

10<sup>th</sup> International Conference on

# Materials Science & Engineering

Day 1 - October 17, 2024

Meeting Hall: Orchid 1/3

08:00-08:40 Registrations

08:40-09:00 Introduction

## Keynote Presentations

09:00-09:40 Title: Computer-Assisted Planning, Manufacturing and Surgical Implantation of an Individualized 3D Printed Titanium Cage for Cervical Fusion

**Uwe Spetzger, Karlsruhe Institute of Technology, Germany**

09:40-10:20 Title: Imaging Strain Tensor of Wavy Silicon Nanomembrane using Third-Harmonic Generation Microscopy

**Hyunmin Kim, Daegu Gyeongbuk Institute of Science & Technology (DGIST), South Korea**

Networking & Refreshments @ Orchid Foyer (10:20-10:40)

## Oral Presentations

Session Chair **Alaaldin M. Alkilany, Qatar University, Qatar**

Session Chair **Kenji Sorimachi, Dokkyo Medical University, Japan**

## Sessions:

Functional Materials | 3D printed implants and organs | 3D printing & Additive manufacturing | Materials science and Engineering | Environmental and Green Materials | Analytical Chemistry | Composite, Coating and Ceramic Materials | Radiologic Technology | Nanostructures and Nanofilms | Chemical Engineering | Bioceramic materials, Ceramic composites, Bone grafts, and Biodegradable ceramics | Electromagnetic-Wave Absorption | Soft Matter & Nanoscale Materials | Mechanics of Materials and Structures | Biomaterials, Biomechanics & Biosensors | NanoMaterials and Nanotechnology | Materials Chemistry | Electronic, Optical and Magnetic Materials | Artificial intelligence & Robotics

10:40- 11:05 Title: Thermal Characteristics of Closed Porous Aluminum Foams Infiltrated with Phase Change Material (PCM)

**Rico Schmerler, Fraunhofer Institute for Machine Tools and Forming Technology IWU, Germany**

11:05 - 11:30 Title: Tailoring Composite Materials for Enhanced EM Pollution Mitigation: The Role of Carbon Black and Cobalt

**Yi Jen Huang, National Chin-Yi University of Technology, Taiwan**

11:30- 11:55 Title: Development and Evaluation of Cost-Effective Silver Nanoparticle-Infused Pharmaceutical Hydrogels for Antimicrobial Applications

**Alaaldin M. Alkilany, Qatar University, Qatar**

11:55- 12:20 Title: Effect of Zinc Oxide (ZnO) Dopant on the Physical and Electrical Properties Potassium Sodium Niobate Thin Films

**Mohd Warikh Abd Rashid, Universiti Teknikal Malaysia Melaka, Malaysia**

12:20 - 12:45 Title: Preparation and Application of New Materials Based on Natural Deep Eutectic Solvents for Extraction Environmental Pollutants

**Justyna Werner, Poznan University of Technology, Poland**

10<sup>th</sup> International Conference on

# Materials Science & Engineering

12.45 - 13.10 Title: Toward a Collaborative Platform to Foster Material Circularity of Electrical and Electronic Equipment

**Rinaldo Garziera, University of Parma, Italy**

Group Photo (13:10-13:20)

Lunch @ Restaurant Cafe Ceres (13:20-14:30)

Keynote Presentation

14.30 - 15.10 Title: Novel Direct Air Capture (DAC) for CO<sub>2</sub> Production

**Kenji Sorimachi, Dokkyo Medical University, Japan**

Oral Presentations

15.10 - 15.35 Title: FPGA-Based Acceleration of Reinforcement Learning

**Khawla Saif Almazrouei, Autonomous Robotics Research Center (ARRC), Technology Innovation Institute (TII), UAE**

15.35 - 16.00 Title: The Development of Radiation Shielding Materials Involves Incorporating Lanthanum Oxide Dopants Into Glass

**Siriprapa Kaewjaeng, Chiang Mai University, Thailand**

Networking & Refreshments @ Orchid Foyer (16:00-16:30)

Poster Presentations (16.30 onwards)

Poster Judge **Ioannis Zuburtikudis, Abu Dhabi University, UAE**

Poster 001 Title: Preparation of Nanostructured Copper Oxide by Means of Wet Corrosion Process (WCP) and their Application to Photocatalysis

**Yuta Igawa, Shibaura Institute of Technology, Japan**

Poster 002 Title: Degradation of Sulfapyridine by Ozone-Based Oxidation

**Chung-Hsin Wu, National Kaohsiung University of Science and Technology, Taiwan**

Poster 003 Title: Quantifying Bioceramic Bone Graft Degradation Processes in a Biochip

**Man-Ping Chang, National United University, Taiwan**

Poster 004 Title: Enhanced Electromagnetic-Wave Absorption Properties of Photosensitivity Epoxy/ Nano Cobalt Buckyball Meta Structure Composites

**Yu-Cheng Kuo, National Chin-Yi University of Technology, Taiwan**

Poster 005 Title: Molecular Mechanism of Viscoelastic Creep Deformation of Polyelectrolyte Elastomers

**Mohammad Reza Adibeig, Sustech university, China**

Poster 006 Title: Calibration of Visco-Hyperelastic Materials Using Cyclic Loading

**Abuzar Es'haghi Oskui, Sustech university, China**

Poster 007 Title: Preparation of Porous Degradable Bone Substitutes Using Calcium Sulfate/ Hydroxyapatite

**Zheng-Kai Fu, National United University, Taiwan**

10<sup>th</sup> International Conference on

# Materials Science & Engineering

Poster 008	Title: Characterization of Amino-Terminated Self-Assembled Monolayer on Cu/Porous Low-K Dielectrics <b>Yi Lung Cheng, National Chi-Nan University , Taiwan</b>
Poster 009	Title: Enhanced NIR Photodetection and Memory Retention in Organic Semiconductor Devices Using DPP-DTT And IEICO-4F <b>Min Ju Jung, Pukyong National University, South Korea</b>
Poster 010	Title: Formation of Carbon Nanomaterials-Based Hybrids and their Application for Electromagnetic Wave Shielding Effectiveness <b>Sung-Hoon Kim, Silla University, South Korea</b>
Poster 011	Title: Preparation of Effective Heavy Metal Sorbents from Sodium Polysulfide and Epichlorohydrin Production Wastes <b>Yerlan Abdykalykov Nurzhanuly, D.V. Sokolsky Institute of Fuel, Catalysis and Electrochemistry, Kazakhstan</b>
Poster 012	Title: Adsorption Characteristics of A Sulfur-Containing Oligomer Based on Chlorex <b>Arailym Nalibayeva, D.V. Sokolsky Institute of Fuel, Catalysis and Electrochemistry, Kazakhstan</b>

**Day 1 Concludes followed by Certificate Distribution**

10<sup>th</sup> International Conference on

# Materials Science & Engineering

Day 2- October 18 ,2024

Meeting Hall: Orchid 1/3

Keynote Presentation

10:00-10:40 Title: Investigation of Heat Treatment on Dry Sliding Wear Behaviour of Thixoformed Gnps-A356 Matrix Composites  
**Mohd Shukor Salleh, Universiti Teknikal Malaysia Melaka, Malaysia**

Oral Presentations

Session Chair **Ioannis Zuburtikudis, Abu Dhabi University, UAE**

**Sessions:** Environmental and Green Materials | Nano medicine | Energy Materials and Sustainability | Encapsulation | Polymeric nanofiber| Nanofiber composite | Materials Science and Engineering | Computational Materials Science | Materials Chemistry | Polymers & Biopolymers | Surface Science and Engineering | Semiconductors | Nanostructures and Nanofilms | Biomedical Engineering

10:40-11:05 Title: Ambient Air-Processed CsPbI<sub>3</sub>-Based Perovskite Solar Cell Via Semi-Sputtering Deposition and Numerical Studies of Cs<sub>3</sub>Sb<sub>2</sub>I<sub>9</sub>-Based Perovskite Solar Cell  
**Hasina Huq, The University of Texas Rio Grande Valley, USA**

Networking & Refreshments @ Orchid Foyer(11.05 - 11.25)

11:25-11:50 Title: The Influence of Cold Spray Parameters and Feedstock Powder Sizes on Corrosion Behavior of Cold Sprayed Inconel®625 Deposits  
**Farrokh Taherkhani, Helmut-Schmidt-University/ University of the Federal Armed Forces Hamburg, Germany**

11.50 - 12.15 Title: Synthesis of the Targeted Metal-Organic Framework as a Novel Strategy for Improving Antitumor Therapeutic Efficacy  
**Xiao Fu, Shandong First Medical University, China**

12.15- 12.40 Title: Dynamic Testing of Self-Healing Asphalt Concrete with Encapsulated Modifier  
**Inozemtsev Sergei, Moscow State University of Civil Engineering (National Research University), Russia**

12.40 - 13.05 Title: Predicting Flow-Related Dynamic Recrystallization Parameters and Grain Size Evolution in Hot Forging of SCR420HB using a Direct Method  
**Mohd Kaswande Razali, Metal Forming Research Corporation, South Korea**

13.05 - 13.30 Title: Carbon Quantum Dots from Waste Materials for Metal Ion Sensing  
**Nigamuni Binu Parlindie Senanayake, Swinburne University of Technology, Australia**

Lunch @ Restaurant Cafe Ceres (13:30 -14:30)

14.30 - 14.55 Title: Electrospun Polycaprolactone (PCL) Nanofibers Containing Endophytic Fungi Metabolite-Based Antibacterial Additives from Australian Native Plants for Wound Dressing Applications  
**Meysam Firoozbahr, Swinburne University of Technology, Australia**

10<sup>th</sup> International Conference on

# Materials Science & Engineering

14.55 - 15.20	Title: Challenges and Solutions Regarding the Fatigue Behaviour of Thermal Direct Joints Made of Titanium and CF-PAEK for Aerospace Applications <b>Benjamin Förster, Fraunhofer-Institute for Material and Beam Technology IWS, Germany</b>
15.20 - 15.45	Title: Polymer Nanocomposite Materials for Application X: The Role of Nanoscale Dimension <b>Ioannis Zuburtikudis, Abu Dhabi University, UAE</b>
15.45 - 16.10	Title: TFN Nanofiltration Membranes Containing GO Nanoparticles with Enhanced Water Selectivity and Anti-Fouling Properties <b>Ioannis Zuburtikudis, Abu Dhabi University, UAE</b>
<b>Networking &amp; Refreshments @ Orchid Foyer(16.10 - 16.30)</b>	
16.30- 16.55	Title: Machine Learning Approaches to Accelerate the Computation of Finite Temperature Properties of Solid Materials <b>Pinku Nath, Hokkaido University, Japan</b>
<b>Day 2 Concludes followed by Certificate Distribution</b>	

# ***Virtual Program***

10<sup>th</sup> International Conference on**Materials Science & Engineering**

Day 1 - October 17, 2023 BST

10.00 - 10.10 Introduction

## Oral Presentations

10.10 - 10.35 Title: Investigation the Effect of Combined Quenching and Deep Cryogenic Treatment on Wear Behavior of Martensitic Ductile Irons

**Salome Gvazava, Georgian Technical University, Georgia**

10.35 - 11.00 Title: Extraction and Characterization of Cellulose Nano Crystals from Durian Peel Waste Through Oxidation Method

**Henny Pratiwi, Universitas Gadjah Mada, Indonesia**

11.00 - 11.25 Title: Rapid and Highly Efficient Removal of Aqueous Perfluorooctanoic Acid Using Deep Eutectic Solvents for Sustainable Water Remediation

**Sana Eid, Khalifa University, United Arab Emirates**

11.25- 11.50 Title: Real-Time Monitoring of Cardiovascular Complications Using Pyroelectric Nanogenerators

**Mariana Rocha, University of Porto, Portugal**

11.50- 12.15 Title: Highly Sensitive LSPR Gas Sensors Using Scalable PVD-Fabricated Plasmonic Nanocomposites

**Nuno Figueiredo University of Coimbra, Portugal**

12.15 - 12.40 Title: Optimizing CZTS Solar Cells: Enhancing Efficiency with rGO and TiO<sub>2</sub> for Sustainable Energy Solutions

**Fatihi Dounia, University of Casablanca, Morocco**

12.40 -13.05 Title: Investigation of the Electrical and Magnetic Behavior of Bi<sub>1.34</sub>Fe<sub>0.66</sub>Nb<sub>1.34</sub>O<sub>6.35</sub> Synthesized via Sol-Gel Technique

**Susana Devesa, University of Coimbra, Portugal**

## Lunch Break (13.05 -13.30)

13.30 -13.55 Title: Influence of Mg Doping on the Structural and Mechanical Properties of MOCVDGrown GaN Thin Films

**Zohra Benzarti, University of Coimbra, Portugal**

13.55- 14.20 Title: Electrospun Polymeric Membranes for Tissue Engineering and Cell Growth

**Maria Helena Ambrosio Zanin, IPT - Instituto de Pesquisas Tecnologicas, Brazil**

14.20 - 14.45 Title: SpineSync: Enabling Self-Tracking of Progression of Parkinson's-Induced Kyphosis by Leveraging an IMU-Embedded Wearable Device

**Rohan Ramachandran, University School of Nashville, USA**

## Poster Presentations

14.45 -15.00 Title: High-Performance Piezo-Responsive Membrane for Efficient Dye Degradation and Sustainable Water Treatment

**Indrajit Mondal, Jadavpur University, India**

15.00 - 15.15 Title: Piezo-Driven Antibacterial Chitosan/ ZrO<sub>2</sub> Membrane for Rapid and Reusable Coliform Bacterial Disinfection

**Piyali Halder, Jadavpur University, India**

10<sup>th</sup> International Conference on

# Materials Science & Engineering

## Video Presentation

15.15 -15.30

Title: Viscoelastic Future in Chiral Ferroelectric and Antiferroelectric Liquid Crystals

**Dorota Dardas, Polish Academy of Sciences, Poland**