rate, all the available fossil fuels will be depleted by the next 50 years. Thus, the smart swift from the consumption of fossil fuels to renewable resources like solar and wind is in priority among the million dollar energy producing industries.

In spite of huge amount of energy generated by renewable sources, they have their own limitations such as unpredictable and inconsistent power supply.

The impact of renewable energies will not be fully realized, unless an efficient route is found to store and use the energy generated by renewable energies. Therefore, considerable attention has been paid to finding better energy storage systems. In this perspective, electrochemical energy systems (EESs) are promising alternative energy sources owing to their direct energy conversion without an intermediate step, high efficiency of conversion, absence of moving parts and hence minimum noise level, minimum pollution, portability, miniaturization and convenience to scale up. Particularly, materials hold the key for the future development of clean energy generation and storage due to their unique physical and chemical properties offer unprecedented opportunities in energy technology. The present talk covers 'Challenges and Opportunities in Energy Storage Systems with special emphasis on Li-ion Batteries and Redox Flow Batteries'.

Keywords: Electrochemical, paradigm, Energy Storage, renewable energy resources

Biography

Prof. Dr. Ahmed M. Hashem
Professor at Inorganic Chemistry Department,
National Research Centre, Egypt

Dr. Ahmed M. Hashem is a Professor at the Inorganic Chemistry Department, National Research Centre. He has more than twenty years of experience in the research area of materials Science close related to lithium-ion batteries. His main interest is the synthesis and characterization of nanosized electrode materials for safe and rechargeable lithium-ion batteries (LIBs) with high efficiency, good long life, and high specific capacity to play a critical role in today's world of mobile communications, portable electronics, and electric vehicle. Hashem was a member in the committee of non-organic chemistry for the promotion of associate professors and professors, a member of the Council of Energy and electricity of Academy of Scientific Research & Technology, and a member of the committee of advanced materials and Nanotechnology related to Academy of Scientific Research Technology (ASRT). Previously.

Green Synthesis of Nanoparticles and Their Energy Storage, Environmental, and Biomedical Applications

Abstract

Green synthesis offers a superior alternative to traditional methods for producing metal and metal oxide nanoparticles. This approach is not only benign and safe but also cost-effective, scalable, and straightforward, operating under ambient conditions. Notable metals and metal oxide nanoparticles, such as manganese oxides, iron oxides, silver, and gold, have been produced using various bio-reductants derived from plant extracts. These biological agents not only expedite the reduction process but also stabilize the nanoparticles, serving dual roles as reducing and capping agents. This work presents the green synthesis of nanoparticles (NPs) obtained from biogenic wastes and plant extracts. The green-synthesized nanostructured MnO_2 nanoparticles are evaluated as a potential photocatalyst for water treatment and as an electrode material in lithium-ion batteries and supercapacitors. The green-derived iron oxide nanoparticles are examined as promising antioxidant, anti-inflammatory, and anti-diabetic agents. Additionally, this review discusses the green synthesis of precious metal nanoparticles, specifically silver (Ag NPs) and gold (Au NPs), highlighting their potential medical applications in areas like antiviral treatments and cancer therapy.

Keywords: green synthesis; metals; bio-reductants; lithium-ion batteries; supercapacitors; photocatalysts; cancer therapy.

Biography

Dr. Hatem A. Elsahabrawy
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Dr. Hatem received B.Sc of Pharmaceutical Sciences, School of Pharmacy, Cairo University, Egypt in May 2003, and he received PhD of Microbiology and Immunology, University of Illinois at Chicago in December 2012. He worked as a Teaching and Research Assistant School of Pharmacy, Cairo University Cairo, Egypt from 2004 – 2008. He worked as a Teaching Assistant at the College of Pharmacy, University of Illinois at Chicago Chicago, IL from 2008 – to- 2009. He had a postdoctoral research fellow at RUSH University Medical Center Chicago, IL from July 2013 – to March 2015. He was certified Pharmacy Graduate-Foreign Pharmacy Graduate Examination Committee (FPGEC) in November 2016. He worked as an assistant Professor of Pharmaceutical Sciences at California Northstate University, College of Pharmacy Elk Grove, CAi n July 2017 July 2019. Dr Hatem works now an assistant Professor of Microbiology, Immunology, and Pathology at Sam Houston State University, College of Osteopathic Medicine Conroe, from July 2019 till now.

Gut microbiota and health disorders: Signifcance of healthy gut in protection against metabolic and mental disorders

Abstract

Several studies have documented that rich and diverse gut microbiota is essential for the well-being of any individual. Conversely, dysbiosis has been associated with metabolic diseases, such as obesity, diabetes mellitus, and atherosclerosis. Moreover, mental health correlated positively with healthy gut microbiota (gut-brain axis), and dysbiosis was associated with the development of mental disorders including anxiety, depression, schizophrenia, bipolar disorder, and ADHD. Several mechanisms explain the role of gut microbiota in mental health including microbial regulation of neuro-immune signaling, tryptophan metabolism, control of neuroendocrine function, and production of neuroactive compounds, and short-chain fatty acids (SCFAs). In addition, the production of neurotransmitters, such as serotonin and dopamine by gut microbiota have been reported. Finally, probiotics (good gut microbiota bacteria), prebiotics in the form of dietary

fibers, synbiotics (pre-and probiotics), postbiotics such as short-chain fatty acids were found to alleviate metabolic and mental disorders.

Therefore, in this study, we will review the role and mechanisms of healthy gut microbiota in prevention of several diseases and will shed the light on detrimental effects of dysbiosis. Additionally, we will investigate novel therapeutic approaches for metabolic and mental disorders.

Keywords: Probiotics, Postbiotics, dysbiosis, Gut microbiota, Metabolic diseases.

Biography

Prof. Alexey Golovnev
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Alexey Golovnev was born on 3 July 1980, in Saint Petersburg, Russia. His research interests include General relativity and modified gravity; nonlocal gravity; torsion and non-metricity. Massive gravity; bimetric gravity; extra dimensions and brane-worlds; quantum gravity; eternal inflation. He had a Bachelor's degree in physics (with Honours) from Saint Petersburg State University, Saint Petersburg, Russia 1996-2000,) and received his master's degree in theoretical and mathematical physics (with Honours2000-2002). From 2002-2005 he was PhD student at the high energy physics department of Saint Petersburg State University. In 28 December 2006 – he got his PhD in theoretical physics. He worked as a researcher at Asia Pacific Center for Theoretical Physics in Pohang, South from January – May 2018. He was a lecturer at ITMO University, Saint Petersburg in the Autumn 2018. From September 2019 to September 2023 he was a senior lecturer, Since September 2023 – he worked as a research professor at the Centre for Theoretical Physics of the British University in Egypt, Cairo

General Relativity and Modified Gravity

Abstract

General Relativity is the commonly accepted theory of gravitational interactions. It is very successful and beautiful. However, it does have certain issues on theoretical side, and recently also serious observational tensions coming from modern cosmology, with lots of new data to be expected soon. It motivates people to look for modifications, and this search appears to be highly nontrivial. I give a brief overview of the beautiful geometric picture of General Relativity and discuss the most important problems it suffers. Then I present a general view of the vast landscape of available modified gravity theories and, if time permits, mention some details related to my own research in this field.

Keywords: Gravitational interactions, Tensions, Modified Gravity

Biography

Asst. Prof. Talha Erdem
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Dr. Talha studied B. Sc. at Dep. of Electrical and Electronics Engineering, High Honor Student at Bilkent University Ankara, Turkey from 2005 to 2009, he studied M. Sc at Dep. of Electrical and Electronics Engineering, Ankara, Turkey from 2009 to 2011 and he had Teaching Assistantship at Dep. Of Electrical and Electronics Engineering from Nanyang Technological University, Singapore. Dr. Talha went a Visiting Ph. D. Student at the School of Electrical and Electronic Engineering summer 2014. He received many awards include TÜBA-GEBİP Successful Young Scientist Award (awarded by Turkish Academy of Sciences) in 2023, BAGEP Young Scientist Award (awarded by Science Academy, Turkey) in 2023, and Newton International Fellowship (awarded by Royal Society, UK) 2016- 2018. He published about 51SCI Journal Publications. His Number of Citations is about 2248. Dr. Talha developed a novel technique to separate the polymer backbones and employed a methodology to realize efficient and stable solids that will make these polymers suitable for LEDs

Tuning the Interactions of Nanoparticles with Light Using Self-Assembly

Abstract

We will first discuss the formation of translucent photonic crystals of latex nanoparticles [1]. These particles form 3D photonic crystals when they are concentrated. Their reflection colors can be easily tailored by changing the final concentration of the material as controlling the concentration enables controlling the distance between the particles forming the photonic crystal. Second, we will present our work in which we explored how to customize the optical polarization of magnetic and self-assembled quantum dot supraparticles [2]. We report on our efforts to produce CdSe/ZnS quantum dots, iron oxide nanoparticles, and silver nanoparticle supraparticles. We then demonstrate the magnetic field-dependent optical polarization control of the quantum dot-iron oxide supraparticle network. Subsequently, we used the light-induced localized heating to control the semiconducting quantum dot connection on two-dimensional surfaces [4]. We show that illuminating the surface with laser light causes local heating and thus avoids the connection of quantum dots on the illuminated regions. We believe that this control may pave the way for developing a new fabrication technology.

Keywords: Nanoparticle, Supraparticles, Quantum, CdSe/ZnS, Fabrication technology

Biography

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Dr. Palash Duttaserves as Associate Professor at Dibrugarh University Assam, India, he received his Ph.D. Dibrugarh University in 2012, he has expertise in Applied Mathematics and Uncertainty Modelling in Decision Making, he was awarded as the top 2% Scientist of the World from 2021-2024 from Stanford University, USA. Dr Palash works as a project Investigator/ Coordinator in a research project. He has an impressive publication record with over 117 research articles in internationally renowned journals.

Hyperbolic Fuzzy Sets: Bridging Traditional and Modern Approaches in Decision-Making for Complex Environments

Abstract
Recent developments in fuzzy logic have introduced various set models—Intuitionistic Fuzzy Sets (IFSs), Pythagorean Fuzzy Sets (PFSs), Fuzzy Fuzzy Sets (FFSs), q-Fuzzy Sets (QFSs), and q-rung Orthopair Fuzzy Sets (Q-ROFSs)—each offering unique tools to navigate uncertainty in decision-making. Yet, with increasingly complex scenarios, the demand for a more integrative and adaptable approach has emerged. Hyperbolic Fuzzy Sets (HyFSs) present a novel solution, providing a unified framework that enhances the analytical power of these existing models. By synthesizing their core principles, HyFSs deliver a flexible and efficient method for managing uncertainty and ambiguity across diverse decision contexts. This paper explores into the HyFS framework, highlighting its potential to strengthen decision analysis in uncertain environments by broadening the scope and applicability of fuzzy logic.

Keywords: Hyperbolic Fuzzy Sets (HyFS), Fuzzy Logic Extensions, Decision Analysis, Uncertainty

Biography

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Dr. Guillermo was a Visiting professor on sabbatical at the University of Nevada, Reno 2015-2016. He works as Professor level B (Titular B Researcher, after winning tenure) at ICF, UNAM 2010 and a Professor level A, at ICF, UNAM 2003. Dr. Guillermo received his B. S.c in Physics from University of Guadalajara in 1991. Dr. Guillermo had his M. Sc (1993) and Ph. D (1998) in Physics (degree earned by qualifying exams) from National Autonomous University of Mexico -UNAM. He was a member of the admission committee of the graduate school of physics at UNAM,(2020) and also a member of the admission committee of the graduate school of physics at UAEM in 2020. He has about 56 scientific articles in major journals and about 24 conference proceedings.

Negative Ion Resonances Lifetime and Electron Loss Cross Sections at Low Energy Interactions.

Abstract

Negative ions are an intriguing atomic species because their uncommon quantum structure and their difficult-to-predict properties such as interaction cross sections, electron affinity or lifetimes. Despite of their strangeness, they are very frequent in Nature. For instance, high populations of negative ions species have been discovered in the interstellar medium, in the atmospheres of Titan and Io. Negative ions are also customary observations in plasmas where the loosely attached electron may modify the electron density function.

Over several decades, the electron loss cross-section has shown strong discrepancies in the low energy range. In the present work, we propose a new hypothesis that explains the differences, moreover, we propose a new method to derive the lifetime of certain meta-stable auto-detaching states from negative ion resonances from these differences. The method has been proved against theoretical calculations that show agreement with the present derivation. We show the case for H^- and O^-.

keywords: Negative Ion**,** Intriguing atomic, Electron affinity, Quantum structure

Biography

Prof. Alberto Facchini
Professor of Algebra, *University of Padova, Italy*

Dr. Alberto Facchini worked at the University of Udine (Italy) from 1981 to 1999 as an assistant professor, and a full professor of Algebra (from 1987), and then at the University of Padua (Italy) from 1999 as a full professor of Algebra and now as an emeritus professor. He has also studied at the University of Sheffield (UK) for a year and at the University of Barcelona (Spain)/Centre de Recerca Matematica for three years. He has had six PhD students. He has been an organizer/or in the scientific committee of several mathematical conferences. He has written about 180 scientific publications and has delivered scientific communications and lectures in about 40 different countries. In the last years Alberto Facchini has been in the Editorial Board of Bollettino dell'Unione Matematica Italiana, Commentationes Mathematicae Universitatis Carolinae, Communications in Algebra, International Electronic Journal of Algebra, Journal of Algebra and Its Applications, Journal of the Egyptian Mathematical Society, Rendiconti del Circolo Matematico di Palermo, Rendiconti del Seminario Matematico dell'University di Padova (from 2000 to 2011; now as a trustee), Journal of Semigroup Theory and Applications.

Noncommutative polynomials, Fibonacci polynomials, operations that are not commutative, or not associative, or not distributive.

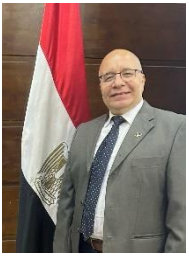
Abstract

I will try to give a talk that could be understandable to a nonspecialist audience. I will present the content of two articles: [A. Facchini and A. Leroy, Leapfrog constructions: from continuant polynomials to permanents of matrices, Electron. J. Combin. (2015), and [A. Facchini, Noncommutativity, nonassociativity, nondistributivity, work in progress].

The way we have learned and taught the foundational concepts of Modern Algebra follows the approach outlined by Emmy Noether and Bartel Leendert van der Waerden a century ago. The first algebraic structures studied are groups, rings (especially commutative ones, which are fundamental for Algebraic Geometry and Number Theory), and fields. This is because the most common axioms for an operation are commutativity, associativity, distributivity, the existence of an identity, and the existence of inverses. However, by negating or modifying these axioms, we find that they are satisfied by several common algebraic structures. We will give several examples. We will begin stressing the differences between commutative polynomials and noncommutative ones.

Keywords: Noncommutative polynomials, nonassociativity, Algebraic Geometry, Number Theory

Biography



Prof. Dr. Ahmed Asaad I. Khalil

Chairman of Laser Sciences and Interactions Department,
National Institute of Laser Enhanced Sciences (NILES),
Cairo University, Giza, Egypt

Ahmed Asaad I. Khalil was born in Cairo, Egypt, in 1968, where he studied physics at Cairo University. He received his B.Sc. in Physics (in 1990) and Master's Thesis in Laser Physics (in 1996) for studies in the field of Laser Semiconductor Interactions. He received his PhD in Laser Sciences (in 2002), Laser Experimental Physics V Institute, Ruhr University Bochum – Germany through DAAD Scholarship. He did postdoctoral studies for laser Sciences (Aachen, Germany) (in 2004) in the field of Laser Industrial Applications.

He is a supervisor on a number of Master and PhD thesis and projects. He worked as a scientific Advisor for the Dammam University v. Rector and Academic Staff Member in the Physics Department, Faculty of Sciences for Girls in Dammam University, Dammam, Saudi Arabia from 2007 till 2016. He worked as a Chairman of Laser Sciences and Interactions Department, National Institute of Laser Enhanced Sciences, NILES, Cairo University, Giza, EGYPT since 2017 till now.

Laser Processing and Green Synthesis of Smart Nano-composites for Environmental Protection and Sustainable Energy Applications

Abstract

In recent days, Eco-friendly Nano-composites thin films employed as an absorber layer in solar cells and are used as sensors for Environmental Pollution, Photochemical, Medical, optoelectronics and industrial polymer materials, and Sustainable Energy applications. Thus, Nano-composites samples of low-cost materials doped with various concentrations of nanoparticles (NPs) were perfectly synthesized to be used as sensors for monitoring the level of pollution in different zones. The influence of environmental changes in the optical and spectroscopic properties of NPs doped host films was studied. The optical band energy gaps for
samples at very low, low, and high pollution zone cities were estimated. Moreover, our research is focused on the intended waveband of the infrared imagers at significant distances relevant to tactical security operations, with a range of 6 km–10 km.

The study compares the effects of both dazzling and damaging laser radiation on electro-optical systems using a straightforward theoretical

framework supported by atmospheric modeling. The effect of atmospheric conditions on IR laser energy was studied using MODTRAN software to determine the effective laser parameters for EO imaging systems at different distances. The study also investigates the critical parameters of practical high-power pulsed infrared laser wavelengths to dazzle and damage imaging systems at different distances. We also successfully offer a quantitative and qualitative analysis of the micro-toxic elements in various brands of commercial ink powders employing short-long orthogonal double-pulse laser-induced plasma spectroscopy, and an inductively coupled plasma optical emission spectrometer. The recorded spectra of the Nano-composites contain the spectral lines of elements. It was found that both outcomes from SLODP-
LIPS and ICP-OES were in greater agreement.The analysis of different commercial ink brands shows that SLODP LIPS is a potent scheme for the analysis of the micro-toxic trace element in any solids. All solar thermal power systems have solar energy collectors with two main mechanisms: mirrors (reflectors) (collect and focus solar irradiation) and receivers which have heat-transfer oil or fluid that are heated, circulated, and used to heat water to produce the steam. Thus, factors that decrease the efficiency of solar mirrors that heat HTF oil at the solar power station were studied. The protective layer and metal frame corrosion of the mirrors were investigated before and after exposure to weather conditions. This work covered the method of preventive maintenance of solar mirrors. In addition, Supercapacitor with a wide operation voltage window in an aqueous electrolyte is a critical key for boosting energy, overcoming safety and fabrication cost obstacles. Laser writing technique was employed to enhance SGO active material's electrochemical performance through high-power laser irradiation of two different opticalranges 355 and 1046 nm. Laser-processed SGO SCs offer a battery-like energy density of 173 Wh/Kg at 1 A/g coupled with high power of 283 kW/Kg at 80 A/g. Interestingly, the retention at a high current of 80 A/g is nearly >99.6 %, which suggests a strong coupling between tin metal/tin dioxide and graphene 3D conductive networking. This study could provide important reference data for the design and optimized of systems involved in plasma facing components diagnostics. Reduced graphene oxide (RGO) is a commercial form with mass production terms which form showed exceptional compatibility in superconductors.

Keywords: Plasma, RGO, superconductors, Supercapacitor, electrochemical, Laser Processing, Green Synthesis, Smart Nano-composites

Biography

Dr. Shakir Ali
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Prof. Dr. Shakir Ali received his Ph.D. and M. Phil from Aligarh Muslim University (AMU), Aligarh. He is an expert in Algebra, and in particular, in the theory of derivations in Rings and Algebras. He joined the Department of Mathematics, AMU, Aligarh as a Lecturer in 2004 He also worked as an Associate Professor at King Abdulaziz University, Jeddah, Saudi Arabia during 2016 to 2018. Presently, he is working as a Full Professor since 2019. He has published more than 150 research papers in highly reputed International Journals and consequently has more than 4500 citations. Also, he is the recipient of IMS-UM Visiting Professor/Scientists fellowship award sponsored by IMS-UM, Malaysia. Dr. Ali has been given the Outstanding Scientist Award for the year 2018 by IOSRD. Moreover, he was awarded the 'Best Research Paper Presentation Award' for the years 2003 and 2008 by the Indian Mathematical Society (IMS) at its 69th & 74th annual conferences.

Some Special Functional Identities Involving Jordan Derivations In Rings

Abstract

Let R be any ring and $n \geq 2$ be a fixed integer. An additive mapping $d : R \to R$ is said to be a derivation on R if $d(xy) = d(x)y + xd(y)$ holds for all $x, y \in R$. An additive mapping $d : R \to R$ is said to be a Jordan derivation if $d(x^2) = d(x)x + xd(x)$ holds for all $x \in R$. An additive mapping $d : R \to R$ is said to be a Jordan *-derivation if $d(x^2) = d(x)x^* + xd(x)$ holds for all $x \in R$, where R is ring with involution. For $n \geq 2$, it is easy to show (by induction) that if d is a derivation of a ring R, then d satisfying the following functional identity

$$d(x^n) = \sum_{i=0}^{n-1} x^i d(x)(x)^{n-i-1} \qquad \text{for all } x \in R$$

where $x^0y = y = yx^0$ for all $x,y \in R$. This functional identity is commonly known as the "n^{th}*-power property*". The study of such mappings were initiated by Bridges and Bergen [1]. In 1984, they proved that such type of map exhibiting n^{th} power property is a derivation on R, when R is a prime ring with identity and when *char* $R > n$ or is zero. In the year 2007, Lanski [4] generalized this result from derivations to generalized derivations in semiprime rings. Recently, author together with Dar [2] introduced the

notion of "n^{th}-*power* *- *property*" and studied these results in the setting of rings with involution. Precisely, an analogous result for Jordan *-derivations on prime rings with involution was obtained by author together with Dar [2] (see also [3] for more related results).

In this talk, we will discuss the recent progress made on the theory of functional identities. Further, we conclude our talk with some recent open problems.

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Biography

Prof. Dr. Badawy Abu-Ibrahim Ibrahim Sarhan.
Professor of Theoretical Nuclear Physics.
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Prof. Dr. Badawy is a Professor of Theoretical Nuclear Physics, Physics Department, Faculty of Science. He received B.Sc. (Distinction), in May 1992, from Faculty of Science, Cairo University, and he received a degree of Master of Science (Distinction), in Sept. 1993 from. Faculty of Science, Cairo university. He had two years Scholarship (Scientific channel) April 1998 - April 2000, in Physics Department, Faculty of Science, Niigata university, Niigata 950-2181, Japan to finish the PhD thesis. He had a PhD, entitled "Reactions of unstable nuclei within Glauber model", December. He occupied as Demonstrator, (1993-1995) at Physics Department, Faculty of Science, Cairo university, Egypt. and Lecturer Assistant, (1995-2000) at Physics Department, Faculty of Science, Cairo university, Egypt. He is an editor in Egyptian Journal of Physics (https://ejphysics.journals.ekb.eg/), Referee in Chinese Journal of Physics C, and Indian journal of physics cooperation with other universities. Published 31 articles in international scientific journals and attended 22 conferences. Published two books.

Elements of the successful research paper
Badawy Abu-Ibrahim

This presentation is directed to young researchers. The presentation will discuss the following: How the researcher know the quality of his work? When the researcher should stop working and start to write a paper? How we write a good paper? What is important for the referees?

Biography

Prof. Dr. Cem Bulent Ustundag
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Dr **Ustundag**is a professor in the Department of Bioengineering at Yildiz Technical University. He received B.Sc. degree in Ceramic Engineering from Dumlupinar University, Turkey in 1999 and M.Sc. degree in Materials Science & Engineering from Gebze Technical University in 2003, and he has dual Ph.D. degree in Materials Science & Engineering from Yildiz Technical University (YTU), Turkey in 2011 and Biomaterials from Tohoku University, Japan in 2013. Dr. Ustundag served as the Head of Ceramics Program and was appointed as the Head of Technical Programs Department at YTU Vocational School. Dr Ustundag was promoted to full professor in 2023. He has authored/co-authored over 46 research papers, 13 review papers, 2 book (co-editor), 10 book chapters, 7 patents and 11 patent applications, and over 100 national and international conference papers. In addition, he has consulted with Spinamer Ltd.

Transforming Personalized Medicine: The Role of Hybrid Scaffolding Technologies in Tissue Engineering and Drug Delivery

Abstract

This presentation examines our research utilizing 3D printing techniques, combined with electrospinning and other traditional fabrication methods, for the production of biocompatible structures, addressing the critical need for advancements in personalized medicine and regenerative therapies. It offers a detailed analysis of how 3D printing, alongside these techniques, facilitates the development of customized scaffolds with diverse properties for neural, skin, and cartilage tissue engineering, as well as tumor dressings designed for targeted drug delivery in cancer treatment. Additionally, the creation of biocompatible wound dressings tailored specifically for diabetic ulcers will be explored. The presentation also covers cutting-edge micro-needle-based scaffolds and drug delivery systems. Through a rigorous analysis of the findings and outcomes of these innovations, the research highlights their potential to fundamentally transform biomedical applications. This interdisciplinary approach not only emphasizes the versatility of 3D printing but also reinforces its central role in advancing the field of biomedicine, offering promising avenues for the development of patient-specific treatments and regenerative therapies.

***Keywords*:** 3D printing, Biocompatible scaffolds, Personalized medicine, Regenerative therapies, Tissue engineering, Micro-needle scaffolds.

Biography

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Dr. Esmat was a Professor at NRC, Glass Research Dept in 2008, he became head of the glass Dept in 2004-2014 and he worked as Professor in Emeritus in 2016. Dr. Esmat received his BSc in Geology from Cairo University in 1978, and MSc in Mineralogy, petrology (Catalyzed Crystallization of some Glasses Based on Nepheline Syenite) in 1992 from Cairo University. He received PhD in Mineralogy: Crystallization of Fluoramphiboles from Fluosilicate Glasses from Ain Shams University in 1996. His main fields of interest include examination, exploration and analysis of primary raw materials, glasses, glass-ceramics, and -ceramics. Dr. Esmat had many awards include Ezz El-Din Helmy, for the best PhD thesis in 1996, from the Egyptian Society of Mineralogy and Scientific Encouragement, Geology branch, for the outstanding publications, from National Research Centre, 2003. He published about 112 papers in International Journals

Cost-Effective and Efficient Biomaterials

Abstract

Many biomaterials, including metals, their composites, natural polymers, bioactive ceramics, and bioactive glasses, can help restore human tissue and organs. For the production of regenerative biomaterials, such as bone implants, sustainable sourcing of componentry is crucial to enhancing the circularity of their usage and protecting natural mineral resources. Biomaterials can be made in a variety of techniques, including solid reaction, sol-gel, wet precipitation, melt-quenched, ceramic, and composites. Considerable cost savings are anticipated when biomaterials are used in medical procedures. Sustainable development may be achieved by the utilization of recycled and renewable waste materials as a supply of raw materials for biomaterials. The initial outcomes of calcium phosphate obtained from eggshells, bi-valve shells, and silica derived from rice husk ash may open the door for more sophisticated uses of biomaterials created from additive manufacturing (AM) waste to sustainably address a number of unmet therapeutic applications. Shells that are abundant in calcium sources provide the option of supplying an inexpensive raw material for the synthesis of practical and eco-friendly materials like hydroxyapatite (HA). Raw materials and clean solid waste products can be considered starting materials. Pure limestone, dolomite, soda lime silica glass (SLSG), and feldspar are a few examples of raw minerals that can be utilized as precursors to create biomaterials.

***Keywords*:** Biomaterials, Bioactive glasses, Raw minerals, Calcium phosphate

Biography

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Dr. Ibrahim received B.Sc. in Chemistry, Faculty of Science, Cairo University with honor degree, May 1989 and M.Sc. from Faculty of Science, Cairo University on " Corrosion Behavior of Candidate Paper-Machine White-Water", May 1994 and he had Ph. D. from Faculty of Science, Cairo University on "Scale Inhibitors in Water Cooling Systems", Oct. 1999. He has been working in the field of corrosion since 1990. He has excellent experience with all types of corrosion testing and monitoring techniques. He has excellent experience with microscopic investigation and surface characterization of metal coatings, corroded surfaces as well as metallurgical aspects of corrosion. Dr. Ibrahim was PI of the project "studying the inhibition of corrosion of copper and its alloys in solutions of clean and sulfide contaminated salt solution." The project lasted for two years (2011-2013), member of the research team of the project "Studying Stress Corrosion Cracking of Magnesium Alloy AZ91 (2013-2014) and CoPI of the project "Design and Manufacturing of Electrochemical Antifouling System of Navy Ships", ASRT project, Contracted, contracted June 2023.

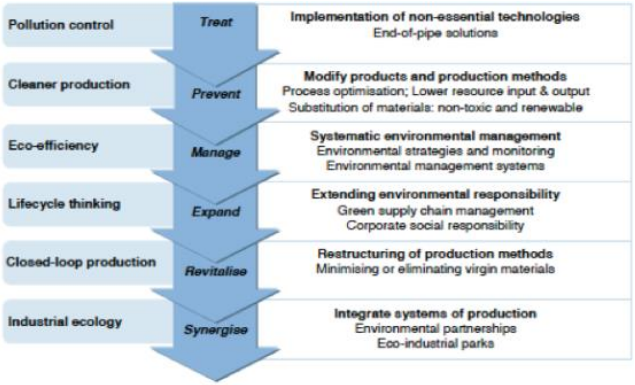
Greening the Industry

Abstract

The United Nations Industrial Development Organization (UNIDO) defines the green industry vision as "The potential for industries to decouple economic growth and revenues from excessive and increasing resource use and pollution". It foresees a world where industrial sectors minimize waste in every form, utilize renewable resources as input materials and fuels, and take every possible precaution to avoid harming workers, communities, climate, or the environment. Green industries will be creative and innovative, constantly developing new ways of improving their economic, environmental, and social performance.

A green industry is the concept of promoting sustainable consumption and production patterns in the manufacturing of products. This involves both the greening of existing products and the creation of green industries that deliver environmental goods and services. A green industry requires manufacturers to accept responsibility for the environmental impacts of their product or service throughout its whole life cycle.

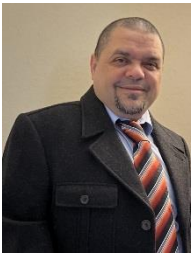
A green industry aims to improve the efficiency of conventional industries and supply chains; Create new types of products, such as renewable energy, recycling technologies, and organic food production; Create environmental analyzing and advisory services, such as an energy service company, which includes analysis and calculation of ecological footprints; Create new types of services that are more ecologically friendly, such as ecotourism.
All industries, regardless of the sector, size, or location, continuously need to improve their environmental performance. This includes commitment to, and actions aimed at reducing the environmental impacts of processes and products by using resources more efficiently, phasing out toxic substances, substituting fossil fuels with renewable energy sources, improving occupational health and safety at the worksite, taking increased producer responsibility and reducing the overall risks for the environment.
Energy and resource efficiencies drive the greening of industries, which is a worthwhile pursuit for businesses because it reduces the cost of production as well as the cost of compliance with future environmental standards.
There are many practical approaches to greening an industry, such as: Circular economy; Cleaner production; Industrial symbiosis; 3Rs – reduce, reuse and recycle.



The evolution of greening industry concepts and practices Source: Organization for Economic Co-operation and Development, Sustainable Manufacturing and Eco-Innovation: Framework, Practices and Measurement (Paris, 2009).

Keywords: Green industry, Manufacturing of products, Cleaner production, Energy resources

Biography



Dr. Hosam Abdelhady
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Dr. Abdelhady joined Sam Houston State University in January 2022 as an Associate Professor of Pharmacology at the Department of Physiology & Pharmacology, College of Osteopathic Medicine.He received his PhD in Pharmaceutical nanotechnologies & molecular biophysics from the University of Nottingham, UK in 2004. He received his Master of pharmacy from Faculty of Pharmacy, Cairo University, Egypt & his Bachelor of Pharmacy from Faculty of Pharmacy, Tripoli University, Libya.He established and led the first Nano-imaging lab at Central Michigan University in 2004 & established and directed the analytical lab at Dendritic Nanotechnologies INC, 2006, a Nano polymer company established by the distinguished Professor Donald Tomalia, a Thomson Reuters Predicts Nobel Laureates, 2011. Abdelhady held the position of Chair of the Department of Pharmaceutical Sciences at the College of Pharmacy at Taibah University, King of Saudi Arabia (KSA) in 2010. He received two awards from King Abdulaziz City for Science and Technology (KACST), the main funding institute in KSA, with two large grants to 1-Film Unseen Scenarios of the suicidal effects of novel gene nanoparticles on individual cancer cells, using real-time nanoimaging in native environments and 2- to investigate the effect of natural small molecules on delaying and/or preventing Alzheimer's disease and tau pathology.

"4D-AFM: Transforming the Future of Bio-Nanomedicine"

Abstract

This talk will explore the revolutionary potential of 4D Atomic Force Microscopy (4D-AFM) in bio-nanomedicine. This state-of-the-art technology, which combines high-resolution imaging with real-time monitoring, is transforming our understanding of nanoscale biological systems and dynamic processes. We will examine the broad applications of 4D-AFM, including real-time observations of DNA behavior, studies of cellular interactions with nanomedicine, and the characterization of key nanomaterials for drug delivery and tissue engineering. Particular emphasis will be placed on the real-time monitoring capabilities of 4D-AFM, which provide invaluable insights into the interactions between individual DNA molecules and medical nano-polymers.

This capability enhances the design of genetic nanoparticles and allows for detailed observations of the structural properties and dynamics of DNA and RNA molecules in conjunction with nano-polymers. We will also highlight the transformative impact of 4D-AFM on individual cancer cells in their natural environments, including the development of robust nanoparticles that can withstand enzymatic degradation, efficiently transfect cells, and selectively target and eliminate cancer cells.

In conclusion, we will explore the cutting edge of scientific innovation, where the integration of 4D-AFM and bio-nanomedicine is opening new frontiers for healthcare and research. We promise an insightful exploration of the expansive potential of 4D-AFM, redefining the boundaries of healthcare and research within the realm of bio-nanomedicine.

Keywords**:** DNA, nanomaterials, bio-nanomedicine, RNA, cancer cells

Biography

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Dr. Afaf El-Sayed is currently serving as a María Zambrano Postdoc Researcher, having received the prestigious Next Generation EU grant at the Material Physics Centre (Centro de Física de Materiales CFM) located within the University of the Basque Country (UPV/EHU) in San Sebastián, Spain. She holds the Associate Professor of "Physics of Nanotechnology" position at the Faculty of Science, Al-Azhar University, in Cairo, Egypt. Her research outcomes have been published in several high-impact international peer-reviewed journals, resulting in an h-index of 12, an i10-index of 13, and 820 citations. Her involvement with various universities and research institutions has significantly enhanced her academic, scientific, and personal background.

Emerging Trends in Semiconductor Research

Abstract

The increasing global demand for innovative technologies characterized by superior efficiencies, reduced energy consumption, and environmental sustainability has driven a quest for alternative solutions to established technologies. Semiconductors, as fundamental materials, play a pivotal role in a wide array of technologies catering to diverse human needs, from essential to luxurious. Consequently, the scientific community continually seeks new semiconducting materials with enhanced or innovative properties.

In this talk, I will elucidate two prominent trends in semiconductor research. Firstly, the integration of hybrid organic/inorganic structures, which amalgamate diverse semiconducting materials, such as quantum dots and carbon nanotubes as inorganic components, and oligomers and polymers as organic constituents. This union of inorganic semiconductors with organic counterparts represents an unconventional yet compelling strategy for generating novel semiconductor heterostructures. The underlying concept seeks to harness the respective advantages of both systems, with the potential to yield innovative applications.

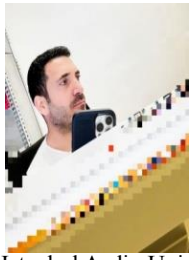
In this talk, I will elucidate two prominent trends in semiconductor research. Firstly, the integration of hybrid organic/inorganic structures, which amalgamate diverse semiconducting materials, such as quantum dots and carbon nanotubes as inorganic components, and oligomers and polymers as organic constituents. This union of inorganic semiconductors with organic counterparts represents an unconventional yet compelling strategy for generating novel semiconductor heterostructures. The underlying concept seeks to harness the respective advantages of both systems, with the potential to yield innovative applications.

The second trend pertains to diluted magnetic quantum dots (DMQDs), wherein quantum dots are combined with magnetic dopants to modify the inherent magnetic properties of the semiconducting matrix. This area of inquiry is actively engaged in a rapid pursuit to meet the escalating demand for magnetic semiconductors.

Furthermore, I will explain the pivotal role that these novel semiconductor types can play in advancing the fields of Quantum Nanoelectronics and Spintronics. These advancements present promising pathways for future research and technological applications.

Keywords: Semiconductor, Nanoelectronics, Quantum, Spintronics, Carbon nanotubes, Heterostructures

Biography



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Dr. Mehmet received B.S. from University of People California, USA Computer Engineering in 2013 and MSc from Istanbul Aydin University Istanbul, Turkey, Computer Engineering in 2016, he also received PhD from Istanbul Aydin University Istanbul, Turkiye Computer Science in 2021. Dr. Mehmet has experienced in Machine Learning Engineer with a strong academic (Ph.D) background and a proven track record in computer Science research and teaching. Assoc. Prof. Cifci has served as a Lecturer in AI at institutions including Topkapi University and Bandirma Onyedi Eylul University in Turkey, Klaipeda University in Lithuania, and as a Researcher at TU Wien in Austria. He is a Senior Researcher and Data Scientist > TU Wien (Vienna University of Technology), Vienna, Austria | 2022- he works as Lecturer > Bandirma Onyedi Eylul University, Balikesir, Turkey from 2021-2023.

Developing a Predictive Machine Learning Model for Prognosis in Elderly Patients with Non-Small Cell Lung Cancer Undergoing Chemotherapy

Abstract

Chemotherapy is widely used in treating lung cancer, but its effectiveness for elderly patients remains uncertain, raising critical clinical questions. This study investigates the survival benefits of chemotherapy for elderly non-small cell lung cancer (NSCLC) patients using machine learning models for prognosis prediction. We conducted a retrospective analysis of elderly NSCLC patients from the Surveillance, Epidemiology, and End Results (SEER) database, covering the years 2009 to 2019. Patients were categorized into two groups: those receiving chemotherapy (CT) and those not receiving chemotherapy (NCT). To reduce selection bias, propensity score matching (PSM) was applied, creating balanced groups (1:1 ratio). Four distinct machine learning models were developed based on patient characteristics and validated using 10-fold cross-validation. Performance was assessed by the Area Under the Curve (AUC) metric, and the model with the highest AUC was utilized to create an interactive online tool for clinical use. A total of 31,163 patients were analyzed, divided into two equal

groups through propensity score matching (PSM), resulting in 15,581 patients in the CT

group and 15,582 in the NCT group. The median overall survival (OS) significantly differed between the groups, with CT patients having a median OS of 13.0 months, compared to 6.0 months for NCT patients ($p < 0.001$). Multivariate Cox regression identified several independent factors influencing survival. Of the machine learning models tested, the Naive Bayes (NB) model, utilizing 10 predictive variables, demonstrated the highest performance, achieving an AUC of 0.881.

The NB model demonstrated robust predictive capabilities and was subsequently integrated into an online tool designed to assist clinicians in evaluating which elderly NSCLC patients may benefit from chemotherapy. This tool offers practical support for personalized treatment planning, improving clinical decision-making for a vulnerable patient population.

Keywords: Elderly NSCLC, Chemotherapy, Propensity Score Matching, Naive Bayes, Overall Survival

Biography

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Dr. Hassan worked as an Assistant Professor and head of the "Advanced, Nanomaterials, Polymeric, and Industrial Catalysis" research group, from 2020 –to now He received his M. Sc. Faculty of Science, Alexandria University, Egypt in 2015, Dr. Hassan also received Ph.D. (MEXT Scholarship), Graduate School of Chemical Sciences and Engineering, Hokkaido University, Japan in. 2018. Dr Hassan was a Postdoctoral Fellow (Young Scientist program by Hokkaido University), Institute for Catalysis, Hokkaido, University, Japan from Dec. 2018 - April 2019 and a Postdoctoral Fellow, at Nanotechnology Research Centre (NTRC) at the British University in Egypt (BUE), Egypt from 2019-. 2020. Dr Hassan worked for more than 13 years in chemistry research for academia (March. 2022), Supervise Master/Ph.D. postgraduate students from Ain Shams, Helwan, Bani-seuif, and Banha Universities (ongoing) Dr Hassan worked as Program director and founder of NTRC studentship (2021 – ongoing), Project member > 8 national and international research project (2012 - 2024), Dr Hassan has teaching experience and trainer in undergraduate and postgraduate levels.

Scaling up Nanoparticle Preparations and Electrospinning Technology: Perspectives in Biomedical Applications

Abstract

We aim on developing scalable and cost-effective synthesis methods of Nanoparticles to investigate their applications in various consumer products. Although the solvothermal technique is widely recognized for its scalability, it has recently been shown to be economically unfeasible. Recent studies have demonstrated that the mechanochemical process is a more economical and environmental alternative than the solvothermal method. By using two solvothermal (wet) strategies (aqueous and organic) and two mechanochemical (dry) methods (manual and automated), we were able to successfully synthesize zinc oxide and copper oxide nanoparticles. The four methods were then compared and contrasted. The automated mechanochemical method used significantly less energy and time while producing a lot more ZnO NPs (82%) and CuO NPs (84%). However, the

generated ZnO NPs exhibited more cytotoxicity against Vero E6 cells than CuO NPs. So, CuO NPs with the low cytotoxicity were selected for

application onto cotton textiles after being manufactured by automated mechanochemical methods to create washable antimicrobial textile materials. On the other hand, Nanofibers offer unique characteristics such as good mechanical performance, flexibility in surface operations, and a high surface area-to-volume ratio. Thus, the production of metal oxide nanoparticles and their incorporation into the polymeric nanofibrous structure, along with the optimization of their concentrations, results in remarkable antimicrobial activities.

Keywords: Solvothermal technique, Mechanochemical, Nanofibers, Nanoparticle, Electrospinning

Biography

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Dr Zheng Zhong studied PhD at Huazhong University of Science and Technology, Material Processing Engineering, from 2007~2011. She worked as an Academic Leader of 'Nanhu Scholars' at Hubei University of Technology Since 2022. She went as a Visiting Scholar in the Department of Mechanical, Materials and Aerospace Engineering, University of Liverpool, United Kingdom from 2018 to 2019. Her work focuses on the scientific research of intelligent electronic sensing materials and devices, flexible electronics, and so on. She won the second prize of Hubei Science and Technology Invention Award, the second prize, and the third prize of Hubei Natural Science Excellent Academic Papers. Thirty-nine papers were published, including 26 SCI papers and 9 EI papers. Compiled a national textbook. Two US invention patents and more than 20 Chinese invention patents have been approved

Application of MXene in Flexible Sensor

Abstract

With the continuous expansion of the breadth and depth of application of flexible sensors in the fields of motion detection, health monitoring, electronic skin, and game entertainment, it has a profound impact on our way of life and the promotion of knowledge boundaries. However, its comprehensive performance such as effective detection range, sensitivity, stability, and durability is still difficult to meet new challenges. Due to its adjustable two-dimensional layered structure, excellent electrical conductivity, mechanical properties, hydrophilicity, large surface area, and easy functionalization, MXene is highly competitive in the manufacture of high-sensitivity flexible sensors. We have prepared a variety of flexible sensors with MXene as a sensitive material and carried out a series of related research.

1. High-quality $Ti_3C_2T_x$ MXene was successfully prepared. The stability and durability of MXene-based flexible sensors in high-temperature or humid environments were solved through hydrophobic silanization, hydrogen bond self-assembly, electrostatic self-assembly, and other strategies.

2. Preparation and research of multi-layer f-MXene/MXene/PU sponge-based flexible piezoresistive sensor. The piezoresistive sensor was prepared by combining f-MXene (functional MXene) with MXene by electrostatic self-assembly. The working mechanism of the piezoresistive sensor was clarified.

3. Preparation and research of multi-layer f-MXene/MXene/TPU fiber-based flexible pressure sensor. The pressure sensor was prepared by using layer by layer self-assembly strategy, which excellent performance in terms of environmental stability and long-term mechanical reliability. The relevant working mechanism was discussed.

4. Preparation and research of flexible capacitive stress sensor based on the three-dimensional liquid metal electrode with porous interconnecting TPU skeleton. The porous interconnecting foam skeleton of TPU was prepared by the sacrificing-template method, the electrode layer was constructed by embedding liquid metal, and MXene free-standing film was prepared by the extraction filtration deposition method as a dielectric layer. The metal conductivity and the ductility of the liquid metal embedded in it give the sensors produced excellent mechanical flexibility and sensitivity.

5. Preparation and research of MXene/TPU flexible resistance strain sensor based on TPU flex fiber membrane. MXene was deposited on TPU flex fiber membrane by ultrasonic anchoring method. The tensile strain of the sensor can reach 500% without breaking. The relevant working mechanism of the strain sensor is explained.

The application of these flexible sensors was verified, and the monitoring of human movement and biophysical signals and identification of common reagents were successfully realized, which showed their application prospect in the smart wearable electronic equipment field.

Keywords: MXene, $Ti_3C_2T_x$, flexible piezoresistive sensor, pressure sensor, TPU skeleton

Biography

Prof. Dr. Fatma Taher
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Prof. Taher got the Egyptian State Encouragement Award for the woman in water, energy & environmental Sciences, in 2022. In 2020, she registered two patents with the Academy of Scientific Research and technology. Taher served as an editor-in-chief for the International Journal of Theoretical and Applied Research, and the coordinator for the first international conference of basic and applied Science at the faculty. She published more than 45 scientific articles in reputable and prestigious international journals and published a book and a chapter in another book entitled: "Chemical Methods for Solutions of One-Dimensional Oxide Nanostructures". Thoroughly, she participated in being the supervisor and principal investigator for more than 15 research projects from the Science, Technology and Innovation Funding Authority and the Academy of Scientific Research and Technology. Also, she supervised more than 20 master's or doctoral dissertations at various Egyptian universities. In the training field, she works as a Cambridge University accredited trainer; for effective communication skills and scientific research design and methodologies, AI for scientific research methodology/ international publications/ project management/ soft skills/ learning & teaching strategies, at Quality and training center, Al-Azhar University, for faculty members promotion. As for the quality assurance sector, I've great experience in reviewing the education system so she works as a reviewer at the National Authority for Quality Assurance and Accreditation of Education, Egypt. Socially, she is a member of the Board of Directors of the Faculty Members Club at Al-Azhar University.

Diluted Magnetic Semiconductor Nanostructures for Spintronic Applications

Abstract

Diluted Magnetic Semiconductor (DMS) based ZnO with different dimensionalities (0D, 1D, 2D, and 3D) are grown by hydrothermal growth method in order to cover the Spintronic Applications. Depending on the growth reaction conditions, the different nanostructures of the doped ZnO are developed. The magnetic responses of the nanostructured doped ZnO films were studied, with turn-on magnetism found to be. These findings suggest an alternative way for tuning the magnetic properties of the DMSs based ZnO by controlling the processing conditions technique in which the morphology plays an important role in tuning the structural and magnetic properties of the grown films.

Keywords: Semiconductor, Nanostructures Spintronic Applications

Biography

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Dr. Nadeem currently serves as a Professor in the Department of Mathematics at Aligarh Muslim University, Aligarh, India. After earning his Ph.D. from Aligarh Muslim University in 2000, he was awarded a prestigious DAAD postdoctoral fellowship in Germany. His teaching career began as an Assistant Professor in the Department of Mathematics at the Birla Institute of Technology and Science, Pilani. In 2006, he returned to Aligarh Muslim University, where he steadily advanced, becoming an Associate Professor in 2015 and later a full Professor of Mathematics in 2018. From 2015 to 2017, he also served as an Associate Professor at Taibah University, Al-Madinah, K.S.A.Dr. Rehman has an impressive publication record with over 175 research articles in internationally renowned journals. Dr. Rehman has successfully completed several major research projects funded by prestigious bodies such as the University Grants Commission, DST, the National Board for Higher Mathematics, and the Council of Scientific & Industrial Research (CSIRHRDG), he also serves as a reviewer for leading publishing houses, including Elsevier, Springer, Taylor & Francis, the American Mathematical Society, and Zentralblatt MATH (FIZ Karlsruhe).

On Certain Identities in Prime and Semiprime Rings

Abstract

Let R be a prime ring with center Z and maximal right ring of quotients $Q = Q_{mr}(R)$. Note that Q is also a prime ring and the center C of Q, which is called the extended centroid of R, is a field. Moreover, $Z \subseteq C$. It is well known that any automorphism of R can be uniquely extended to an automorphism of Q. An automorphism α of R is called Q-inner if there exists an invertible element $g \in Q$ such that $\alpha(x) = gxg^{-1}$ for all $x \in R$. Otherwise, α is called Q-outer. We denote by G the group of all automorphisms of R and by A_i the group consisting of all Q-inner automorphisms of R. Recall that a subset $\mathfrak{A}$ of G is said to be independent (modulo A_i) if for any $a_1 a_2^{-1} \in A_i$, $a_1, a_2 \in \mathfrak{A}$ aA_i implies $a_1 = a_2$. For instance, if a is an outer automorphism of R, then 1 and a are independent (modulo A_i). In the year 2000, Carini and De Filippis [Commutators with power central values on a Lie ideals, Pacific J. Math. 193 (2000), 269-278.] studied the power-centralizing derivations on noncentral Lie ideals of prime rings. They proved that, if char(R)$\neq$ 2 and

$[d(x), x]^n \in Z$ for all x in a non-central Lie ideal L of R, then R satisfies s_4, the standard identity in four variables. Recently, Wang [Power-centralizing automorphisms of Lie ideals in prime rings, Comm. Algebra 34 (2006), 609-615.] obtained similar result for automorphisms of prime rings. To be more specific, Wang proved the following: Let R be a prime ring with center Z, L be a non-central Lie ideal of R and $_\alpha$ be a nontrivial automorphism of R such that $[_\alpha(u), u]^n \in Z$ for all $u \in L$. If either char(R) > n or char(R) = 0, then R satisfies s_4.

On the other hand, the property $x^n = x$ has been among the favorites of many ring theorists over the last many decades since Jacobson [Structure of Rings, Amer. Math. Soc., Providence, RI, 1964.] first studied the commutativity of rings satisfying this condition in order to generalize the classical Wedderburn theorem. Further, Bell and Ligh [Some decomposition theorems for periodic rings and near-rings, Math. J. Okayama Univ. 31 (1989) 93–99.] obtained a direct sum decomposition of a ring satisfying the property $xy = (xy)^2 f(x, y)$, where $f(x, y) \in \mathbb{Z}< x, x >$, the ring of polynomials in two non-commuting indeterminates. Later, Ashraf [Structure of certain periodic rings and near-rings, Rend. Semin. Mat. Univ. Politec. Torino 53 (1995) 61–67.] established a decomposition theorem for rings satisfying $yx = x^m f(xy)x^n$ or $xy = x^m f(xy)x^n$, where m, n are non-negative integers and $f(x) \in x^2 \mathbb{Z}[x]$, which allows us to determine the commutativity of R. Now in this perspective and inspired by Wang works, in the present talk we discussed the action of automorphisms on Lie ideals of prime ring, one can consider the following related ring properties:

- Let m, n, s, $t \geq 1$ be fixed integers with $t \leq m + n + s$, and L a Lie ideal of a prime ring R which admits an automorphism α such that

$$\Phi(x, y) = [x, y]^t - [x, y]^m[_\alpha([x, y]), [x, y]]^n[x, y]^s.$$

Thus, (i) if $\Phi(x, y) = 0$, and (ii) if $\Phi(x, y) \in Z$, for all $x, y \in L$.

- Let m, $n \geq 1$ be fixed integers and L a Lie ideal of a prime ring R which admits a nonidentity automorphisms α, β satisfying

$$\alpha(x)^m + \beta(x)^n = 0, \text{ for all } x \in L.$$

We also extend the results to semiprime rings.

Keywords: Prime rings, Semiprime rings, Automorphisms, Centralizing derivations

Biography

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Iman A. Mahdy was awarded a Ph.D. in Physical Mathematical Science from Voronezh State University, Voronezh, Russian Federation, in 2011 in the specialty Physics of Semiconductors. Awarded M.Sc. in solid-state physics from Al-Azhar University (2004). She finished postgraduate study in solid state physics at Al-Azhar University (1999) and obtained a B.Sc. in special physics from the Faculty of Science, Al-Azhar University Girls Branch. Very good merit with honors (1998), Iman was granted three scholarships to Voronezh State University, Russian Federation. She worked as a professor of solid-state physics at Al-Azhar University since August 2022, associate professor in 2017, as a lecturer in 2011, as an assistant lecturer in 2004, and as a demonstrator in 1999. Mandated as adjunct faculty at the American University of Cairo from 2012-2022. Published 31 international publications cited in 184 documents with h-index:9. Participated in 30 international conferences (oral/poster). 34 scientific workshops, attend 29 training courses.

Multifunctional Semiconductor Nanomaterials and its Potential Application in Clean Energy Production

Abstract

In the current work, I will discuss how to use Low-band gap semiconductors specially II-VI and IV-VI in the form of nanocrystals (such as quantum dots, and nanostructured thin films) as a promising absorbing medium candidate for tandem solar cells which has potential applications in photovoltaic (PV) technology to enhance light absorption by tuning the optical properties of low-bandgap semiconductors depending on the particle size of thin films. These materials can have unique properties, such as size-dependent band gaps, that enable improved solar energy conversion. The size, shape, and composition of these nanomaterials can be engineered to optimize their performance for energy production, whether through solar cells, or energy storage devices.

***Keywords*:** Semiconductors, Nanocrystals, Tandem solar, Photovoltaic, nanomaterials

Biography

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He was formerly the vice dean of the faculty and the head of Systems and Computers Engineering Department. He works on Computer Vision, Robotics Vision, Artificial intelligence, and Embedded Systems. Furthermore, he published extensively in these fields. In addition to that, he worked as a consultant in the fields of software development, AI, and IT for universities, governmental organizations, and software companies. More than 20 years of experience in teaching computer engineering and computer Science courses. This includes both undergraduate and postgraduate courses.

Artificial Intelligence Applications in the Green Science

Abstract

As the urgency to address climate change and environmental degradation grows, the role of technology in sustainable development has never been more crucial. This talk explores how artificial intelligence (AI) is revolutionizing green Science by optimizing energy use, enhancing renewable energy systems, advancing precision agriculture, and promoting sustainable resource management. Through case studies and real-world examples, we will examine AI applications such as predictive analytics in climate modeling, machine learning in waste reduction and recycling, and computer vision in biodiversity monitoring. Attendees will gain insights into the transformative potential of AI to create scalable solutions for environmental challenges and contribute to a greener, more resilient future. This discussion highlights not only the technical innovations but also the ethical considerations and collaborative efforts essential to ensuring that AI-driven solutions align with the principles of sustainability and ecological preservation.

***Keywords*:** Artificial Intelligence, Green Science, Renewable energy, Ecological preservation

Biography

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Prof. Hesham N. Elmahdy is the ex-Vice Dean for Community Services and Environmental Development, at the Faculty of Computers and Artificial Intelligence (FCI), Cairo University (CU). Hesham received his Ph.D. in Computer Science from the Faculty of Engineering, University of Mississippi, USA in December 1997. He received the Associate Professor Degree in 2006, and the Professor Degree in 2011, at the Department of Information Technology FCI, CU.. He was awarded several national and international prizes, and distinguished medals, including the prize for "The Best Innovative Ideas to Develop CU" in August 2009. Hesham was recognized as the Professor of the Year for the years 2011 and 2012 by the CU Faculty Members Club. In January 2019, Hesham was presented the Shield of Honor by the Engineering Syndicate, as one of the pioneers of Mechanical Engineering in Egypt. His recent research interests include IOT, Cloud Computing, Big Data Analytics, and eLearning. (ehesham.cu.edu.eg).

Green ICT: Advanced Topics Evolution

Abstract

It is crucial for the life in the earth planet. This paper tackles green ICT to serve the social communications. The 17 Sustainable Development Goals (SDGs) were adopted by all United Nations Member States in 2015. SMDGs provide a shared blueprint for peace and prosperity for people and the planet, now and into the future. SDGs are an urgent call for action by all countries - developed and developing - in a global partnership. SDGs tackles climate change and work to preserve oceans and forests. The percentage of people using social media around the universe reaches 62.3%. The users of social networks are consuming a large amount of electric power. Handling social media resources is the main climate-influencing factor in sustainability. This research presents some new technologies that would improve sustainability. Cloud Computing, the Internet of Things, Artificial Intelligence, and Nanotechnology will be evaluated in this research. A survey of applications of the mentioned technologies is presented with an analysis of their pros and cons. The relations between the mentioned technologies and the SMDGs will be illustrated. A review of applications of the mentioned technologies in Cairo University. The future of these technologies in Egypt will be demonstrated.

Keywords: SDGs, SMDGs, Nanotechnology, ICT, Artificial Intelligence

Biography

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Dr. Mohammed Abdel Razek is a Professor of Computer Science at Al-Azhar University in Cairo, Egypt, a position he has held since 2015. He earned his Ph.D. in Computer Science, specializing in Artificial Intelligence, from the University of Montreal, Canada, in 2004. He remains an active member of the GRITI research group at the University of Montreal, under the leadership of Prof. Claude Frasson. As a postdoctoral fellow with NSERC in Canada, He was listed in "Who's Who in the World" in 2009, with a subsequent inclusion in the 2020 edition. Dr. Abdel Razek served as an Assistant Professor at the Faculty of Science, Al-Azhar University, where he played a pivotal role in teaching computer Science and IT courses. He was instrumental in establishing the university's Information Systems and Networks Unit, which supports 42 faculties across the campus. Additionally, he led several projects, including a student categorization system and an e-university system**.** Dr. Abdel Razek was a Quality Assurance and Development Consultant for the Vice President for Development at King Abdulaziz University (KAU) in Saudi Arabia.

Basic Science Driving Innovation in Artificial Intelligence

Abstract
Artificial Intelligence (AI) has made significant advancements, primarily due to essential breakthroughs in fundamental Sciences. This work examines how fields such as mathematics, physics, biology, neuroScience, and chemistry drive innovation in AI, enabling it to address increasingly complex challenges across various sectors. Mathematics establishes the foundation for advanced algorithms, which are crucial for managing large data sets and enhancing AI efficiency. Physics, especially through quantum computing, offers new possibilities for swift and extensive data processing, while biological principles inspire adaptive, self-learning AI models through bio-inspired designs. Insights from neuroScience contribute to the creation of cognitive AI systems that emulate human learning and decision-making, improving AI's capabilities in areas like language processing and autonomous navigation. Finally, progress in chemistry and materials Science is essential for developing neuromorphic hardware, which enhances AI's computational power in compact and energy-efficient devices. This work underscores the interdisciplinary collaboration between these scientific fields and AI, demonstrating how foundational research drives the development of more intelligent, responsive, and sustainable AI technologies, setting the stage for future innovations.

Biography

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Dr. Ibrahim is a Professor at Department of Plant Protection, Faculty of Agriculture, Al-Azhar University, he was **Assistant Professor** from 2018 to 2023. He **received B.Sc.** (1994), from Department of Plant Protection, Faculty of Agriculture, Al-Azhar University, and M.Sc. (1998) from Department of Plant Protection, Faculty of Agriculture, Mansoura University. Dr. Ibrahim had his Ph.D. in (2005) from the Department of Plant Protection, Faculty of Agriculture, Al-Azhar University. He Participates in examination work effectively in the department and college and adheres to the deadlines for submitting question-and-answer papers to issue exam results on time. Dr. Ibrahim is a member of the Friends of Nature Association, and a member of the Environmental Monitoring Committee at the College by Administrative Order No (. 38.)

Entomopathogenic Fungi

Abstract
Entomopathogenic fungi are one of the most promising biological control agents and were identified earlier than other pathogens. Laboratory studies were carried out with three different concentrations of *Beauveriabassiana*, *Metarhiziumanisopliae* and *Verticilliumlecanii* against *Aphis craccivora*. In the high concentration (2 x10^5 spores/ml.) 100% mortality was obtained with *V. lecanii* and *B. bassiana* followed by *M. anisopliae*. Mortality declined with the decrease in concentrations. The red palm weevil, *Rhynchophorusferrugineus* is the most pests of various palm species. Effects of the entomopathogenic fungi, *M.anisopliae* Var. acridumSoroken and *B. bassiana*Vuill on *R. ferrugineus* was studied in Laboratory. Two entomopathogenic fungi were tested at three concentrations 2.2x10^3, 2.2x10^4, and 2.2x10^5 spore/ml. Mortalities were observed daily. The susceptibility of RPW to two entomopathogenic fungi, *M. anisopliae* and *B. bassiana*, strains of the former were found to be more virulent than those of the latter, achieving 100% larval mortality after 9 days by using the high concentration, 2.2x10^5 spores/ml. of *M.anisopliae* but after 10 days by using of the high concentration, 2.2x10^5 spores/ml. of *B. bassiana*. The most virulent strains of *M.anisopliae* were then tested on RPW larvae then adults and Pupae.

Keywords: Entomopathogenic Fungi, *Beauveria bassiana*, *Metarhiziu manisopliae*, *Verticilliu mlecanii*

Biography

Ambassador: Mostafa Elsayed Sherbiny

رئيس الكرسي العلمي للبصمة الكربونية والإستدامة
بالإلكسو – جامعة الدول العربية، وسفير ميثاق المناخ الأوروبي

السفير مصطفي الشربيني، كاتب ومفكر سياسي في الشئون الأفريقية والدولية والمناخ والبيئة وهو رئيس الكرسي العلمي للبصمة الكربونية والاستدامة بالإلكسو – جامعة الدول العربية، وسفير ميثاق المناخ الأوروبي 2022 في مصر، كما أنه عين مؤخرا عضو لجنة (WG3) بمنظمة الصحة العالمية في الأمم المتحدة ومبادرة رواد الحياد الكربوني، ومبادرة سفراء المياه. لقد نال السفير المصري مصطفي الشربيني قلادة مؤسسة الامير محمد بن فهد العالمية في التسويق والاعلام الاجتماعي عام ٢٠٢٠، كما حصل على جائزة أفضل خبير في التكيف المناخي في أفريقيا عام ٢٠٢٢ من مركز الدراسات والبحوث الأمريكية الأفريقية. حصل علي بكالوريوس تجارةعام ١٩٨٩ ثم دبلوم عالي في الإدارة البيئية من اكاديمية السادات للعلوم الإدارية عام ٢٠٠٢وحصل على دبلوم إدارة الأعمال و الدكتوراة في التخطيط الإستراتيجي كما حصل علي ٦ دبلومات متخصصة من برامج الأمم المتحدة للبيئة والمياه والتغير المناخي. عين السفير المصري الامين العام للاتحاد الدولي لخبراء التنمية المستدامة ورئيس مجلس أمناء مؤسسة الفريق التطوعي للعمل الإنساني كما أنه منسق عام الحملة القومية لترشيد استهلاك المياه "حملة الأمن المائي- برعاية فخامة الرئيس عبد الفتاح السيسي"

"البصمة الكربونية للشركات وتقارير الاستدامة البيئية"

تأتى أهمية دراسات البصمة الكربونية للمؤسسات وكذلك تقارير الإستدامة البيئية، في انها أحد الأدوات الهامة من أجل مواجهة التغيرات المناخية، والتي تؤثر على كافة أنماط الحياة، وخاصة ظاهرةالإحتباس الحراري إلى 1.5 درجة مئوية، وقد اشار التقرير الخاص الصادر عن الهيئة الحكومية الدولية المعنية بتغير المناخ (IPCC) بشأن آثار الإحترار العالمي بمقدار (1.5) درجة، و تقرير (2020) الذي يخصص فصلاً لأساليب الحياة منخفضة الكربون، والتقييم السادس للهيئة الحكومية الدولية المعنية بتغير المناخ، الضوء على الطلب والجوانب الاجتماعية للتخفيف التكيف على كافة المستويات، حيث تدمج الحكومات الوطنية والإقليمية الآن أيضًا تغييرات في أسلوب الحياة والسلوك في استراتيجياتها طويلة الأجل وذلك بالنسبة للأفراد والشركات وكافة المؤسسات ، وذلك بالتوازي مع التغييرات التكنولوجية، إذ لا يقتصر التحول على اقتصاد خالٍ من الصفر على "التقنيات للشركات فقط، ولكن يمتد الى الأشخاص والأسر وحياتهم اليومية"... و أنه "يمكن لخيارات نمط الحياة أن تحدث فرقًا حقيقيًا، مع تحسين نوعية الحياة" لما لها من تأثير كبير بشكل مباشر وغير مباشر على تغير المناخ، وتتكون آثار الكربون هذه من الإنبعاثات المباشرة، مثل استخدام الوقود الأحفوري في المنزل والقيادة، والإنبعاثات غير المباشرة الناتجة عن استخدام السلع والخدمات من قبل الأسر، والتي يمكن أن تكون أعلى من الإنبعاثات المباشرة تتضمن التطورات الأخيرة في هذا المجال محاولات لتقدير تأثيرات التخفيف من مجموعة متنوعة من خيارات جانب الطلب المتعلقة بالغذاء والإسكان والتنقل...، وأن المطلوبة لسد الفجوات بين البصمات الكربونية الثقيلة السائدة حاليًا وأهداف المناخ، تحتاج بناءً على هذه الأساليب الحالية مقترحا سعادته جعلها هدفًا بحد ذاته قائمًا على الاستهلاك لبصمات الكربون الخاصة بنمط الحياة لاستكشاف النطاقات اللازمة لتغيير أنماط الحياة لتلبية هدف المناخ (1.5) درجة مئوية لاتفاقية باريس. كما تأتى دراسات الإستدامة في الحفاظ على نهج حياه صديق للبيئة، يعلى من أهمية الاقتصاد الأخضر واهداف التنمية المستدامة.

Oral & Poster Abstract

N-doped quantum dots promote rice germination and enhance its drought tolerance at seedling stage

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Abstract

The efficiency of nitrogen-doped quantum dots (NQDs) to enhance germination and drought tolerance of two rice cultivars (Sakha Super 300 and Sakha 108) at the seedling stage was tested. NQDs were obtained via microwave-assisted carbonization of glucose in the presence of ammonia. The formed NQDs possessed blue luminescence under ultraviolet radiation; with an absorption peak at 275 nm. The surface of NQDs had plenty of hydrophilic oxygen-containing groups (hydroxyl, carboxyl, carbonyl, and epoxy groups); and their C skeleton had various C–N bonds confirming successful N doping. Elemental analysis revealed O/C atomic ratio of 52% and N/C ratio of 40%. Further characterization of NQDs showed an average size of 9.4 nm and zeta potential of -16.8 mV. Cytotoxicity assessment against HepG2 and MDA-MB-231 cell lines indicated that NQDs are non-toxic. Grain priming of the two rice cultivars in 50 and 100 mg/l NQDs enhanced their germination. High oxygen content and hydrophilic groups of NQDs increased water uptake and moisture levels of grains. Furthermore, NQDs ameliorated the ill impact of polyethylene glycol-induced drought on rice as indicated by germination rate as well as length, biomass, and water content of the 10-day-old seedlings. Also, NQDs increased root growth, reduced injury to cellular membranes, and activated catalase, peroxidase, and superoxide dismutase. Moreover, NQDs increased seedlings' content of trehalose, proline, phenols, and ascorbic acid. The action of NQDs on cultivar Sakha Super 300 was more pronounced than on Sakha 108. Therefore, the easily prepared, highly stable, and safe-by-design NQDs boost the germination and drought tolerance of rice seedlings.

Keywords: drought, germination, nitrogen, quantum dots, rice

Biosynthesis and characterization of bioplastic polyhydroxyalkanoates PHAs production from bacterial isolate Priestiaaryabhattai AZU9 (OR1052020) grow on cheap carbon sources

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Abstract

The requirement to explore microbial organisms inhabiting ecosystems capable of yielding bioplastics with high production capacity is particularly significant due to the destructive impacts of petrochemical plastics on humans and the environment. This study focused on the identification of novel polyhydroxyalkanoates (PHAs) producers. Bacterial isolates were isolated from Egyptian soil. Screening of bacterial isolates for PHAs production was conducted using Sudan black stain. Identification of the promising PHAs producer isolates was carried out based on morphological, biochemical, and molecular methods. Optimization analysis for maximum PHAs production conditions by potential producer isolate was carried out via the statistical models. Results revealed that Priestiaaryabhattai AZU9 (OR1052020) was the most potent PHAs producer. Sugary wastewater and sugarcane molasses were used as the most efficient and cheap carbon sources for PHAs production. The optimum culture conditions for maximum production of PHAs (1.39 g/l) using Central Composite Design (CCD) were 60 % sugary wastewater, sugarcane molasses 6%, at pH 9, 40°C, and 200 rpm after 72 h. Characterizations of the chemical, physical, and mechanical properties of the extracted PHAs polymers have been carried out by performing different analyses such as Fourier Transform Infrared Spectroscopy, Gas Chromatography-Mass Spectroscopy, Nuclear Magnetic Resonance, Thermogravimetric Analysis, and Differential Scanning Calorimetry. The results of these analyses reveal that the biopolymer extract from Priestiaaryabhattai AZU9 (OR1052020) was classified as poly-3-hydroxybutyric acid PHB. Surface characterization of the PHAs polymers using Scanning Electron Microscopy clarify a rough surface and surface contact angle measurement reveals their hydrophobic nature.

Keywords: Bioplastic Polyhydroxyalkanoates, Priestiaaryabhattai, PHAs chemical, physical properties.

Bacteriophage-Based Cancer Therapy: Promising Prospects in Cancer Treatment.

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Abstract

The evolution of nanomedicine is the re-design of synthetic and biological carriers to implement novel theragnostic platforms. In recent years, bacteriophage research has favored this process, which has opened new roads in drug and gene delivery studies. By displaying antibodies, peptides, or proteins on the surface of different bacteriophages through the phage display technique, it is possible to unravel specific molecular determinants of cancer cells and tumor-associated microenvironmental molecules. Bacteriophages themselves were proven, in this scenario, to be good carriers for imaging molecules and therapeutics as well. Moreover, the manipulation of their genetic material to stably vehiculate suicide genes within cancer cells substantially changed perspectives in gene therapy. We will provide some examples of how amenable phages can be used as anticancer agents, especially because their systemic administration is possible. We also provide some insights into how their immunogenic profile can be modulated and exploited in immuno-oncology for vaccine production.

Keywords: Cancer therapy, Bacteriophage, Genetic Modification, Immune therapy, therapeutic efficacy.

Production of L-asparaginase by bacterial and fungal isolates from Egyptian sources using submerged fermentation

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Abstract

Aim: L-asparaginase (L-ASNase) is a widely used antineoplastic agent, especially in treating acute lymphoblastic leukemia, besides its use in food processing. Microbes are very efficient producers of the enzyme. Here, we screened microorganisms isolated from different Egyptian sources for L-asparaginase production, by submerged fermentation. Methods: The samples collected for microbial isolation were from soil (n =10), collected from different locations in Giza, Egypt, honey (n =7), purchased from commercial markets, and rotten fruits and vegetables (n = 6). Microbial isolates were obtained using the streak plate method. The isolated bacteria and fungi were screened for asparaginase activity using modified M9 media and modified Czapex dox media, respectively, containing asparagine as a substrate, and phenol red as an indicator. The asparaginase-positive isolates were assayed for asparaginase activity. Results: Among 55 bacterial isolates, ten were asparaginase-positive with a specific activity between 0.096 ± 0.0078 to 0.43 ± 0.0289 U/mg; the maximum specific activity was recorded with HB1 isolate from the black seed honey sample. Furthermore, out of the 37 fungal isolates, 15 had positive L-asparaginase production. The specific activity recorded for fungal isolates ranged between 0.21 ± 0.09698 to 1.385 ± 0.2723 U/mg, with the isolate SL8, from a soil sample, having a maximum specific activity. Conclusion: Environmental and honey isolates are promising sources of L-asparaginase enzyme production by submerged fermentation. Fungal isolates produce more potent enzymes than bacteria. Further optimization is required to enhance the enzyme activity for efficient production.

Keywords: Acute lymphoblastic leukemia, Bacteria, Fungi, L-asparaginase, Submerged fermentation

Antimicrobial activity of biogenic silver nanoparticles synthesized with the aid of Citrus peel

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Abstract

Silver nanoparticles (AgNPs) have gained considerable attention as antimicrobial agents. The present study aimed at synthesizing AgNPs using navel orange (Citrus sinensis L.) fruit peel. Citrus peel (CP) was extracted in water using different methods. The ability of CP extracts to mediate AgNPs synthesis from AgNO3 was monitored by visual observation, ultraviolet-visible spectral analysis, and electron microscopy. The change in reaction mixture color from yellow to brown primarily indicated AgNPs formation. In addition, absorption bands at about 450 nm confirmed the formation of AgNPs. Transmission electron microscopy revealed that AgNPs were almost spherical with an average size < 30 nm. Antimicrobial activity of AgNPs was tested against Bacillus subtilis and Staphylococcus epidermis using the disk diffusion method. Clear zones were formed with an inhibition diameter of 44.1 mm for B. subtilis and 35.2 mm for S. epidermidis. The minimum inhibition concentration (MIC) and minimum bactericidal concentration (MBC) of AgNPs were found to be 0.3 mg/ml for the two microbes. AgNPs could inhibit respiratory chain dehydrogenases and induce cellular sugar and protein leakage as well as lipid peroxidation of the two microbes. However, the effect of AgNPs on the activity of dehydrogenases and lipid peroxidation of B. subtilis was more pronounced than that on S. epidermidis. The reverse was recorded for the change in cellular sugar and protein leakage where the effect of AgNPs was more pronounced on S. epidermidis. Therefore, biogenic AgNPs synthesized with the aid of CP extract can be recommended as potent antimicrobial agent against B. subtilis and S. epidermidis.

***Keywords*:** antimicrobial, Citrus, nanoparticles, peel, silver

Practical Considerations for Starting In Vitro Embryo Production Programs in Goats

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Abstract

In most countries, the goat is an essential small ruminant livestock species with ubiquitous distribution. Goats are known for their unique browsing habits and quality milk, meat, and skin production. Therefore, a significant demand increase is expected in the forthcoming years. The current efficiency of small ruminant production systems needs to be considered adequate to meet global needs. Reproduction biotechnology has contributed to increased goat production, from the natural selection of animals to the genotyping of superior goats and embryo production and transfer. Embryos' in vitro production (IVP) can overcome multiple ovulation and embryo transfer (MOET) limitations. In Egypt, in vitro techniques for goats are still a developing concept. Before this study, no research in Egypt focused on the IVP of goats in any laboratory, including oocyte maturation. This review aimed to provide an overview of the current status of IVP in goats with an emphasis on (i) a description of the main methodologies currently used for in vitro matured (IVM), in vitro fertilization (IVF) and in vitro cultured (IVC) of embryos and (ii) highlighting the main factors affecting the outcomes. Research has shown that the quality of the cumulus-oocyte-complexes (COCs), the type of source of sperm, the type of culture media, and supplement factors play a critical role in the maturation and subsequent development of the embryo.

Keywords: Goat, IVP, IVM, IVF IVC

Potential roles of zinc and selenium supplementation in two different forms to improve the quality cryopreserved rabbit sperm

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Abstract

This study was undertaken to find out the post-thaw physiochemical and molecular characteristics of rabbit semen when supplemented with either zinc (Zn) or selenium (Se) in two different forms. Sexually mature bucks (n=16) were used for collecting semen supplemented with Se or Zn nanoparticles and in normal forms. The Real-time PCR profiled mitochondrial and antioxidant genes. The results revealed that the addition of Se in normal form enhanced total and progressive motility (46.96±2.02% and 29.21±1.62%) compared to in Zn normal form (39.31±1.83% and 21.63±1.13%). Se (44.35±1.98% and 25.96±1.56%) was more effective than the Zn in nano form (38.60±1.68% and 20.10±1.20%). The results revealed the post-freezing CASA parameters such as DSL, LIN, and WOB were enhanced significantly in semen supplemented with Zn compared to the control group. However, no clear effect was observed for Se on CASA traits. Post-thaw sperm viability was increased ($p \leq 0.05$) in all semen-treated groups compared to the control group. At the same time, the DNA fragmentation was reduced ($p \leq 0.05$) in Zn and Se in normal form compared to other experimental groups. Total antioxidant capacity and glutathione peroxidase were increased in supplanted semen in all treated groups compared to the control group. However, the malondialdehyde level was higher ($p \leq 0.05$) in the control group than in all supplemented groups. Sperm mitochondrial and antioxidant genes were increased in all supplemented groups compared to the control group. In conclusion, this study indicated different abilities of Zn or Se in the two forms to maintain post-thaw buck semen quality.

Keywords: Zn, Se, nanoparticles

Morphological Description and Molecular Characterization of *Ascaridiacolumbae* Infecting Domestic Pigeons *Columba livia domestica* in Gharbia Governorate, Egypt, Based on ITS rDNA Sequences

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Abstract

Ascaridiacolumbae is a parasitic nematode commonly infecting domestic pigeons (*Columba livia domestica*), causing significant health issues and economic losses in avian populations. Pigeons of 130 domestic pigeons were examined for the presence of this nematode from April 2018 to March 2019, with 20.7% found to be infected. The prevalence in Gharbia Governorate was high infection rates might be due to selection of weakness, lethargy, and poor growth pigeons. The morphological features of adult worms were studied macroscopically and microscopically, focusing on diagnostic traits such as body size, sexual dimorphism, anterior and esophageal structures, and reproductive organs. Detailed morphometric measurements were provided to support species identification. For molecular characterization, DNA was extracted from individual worms, and internal transcribed spacer (ITS) rDNA (ITS1-5.8S-ITS2) were amplified using polymerase chain reaction (PCR). PCR amplification produced a fragment of approximately 900 bp in size. A 897 bp segment of the ITS rDNA sequences was submitted to GenBank with accession numbers OP215354 and OP215355. Phylogenetic analysis indicates that the *A columbae* samples from the current study are closely related to other *A. columbae* sequences, particularly those from Egypt and China. The genetic distinction between *A. columbae* and *A. galli* is evident, supporting the view that they are separate species with unique evolutionary paths despite sharing in most morphological features. These findings provide new insights into the morphological and molecular characteristics of *A. columbae*, contributing to a better understanding of its epidemiology and genetic diversity in Egypt.

Key words: *Ascaridiacolumbae*, domestic pigeon, Gharbia Governorate, diagnostic traits, internal transcribed spacer (ITS), rDNA

Construction of a highly efficient three-dimensional bioanode in a microbial fuel cell for electric current generation and organic contaminates removal

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Abstract

Microbial fuel cells (MFCs) are one of the recently developed technologies for renewable energy production from wastewater. The hallmark of MFCs is the ability of electrochemically active biofilm (EAB) that colonize the anode surface to catalyze different electrochemical reactions and directly produce an electric current. Despite the advantages of MFCs for renewable energy production from wastewater, their low performance, in terms of electric current and sluggish extracellular electron transfer (EET), limits the technology commercialization. Here, the performance of carbon felt anode in MFCs outfitted with hierarchical CoFe2O4@NiMoO4 nanocomposite was evaluated. The main goal was to examine whether or not CoFe2O4@NiMoO4 nanocomposite could improve the EET and the biofilm structure, resulting in higher MFC performance. Our results revealed that the startup period for the MFCs equipped with CoFe2O4@NiMoO4 bioanodes was much shorter compared to the control bioanode (i.e., only carbon felt), most likely due to the faster adhesion of EAB on CoFe2O4@NiMoO4 anodes. Among the tested bioanodes, the CoFe2O4@NiMoO4-modified bioanode exhibited the highest maximum voltage (i.e., 260 mV), which is ~1.4-fold higher than the control bioanode (119 mV), indicating better affinity of CoFe2O4@NiMoO4-modified anodes for bacterial adhesion. Consistent with the increase in the generated electricity, we observed that chemical oxygen demand was significantly affected by surface modification, with approximately 70 – 85% of the removed substrate channeled to the current generation. Our results revealed that the CoFe2O4@NiMoO4-modified anode showed good mechanical and electrical properties, and excellent microbial adhesion, representing a high-performance, low-cost electrode material that is easy to fabricate and scale up.

Keywords: Microbial fuel cells; Wastewater treatment; Renewable energy; Electrochemically active biofilm; Extracellular electron transfer; Hierarchical $CoFe_2O_4$@$NiMoO_4$

Impact of miR-155 rs767649 Polymorphism on Rheumatoid Arthritis Activity in Egyptian Patients

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Abstract
Background: Rheumatoid arthritis is a chronic inflammatory condition that impacts various systems in the body. MicroRNAs are a class of naturally occurring and highly conserved transcripts that primarily function in the regulation of gene expression. They accomplish this by facilitating the degradation of messenger RNA(mRNA) or by repressing mRNA translation. Therefore, we aimed to detect the impact of miR-155, rs767649 polymorphism on RA activity. Methods: This case-control study included 66 Egyptian patients with RA who visited Al-Zahra University Hospital, and 50 apparently healthy control subjects matched for age and sex. The participants were subjected to full clinical evaluation, including assessments of the disease activity score(DAS), ESR, liver and kidney function, anti-CCP antibody, and miR-155 polymorphism using PCR. Results: Comparison of laboratory parameters indicated significantly lower hemoglobin levels, higher ESR, and higher serum creatinine and anti-CCP levels in the RA group than in the control group. The RA group had a significantly higher frequency of TT genotypes and significantly lower frequencies of TA and TT genotypes than the control group. Considering the TT genotype and T allele as references, TA, AA, and TA/AA genotypes in the dominant model; AA in the recessive model; and A allele were significantly associated with protective effects against RA development(p<0.05, odds ratio & lt; 1). Conclusion: rs767649, the functional variant of miR-155, plays an important role in susceptibility to the increased risk of RA, suggesting that miR-155 can be used as a therapeutic target for the treatment of Egyptian patients with RA.

Keywords: disease activity; micron; mir-155; rheumatoid arthritis; rs767649.

Effect of Thermal Treatment of Two Titanium Alloys (Ti-49Al Ti-51Al) On Corrosion Behavior In 0.01 M Various Acidic Media

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Abstract

In this paper, the effect of thermal treatment of (Ti-49Al Ti-51Al) alloys on corrosion behavior in 0.01 M H_2SO_4, H_3PO_4, HNO_3, and HCl solutions was investigated. Potentiodynamic polarization measurements were performed for the two alloys in 0.01 M acidic media at room temperature. The polarization curves indicated three regions. The first region, the active dissolution region was observed from – 2000 to ~ - 700 Mv (SCE), the second region, signifying the transition from active dissolution to a passive state on the electrode surface and the third region, a trans-passive region, which the oxygen started to evolve, and the current density increased sharply with further increase in potential. The surface morphology of two alloys used to confirm the degradation mechanism was examined by scanning electron microscopy (SEM) and energy dispersive x-ray analysis (EDX). The results from scanning electron microscopy (SEM), confirmed the degradation of Ti-Al alloys due to uniform corrosion in HCl solution

Keywords: Titanium alloys, Thermal Treatment, 0.01 M Acidic media.

Employing an Al electrode to utilize the impacts of various parameters on electrocoagulation

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Abstract

One useful technology for treating wastewater is electrocoagulation process (EC). One of the most important aspects to maximizing the efficiency of the EC process is selecting the electrode material, which also controls the electrochemical reactions that occur throughout the electrocoagulation process. This paper makes use of an Al electrode to examine the effects of various factors on electrocoagulation. Under various current densities (CD) and running times, three wastewaters with varying sodium chloride contents were investigated. Conductivity, pH, total suspended solids (TSS), and dissolved oxygen (DO) were measured. FE-SEM and EDX tests for the Al electrode were also examined. The results showed that pH = 7, operating duration = 20, and CD = 11 mA/cm2 were the optimal values for removing turbidity from the studied solution. The greatest value of 99% was achieved by the turbidity removal efficiencies utilizing Al anode in sol 3, where the NaCl level was 3.45×10-1 M.

Keywords: electrocoagulation; wastewater; sacrificial anodes; chloride concentration; removal efficiency; characterization.

Eco-Friendly Conversion of Curcumin into Heterocycle by Green Chemistry: Application as promising Anti-Breast and prostate Cancer

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Abstract

Herein, in this research, we implement a green strategy to convert naturally occurring curcumin into a new series of heterocycles. Curcumin has been reported to retain notable anticancer exertion by inhibiting the proliferation and metastasis and enhancing cell cycle arrest or apoptosis in colorful cancer cells. However, it is still limited due to its poor immersion and rapid-fire metabolism1. Various structural modification strategies have been developed to improve the anti-breast cancer activity of curcumin. Therefore, we employed the ultrasonic technique as green, clean, low-cost, safer, short-duration, superior yield, and environmentally friendly reactions than the traditional methods. Accordingly, the irradiation of curcumin with hydrazine's derivatives and /or hydroxylamine afforded pyrazoles and isoxazoles scaffold, respectively. The chemical structures of newly synthesized compounds were elucidated by spectroscopic data (FTIR, 1HNMR, 13CNMR) and elemental analysis. All the compounds have been tested by The National Cancer Institute (NCI), Bethesda, USA for the in vitro anticancer activity against human breast and prostate cancer cell lines. The results show that the majority of the prepared products are promising inhibitory activity compared to reference compounds coumarin and oxindole.

Keywords: Coumarin, pyrazole, isoxazole, ultrasonic irradiation, anticancer activity

Synthetic Esters of Dicarboxylic Acid as a Base for Producing Superior Synthetic Lubricants

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Abstract

This research shows preparation of fully synthetic lubricating oil comes from the esterification reaction of dibasic acid with different types of linear and branched alcohols and presents the results carried out on prepared esters of sebacic acids. Sebacic acid esters were synthesized in four different chemically structured samples: di-ethyl sebacate (DIES), di-2-ethyl ethoxy sebacate (DI2ETHES), di-butyl sebacate (DIBS), and di-2-butyl sebacate (DI2BS). These diesters were evaluated in terms of their suitability as lubricants. According to the results, the type of alcohol used, and its branch and linear affected the pour point, flash point, and oxidation stability. The Di-2-ethoxy ethyl sebacate (DI2ETHES) had a low pour point of -45°C along with an excellent viscosity index and high resistance to temperature changes, but the other esters showed a poor viscosity index and a high pour point. The results showed that the prepared dibasic ester (Di-2-ethoxy ethylesebcate (DI2ETHES)) is the best ester to work as a synthetic lubricant because it showed a very low pour point at -45°C and good viscosity index and high resistance towards the change with temperatures.

Keywords: Synthetic lubricating oil, Esterification, dibasic acid, esters sebacic acids, linear and branch alcohol.

Polydimethylsiloxane-Based Nanocomposites as Antifouling and Superhydrophobic Nanocoating's

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Abstract

We successfully developed a new series of nonbiocidal, and hierarchical superhydrophobic silicone coatings filled with reduced graphene oxide (RGO)-derived nanocomposites as durable ternary marine fouling release (FR) surfaces. RGO-derived was used as a coating nanofiller that would release fouling and confer surface robustness. It was facilely created using a straightforward one-phase ultrasonication technique. The dispersion of different concentrations of RGO sheets-derived nanofillers was determined to study the super hydrophobicity and antifouling behaviors of polysiloxane nanocomposites. Solution casting was used to distribute the RGO-derived nanofillers throughout a silicone matrix. Atomic force microscopy, surface free energy, and water contact angle (WCA) were employed to examine the super hydrophobicity and roughness of the coatings. The mechanical and durability characteristics of the silicone-RGO-derived nanocomposites were also investigated. The antifouling effects of the coating systems were evaluated in the laboratory for 30 days with specific bacteria. The silicone/RGO-derived nanocomposite (3 wt%) with the best dispersion, highest WCA, and lowest surface free energy among the composites exhibited favorable FR characteristics. The well-dispersed nanocomposite presented the minimum degradation and cell viability percentages against Gram-positive and Gram-negative bacteria as well as diatoms. Therefore, this study produced a series of nonstick and fluorine-free ternary FR nanocomposites for maritime coatings with surface durability, super hydrophobicity, and fouling retardancy.

Keywords: Silicone coating, Superhydrophobic, Fouling release surfaces, roughness, Nanofillers, Nanocomposite

Role of Artificial intelligence to tackle Climate change

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Abstract

Climate change is one of the greatest challenges that humans have ever faced. The effects of climate change are increasingly visible. Storms, droughts, fires, and flooding have become stronger and more frequent. Therefore, scientists, engineers, and industry experts from a wide array of disciplines try to use their knowledge and skills in search of solutions to protect our planet. Addressing climate change involves mitigation (reducing emissions) and adaptation (preparing for unavoidable consequences). Not surprisingly, some of those solutions are likely to be made possible by artificial intelligence (AI). Using AI helps us adapt to the impacts of climate change by improving our ability to predict extreme weather events so that we can employ mitigation efforts earlier and respond more effectively. AI can also play a critical role in increasing our resilience to the effects of climate change by helping us identify risk factors and develop plans to mitigate them. Moreover, it enables smarter decision-making for reducing the carbon that is released into the atmosphere and working out how to allocate renewable energy. Even though (AI) technology can help us fight climate change, it also comes at a cost to the planet.

Keywords: artificial intelligence, climate change

Imidazolium Ionic Liquid as a High-Performance Synthetic Lubricant

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Abstract

Ionic liquids have been used as lubricants in a wide variety of systems, and it has been shown that these substances may exhibit outstanding resistance to wear and greatly reduce friction in pure conditions. In our work studies on synthesis and evaluation of some ionic liquids based on imidazolium as synthetic lubricants. Ionic liquids have exceptional tribo film formation, high thermal stability, environmental friendliness, and compatibility over traditional lubricants as their key advantages. For a variety of purposes. Ionic liquids are attractive candidate materials as pure lubricants and lubricant additives since significant decreases in friction and wear were seen when they were added to oil- or water-based fluids and greases. The plan of work is abstracted as; the first Synthesis of a novel ionic liquid based on imidazolium. Then, Study of the physic-chemical properties (fourier transform infrared spectroscopy FTIR, Proton nuclear magnetic resonance HNMR). And Determination of the molecular weight, thermo gravimetric analysis TGA, a flash point of the prepared compound. Finally, the Evaluation of all prepared compounds as synthetic lubricants and study of the tribology and rheology properties of the prepared compound found that all the prepared compounds are synthetic lubricants.

Keywords: Keywords: lubrication, Synthetic Oil, lubricant, Ionic Liquids; Imidazolium; Tribo film

Improved and sustainable composites based on polymers and cement materials

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Abstract

Recently, the utilization of polymers and solid waste for producing improved and sustainable composites has been a great concern. The combination of different polymers and cement materials in polymer-cement composites (PCCs) is known to support the overall product with superior properties. During manufacturing, the recycling of polymers and other solid fillers will promote the performance. In addition, the use of environmentally friendly cement material in these composites could have an environmental impact. It is of great prominence to exploit recycled polymers and environmentally friendly cement in the proposed composite to maximize the sustainability goal and reduce greenhouse gas emissions. The hybrid concentrations possess advanced characteristics. This work reviews some types, properties, and structural composition of PCCs. The overall characteristics and curing process are discussed as well. The proposed materials are applied in construction and infrastructural uses. The development and preparation of such composites are motivated, due to the environmental and sustainable concerns related to gas uptake.

Keywords: Solid waste, polymers, polymer-cement composites, sustainable materials.

Expression of MicroRNA-155-5p in chronic kidney disease as a Potential Marker of Cardiovascular Complications

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Abstract

Chronic kidney disease (CKD) is a silent, serious condition requiring reliable non-invasive markers for diagnosing and predicting complications, especially cardiovascular (CV) complications. Objectives: This study aims to detect microRNA-155-5p (miR-155-5p) as a potential marker of CKD and a predictor of CV complications. Subjects and methods: 120 participants were included in this study, and they were categorized as; Group I (n=60, healthy age- and sex-matched control group) and Group II (n = 60, CKD patients). Group II was subdivided into: Group IIA (n = 30 CKD patients without CV complications) and Group IIB (n = 30; CKD patients complicated with CV diseases). Using reverse transcription polymerase chain reaction (RT-PCR), miR-155-5p was detected. Results: miR-155-5p was increased in Group IIA and IIB compared with the control group, while miR-155-5p was increased in Group IIB compared with Group IIA. Conclusion: miR-155-5p can be used as a sensitive and specific marker for detecting CKD and discriminating between CKD with and without CV complications.

Keywords: Chronic kidney disease MicroRNA-155-5p Cardiovascular complications Glomerular filtration rate Polymerase chain reaction

Influence of Newly Prepared Copolymer and Its Nanohybrid as Cold Flow Improvers for Diesel Fuel

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Abstract

The prepared copolymer and its nanohybrid, made from the prepared monomers, were utilized to enhance the cold flow properties of diesel fuel, which is essential for energy efficiency. The copolymer (AE) was formed by solution polymerization using hexadecyllmaleamide and octyloleate ester monomers, while the nanohybrid (NH) was produced through emulsion polymerization of these monomers along with 1% nano-SiO_2. The chemical structures of both materials were confirmed using FT-IR, ^{1}H-NMR, DLS, and TEM. The additives' effects on diesel were analyzed by measuring pour point temperature (PPT), rheological properties, and the viscosity index both before and after their addition. The nanohybrid showed the most effectiveness, lowering the PPT from −3 °C to −36 °C at a dosage of 10,000 ppm, compared to −30 °C for the copolymer at the same concentration. The viscosity results showed that apparent viscosity dropped from 124 cP in untreated fuel to 15.74 cP for the copolymer and 12.8 cP for the nanohybrid. Similarly, yield stress decreased from 576 D/Cm² for the untreated diesel to 541.44 D/Cm² for the copolymer and 477.9 D/Cm² for the nanohybrid at room temperature. The viscosity index of the diesel fuel improved from 116 to 119 with the copolymer and to 121 with the nanohybrid. Moreover, polarizing optical microscopy revealed smaller and more dispersed wax crystals when the additives were used. These findings show that the nanohybrid and copolymer additives delayed wax crystal formation, altered the shape of the crystals, and significantly reduced low-temperature viscosity, improving the cold flow behavior of the diesel fuel.

Keywords: Copolymer, nanohybrid, flow improver, Diesel fuel

Modified agrowastes for wastewater remediation

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Abstract

Huge amounts of agrowastes are accumulated annually. These valuable resources are either discarded or used as animal feed. However, they can be better used -either neat or modified- to replace petroleum-based materials in several applications. However, the harnessing of modified agrowastes in wastewater treatment has been extensively investigated. Most agrowastes are cellulosic materials of high functionalities that exactly fit removal applications. The functional groups can chelate metal cations or bind dyes by electrostatic interaction. The present work deals with the utilization of the biochar produced from mixed agrowastes in the removal of two dyes (anionic and cationic) from simulated solutions. The parameters that affect the removal process have been thoroughly studied. These include the effect of pH, temperature, dye concentration, sorbent dose, and time. The data reveal that mixed mango and lemon peel biochar are very effective eco-friendly materials that emerge as sustainable and active alternatives for the remediation of polluted water.

Keywords: wastewater; remediation; agrowastes; biochar; cellulosic materials

Study On Organic Antioxidants from Green Tea (Camellia sinensis) As Environmentally Friendly Corrosion Inhibitor for Alpha-Brass in Nitric Acid Solution

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Abstract

At room temperature, the impact of green tea extract, an organic "green" inhibitor, on the corrosion of alpha-brass submerged in 1 M HNO_3, was investigated. Techniques for measuring potential and the rate of weight loss/corrosion were employed in the experimental work. The green tea leaves were used to make the tea extract. The obtained results demonstrated that the extract effectively inhibited corrosion on the alpha-brass test specimens at various doses of 1 M HNO_3. With an increase in the concentration of green tea extract, the inhibitory effectiveness rises. At an 80 percent concentration of green tea extract, the maximum inhibitory efficiency is attained. SEM surface analysis reveals the presence of molecules from green tea extract as a protective layer on the surface. The surface analysis was performed using an electron microscope scanning technique that confirmed the formation of a protective layer in the presence of the extract on the alloy surface. There are good agreements between the results from all techniques.

Keywords: Inhibitor; Alpha-Brass; Green tea; Weight loss; Potentiodynamic polarization.

Synthesis and Characterization of Some New Chalcones with Azo-Linkage Incorporating 2-[(substituted-benzylidene) hydrazineylidene)] thiazole moiety

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Abstract

Disperse dyes are a significant class of dyes due to their brilliancy, wide range of hues, and excellent fastness properties. They are used to dye hydrophobic fibers like nylon, polyester, and acrylic fibers with aqueous dispersion. Azo disperse dyes are cost-effective, cover various shades, and possess excellent fastness properties. The current study's objective was to develop a method for synthesizing a new series of chalcones with azo-linkage-bearing thiazole derivatives. Aim A new series of N-substituted thiosemicarbazones (1a-e) was prepared and was used as an intermediate to prepare a new series of eighteen dyes called 2-[(substituted-benzylidene) hydrazineylidene-5-(2-hydroxy-5-(substituted-henyldiazenyl)benzylidene] thiazolidin-4-one(4a-e) through three steps of reactions. Methods We developed an easy and effective method for making monoazo disperse dyes using a variety of techniques, and we were able to achieve a high yield. We confirmed this with IR, 1H NMR, 13C NMR, UV, and elemental analysis. We will apply all the dyes to either polyester or nylon fabrics

Keywords: Disperse Azo dye, Cahlcones, biological activity

Mechanical Metamaterials: From Nature to Nanotechnology

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Abstract
The technological advances demand materials that are both lightweight and possess high strength and toughness. However, these properties are often difficult to combine, as low-density materials are usually more susceptible to damage. Therefore, enhancing the mechanical performance of engineering materials requires innovative approaches; one promising approach is to achieve the aimed properties through deliberate structuring. Natural materials like bone, nacre, wood, starfish skeletons, and mantis shrimp shells, offer exceptional examples of hierarchical designs that achieve unprecedented mechanical properties, often beyond what can be obtained from their components. In this study, we present a bottom-up fabrication strategy leveraging block copolymer (BCP) templated synthesis to produce nanonetworks with specific nanoarchitectures, such as gyroid and diamond structures. This approach combines the precision of BCP self-assembly with the versatility of templated synthesis, giving well-ordered nanonetwork materials with enhanced mechanical properties. Our findings provide insights into the advantages of nanoscale structuring, enabling the design of materials with properties that even surpass those found in nature. These well-ordered nanonetwork materials hold significant promise for applications ranging from energy-absorbing devices to advanced structural components in aerospace and automotive fields, as well as novel membranes for water treatment.

Keywords: Mechanical metamaterials, block copolymers, Templating synthesis, Nanonetwork structure, Biomimicking, Ceramic.

Heat and fire retard, and anti-corrosion paint for mild steel based on epoxy resin modified with newly 2-thiohydantion derivatives.

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Abstract

Several 2-thiohydantoin derivatives are considered as ecofriendly environments for many industrial applications. Thiohydantoin derivatives are one of the most important heterocyclic compounds as corrosion inhibitors for mild steel. In the current study, 2-Thiohydantoins derivatives (1-8) were synthesized and characterized by using various spectroscopic techniques including [FTIR, H1-NMR], and elemental analysis. Organic compounds with conjugated double bonds and heteroatoms such as nitrogen, sulfur and oxygen exhibit good inhibiting properties since they are easily adsorbed on metal surfaces. The previous compounds 1,3,6,7,8 [The newly synthesized compounds such as 2-(4-chlorobenzylidene)hydrazine-1-carbothioamide 1, ethyl 2-((1-((4- chlorobenzylidene)amino)-5-oxo-4,5-dihydro-1H-imidazol-2-yl)thio)acetate 3, (E)-N-(3-(bromodimethyl(octyl)-l5-azanyl)propyl)-2-(3-((4-chlorobenzylidene)amino)-4-oxo-2-thioxoimidazolidin-yl)acetamide 6,(E)-N-(3-(bromo(dodecyl)dimethyl-l5-azanyl)propyl)-2-3(4chlorobenzylidene)amino)-4-oxo-2-thioxoimidazolidin-1-yl)acetamide 7,(E)-N-(3-(bromo(hexadecyl)dimethyl-l5-azanyl)propyl)-2-(3-((4-chlorobenzylidene)amino)-4-oxo-2-thioxoimidazolidin-1-yl)acetamide8] were expected to have a fire retardation effect as well as corrosion inhibitors properties, so they physically incorporated with epoxy resin coating. The flame retardant technique was observed via a limited oxygen index (LOI) method, and anticorrosive was evaluated with a salt spray (or salt fog) test. The coating evaluation showed that the incorporation of thiohydantoin derivatives into varnish improved flame residency, corrosion, and resistance.

Keywords: Heat and fire retardant-corrosion paint, 2-thiohydantion derivatives

Ball milled wheat straw biochar as efficient adsorbent for uranium immobilization from wastewater

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Abstract

The contamination of water by radioactive substances, such as uranium, has become a rising concern. In this study, laboratory experiments were conducted to evaluate the performance of ball-milled biochar on the removal of uranium from wastewater. Aqueous batch sorption experiments using both pristine (BC) and ball-milled biochar (BMBC) derived from wheat straw, pyrolyzed at three different temperatures (300, 450, 600 ℃), showed that ball milling greatly enhanced uranium adsorption. The 600 ℃ ball-milled biochar exhibited the best removal efficiency for uranium (91%). Biochar exhibits a positive correlation of surface area and pore volume of biochar with pyrolysis temperature. Ball-milling treatment increased the external surface area of biochars by reducing grain sizes, as well as enhanced the micropore surface area by exposing blocked micropore networks. In addition, a range of functional groups was produced by ball milling, leading to the conclusion that the adsorption of uranium on the biochars was controlled by multiple mechanisms including surface complexation, strong cation-π interaction, and electrostatic interaction. The 600 ℃ ball-milled biochar Langmuir maximum adsorption capacity of uranium reached 263.2 mg/g at pH 4.5 under 298 K, which was an improvement of 5.8 times relative to the pristine biochar and was higher than that of most carbon-based adsorbents. The sorption kinetics can be explained by the pseudo-second-order model, yielding a rate constant of 1.14×10-2 g mg-1min-1. These results demonstrate that ball-milling of pristine biochar could be an applicable approach to achieve engineered biochar in a large-scale for the efficient treatment of radioactive waste.

Keywords: Engineered biochar, Ball milling, Uranium, Adsorption, Wastewater treatment

Preparation Of Some New Surfactants and Investigation Of Their Surface and Thermodynamic Properties to Use in Enhanced Oil Recovery

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Abstract

In this work, seven surface-active agents were prepared based on ricinoleic hydrazide. The six surfactants that have a nonionic moiety were prepared by a reaction of ricinoleic hydrazide with succinic anhydride in an open-ring reaction, and then the product reacted with different molecular weights of polyethylene glycol to produce this formula (PMRH x). The letter seven surfactant has a cationic moiety, and its general formula is (RHATAS). Their chemical structure was confirmed by FT-IR, ^{1}HNMR, and ^{13}CNMR. The surface active and thermodynamic properties of these surfactants were calculated based on surface tension measurements at 25°C, 35°C, and 55°C. The interfacial tension for this surfactant was measured at the CMC concentration in formation water at 50°C and 70°C. The values of interfacial tension were cited between 10^{-1} and 10^{-2}mN/m. From the obtained data, the negative value of $\Delta G_{ads}$and the data on interfacial tension were drawn into a visualization image to employ these surfactants in an application for increased oil recovery.

Keywords: Surface Tension, CMC, Surfactant

New Techniques to Improve the Functional Properties of Some Fabrics

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Abstract

Textiles, whether they are made of synthetic materials like polyester and nylon or natural fibers like cotton and Wool, play a significant role in everyday use, including clothing, home furnishings, and medical hygiene products. However, their utility can be effectively expanded through targeted modifications by altering surface properties by some methods and that's done by the introduction of new, interesting, and multi-functionalities in textiles through the development of the architecture of fibers, yarns and fabrics, their morphology and surface. This results in a significant improvement in the overall quality and durability of the product, meeting consumer expectations effectively. In this comprehensive overview, we delve into advances in textile modification using various techniques such as chemical, physical, and biological methods. It has been shown the many properties acquired by these fabrics after treatment that make them more comfortable to use such as increased wettability, shrinking resistance, twisting and desizing of fibers, dyeing, printing, and new functional advances including bacterial resistance, UV protection, self-cleaning, softness, easy care and stiffness. Also, surface modification is used to clean the fiber surface, deposit protective coatings on fibers, or increase the strength of fibers.

Keywords: Surface modification, Fabric, Coating, Wettability, Self-cleaning, Dyeing.

Comparative corrosion behavior of different types of electrodes in orange juice, tea and honey solutions for the usage in dental applications

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Abstract

The corrosion effect of natural orange fruit juice, tea, and honey solutions on the corrosion of Au, Nb, Mo, and CoCr-alloy electrodes has been investigated to determine which material is best suited for use in each environment. The samples of the three solutions were subjugated to different Egyptian standard specifications and did not exceed the permissible limits. Open circuit potential (OCP) and potentiodynamic polarization (PDP) techniques were used. In OCP technique, the potential was measured at different intervals of times for a total exposure of 90 minutes, and the rest potentials (E_{res}) were determined. The obtained results revealed that the values of E_{res} had a characteristic order at each temperature, and its values in all solutions decreased with increasing temperature for Au, Mo, and CoCr-alloy electrodes. Under PDP technique, the corrosion rates (C_R) for all electrodes increased with increasing the temperature. In orange juice, the electrodes track the following descending order at all temperatures: Nb > CoCr-alloy > Mo > Au. In tea and honey solutions the descending order was CoCr-alloy> Nb > Mo > Au, at all temperatures. The apparent activation energies and the enthalpies of the corrosion process were positive in all conditions, reflecting the endothermic nature of the dissolution process for all electrodes, except for Mo in honey solutions. Values of entropy for all electrodes equaled to -197 J/mol K.

Keywords: CoCr-alloy, Au, Mo, Nb, orange juice, tea, honey, Open circuit, Potentiodynamic.

Computational and experimental techniques for characterization, and applications of some metal complexes

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Abstract

Metal complexes have gained significant importance in medicinal chemistry due to their diverse therapeutic applications. These complexes exhibit a wide range of biological activities, including anticancer, antimicrobial, antiviral, and antidiabetic properties. This review explores characterization techniques for metal complexes, focusing on transition metal compounds. Various spectroscopic methods are employed to determine the bonding nature and strength between ligands and central atoms. Morphological characterization techniques provide information about the shape, size, surface structure, and distribution of materials at microscopic and nanoscopic scales. Magnetochemistry and conductance measurements. Thermogravimetric analysis confirms the presence of coordinated water molecules in some complexes. Computational methods, including DFT calculations and molecular docking, have been employed to complement experimental findings and predict potential applications also been extensively reviewed, highlighting their diverse biological applications.

Keywords: Metal Complexes, Antimicrobial, Spectroscopic.

Improving Alzheimers disease detection based on machine learning techniques. Authors: Tasneem Khaled. Elsayed

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Abstract

In today's world, advanced technologies are being utilized to simplify life across various sectors. The medical field has witnessed significant impacts from technological advancements, with the healthcare sector, providing improved treatments and more efficient methods for detecting and diagnosing diseases. The term "dementia" refers to a collection of symptoms that are linked to a decline in thinking abilities or memory, severe enough to hinder an individual's ability to perform daily tasks. The most prevalent type of dementia is Alzheimer's disease, which affects over 5 million people. Americans and is projected to affect 16 million by 2050. Currently, there is no cure for Alzheimer's disease. However, early detection and effective Management can improve quality of life. Supervised machine learning models can enhance primary care. These models can assist in early detection and intervention strategies for dementia patients. This paper applies the methods to the neuroimaging datasets from the OASIS collection. Machine learning involves programming computers to optimize their performance using historical data. This study presents various machine learning techniques, including decision trees (DT), k-nearest neighbors (KNN), random forests (RF), logistic regression (LR), and support vector machines (SVM), which can be applied to diverse datasets. Effective preprocessing methods have been employed to improve the quality of the model's predictions and optimize prediction accuracy, aiming to achieve the best possible results. The results of this study provide initial evidence that applying an appropriate preprocessing pipeline to clinical data, along with ML-based classification, could enhance the precision and efficiency of predicting dementia.

Keywords: Alzheimer disease, Machine learning; OASIS, Classification

A New Triggering Method of IoT Controllers

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Abstract

The Unified Call to Prayer (Azan Mowahad) project is an initiative launched by the Ministry of Endowments. 7000 mosques are equipped with Azan receivers in Cairo governorate. The main system is set in Radio main Station, “Greater Cairo Station”. The broadcaster pushes the system button on, five minutes before Azan. The mosque worker opens the receiver five minutes before the Azan, and waits for the Azan being broadcasted. He turns off the device after the Azan is performed. The barrier of this system is its reliance on the endowment agent to connect electricity to the amplifier device. He operates the loudspeakers and runs the switches for connecting the internal and external speakers and loudspeakers. Sometimes in some mosques, the worker ignores to manually operate these devices, and therefore the Azan Mohad to prayer is not broadcasted, and the worker raises the Azan, in violation of the instructions. The device presented in this paper was developed and tested by the author. A patent application was submitted to the Egyptian Academy of Scientific Research under No. 649 on April 28, 2023. This device presents a simplified idea of automatic operation. It connects/disconnects electricity to the amplifier and all speakers automatically.

Keywords: Embedded systems, IoT, Two Channel Relay, Azan Mowahad, Automatic Control

Text Classification: A Machine Learning Approach to Separating Human and AI-Generated Content

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Abstract

In today's world, filled with an abundance of information, it is crucial to differentiate between texts created by humans and those generated by intelligence. This study outlines an approach that utilizes a range of machine-learning tools to identify and distinguish human-written content from AI-generated content. By analyzing a dataset containing both types of texts, we examine elements such as word usage frequencies, sentence structures, underlying meanings, and emotional tones. Our methodology integrates natural language processing methods, like n-gram analysis, part of speech tagging, named entity recognition, and dependency parsing, with machine learning techniques. We validated logistic regression, support vector machines, decision trees, AdaBoost, bagging, and gradient boosting models to ensure their effectiveness. Our findings show that machine learning algorithms can successfully categorize texts with high accuracy, precision, recall, and F1 scores, implying that such computational approaches could be helpful in automating the identification of AI-generated content. This research has ramifications for domains such as digital forensics, content control, and the broader spectrum of AI ethics and governance. The study's results show that the machine learning methods were able to accurately group texts into categories. This demonstrated their exceptional ability to distinguish between human-generated content and AI-generated content.

Keywords: Machine Learning, Natural Language Processing, Text Classification, AI-generated

A novel architecture for earthquake magnitude estimation based on deep learning

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Abstract

Earthquakes represent one of the most perilous natural disasters confronting humanity due to their unpredictable nature and the significant damage they can inflict on lives and property. Furthermore, forecasting seismic activity is a critical area of research in the field of disaster risk mitigation. This research presents an innovative automated earthquake detection model that improves the processing and analysis of seismic data by integrating convolutional layers with a bidirectional Long Short-Term Memory (Bi-LSTM) architecture. This approach enhances the extraction and processing of temporal features from raw waveforms collected at a single station, thereby increasing the accuracy and efficiency of seismic magnitude assessments. We assessed the performance of our model by conducting tests on the Stanford Earthquake Dataset (STEAD) and obtained the lowest values for mean square error (MSE), mean absolute error (MAE), and mean convergence error (MCE). Our model has exceptional performance in comparison to the competing one. Potential applications of the suggested method include routine seismic monitoring and early warning systems.

Keywords: Earthquake prediction, Attention mechanism, Neural network, Layer normalization, bidirectional Long Short-Term Memory

Structure Investigation, Surface Characterization and Optical Properties of Ion Beam Irradiated Flexible Polymeric Films

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Abstract

In our current research, we investigate the impact of ion beam treatment on the optical properties of PVA polymeric films for use in optoelectronics technologies. The films' characteristics are investigated using methodologies such as X-ray diffraction, the Fourier transform infrared spectrum, and scanning electron microscopy. All films had their optical energy band tails and bandgaps determined. The FTIR peaks are used to evaluate the influence of ion exposure on polymer chains, while the XRD validates the successful manufacturing of polymeric composite films. The scanning electron microscopy (SEM) images revealed that the nanofiller was loaded and dispersed equally inside the polymeric layers. Furthermore, the refractive index, extinction coefficients, and dispersion properties were determined for all clean and treated PVA films. On the other hand, the changing surface properties of polymeric materials caused by ion beam treatments will be explored utilizing various testing methods. The SRIM/TRIM Monte Carlo simulation program is employed to figure out the ion range and sputtering surface collision rates. The experiment will exhibit significant changes in polymer surface properties because of beam exposure. Considering these discoveries, irradiated PVA films have applications in a range of sectors, including batteries, supercapacitors, detectors, and optoelectronics.

Keywords: Polymeric films, Irradiation, Ion beam, Surface characterization, Optical properties

Impact of europium oxide on structural, and radiation-shielding properties of zinc lithium borate glasses.

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Abstract

An analysis of the effects of europium oxide (Eu2O3) on the shielding, dielectric, and structural properties of zinc lithium borate glasses was carried out. A rise in the amount of Eu2O3 in glasses from 0.0 to 1.0 mol% results in an improvement in density from 3.086 to 3.2176 g cm−3. FTIR analyses of our recently developed glasses revealed the production of functional groups and units, including bridging BO4 and non-bridging BO3. Bridging BO_4 rose at low concentrations of europium oxide and returned to BO_3 at high concentrations of europium oxide. The dielectric constant of all the glasses loaded with various ratios of Eu2O3 mol% sharply decreased as frequency rose in the low-frequency range. As the Eu2O3 level increased to 0.25 mol%, the dielectric constant value first decreased, suggesting an improvement in BO_4, and then improved at increasing concentrations. For each glass that was examined, the indicated tan δ showed a relaxation peak at approximately 5 kHz. The lowest tan δ was found at a level of 0.25 mol% Eu2O3. The specimen of glass altered with 0.25 Eu is a desirable choice for packing materials because of its smallest tan δ and dielectric constant. The gamma-ray exposure buildup and energy absorption factors parameters of that oxide glass system in the energy region of 0.015–15 MeV up to depths of penetration of 40 mfp have been calculated by using Photon Shielding and Dosimetry (PSD) software. It has been demonstrated that Zeq values vary on photon energy.

Keywords: Borate glass Structural properties Radiation shielding

Harmful Effects of Food Additives on the Blood and Aqueous humor

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Abstract

Background: Food additives are substances that are added to food to maintain or enhance its freshness, safety, flavor, texture, or appearance. Our study explores the toxic effects of different types of food additives (tartrazine, Carmoisine), preservatives (sodium benzoate), and a mix of them on the blood, erythrocyte membrane, and aqueous humor in rats. Methods: One hundred and twenty-five adult albino Wister rats were randomly divided into five groups. Group 1 served as control, Group II animals were orally administered 7.5 mg/kg body weight of tartrazine, Group III animals were orally administered 4 mg/kg body weight of carmoisine, Group IV animals were orally given Sodium Benzoate 5 mg/kg body weight and Group V animals were received a mixture of the three food additives at the same dose. After 45 and 90 days, Osmotic fragility of erythrocytes was determined and UV analysis. Aqueous humor was obtained from enucleated rat eyes to UV analysis. Results: the results indicate that the sigmoidal fragility curves change and significant decreases ($P \leq 0.05$) in average osmotic fragility (C50) to all groups were observed. UV-visible spectra of blood and aqueoushumour reduced its intensity of all bands with applied periods Conclusion: The osmotic fragility curve can give good information about the changes that may occur in the elasticity and ionic permeability. Food additives and preservatives affected the osmotic stability of erythrocytes and the optical properties of aqueous humor. It is desirable to limit the uses of these food colorants and/or food preservative additives especially.

Keywords: Food additive, preservative, blood, rat, aqueous humor, spectroscopy

Effect of Er_2O_3 incorporation on thermal stability and optical properties of Bi_2O_3-PbO-B_2O_3 glass

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Abstract

The base glass (25 Bi_2O_3–25PbO-50B_2O_3) was doped with x = 0.5, 1, 1.5, and 2 moles % Er_2O_3 respectively. Glasses were prepared using the conventional melt-quenching method. Characterization by X-ray diffraction (XRD), glass density (GD), molar volume Vm, differential scanning calorimetry (DSC), and UV-Vis spectroscopy has been carried out. The XRD revealed the amorphous nature of the glass network whatever the Er2O3 content. The GD values were detected to record a non-monotonic behavior with the increase of Er_2O_3, while the Vm showed a gradual increase. The bonding characteristics of the glasses under study have been calculated to clarify the effect of Er_2O_3 addition on the glass atomic structure. The DSC analysis showed a considerable increase in the Tg value for lower Er_2O_3 content followed by a sharp decrease. This may reflect the instability of the BO/NBO ratio in the glass matrix. In general, doping was found to increase the thermal stability of the glass. The measured optical properties exhibit a non-linear trend; the incorporation of 1.5 mole% of Er_2O_3 resulted in anomalous behaviors as a huge extension of the band tail to inside the forbidden gap occurred. On the other hand, the absorption characteristics revealed that glasses with 0.5 and 2% mole of Er2O3 displayed two localized band states inside the energy gap. All results were correlated and discussed to investigate the effect of the rare earth ions on the glassy state. Keywords: oxide glass doped with Er_2O_3; X-ray diffraction; Differential scanning calorimetry; optical properties.

Keywords: oxide glass doped with Er_2O_3; X-ray diffraction; Differential scanning calorimetry; optical properties.

Exploring the Effects of Amiodarone on Liver Proteins and Lipids and the Enhancing Role of Vitamin E: spectroscopic study

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Abstract

Numerous forms of liver damage, from moderate enzyme increase to severe acute liver failure, have been linked to Amiodarone (AMIO), a commonly used antiarrhythmic drug. The present study aimed to evaluate the changes in rabbits' liver resulting from short-term administration of AMIO, in addition to studying the ameliorative effect of vitamin E (VIT. E) on these changes. In this study, three main groups were involved: normal group, AMIO group intraperitoneally (ip) injected with 160 mg AMIO/kg bw/day, the third group has orally administered 100 mg/kg bw of VIT. E with the 160 mg AMIO/kg bw (ip) daily for two weeks. Fourier transform infrared spectroscopy (FTIR) analysis was conducted on liver samples. The results confirmed that AMIO administration was associated with a change in the absorption intensity after the normalization of all spectra. Additionally, varying effects on the constituents of liver cells in fingerprint and NH-OH regions. The bandwidth of CH_2 assym band showed a significant decrease, Furthermore, the coadministration of VIT.E with AMIO enhanced most of the observed changes. Deconvolution of the amide I region revealed that the percentage of the β-turn was significantly increased while the α-helix and β-sheet contents were decreased. Coadministration of VIT.E has the reverse effect on α-helix content. So, our study revealed that medication by AMIO could produce changes in liver proteins and lipids. VIT.E coadministration has an enhancement on these changes, which makes it a good supplement for those who are treated with AMIO.

Keywords: Amiodarone, Liver, FTIR spectroscopy, Vitamin E, Rabbits

Radiation Shielding Development Increase Radiation Safety Standards Around Cobalt-60 Irradiations in Several Countries

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Abstract

A necessity needs to re-assessment stacking, jamming falling, and the probability of broken cobalt-60 radiation capsules inside the storage pool (dry or wet) to prevent bad effects on radiation safety standards inside and outside industrial irradiators. The water of the storage pool is contaminated by a broken hot capsule where the radiation source is changed from a close radiation source to a very dangerous open radiation source. Using robotics inside contaminated water of storage pool by cobalt-60 broken capsulate (open source) maintains radiation contamination for robotics, the environment and increases the needs of developed countries. The work shows a proposed modified design with a concrete shielding maze that has more than one right–angle bend to maintain radiation prohibitive and to determine the smallest radiation exposure rates at the entrance of the proposed maze design with several legs. High standards of radiation safety are maintained by the proposed design through a safe containing water treatment plant (deionizer plant) which is located safely inside the proposed design. The safe design of the steel shielding door (swinging or siliding) is attached with proposed design and depends on maze idea too. Electrical control system (P.L. C) is attached with the steel door design, and who is located near control panel to maintain radiation safety for the environment's operation and control during the probability of radiation contamination. Monte Carlo calculations have been carried out for the new proposed design that is attached by a cobalt-60 industrial irradiator. The three-dimensional flux was calculated at different positions from which the gamma volume does was obtained for these positions.

Keywords:, Moveable mechanical design, transsimotion, swinging and siliding steel door, electrical control system P.L.C.

Improvement of the electrochemical activity of LiMnPO4 coated with ZiF-8 metal-organic framework supercapacitor

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Abstract

The expansion of energy demands and population make energy depletion an inevitable reality in the twenty-first century. Over the last few decades, there has been a significant emphasis on developing innovative and high-performing active electrode materials for green energy storage devices through extensive research. The study demonstrated that $LiMnPO_4$, synthesized using a simple chemical method, has the potential to be used as an electrode material in energy storage devices like supercapacitors. Various spectral and analytical studies were performed to analyze and demonstrate the synthesized material. The pseudocapacitance of $LiMnPO_4$ through the use of cyclic voltammetry (CV), galvanostatic charge-discharge (GCD), and electrochemical impedance techniques in an alkaline medium. The $LiMnPO_4$ coated with ZiF-8 as a source of cobalt and carbon to enhance the electrochemical performance of LimnPO4. The specific capacitance of the pure sample was 280 F/g, however, the coating protocol increased the specific capacitance to 350 F/g at 10 mVs^{-1}.

Keywords: supercapacitor, Lithium-ion battery, electrochemical performance, capacitance, hydrothermal

Preparation and Characterization of Cobalt and Zinc Oxide Nanoparticles using Green Synthesis method for technological development

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Abstract

This work outlines some interesting results regarding the physical and optical properties of Co_3O_4 and ZnO nanoparticles synthesized by the sol-gel method. The chemical sol-gel method yields (Co_3O_4)c and (ZnO)c samples whereas the green synthesis method using eggplant as extract produces (Co_3O_4)gs and (ZnO)gs samples. Structural studies using the XRD technique reveal the formation of the cubic and the hexagonal phases for Co_3O_4 and ZnO samples, respectively. No valuable changes occur in lattice parameters upon green synthesis. The FTIR studies confirm the formation of oxide networks for both. Optical data demonstrate the shift of the absorption edge to higher energy for (Co_3O_4) gs. On the contrary, (ZnO)c shows a decrease in the optical band gap value upon green synthesis. Regarding the detected photoluminescence peaks, (Co_3O_4)c and (Co_3O_4)gs show respectively blue and green emission colors, whereas both (ZnO)c and (ZnO)gs produce green emissions. The reported data nominate both chemically and green synthesized oxides using eggplant extract as leaders in photocatalytic and light emission technology.

Keywords: Green synthesis with eggplant extract, lattice dynamics, structural and optical characterization.

Sponsers

بنك المعرفة المصري.

إن بنك المعرفة المصري هو مبادرة أطلقها السيد الرئيس عبد الفتاح السيسي وذلك خلال العيد القومي للعلم عام 2014. ومن خلال تلك المبادرة، بدأت المجالس المتخصصة التابعة لرئاسة الجمهورية العمل على بدء مشروعات قومية عديدة تعني بتطوير التعليم

يمنح بنك المعرفة المصري كل المصريين من كل الأعمار الفرصة للوصول إلى أكبر قدر من المعرفة والمحتوى الثقافي والعلمي سواء كان ذلك أساسي أو تطبيقي أو في مجال التكنولوجيا أو العلوم الإنسانية أو الإدارية.
ويحتوي بنك المعرفة المصري على كتب ثقافية لعامة الناس وتتضمن كتباً تستهدف الأطفال يتم استخدامها من خلال أجهزة الكمبيوتر والهواتف الخلوية الذكية والتابلت في كل أنحاء الدولة..ومن ثم، بدأ المجلس التخصصي للتعليم والبحث العلمي في اتخاذ خطوات جادة لتنفيذ هذا المشروع عن طريق القيام بزيارات محلية وأجنبية وذلك بعد دراسة كل احتياجات المجتمع المصري وسوق النشر العالمي. وبعد تقييم كل المؤسسات والكيانات الكبيرة التي تعمل في هذا المجال، تمت مفاوضات من أجل استكمال هذا المشروع.
يتضمن بنك المعرفة المصري أربع بوابات فرعية، القراء، والأكاديمي، والتعليم، والأطفال. يعتبر بنك المعرفة المصري أحد الخدمات التعليمية الأكثر تطوراً حول العالم وتشمل مجموعة كبيرة من الأدوات. قام بنك المعرفة المصري بالتعاون مع العديد من مقدمي التكنولوجيا ليضمن لمستخدميه خبرة بحث عالية الجودة، ومثمرة، وموفرة للوقت، ومتعددة الاختصاصات، وتتميز بالدقة.

وزارة البحث العلمي
اكاديمية البحث العلمي والتكنولوجيا

أكاديمية البحث العلمى والتكنولوجيا

تأسست أكاديمية البحث العلمي والتكنولوجيا في سبتمبر 1971 بموجب المرسوم الرئاسي رقم 2405 باعتبارها السلطة الوطنية المسؤولة عن العلوم والتكنولوجيا في مصر. في عام 1998 ، أعيد تنظيم الأكاديمية بموجب المرسوم الرئاسي رقم 377 الذي حدد مهامها ووظائفها وأنشطتها.

- تعد الأكاديمية بمثابة بيت الخبرة المصري. فهي تجمع بين علماء وخبراء مصريين بارزين من الجامعات ومؤسسات البحوث والقطاع الخاص والمنظمات غير الحكومية وواضعي السياسات والعلماء المصريين البارزين في الشتات لمناقشة مشاكل البلاد ، واقتراح وتنفيذ الدراسات العلمية والخطط الأساسية الإستراتيجية المستقبلية لمعالجة هذه المشكلات.

- تتبنى الأكاديمية خطة شاملة لتطوير العلوم والتكنولوجيا المصرية لدعم الوزارات والمؤسسات البحثية الوطنية ذات الصلة في إنشاء نظام متكامل للبحث العلمي معًا لزيادة عدد العلماء المدربين في مصر ، وإعطاء العلم دورًا رائدًا في الاقتصاد القائم على التنمية والاقتصاد القائم على المعرفة. و تعمل الأكاديمية على ترويج و تشجيع مشاركة الإناث والشباب في العلوم والتكنولوجيا والقيادة العلمية.

الرؤية

- أكاديمية وطنية عالمية وبيت خبرة وطني في مجال العلوم والتكنولوجيا والابتكار تتعاون مع باقي عناصر منظومة العلوم والتكنولوجيا والابتكار في تحسين وضع مصر العلمي والاقتصادي والريادي

الرسالة

- تهيئة بيئة مواتية ومشجعة للعلوم والتكنولوجيا والابتكار ودعم الدورة الكاملة للابتكار.

من مهام الأكاديمية :

- تداول مشاكل البلد و وضع الحلول العلمية، ووضع الدراسات الإستراتيجية والرؤى وخرائط الطريق التكنولوجية من خلال 20 مجلسًا علميًا متخصصًا، و 300 من زملاءASRT ، و 20 لجنة وطنية ، و 200 عضو
- تقدير التميز في مجالات العلوم و التكنولوجيا و الابتكار (جوائز الدولة، مؤشرات العلوم و التكنولوجيا، تقييم العلوم و التكنولوجيا ، المراقبة والقياس)
- توفير المرافق الأساسية المركزية الوطنية (النشر العلمي ، تدويل المجلات المحلية ، المكتبة الرقمية ، الشبكة القومية للمعلومات ، GLORIAD، مركز الحوسبة السحابية ، الشبكة والحوسبة الفائقة ، العلوم الإلكترونية ، بنك المعرفة المصري ... إلخ.)
- دعم الصناعة الوطنية ونقل التكنولوجيا وتعميق التصنيع المحلي (مكتب براءات الاختراع المصري ، مكتب مساعدة حقوق الملكية الفكرية ، صندوق تمويل النماذج الأولية السريعة ، الشبكة الوطنية لمكاتب تسويق التكنولوجيا والابتكار (TICOs) ، حاضنات التكنولوجيا الإقليمية (Intilac)، التحالفات المعرفة و التكنولوجية(KTA) .

http://asrt.sci.eg/

شركة beehiv للتنظيم

At Beehive Events, we specialize in creating unforgettable experiences that leave a lasting impression. With a passion for innovation and a commitment to excellence, our team meticulously plans ،executes events tailored to your unique vision, and handle every detail with precision and creativity.

Our Mission: We strive to extend our services to all governorates of Egypt through a clear and ambitious growth plan. Our continuous development of unique working methods makes us the go-to destination for those seeking to create special events.

Our Achievements: Over the past four years, we have planned and organized more than 100 events, with a total audience of approximately 80,000, including prominent academic and public figures in Egypt.

Why choose us:

- Innovative Approach: We bring a fresh perspective to event planning, ensuring each event is unique and memorable.
- Professional Team: Our team is dedicated to delivering high-quality services with attention to detail.
- Client-Centric: We prioritize our clients' needs and work closely with them to bring their vision to life.
- Proven Track Record: Our successful events and satisfied **clients speak to our commitment to excellence.**
- Let Beehive Events turn your vision into reality with creativity, professionalism, and a touch of magic.

Contact us:
http://www.facebook.com/profile.php?Id=61567290968067&mibextid=ZbWKwL

Nanotechnology Incubator, Al-Azhar University
Long-term Vision

To be a leading Nano-technology incubator supporting entrepreneurs and early-stage startups transforming their innovative ideas in nanoScience and nanotechnology into unique, affordable, ecofriendly, and cost-efficient projects that solve the industrial and manufacturing acute challenges and empower the technology-based economy, national economy, and sustainable development of Egypt.

Mission

As nanotechnology incubator is the first incubator of its kind in the field of nanotechnology and smart materials, it will be one the main cornerstones of nanoScience ventures in the echo systems to achieve the envisioned state of wellbeing and sustainability through:

a. Combining Professional experiences, resources, and network of Al-Azhar University nanotechnology fields, with the highly motivated, talented youth, idea generators, and entrepreneurs to create new Egyptian nanoproducts, nanomaterials, and nanotechnology-based startups.
b. Attracting and supporting enthusiastic, idea carriers, talented, and devoted young entrepreneurs and professionals as well as early-stage startups through professional promising incubation program and services.
c. Increasing entrepreneurship community awareness in the fields of green building, environment, technological innovation, and entrepreneurship.
d. Offering a package of services including (seed fund, training, mentoring, coaching, consultation, product development, etc.) to support entrepreneurs to have their startups registered and go to market successfully.
e. Providing links to nanotechnology industries and organizations.
f. Improving the early-stage startups' quality to be aligned with the real market.

Specific fields

Nanotechnology and smart materials

- water treatment
- New and renewable energy
- electronics
- food industries
- environment

Goals

- Bridging the gap between NanoScience & industrial nanotechnological applications.
- Maximize the incubator outcomes through updating its technology to cover wide. range applications.
- Capacity building in entrepreneurship through structured training arm.
- Disseminate nanotechnology culture in Egypt.
- Operational capacity building in entrepreneurship for incubator team management.

QUICK STEP

كويك ستب

تأسست شركة Quick step عام 2020حيث بدأت العمل في الأسواق المصرية كشركة أجهزة طبية ومستلزمات لمعامل التحاليل وتفوقت في هذا المجال وحازت علي ثقة العملاء وولائهم

وفي عام 2020 طورت الشركة من عملهاوتوسعت في باقي المجالات الطبية وتجهيز المستشفيات كما أضافت أيضا لنشاطها الخدمات التسويقية الألكترونية في المجال الطبي والتعاون مع المصانع العالمية والمحلية.....جدير بالذكرأنه جاري الأن التعاقد علي وكالات جديدة للأجهزة الطبية

وتتمثل خدمات الشركة في
خدمات عالمية :

- كتقديم الدعم للمصانع العالمية ودراسة الأسواق المحلية لدعمهم في نشر منتجاتهم في أسواقنا
- توريد وصيانة الأجهزة والمستلزمات الطبية والمعملية
- تصميم المستشفيات :نقدم تخطيط وتصميم المنشآت الطبية
- التسويق الإلكتروني :نقدم تصميم الويب سايت والسيستم للمؤسسات الطبية والشركات والمستشفيات

https://quickstepco.com

شركةECCM

We are ECCM

Egyptian Company for Carbon Materials (ECCM) is one of the newest nano-companies in Egypt. The company can be considered one of the best companies in the field of nanomaterials science and engineering fields, which serve the science,agriculture, and health sectors. These research capabilities and equipped laboratories enable university faculty members, young researchers, and students to obtain the real manufacturing of nanomaterials and hybrid nanomaterials, which in turn enhances and encourages scientific research and technological development in our beloved country. As well as serving local industries in Egypt, the Arab world and Middle East region. ECCM offers the in-situ design of your nanomaterials in our laboratories and uses our facilities to produce your own nanomaterials multifunctional, and wide-scale applications in science, electronics,optoelectronics, pharmaceutical, and dental materials, agriculture, engineering …..etc.

تحويل مخرجات البحث العلمي في مجال النانوتكنولوجي إلي تطبيقات صناعية بواسطة الشركة المصرية للمواد الكربونية

الشركة المصرية للمواد الكربونية (ECCM) هي واحدة من أحدث شركات النانوتكنولوجي في جمهورية مصر العربية. ويمكن اعتبار الشركة من أفضل الشركات الحديثة في مجال علوم المواد النانومترية بسبب أدواتها وقدراتها وخبرات فريق العمل بها. ولدي الشركة فرق متميزة من الباحثين في مختلف مجالات العلوم وهندسة المواد النانومترية والتي تخدم قطاع العلوم والزراعة والصحة. وتمكن هذه القدرات البحثية والمعامل المجهزة وأعضاء هيئة التدريس بالجامعات والباحثين الشباب والطلاب من الحصول علي التصنيع الحقيقي للمواد النانوية والمواد النانومترية الهجينة في صورتها البحثية والصناعية والتي بدورها تعزز وتشجع البحث العلمي والتطورالتكنولوجي بوطننا الحبيب كما تخدم التصنيع المحلي في جمهورية مصر العربية والعالم العربي ومنطقة الشرق الأوسط.وتقدم الشركة التصميم وانتاج للمواد النانومترية الخاصة بك في مختبرات ومرافق الشركة للتطبيقات الذكية ومتعددة الوظائف وواسعة النطاق في العلوم والإلكترونيات والبصريات الإلكترونية والأدوية ومواد الأسنان والزراعة والهندسة وغيرها.....الخ

www.eccm.eg.com

Femto Scientific
Advanced Solutions | Premium Support

Femto Scientific

Femto Scientific and Who We Are:

- Leading company in Egypt for Supplying, Installing, Training, and after-sales support for Scientific and Analytical instruments.
- Limited liability company with registration No. 153399 and Tax No: 594-656-303.
- The company Address Villa 280, 35 street, Ikhnaton zone, Fifth district, Fifth settlement, Cairo, Egypt.

Company Strategy Vision:
Our vision is to be the leading company supplying and supporting laboratory and analytical instruments for a wide scope of applications and different sectors.
Mission: Our mission is to create sustainable relationships with our customers through providing complete solutions, brilliant support, and consultants.
Values:
➢ Provide solutions to meet the customers' application and not just selling or supplying instruments.
➢ Transfer the new technolo**gy** and different techniques to Egyptian country.
➢ Strong after-sales support.
➢ Team cooperation for best support to customers.
➢ Well-trained and highly qualified sales and service team.
➢ Project management style for clear and easy communication channels with customers.
Supported sectors.
➢ Universities and research institutes.
➢ Petroleum and petrochemical industry.
➢ Food and pharmaceutical industry.
➢ Steel and cables manufacturing industry.
➢ Glass manufacturing industry.
➢ Cement manufacturing industry.
➢ Water and wastewater treatment industry.
➢ Environmental sector

Email :Hegazy@femto-scientific.com
Web : www.femto-Scientific.com

Nano Gate
Creating New Scientific Horizons

Nano gate company

Nano-Gate is a well-established firm that focuses on nanotechnology research and development, especially its relevance to the industry.

We started in 2018, and since then, we have been specializing in the synthesis and designing of nanomaterials to meet our customers' needs. We also offer scientific consultation in the field of nanotechnology as well as training.

Our scientific team includes professionals and specialists in customizing nanomaterials. We offer one of the broadest and highest technology fields available in the Egyptian market today.

We believe that Nanotechnology will drive significant future improvements to the production technology in Material Science, Chemistry, Medicine, Biotechnology, Electronics, Alternative energy, Efficient Lubricants, and Agricultural products.

We distinguish ourselves by enjoying working with our customers in the ever-changing nanotechnology field to develop and transfer scientific innovations into commercial products and services.

www.nanogate.eg.com

نقابة المهن العلمية

تسعى نقابة المهن العلمية إلى:

- تنشيط البحث العلمي.
- نشر الثقافة العلمية بين العلميين.
- تقديم نموذج ريادي في تطوير البيئة العلمية والعملية.
- تأهيل العلميين لسوق العمل من خلال برامج تدريبية معتمدة.
- توطيد العلاقة بين خريجي كلية العلوم ونقابتهم من خلال رفع الثقة المتبادلة.
- المشاركة في الأعمال التي تخدم كافة العلميين.
- الإسهام فى دراسة مشاكل الإنتاجية واقتراح الحلول لها.
- تقديم نموذج ريادي في تطوير البيئة العلمية والعملية.
- المشاركة المجتمعية للعلميين وتقديم كافة الأنشطة التي تخدم الأعضاء وأسرهم.
- العمل على رفع المستوى الأدبي والفني والصحي والمادي لأعضاء النقابة

من هم العلميين:

- العلميين هم الفئة المشتغلين بالمهن العلمية (كيمياء ، فيزياء ، جيولوجيا ، إدارة علمية ، حاسب آلي ، علوم طبية تطبيقية ، علوم حياة) من خريجي كليات العلوم وكليات الحاسبات والمعلومات الحاصلين على درجة البكالوريوس أو الدبلومات المهنية أو على درجة الماجستير أو الدكتوراه.

تتشكل أعمال النقابة تحت اللجان الآتية:

? اللجنة العلمية: وتختص بتنظيم الدورات التدريبية للعلميين وعمل المؤتمرات العلمية.
? اللجنة الاجتماعية: وتختص بالمشاركة المجتمعية للعلميين وتقديم الأنشطة التي تخدم الأعضاء وأسرهم.
? لجنة التنظيم: وتختص بتنظيم جميع أنشطة النقابة لتظهر بالشكل الذي يليق بالعلميين.
? لجنة التسويق والميديا: وتهتم بإظهار جميع أنشطة وخدمات النقابة للنور ليستفيد منها كل مستحق بإدارة الصفحات الإلكترونية للنقابة وإدارة المطبوعات وتوثيق الأنشطة.
? لجنة الموارد البشرية: وتهتم بتقييم كافة لجان النقابة لخلق روح المنافسة وتختص أيضا باستقبال الأعضاء الجدد وتوزيعهم على اللجان.
? لجنة العلاقات العامة والتوظيف: وتهتم بعقد بروتوكولات التعاون وإنشاء المعارض الموسمية وتكوين واستغلال العلاقات المفيدة في كل قطاع من قطاعات الحياة (الطبي والعلاجي – التعليمي – الترفيهي – الاجتماعي – التجاري – الوظيفي) وتقوم على إنشاء بنك التوظيف.

Email: esspegypt@gmail.com

مركز الحاسب الالى

مركز الحاسب الآلى جامعة الأزهر بفرع البنات

- وحدة ذات طابع خاص
- حاصل على الأيزو – معتمد دولياً فى منح شهادة الـICDL & ICDL Teacher
- معتمد من المجلس الأعلى للجامعات المصرية فى منح شهادة التحول الرقميFDTE

تأسس المركز بالجهود الذاتية على يد أ. د / عفاف أبو الفتوح صالح مدير المركز وبدعم من فضيلة الإمام الأكبر أ. د / أحمد الطيب شيخ الأزهر الشريف عام 2006م.

ويرأسه فضيلة أ. د / رئيس جامعة الأزهر وينوبه معالى أ. د / نائب رئيس الجامعة للدراسات العليا والبحوث

ويضم المجلس فى عضويته معالى أ. د / نائب رئيس الجامعة لفرع البنات وقامات علمية كبيرة ومتخصصة .

يقوم المركز بتقديم خدماته فى مجال الحاسب الآلى من دورات تدريبية للنهوض بمستوى أعضاء هيئة التدريس ومعاونيهم وموظفى الجامعة وطلابها فى مجالات الأمن السيبرانى والتعلم الرقمى ورخصة المدرب المعتمد TOT والتحول الرقمى وصيانة أجهزة الحاسبات ويتعاون المركز مع المجلس الوطنى للتدريب والتعليم من خلال جهاز تشغيل شباب الخريجين بمحافظة القاهرة فبإختبارات المعلوماتية فى مجالات عدة وعمل الملتقيات وورش العمل لتأهيلهم لسوق العمل.

ويقدم المركز للجامعة وكلياتها خدمات عديدة منها ورش عمل مجانية سنوية ودورات للموظفين بالإضافة بأعمال الصيانة لأجهزة الحاسب ومشتملاتها بأسعار رمزية.
ويسعى المركز جاهداً فى الفترة القادمة لهذا العام الجامعة بتقديم ندوات وبرامج عن الذكاء الإصطناعى والتعليم الآلى والأمن السيبرانى والرامج الإحصائية وبرامج لها أهمية فى سوق العمل.

https://azharclassroom.com/

Magnificent Training

نحن Magnificent Training أكاديمية تدريب واستشارات معتمدة من جهات رسمية ، مهمتنا تقديم محتوي علمي بالمهارات والسلوكيات والمعرفة اللازمة لتطوير أداء الأفراد المهني.

شعارنا Practice to happiness منهجيتنا قائمة علي التعلم بالتطبيق والممارسة أثناء الشرح لإتقان كل مايتعلمه الفرد أثناء التدريب..

درينا أكثر من 15000 متدرب علي برامج ودبلومات ادارية وطبية بمختلف التخصصات.

تعاقدنا مع أكاديميات مصرية معتمدة ونقابات حكومية وشركات مصرية ودولية.

تشاركنا مع مؤسسات تطوعية عالمية علي سبيل الحصر مؤسسة التأهيل من أجل التوظيف efe، مؤسسة MAIS ، جوبزيلا.

info@magnificent.training.com

Website: magnificenttraining.com

Company Gabbiano

جابيانو مستشارك العقاري " Gabbiano Real Estate Advisorجابيانو جروب" Gabbiano Group "

هي شركة متخصصة في تنفيذ ومتابعة وانجاح دراسات جدوى الاستثمار العقاري Real Estate Feasibility Studyالتى ترى فرصها الواعدة في مدن الجيل الرابع بجمهورية مصر العربية واهمها العاصمة الادارية الجديدة New Capital City المدينة الواعدة لمدة 200 سنة قادمة، فهي تراها انها ستكون من اهم المدن المنافسة لمثيلاتها حول العالم (دبي، اسطنبول، لندن ، باريس، كيب تاون ، شانجهاي ، نيويورك ، بوسطن ، سيدني)

دراسة جدوى شركة جابيانو جروب تأخذ في اعتبارها جميع الاحداث السياسية والاقتصادية في الاعتبار الداخلية منها والخارجية اذ ان تحرك رؤوس الاموال يجب ان يكون بدراسات متخصصة وبتنفيذ متقن.

تساعد "جابيانو جروب" عميلها على اتخاذ قرار الاستثمار العقاري سواء بشراء وحدة واحدة او عدة وحدات او حتى بنظام المشاركة محققه لكل انواع وقدرات عملائها أفضلواسرع ربح بشكل متنامي مدى الحياة بخلاف مساعدته في السعر والعقد امام المطور العقاري فهي لها من العلاقات والقوة ما تحقق لعميلها التوازن في العقود لضمان كل الحقوق
أخيرا تسعد شركة جابيانو جروب بأن تستقبل اتصالات ومقابلات كل من يرغب في التواصل مع المدير التنفيذي للشركة عن طريق الواتس آب وسيتم الرد عليكم في 30 دقيقة01282000047 .

المدير التنفيذي للشركة
محمود عبد الهادي النحاس

http://www.gabbianogrouo.com/

Chem-Tech

شركة كيم تك

الإيمان بالموهبة
هو النجاح والتمسك به هو التفوق

أسست شركة ومصنع كيم تك عام 2015بمحافظة كفر الشيخ ضمن رؤية واضحة
وهي تقديم منتج محلي بجودة عالية وبأسعار تنافسية في مجال تصنيع الأجهزة العلمية والمعملية حتي أصبحت شركة كيم تك شركة رائدة في تصنيع الأجهزة العلمية والمعملية.

تحت إشراف فريق هندسي عالي الكفاءة يقوم بتنفيذ الأجهزة ابتدء من لوحة الكنترول حتي الوصول للمرحلة النهائية وهي اختبار جودة الأجهزة قبل التسليم وقد أثبتت شركة كيم تك كفاءة أجهزتها من خلال سابقة اعمال كبيرة في المجال العلمي والمعملي
تضم عدد كبير من :
(الجامعات المصرية الحكومية والخاصة- المصانع – مراكز البحوث – المستشفيات – المعامل الطبية – معامل ثبات وجودة – المراكز العلمية....إلخ)

وتهدف سياسة شركتنا إلي الحفاظ علي ثقة عملائنا من خلال تقديم خدمات مابعد البيع والمتمثلة في الصيانة الدورية للأجهزة وشهادات ضمان علي قطع الغيار وعيوب الصناعة وعقود صيانة بعد انتهاء مدة الضمان.

نحن نشارك العملاء النجاح ونعمل علي تكوين
علاقات طويلة الأمد تبني علي الثقة التامة

مع تحيات رئيس مجلس الإدارة م. احمد الشرقاوي
https://www.facebook.com/ChemTech1?mibextid=ZbWKwL

الملتـــــقى التوظيـــــــفي الســـــــــــنوي

نحن ملتقى توظيفي سنوي يهدف إلى تعزيزفرص العمل والخدمات المهنية للطلبة والخريجين لتطويرالمهارات وتوسيع الآفاق في عالم العمل.

يركزالملتقى على عدة محاور رئيسية، حيث يسعى إلى محاربة البطالة والنهوض بالشباب من خلال تغيير فكرالطلاب وتحفيزهم على الانتقال من العمل الوظيفي التقليدي إلى العمل التفاعلي والاستثماري. كما يوفرفرص تدريب في مختلف التخصصات الموجودة بالأقسام المختلفة بالكليات، مما يعزز جاهزية الخريجين والخريجات لدخول سوق العمل. يستهدف الملتقى أيضًا إطلاق الطاقات الكامنة لدى الشباب، وتشجيعهم على إدارة المشاريع وتحقيق أفكارهم الخاصة. بالإضافة إلى ذلك، نعمل على تهيئة خريجين وخريجات ذات كفاءة عالية للقبول من خلال العروض المقدمة من بعض الشركات والهيئات والمؤسسات.

من مميزات الملتقى،عقد دورة عن صياغة السيرة الذاتية والتي تهدف إلى تزويد الطالبات بالمهارات اللازمة لتقديم أنفسهم بشكل احترافي في سوق العمل،وتوفيرفرص تدريبية مهنية متخصصة، وعرض تجارب وأفكارمبتكرة لخريجين وخريجات الكلية والكليات الأخرى في مختلف مجالات سوق العمل.

تتضمن مميزات الملتقى أيضًا تدريب الطالبات على كيفية استخدام الذكاء الاصطناعي (AI) في مجالات تخصصهم، مما يمكنهن من الاستفادة من التقنيات الحديثة في تحسين أدائهم الوظيفي. كما سيتم تدريب الطالبات على كيفية إعداد أنفسهن ليكونن روادًا وقادة في مجالاتهن، مع التركيز على تطوير مهارات القيادة والتواصل.

تتعدد أهداف الملتقى التوظيفيحيث يركز على تمكين الخريجين والخريجات من اكتساب المهارات اللازمة لدخول سوق العمل، وتوفير فرص عمل مناسبة لهم، مما يسهل دخولهن عالم ريادة الأعمال.

منسق الملتقى التوظيفي

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ايڤرجرو

ايڤرجرو هي شركة رائدة محلياً وعالمياً في مجال تصنيع الأسمدة المتخصصة، متخصصون فيتصنيع وتوزيع وتطوير مجموعة واسعة من الأسمدة المتخصصةوالكيماويات وإضافات الأعلاف.

تأسست ايڤرجروللأسمدة المتخصصة في عام ٢٠٠٦، وتتمتع بحضور عالمي واسع حيث تصدر منتجاتها إلى أكثر من ٨٠ دولة حول العالم. ومع الابتكار والتطوير المستمر، توسعت الطاقات الإنتاجية بشكل كبير لتصل إلى مليون طن من الأسمدة المتخصصةوالكيماوياتوإضافات الأعلاف سنوياً بسواعد اكثر من ٥٠٠٠ من الكوادر المصرية المتخصصة في المجال، وتعتبر ايڤرجرو للأسمدة المتخصصة من أكبر مُصنعي منتج سلفات البوتاسيوم حيث تعتبر المُصنع الأول في الشرق الأوسط والثالث عالمياًفي هذا المجال.

هدفنا هو التميز، لذلك نلتزم بأعلى معايير الجودة والصحة والسلامة والبيئة، فنحن حاصلون على REACH و ISO، ISO 9001: 2015، ISO 14001: 2015، ISO 45001: 2018 و ISO 17025: 2017.