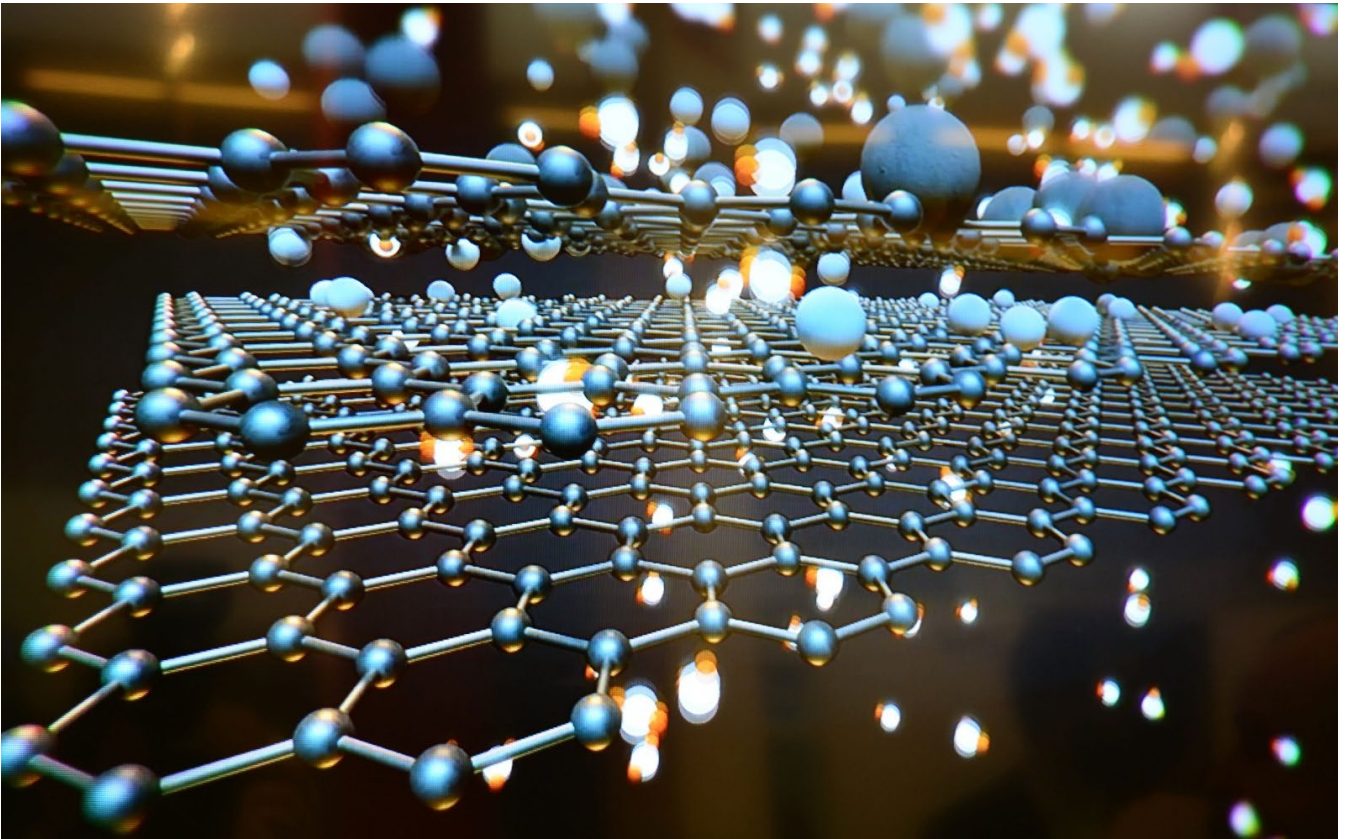


Frontiers in Materials Science and Engineering (FMSE) | UAE 2024

Scientific Program



February 13-15, 2024 | Main Building, AUS



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Alphamed

Conference Overview

Time	Day 1: Tuesday, February 13, 2024
08:00–09:00	Registration
09:00–10:00	Opening Ceremony
10:00–11:00	Keynote Lecture 1: Dr. Munir H. Nayfeh
11:00–11:30	Coffee Break
11:30–12:30	Keynote Lecture 2: Dr. Wolfgang Kautek
12:30–1:00	Single Session
13:00–14:00	Lunch Break
14:00–15:00	Keynote Lecture 3: Dr. Sank Ouk Kim
15:00–15:30	Single Session
15:30–16:00	Coffee Break
16:00–18:00	2 Parallel Sessions

Time	Day 2: Wednesday, February 14, 2024
09:00–10:00	Keynote Lecture 4: Samson A. Jenekhe
10:00–11:00	Keynote Lecture 5: Rashid K. Abu Al-Rub
11:00–11:30	Coffee Break
11:30–13:00	Sessions - (2 Parallel Sessions)
13:00–14:00	Lunch Break
14:00–15:00	Keynote Lecture 6: Marwan Khraisheh
15:00–15:30	Single Session
15:30–16:00	Coffee Break
16:00–18:00	Single Session

Time	Day 3: Thursday, February 15, 2024
09:00–10:00	Keynote Lecture 7: Yinmin (Morris) Wang
10:00–11:00	Keynote Lecture 8: Husam N. Alshareef
11:00–11:30	Coffee Break
11:30–13:45	2 Parallel Sessions
13:45–15:00	Lunch Break

Keynote Lectures | February 13–15, 2024

Munir H. Nayfeh

University of Illinois at Urbana-Champaign-USA

Tuesday, February 13

10:00–11:00

Silicon Nano Structures and Composites for High-Tech Device Applications

Wolfgang Kautek

University of Vienna-Austria

Tuesday, February 13

11:30–12:30pm

Femtosecond Laser Induced Physicochemical Processes

Sang Ouk Kim

KAIST Institute for NanCentury

Republic of Korea

Tuesday, February 13

14:00–15:00

2D Graphene Oxide Liquid Crystal for Post-AI Era: Smart Fibers, Soft Robotics, Single Atom Catalyst

Samson A. Jenekhe

University of Washington-USA

Wednesday, February 14

9:00–10:00

Semiconducting Polymers for Electronics, Optoelectronics, and Energy Storage Technologies

Keynote Lectures | February 13–15, 2024

Rashid K. Abu Al-Rub

Khalifa University of Science and Technology-UAE

Wednesday, February 14

10:00–11:00

The Rise of Metamaterials Enabled by Additive Manufacturing

Marwan Khraisheh

Texas A&M University-Qatar

Wednesday, February 14

14:00–15:00

Additive Manufacturing – Towards Smart and Sustainable Manufacturing

Yinmin (Morris) Wang

University of California, Los Angeles-USA

Thursday, February 15

9:00–10:00

An overview of strength and ductility in additively manufactured metals

Husam N. Alshareef

King Abdullah University of Science and Technology (KAUST)

Saudi Arabia

Thursday, February 15

10:00–11:00

MXenes-based Electronics and Sensors

Gala Dinner Wednesday February 14

(19:30 pm -21:30 pm)

Technical Program | February 13–15, 2024

Day 1: Tuesday, February 13, 2024

08:00–9:00	Registration- Main Building Rotunda
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Morning

Location Hall A Session Chair : Ali Alnaser	
09:00–10:00	Opening Ceremony
10:00–11:00	Keynote Lecture 1, Munir H. Nayfeh Silicon Nano Structures and Composites for High-Tech Device Applications.
11:00–11:30	Coffee Break
11:30–12:30	Keynote Lecture 2, Wolfgang Kautek Femtosecond Laser Induced Physicochemical Processes
12:30–13:00	Rashid Ganeev , Nonlinear Optical Characterization of Quantum Dots and Nanoparticles of Different Shapes Using High-Order Harmonics Generation And Z-Scans
13:00–14:00	Lunch Break

Afternoon

Location Lecture Hall A Session Chair: Taleb Ibrahim	
14:00-15:00	Keynote Lecture 3, Sank Ouk Kim 2D Graphene Oxide Liquid Crystal for Post-AI Era: Smart Fibers, Soft Robotics, Single Atom Catalyst
15:00–15:30	Nouar Tabet , Perovskite Solar Cells: Defects Passivation and Stability
15:30–16:00	Coffee Break

Day 1: Tuesday, February 13, 2024

Afternoon

Session 1

Location| Senate Room

Session Chair: Mohammad Al-Sayyah

16:00-16:15	Shaikha Almarzooqi , Investigation of High-Power Continuous Wave Laser Interaction Process with Aluminium
16:15-16:30	Javad B.M. Parambath , Bifunctional Surface-Modified Gold-Aryl Nanoparticles on Graphene Oxide Platforms for Nitrophenol Reduction and its SERS Detection Proficiency
16:30-16:45	Shaikha AlDhaheri , Accurate Extraction and Numerical Validation of The Permittivity and Permeability of Dielectric Material
16:45-17:00	Piotr Piatkowski , Silicon Nanocrystals Synthesis by Laser Ablation of Bulk Silicon in Water Using Infrared Femtosecond Laser Pulses
17:00-17:15	Abdellatif Bouchalkha , Toxic Materials Identification Using a Custom-Made Miniaturized Raman Spectrometer
17:15-17:30	Mohamed Shameer , Anisotropic Gold Nanostructures as Highly Plasmonic SERS Sensor for The Detection of Food Adulterants
17:30-17:45	Partha Maity , Hot and Free Carriers Dynamics in Hybrid Lead Halide Perovskite
17:45-18:00	Muhammad Azeem , Antiferromagnetic Spin Exciton Insulator States in Gadolinium Nickel Zinc Ferrite Nanoparticles

Session 2

Location| Lecture Hall B

Session Chair : Oussama El-Kadri

16:00-16:30	Chunlei Yang , Superdense Lithium Deposition Via Surface/Bulk Modifications for Stable Lithium Metal Batteries
16:30-16:45	Nour Hafi , Correlative Raman Imaging for 2D, Battery, and Composite Materials Analysis
16:45-17:00	S.T. Senthilkumar , Zinc-Graphite Battery Based on Bromine Chemistry
17:00-17:15	Ganesh Veerasubramani , Transition Metal Sulfide Based Core-Shell Materials as A High-Performance Sodium-Ion Battery Anode
17:15-17:30	Montaha Anjass , Hybrid Organic-Inorganic Composite Electrode for High-Performance Post-Lithium Battery
17:30-17:45	Hugo Fernandes , Spectral Computed Tomography: Bringing Color To Micro-Ct Imaging
17:45-18:00	Azka Shahid Ejaz , Scalable Designing of Flexible Electrodes Using Laser-Induced Graphene (LIG) Based Nanocomposites Through Room-Temperature Processing

Day 2: Wednesday, February 14, 2024

Morning

Location| Lecture Hall A

Session Chair: Nasser Hamdan

09:00–10:00	Keynote Lecture 4, Samson A. Jenekhe Semiconducting Polymers for Electronics, Optoelectronics, And Energy Storage Technologies
10:00–11:00	Keynote Lecture 5, Rashid K. Abu Al-Rub The Rise of Metamaterials Enabled by Additive Manufacturing

11:00–11:30	Coffee Break
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Session 1

Location| Lecture Hall B

Session Chair: Sami El-Khatib

11:30–12:00	Panče Naumov , Dynamic Organic Crystals: A New Class of Smart Engineering Materials
12:00–12:30	Ahsanulhaq Qurashi , Advanced Functional Nanomaterials for Clean Energy Applications
12:30–12:45	Kamrul Hasan , Magnetic Fe ₃ O ₄ Nanomaterial Supported Heterogeneous Catalysts for Various Green Synthesis
12:45–13:00	Najrul Hussain , Decoration of Cu ₂ O Nps Onto 2D Layered Material to Construct a Tricomponent Nanocomposite Material for Electrochemical H ₂ Evolution

Session 2

Location| Senate Room

Session Chairs: Said Sakhi & Nasser Hamdan

11:30–12:00	Wenjie Li , Tuning Band Alignment at Grain Boundaries for Efficiency Enhancement in Czts Solar Cells
12:00–12:30	Hussein A. Kazem , The Impact of Dust on Photovoltaic Performance: Historical, Current, And Future Outlooks
12:30–12:45	Zeina Elshahawi , Process Design and Product Design of Propylammonium Formate as Phase Change Material for Solar Water Heating Systems
12:45–13:00	Sarika Reghunadh , Sustainable Fatty Acid Based Ionic Liquid (Fa-IL) Phase Change Materials for Thermal Energy Storage

13:00–14:00	Lunch Break
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Day 2: Wednesday, February 14, 2024

Afternoon

Location| Lecture Hall A

Session Chair: Wael Abu-Zaid

14:00–15:00	Keynote Lecture 6, Marwan Khraisheh , Additive Manufacturing – Towards Smart and Sustainable Manufacturing
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15:00–15:30	Chinmay Phutela , Exploring New Horizons in Metal Additive Manufacturing: Innovations and Opportunities
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15:30–16:00	Coffee Break
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Location| Lecture Hall A

Session Chair: Farid Abed

16:00–16:30	Eyad Masad , Advances in the Design of Sustainable and Resilient Infrastructure Materials
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16:30–16:45	Mohammad Ali Khasawneh , Evaluating the Mechanical Performance of Bailey Asphalt Mixtures Incorporating Natural River Sand Through Dynamic Modulus Analysis
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16:45–17:00	Abdulaziz S. Alaboodi , Microstructure and Scratch Resistance Behaviour of Tc4 (Ti-6Al-4V), Al 5053, And Tc4/Al5053 Dissimilar Alloys Produced by Wire Arc Additive Manufacturing
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17:00–17:15	Eduardo Priego , Construction Innovation- Graphene Oxide As The Differentiating Nanoadditive For Concrete and Coatings
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17:15–17:30	Zubeir Allum Saib , Self-Expanding Stents: A Finite Element Analysis of their Interaction with The Wall of Blood Vessels
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17:30–17:45	Prathibha Gowrishankar , Effect of Concrete Compressive Strength on The Bond Performance of Flexural Prisms Externally Strengthened with Cfrp Laminates
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17:45–18:00	Mohammad H Yousuf , 4D Printing of Magnetic Shape Memory Polymer Nanocomposite Through the Incorporation of Lsmo Nanoparticles
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**Gala Dinner Wednesday February 14
(19:30 pm -21:30 pm)**

Day 3: Thursday, February 15, 2024

Location| Lecture Hall A

Session Chair: Maen Alkhader

09:00–10:00	Keynote Lecture 7, Yinmin (Morris) Wang An Overview of Strength and Ductility in Additively Manufactured Metals
10:00–11:00	Keynote Lecture 8, Husam N. Alshareef Mxenes-Based Electronics and Sensors
11:00–11:30	Coffee Break

Session 1

Location| Lecture Hall B

Session Chairs: Rami Haweeleh & Taleb Ibrahim

11:30–12:00	Hussein A. Younus , Catalyst Transformation During Electrochemical Water Oxidation Using Cobalt Oxyhydroxide Under Neutral Conditions
12:00–12:30	Abderrazek El-Kordy , Development and Characterization of a Fe/Zsm-5 Zeolite Membrane Composite, Application to The Filtration of Chromium Hexavalent in Aqueous Media
12:30–12:45	Lubna Jaber , Nitrogen-Doped Activated Carbon: A Sustainable Solution for Efficient Lead Remediation from Water
12:45–13:00	Fatima Abla , Electrochemical Synthesized Polyaniline Coated Gold-Aryl Nanoparticles and Their Efficiency in Dyes Removal
13:00–13:15	Eduardo Priego , Coatings Revolution: Empowering the Construction Industry through the use of Graphene Coatings
13:15–13:30	Torben Wulff , Find the Needle in The Haystack – Find, Extract, and Analyze Your Sample Across Length Scales

Session 2

Location| Senate Room

Session Chairs: Rana Sabouni & Oussama ElKadri

11:30–12:00	Nirpendra Singh , Two-Dimensional (2D) Materials for Thermoelectric Applications
12:00–12:15	Maryam AlQaydi , Mos ₂ Based 2D Material Sensor for Water Pollutant
12:15–12:30	Aya Elgazar , Microwave Synthesized Zeolitic Imidazolate Framework-8 (ZIF-8) As Detector Material of Covid-19 Rna
12:30–12:45	Isra Al Muscatia , Hierarchical Multiscale Modeling of Al-Cu/Cnt Nanocomposite: From Atomistic to Macro-Level Scales
12:45–13:00	Adnan Alashkar , Experiments On Hydrogen Production Enhancement Through Ball-Milled Graphene Deposition on Copper Foam
13:00–13:15	Eman A. Basheir , Potential Applications of Desalination Brine Reject in Co ₂ Capture and Catalytic Conversion
13:15–13:30	Ahmed S. Eltanany , Design And Topological Optimization of a Wheel Upright Using Finite Element Analysis
13:45–15:00	Lunch Break

Poster Session

All posters will be displayed in the Main Building Rotunda throughout the conference. Evaluation of posters will take place on the first two days of the conference.

#	Presenter	Title
P01	Abdalhadi Fayad	Mechanical Characterization Of 3d-Printed Polycarbonate Filament Reinforced with Carbon-Fiber (PC-Cf).
P02	Abdelrahman Allan	Tuning Sers Activities of Pyramidal-Nanowire/Silver Chemosensors for Effective Detection of Multi-Hazardous Pollutants
P03	Abdullah Khalaf	Covalent organic frameworks (COFs) promise for the adsorption of radioactive iodine.
P04	Muhammad Faheem Maqsood	Boosting The Charge Storing Ability of Ni Foam Current Collector Via Femtosecond Laser Treatment
P05	Mourad Smari	Magnetoimpedance Spectroscopy of Phase Separated La _{0.5} Ca _{0.5} MnO ₃ Polycrystalline Manganite
P06	Vadim Ialyshev	Production Of Nanoparticles from Polymer Using Laser Ablation in Water
P07	Najwa Al Bouzieh	DFT Study of As, B, and P Doped Li ₆ SiO ₄ Cl ₂ : Mechanical, Electronic, and Optical Properties for Advanced Optoelectronic Applications
P08	Mohammed Abujayyab	Adsorption of Lithium from Brine Using Keratin Derived from Chicken Feathers
P09	Ahmad Fawad	Dome-Shaped Structures and SERS Unveil High Sensitivity in Melamine Detection
P10	Assem Ahmed	PARTICLE REINFORCEMENT OF FIBERGLASS POLYPROPYLENE USING SILICON CARBIDE PARTICLES
P11	Ahmed Khalil	Improving the Shear Capacity of Reinforced Concrete Beams with Various Web Openings Shapes using Pre-Stressed Fe-SMA Bars: Numerical Investigation
P12	Alimi Lukman	Vapor-Triggered Mechanical Actuation in Polymer Composite Films Based on Crystalline Organic Cages
P13	Anakha Udayan	Well-Like Polymer Films Embedded with Silver-Gold Core-Shell Nanoparticles as Highly Flexible, Biodegradable and Low-Cost Biosensors
P14	Anum Iqbal	Sulfidation Of Nickel Iron Layered Hydroxide for Improved Electrocatalysis
P15	Aseel Salameh	Bond Slip Models for CFRP-To-Concrete Joints at Room Temperature
P16	Asghar Ali	Femtosecond Laser-Based Fabrication of Superhydrophobic Carbides from Waste Plastics
P17	Asghar Ali	Electrochemical Conversion of Carbon Dioxide into Long Chain Hydrocarbons on Femtosecond Laser-Enabled Copper Oxide
P18	Assil Charkaoui	Three-Point Bending Tests of Sandwich Panels with Varying Core Geometry
P19	Ayoub Al Awad	Functionalization Of Silicon Nanowires with Multilayer Plasmonic Metal Nanoparticles for Optical Sensing
P20	B.Eshchanov	Raman Spectroscopy and Molecular Property Investigation of L-Asparagine
P21	Faisal Mustafa	Effect Of Vanadium on Magnetic Ordering and Transport Properties of CoNiCr Medium Entropy Alloys Thin Films

P22	Faisal Mustafa	Surface Magnetotransport Shows Exotic Spin Structures in The Chalcogenides NiS ₂
P23	Ganjaboy Boltaev	High Sensitivity Low-Temperature Ethanol and Acetone Gas Sensors Based on Silver/Titanium Oxide Decorated Laser-Induced Graphene
P24	Mariam Ouda	Ti ₂ C ₃ T _x Composite Membranes for an Electrified Filtration System to Mitigate Microplastic Fouling
P25	Hala Al-Mughanni	Optimization Of Process Parameters for Additive Manufacturing of Polymers
P26	Hamzeh Sabouni	Investigation of the Influence of Bromide Concentrations on the Optical, Morphological, and Stability Properties of Methylammonium based Perovskite Solar Cells
P27	Haya Nassrullah	Unveiling The Potential: Electrically Conductive Nanofiltration Membranes for Enhanced Desalination
P28	Jawad Aldawood	Photodegradation Of Methylene Blue Dye by Persulfate Activation Using PVDF-CuFe LDH Catalytic Membranes
P29	Khawla Ahmed Alhebsi	Designing Of Highly Stable Alloy Anode by Surface and Interface Engineering for Sodium-Ion Batteries
P30	Liliya Bui	A Benchtop X-Ray Diffractometer as A Tool for Thin Film Characterization
P31	Lukman O. Alimi	Vapor-Triggered Mechanical Actuation in Polymer Composite Films Based on Crystalline Organic Cages
P32	Maha Assad	Effect Of Slenderness Ratio on The Behavior of RC Bearing Walls Under Fire Exposure
P33	Mansour Al-Ali	Rapid Photocatalytic Degradation of Textile Dye Contaminants in Water with 2D Graphitic Carbon Nitride (g-C ₃ N ₄)
P34	Maryam M. Mouselly	Innovative Electrolyte Strategy for Enhancing Performance and Stability in Aqueous Zinc-Iodine Batteries
P35	Micheline Bejjani	Nanogenerators
P36	Mohamed Y. Mohamed	Dynamic Testing of Friction Stir Processed Aluminum-5052
P37	Muhammad Asim	The Influence of Femtosecond Laser Shock Peening on Functional Fatigue Properties of TiNbZrSn Biocompatible Shape Memory Alloy
P38	Muhammad Qasim	Ferric Sulfate-Induced Hydrophobization of Lignocellulose Waste for Oil Spill Cleanup
P39	Muhammed Irshad	Mn ₂ O ₃ Decorated with Bimetallic Nanoparticles as Highly Effective Sers and Photocatalytic Systems
P40	Muslim Al-Mahmood	Optimizing Process Parameters for Support-Free Metal 3D Printing of 0° Overhangs in SS-316L
P41	Nikoo Mohajer	Facile Design of Highly Efficient Sers Sensors Using Mask Decorated with Silver Nanoprisms for Environmental Applications
P42	Nour AlSawaftah	The Effect of Lipid Composition on Low-Frequency Ultrasound Release of Trastuzumab Liposomes for Breast Cancer Treatment
P43	Omar Al-Osman	Bending and Shear Response of Perturbated Honeycombs
P44	Piotr Piatkowski	Femtosecond transient absorption study of silicon nanoparticles synthesized by laser ablation of bulk silicon in water
P45	Prathibha Gowrishankar	Effect Of Concrete Compressive Strength on The Bond Performance of Flexural Prisms Externally Strengthened with CFRP Laminates
P46	Naser Qamhie	Ni-Ce ₂ O ₃ Doped Mixed Matrix Flexible Membrane for Chemiresistive Acetone Sensing Applications

P47	Rasha Diab	Tetraphenyl and Triazine-based Porous Polymers for Selective Capture of Carbon Dioxide and Ultrahigh Iodine Uptake
P48	Sara Arif Alzaabi	Accelerating Sodium-Ion Electrode Material Development Through Artificial Intelligence
P49	Serge Bachour	Optimizing Geopolymer Concrete for 3D Printing Using Fiber Reinforcements
P50	Shahbaz Ahmad	The Magnetism of Ultrafast Laser-Structured Holmium
P51	Shahbaz Ahmad	Impact of Femtosecond Laser Surface Structuring on NiCoCr and NiCoV Medium Entropy Alloy Systems for an Overall Electrochemical Water Splitting
P52	Tahir Nawaz	Mechanical, Electrochemical, and Physical Properties of CoNiCrFe Alloy
P53	Vinod Paul	A Cytotoxicity Study of Curcumin Encapsulated Ultrasound Sensitive Liposome on Breast Cancer Cell Line
P54	Waad Abuwatfa	In Vitro Performance of Human Serum Albumin Targeted Liposomes with Ultrasound Triggering
P55	Waqas Ahmad	Environmental Risk Assessment of Heavy Metals from Co-Pyrolysis of Salicornia and Date Palm (Phoenix Dactylifera) Biochar Generated Through Pyrolysis
P56	Wedad Alaaeldin Yehia	Quantum Potts Chain in Alternating Field
P57	Yahya Sheikh	Passive Radiative Cooling Solution
P58	Yazan Ibrahim	Innovative 3d Printing for Enhanced Water Filtration: Tailoring Surface Patterns of Membranes to Minimize Organic Fouling and Maximize Permeability
P59	Zakia Kadid	Ecofriendly Synthesis of Ternary Nanocomposite (Fe ₃ O ₄ /SiO ₂ /Ag) from Nerium Oleander Leaves for Catalytic Degradation of Environmental Pollutants
P60	Zeinah Elnassar	Confinement Of Compression Elements with FRCM Systems: A Promising Alternative to FRP Confinement
P61	Xiangming Xu	GaN Epitaxy with the support of large-area 2D MoN
P62	Fatima Alzubaidi	Effects Of Dispensing Parameters of Antisolvents on The Formation of CsFapbi ₃ Perovskite Films
P63	Jihad Rishmany	Integration of Finite Element Analysis and MBD Analysis for Different Component of a Racing Car Con
P64	Chawki Lahoud	Simulation, Economic and Environmental Analysis of a Mobilized Thermal Energy Storage System for Mediterranean Climate Buildings: Case Study
P65	Khaled Kadri	Artificial intelligence-assisted investigation of the effects of process parameters on the performance of thermoplastic laminates
P66	Nour S. Abdelrahman	Mxene-Based Nanocomposite Adsorbent For Selective Lithium-Ion Separation
P67	Monaf A. Alarab	Performance of Cement Mortar Mixtures containing Fine Aggregate and Admixtures
P68	Eyad Hany Nasr	Effect of Zycotherm Nano-based Warm Mix Additive on the Properties of Asphalt Binders in the UAE
P69	Arhum Hasan	Role Of Diffusion Kinetics In Defining The Temperature Ranges For Activation Of Dynamic Strain Aging In Commercially Pure Niobium And Vanadium Metals : A Constitutive And Numerical Modeling Approach

P70	Dana Kadadou	Synergistic Advancements of Pda-Modified Ce-Mof For Enhanced Antifouling Performance And Selective Separation In Pes Ultrafiltration Membranes
P71	Abdelaziz Younes	Experimental Investigation Of The Flexural Behavior Of Concrete Confined With Welded Wire Reinforcement
P72	Amira Mohammed Ali	Optimizing Atmospheric Water Harvesting through the Utilization of Alginate-Silica Hydrogel and Carbon Nanotubes Composite for Enhanced Solar-driven Water Capture
P73	Hind Alharmoodi	Investigation Of NWC And Structural LWC Using Local Material In The UAE Exposed To Elevated Temperatures
P74	Sumaita Rahman	The Use Of Cetylpyridinium Chloride- Modified Zeolite With Alginate Composite As A Novel Approach To Dental Hygiene Formulation
P75	Kevin Thomas	Shaping The Future: Unveiling The Cost-Efficiency Battle Between Wire Bending Dies And Wire Bending Jig