

**Monday, October 03****Day -1**

## Introduction and Opening Remarks

### Keynote talks

**Materials Design and Discovery for Future Batteries****Ying Shirley Meng**, The University of Chicago, USA**An Era of Opportunity: The Top 5 Post-pandemic Growth Sectors in Advanced Materials****Michael Silver**, American Elements, USA**Heterostructured Material: New Science Produces Superior Properties****Yuntian Zhu**, City University of Hong Kong, Hong Kong**A Close Look to Single Atom Metal Catalysts****Jordi Arbiol**, Catalan Institute of Nanoscience & Nanotechnology, Spain**2D Materials for Soft 3D Smart Structures****Ester Vazquez**, Institute for Applied Scientific Research (IRICA), Spain

## Session: Future Materials: Characterization, Theory and Design

### Featured presentations

**Operando DRIFT for Surface Reactivity Studies on Chemiresistive Gas Sensor****Fabbri Barbara**, University of Ferrara, Italy**Computation and Advanced Manufacturing Towards De Novo Architected Materials****Flavia Libonati**, University of Genoa, Italy**High Entropy Defect Formation for Fast Hydride Conduction****Albert Iskandarov**, Yokohama City University, Japan**Stress Avalanches of Polyethylene Terephthalate Fiber Reinforced Concrete Beams During Flexure****Zhuang Liu**, Applied Materials, USA**Large Transverse and Longitudinal Magneto-thermoelectric Effect in Polycrystalline Nodal-line Semimetal Mg<sub>3</sub>Bi<sub>2</sub>****Weishu Liu**, Southern University of Science and Technology, China**To Be Announced****Antonio Zuurro**, Sapienza University of Rome, Italy**Materials Beyond Copper for CO<sub>2</sub> Reduction Reaction****Samira Siahrostami**, University of Calgary, Canada**A Model of the Elastic Energy of a Bifurcated Wafer: A Benchmark of the Analytical Solution vs. the ANSYS Finite Element Analysis****Vincenzo Vinciguerra**, STMicroelectronics, Italy

### **Creation and Mechanical Simulation of Graded Gyroid Structures**

**Leonie Wallat**, Institute for Digital Materials Research, Germany

### **To Be Announced**

**Natsuki Kanda**, The University of Tokyo, Japan

### **Advantages of Low-voltage Scanning Electron Microscopy in Optimizing the Properties of the Polymer-nanoclay Composites**

**Alaa Madhloom Almansoori**, Southern Technical University, Iraq

## **Young researchers presentation**

### **FIB Lamellae Preparation for Atomic-resolution STEM imaging from Ion-beam-sensitive Topological Insulator Crystals**

**Abdulhakim Bake**, University of Wollongong, Australia

## **Posters**

FMN-1 **Using Anionic Surfactants to Study Removal of Alkanes from Dolomite and Graphite Surfaces: A Molecular Dynamics Study**

**Hector Dominguez**, Universidad Nacional Autonoma de Mexico, Mexico

FMN-2 **To Be Announced**

**Antonio Pedro Novaes de Oliveira**, Federal University of Santa Catarina, Brazil

FMN-3 **Influence of Dry Etching Plasma Treatment Energy on the Tensile Strength and Surface Appearance of Bamboo Fibers**

**Sergio Mosquera Gomez**, Universidad Nacional de Colombia, Colombia

## **More presentations to be updated**

## **Session: Future Materials for Energy and Sustainability**

## **Featured presentations**

### **High-capacity Mixed Cu-Fe Sulfides: Towards Sustainable Batteries with Prussian Blue Derivatives**

**Samantha Husmann**, INM - Leibniz Institute for New Materials, Germany

### **Enhanced Light-to-hydrogen Conversion Using Plasmon Core-shell Photocatalysts**

**Vandung Dao**, Korea University, South Korea

### **Enhanced Electrochemical Performance of V<sub>2</sub>O<sub>5</sub> Prepared by Spray Drying Process as Cathode Material for Zinc-ion Batteries**

**Edith Roex**, University of Liege, Belgium

### **Metal Chalcogenide Thin Films by Chemical Methods for Photoelectrochemical Applications**

**Nini Rose Mathews**, UNAM, Mexico

### **Waste Tire-derived Carbon Obtained from Green Hydrothermal Route as Anode Material For Alkali-ion Batteries**

**Loris Berardo**, University of Liege, Belgium

### **Recycling Real-world Waste Plastics Via Thermal Catalytic and Plasma Processes for Co-production of Hydrogen and High Value-added Carbon Products**

**Guoxing Chen**, Fraunhofer IWKS, Germany

### **Graphene Oxide from Graphite of Spent Batteries as Support of Nanocatalysts for Fuel Hydrogen Production**

**Renata Pereira Lopes**, Universidade Federal de Vicosa, Brazil

**Dual-atomic Pd and Ru-Implanted MoS<sub>2</sub> Nanosheets for Synergistically Accelerating Solar-assisted Alkaline Water Electrolysis**

**Duy thanh tran**, Jeonbuk National University, Republic of Korea

**Octahedral Cluster Compounds: A New Promising Member of the Restricted Family of Ambipolar Materials for Sun Light Energy Conversion**

**Adele Renaud**, University of Rennes 1, France

**Influence of Silicon on the Calendering Behavior and Properties of Anodes for Lithium-Ion Batteries**

**Sören Scheffler**, Technische Universität Braunschweig, Germany

**Photodoped ITO Nanocrystals Unlock Multiple Electron Transfer**

**Andrea Rubino**, Istituto Italiano di Tecnologia, Italy

**Direct Room Temperature Synthesis of  $\alpha$ -CsPbI<sub>3</sub> Perovskite Nanocubes – Implications for Photovoltaic and Electronics Applications**

**Hei Ming Lai**, The Chinese University of Hong Kong, Hong Kong

### Young researchers presentations

**Selective Borohydride Oxidation Reaction on Ni Catalyst at the Anode of Direct Borohydride Fuel cells**

**Youngdon Ko**, École Polytechnique Fédérale de Lausanne, Switzerland

**Hollow Urchin-like NiCo<sub>2</sub>O<sub>4</sub> as Oxygen Evolution Reaction Catalyst for Anion Exchange Membrane Water Electrolyzer**

**Charles Lois Flores**, University of the Philippines, Philippines

**High-Voltage Stabilization of O<sub>3</sub>-Type Layered Oxide for Sodium-Ion Batteries by Simultaneous Tin Dual Modification**

**Tengfei Song**, University of Birmingham, United Kingdom

**Cobalt Molybdenum Sulfide as Alternative Cathode for Anion Exchange Membrane Water Electrolyzers**

**C.V.M. Inocêncio**, Université de Poitiers, France

**NiCo<sub>2</sub>Te<sub>4</sub> Electrodes for High Performance Supercapacitor Devices in Comparison with NiCo<sub>2</sub>X<sub>4</sub> (X= O, S, Se) Electrodes**

**Aparna M L**, Indian Institute of Technology Madras, India

**Development of Flexible, Self-Powered Gas Sensor Based on Poly(vinylidene fluoride)/MoS<sub>2</sub>-BaTiO<sub>3</sub> Nanocomposites**

**E. C. Elhadrami**, Qatar University, Qatar

**The Role of Interface of CuO<sub>x</sub>-TiO<sub>2</sub> Hybrid Metal Oxide in Enhancement of Oxygen Reduction Reaction Performance**

**Debashis Mahato**, Indian Institute of Technology Madras, India

**Novel Photoswitchable and Hydrophobic Thermoplastic Polyurethane for Potential Energy Applications**

**Gunanga Jyoti Gogoi**, Queen's University Belfast, United Kingdom

**High Concentration Electrolytes for Wider Operational Voltage Aqueous Rechargeable Na-ion/S Battery**

**Sukhjot Kaur**, Indian Institute of Technology Ropar, India

**Clean Water Generation by Utilizing the Photothermal Conversion Properties of Magnetite and Carbon Black Found in E-waste**

**Md. Nahian Al Subri Ivan**, The Hong Kong Polytechnic University, Hong Kong

## Posters

- FMN-4 **Nanostructured Gadolinia Doped Ceria Ceramics for Low-temperature Solid Oxide Fuel Cells Application**  
**Brigita Abakevičienė**, Kaunas University of Technology, Lithuania
- FMN-5 **Colloidal Synthesis of NaSbS<sub>2</sub> Based Mixed Ionic-electronic Conductor: The Role of Temperature, Ligand and Precursor**  
**Maria Zubair**, University of Limerick, Ireland
- FMN-6 **Controlling the Structure of Metal and Polymer Foams via Advanced Templating Approaches**  
**Thomas Moore**, University of Leeds, United Kingdom
- FMN-7 **Single Atom Platinum-implanted 2D MoAl<sub>1-x</sub>B MBene for High-performance Hydrogen Evolution Reaction**  
**Seokju Park**, Jeonbuk National University, Republic of Korea
- FMN-8 **Manufacture and Characterization of Benzoxazine Resin with 5% v/v açai Biomass Composites**  
**Cirlene Fourquet Bandeira**, UniFoa - Volta Redonda University Center, Brazil
- FMN-9 **Hierarchical Three-dimensional Fe Atoms-incorporated MXene/Graphene Hydrogel Networks for Efficient Overall Water-splitting**  
**Thanh Hai Nguyen**, Jeonbuk National University, Republic of Korea

**More presentations to be updated**

## Keynote talks

## To Be Announced

**Rodrigo Martins**, European Academy of Sciences, Portugal

**Hastalex, A Functionalised Graphene Based Nanocomposite for Biomedical and Industrial Application**

**Alexander Seifalian**, NanoRegMed Ltd, Nanoloom Ltd, USA

## To Be Announced

**Lidong Chen**, Shanghai Institute of Ceramics, China

**Chemically Modified Graphene for Real-world Applications**

**Sang Ouk Kim**, Korea Advanced Institute of Science and Technology, South Korea

## Session: Nanomaterials

## Featured presentations

**Superficial Nanograins Obtained by Cold Rolling with Rough Rolls and Annealing. Modeling and Experimental Results**

**Carlos Camurri**, University of Concepcion, Chile

**Designing TiAl-based Nanocomposite Through Semi-coherent Nanoprecipitates**

**Yusheng Zhang**, Xi'an Rare Metal Materials Institute Co. Ltd, China

**Reaction Conditions and Aqueous Washing Process: Implications for Graphene Oxide Production**

**Camila Mora Vilches**, University of Concepcion, Chile

**Ultrathin Membranes and 3D Nanoarchitectures of Hollow Tetrapodal Structures based on GaN and  $\beta$ -Ga<sub>2</sub>O<sub>3</sub> for Multifunctional Application**

**Ion Tiginyanu**, Technical University of Moldova, Moldova

## Young researchers presentation

**Nanostructured (Sn,Ti,Nb)<sub>x</sub>O<sub>2</sub> Solid Solution for Gas Sensing Applications**

**Elena Spagnoli**, University of Ferrara, Italy

**Multifunctional Starch/Graphene Oxide/Fe<sub>3</sub>O<sub>4</sub> Nanocomposites with Multiple Stimuli Responsive Properties**

**Hiran Chathuranga**, Queensland University of Technology, Australia

## Posters

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| FMN-9  | <p><b>Effects of Morphology, Magnetism and Composition on the Magnetic Fluid Hyperthermia Response of Co<sub>x</sub>Fe<sub>3-x</sub>O<sub>4</sub> Nanoparticles for Use as A Drug Carrier</b><br/> <b>Adriele Aparecida de Almeida</b>, UNICAMP, Brazil</p> |
| FMN-10 | <p><b>Reversible Mono- and Dual-metal Ion Intercalation into Alkali Transition Metal Sulfates in Different Electrolytes</b><br/> <b>Delyana Manasieva</b>, Bulgarian Academy of Sciences, Bulgaria</p>  |
| FMN-11 | <p><b>The Effect of Silanized Bentonite on Rheological Behavior of Polymer Blends</b><br/> <b>Zuzana Mičicová</b>, Alexander Dubček University of Trenčín, Slovak Republic</p>  |
| FMN-12 | <p><b>Synthesis of Er Doped Gold Nanoparticles by Laser Ablation in Water: A Fundamental Study of the Exchange Interaction Between Localized Magnetic Moments and Conduction-electrons</b><br/> <b>Fernando Fabris</b>, UNICAMP, Brazil</p>                 |

- FMN-13 **Surface Enhancement of Polyethylene Naphthalate by Gold Nanostructures**  
Jana Pryjmakova, UCT Prague, Czech Republic
- FMN-14 **Electroconductive Coatings Based on Poly(L-DOPA)-functionalized Graphene**  
Anna Blacha, Silesian University of Technology, Poland
- FMN-15 **Influence of Filler on Structural and Surface Properties of Elastomeric Composites**  
Róbert Janík, Alexander Dubček University of Trenčín, Slovak Republic
- FMN-16 **Structural Modeling of Layered Na<sub>2</sub>/3Ni<sub>1</sub>/2Mn<sub>1</sub>/2O<sub>2</sub> Oxide via Selective Substitution for Ni<sup>3+</sup> with Al<sup>3+</sup> ions**  
Mariya Kalapsazova, Bulgarian Academy of Sciences, Bulgaria
- FMN-17 **Formation of Quaternary and Pentanary CuZnGeS<sub>4</sub>(CZGS) Nanorods and 1-D CuZnSnGeS<sub>4</sub> (CZTGS) and Using Colloidal Routes with In-situ Partial Cation-exchange Mechanism**  
Mohini Mishra, University of Limerick, Ireland
- FMN-18 **Effect of Different Types of Plasticizers on the Properties of Elastomeric Blends Filled with Biopolymer**  
Juliána Vršková, Alexander Dubček University of Trenčín, Slovak Republic

More presentations to be updated

## Session: Materials for Electronics, Optics, and Photonics

### Featured presentations

#### Thin Films Manifesting Localized Surface Plasmon Resonances, for Sensing and Bio-applications

Joel Borges, University of Minho, Portugal

#### Sustainable Synthesis of Highly Stable Copper Particles with Low-temperature Sintering Capability

Jessica Pereira, University of Nottingham, United Kingdom

#### Resistive Switching in Prussian Blue Analog Films

Christian K. Muller, University of Applied Sciences Zwickau, Germany

#### The Rise to 2D Nanoelectronics

Huamin Li, University at Buffalo, USA

#### An Environmentally Friendly Methodology to Fabricate Light Emitting Germanium Microbridges

Cicek Boztug, TED University, Turkey

#### Recent Progress of Solution-processed Copper-based p-Channel Thin Film Transistors

Hala. A. Al-Jawhari, King Abdulaziz University, Saudi Arabia

#### Electrically Switchable Intervalley Excitons with Strong Two-phonon Scattering in Bilayer WSe<sub>2</sub>

Mashaal M. Altairy, University of Jeddah, Saudi Arabia

#### Improved Transparency and Electron Lifetime of Quasi-solid State Iodine-free DSSCs

Laura Maria Manceri, University of Liege, Belgium

#### Asymmetry at Ferromagnet/Antiferromagnet Interface: Route Toward an Advanced Spin-orbit Torque Device

Chao-Yao Yang, National Yang Ming Chiao Tung University, Taiwan

#### Effect of Thermal Boundary Resistance on Thermal Management of Interconnects in Logic Chips

Tianzhuo Zhan, Toyo University, Japan

**Photocontrol of Structural Colors in Self-organized Helical Superstructures**

**Lang Qin**, Fudan University, China

**Young researchers presentation**

**Intrinsic Magnetism in van Der Waals Semiconductors in Their 2D Limit**

**Ellenor Geraffy**, Technion, Israel Institute of Technology, Israel

**Posters**

FMN-19

**Synthesis and Characteristics of ZnGa<sub>2</sub>O<sub>4</sub> Polycrystalline Films by Sol-Gel Method Using Rapid Heating**

**Satoshi Ishii**, Tokyo Denki University, Japan

**More presentations to be updated**

## Keynote talks

**Graphene Coatings: A Disruptive Approach to Remarkable Corrosion Resistance****Raman Singh**, Monash University, Australia**Design, Preparation and Characterization of Functional Nanomaterials Based on Energy-resolved Distribution of Electron Traps****Bunsho Ohtani**, Hokkaido University, Japan**Engineering at the Nanoscale: A Strategy for Developing High Performance Functional Materials****Sabu Thomas**, Mahatma Gandhi University, India

## Session: Bio and Soft Materials: Biomedical, Medicine and Other Applications

## Featured presentations

**The Impact of Cooperative Motion in Disordered Systems: Primary Relaxation in (extremely) Viscous “Liquids” and Thermal Treatments in Implanted Semiconductors****Marco Pieruccini**, IMM-National Research Council, Italy**Using Polystyrene Beads as Sacrificial Template to Produce Porous Mannitol Particles by A Spray-drying Process for Pharmaceutical Applications****Morgane Valentin**, University of Liege, Belgium**Silica Nanoparticles as Drug and siRNA Delivery System****Gözde Ultav**, Inonu University, Turkey**The Influence of Process Parameters on The Selected Properties of Ti6Al7Nb Alloy Surface Structured in Fluorine-based Plasma****Anna Jędrzejczak**, Lodz University of Technology, Poland

## Young researchers presentation

**Development of Curcumin-loaded Niosomes as A Drug Delivery System****Monireh Esmaeili Rad**, Sabanci University, Turkey

## Posters

FMN-20 **Generation and Characterization of Core-Shell Microparticle Containing Water Core for Biomedical Purposes****Fariba Malekpour Galogahi**, Griffith University, AustraliaFMN-21 **Development of Glioblastoma-homing and H<sub>2</sub>O<sub>2</sub>-Responsive Therapeutic Prodrug****YoonKyung Park**, Kyung Hee University, Republic of KoreaFMN-22 **Porous Silicon Surface Functionalization via Microwave-induced Si-S Bond Formation****Hyeji Um**, Kyung Hee University, Republic of Korea

More presentations to be updated

## Session: Structural and Functional Materials

## Featured Presentations

**Surface Induced Anti-foaming****Doris Vollmer**, Max Planck Institute for Polymer Research, Germany



**Use of Polymer Micropillar Arrays as Templates for Bioanalytical Assays**

**Matthias Geissler**, National Research Council Canada, Canada

**Influence of the Laser Metal Deposition Process Parameters on the Structural Quality of a Cu-based Coating on Steel – A Preliminary Analysis**

**Federico Mazzucato**, University of Applied Science and Arts of Southern Switzerland, Switzerland

**Near-infrared-based Sensitive Detection of Nucleic Acids with Upconversion Nanoparticles**

**Laura Frances-Soriano**, University of Valencia, Spain

**Young researchers presentation**

**Revealing Oxidation Mechanisms of TiAlN Coatings Inside Oxygen-saturated Lead-Bismuth Eutectic**

**Essam Serag**, University of Namur, Belgium

**Ranking of Factors Influencing the Construction Waste Generation in Construction Companies of a Defined Size**

**Marta Bialko**, University of Sharjah, United Arab Emirates

**Posters**

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| FMN-23 | <b>Functional Properties of Transparent Epoxy-based Nanocomposite Coatings</b><br><b>Bartłomiej Przybyszewski</b> , Warsaw University of Technology, Poland                            |
| FMN-24 | <b>Effect of Chemical Modification of Transparent Silicone-epoxy Coatings on Their Hydrophobic Properties</b><br><b>Katarzyna Zietkowska</b> , Warsaw University of Technology, Poland |

**More presentations to be updated**

*\*Please note the schedule is tentative and subjected to change*

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