

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

## Biomaterials & Biodevices

Day-1 : November 16, 2023

Meeting Hall: RIPA/TRASTEVERE

08:00 - 08:45 Registrations

08:45 - 09:00 Introduction

### Keynote Presentations

09:00 - 09:40 First-Principles Molecular Dynamics and its Application to Amorphous Materials  
**Carlo Massobrio**, Université de Strasbourg, France

09:40 - 10:20 Bio-Based Biodegradable Polymers as a Tool to Connect Advanced Applications with Sustainable Development  
**Paola Fabbri**, University of Bologna, Italy

### Oral Presentations

Session Chair: **Walter Raniero**, LNL-INFN Legnaro, Italy

Session Chair: **Kadem Al-Lamee**, Arterius Limited, United Kingdom

### Sessions:

Fundamental materials science | Advanced Functional Materials | Polymeric materials | Functional Nanomaterials and Nanotechnology | Functional Materials for Energy | Harvesting, storage, Solar Fuels and Renewable Energy | Functional Nanomaterials and Nanotechnology | Micro or Nano Materials | Advanced materials and Applications | Functional Materials | Synthesis and Characterizations | Biopolymers and Polymers | Biomaterials | Applications of Biomaterials | Wearable and Mobile Devices

10.20 - 10.45 Contact/Junction on HPGe Gamma Ray Detector  
**Walter Raniero**, LNL-INFN Legnaro, Italy

Network & Refreshments (10.45 - 11.15) @ LOBBY BAR

Group Photo (11.15 - 11.45)

11.45 - 12.10 Who Degraded Polypropylene ?  
**Justin Bulten MSC**, University of Groningen, Netherlands

12.10 - 12.35 Multifunctionality of Novel Glycerin Compounds and Their Application as Biomaterials  
**Gotaro Shiota**, Mediplus Pharma Inc, Japan

12.35 - 13.00 Retained Surgical Item (Gossypiboma): A Case Report and Literature Review  
**Hallah S. Alghamdi**, Ministry of Health, Saudi Arabia

Lunch (13.00 - 14.00) @ RISTORANTE

14.00 - 14.25 Maple-Synthesized Antimicrobial Thin Films from Bioglasses Combined with Antibiotics  
**Irina Ungureanu (Negut)**, National Institute for Lasers, Plasma and Radiation Physics Magurele, Romania

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14.25 - 14.50	Electrohydrodynamic Fabrication of Core-Shell Microparticles for Controlled-Release in Biomedical and Food Science Applications <b>Richard Mu</b> , Tennessee State University, USA
14.50 - 15.15	The Impact and Therapeutic Potential of Antimicrobial Textiles <b>Cláudia S. Oliveira</b> , Catholic University of Portugal, Portugal
15.15 - 15.40	Synthesis of Multi-Metallic Nanoparticles using a Dendrimer Reactor <b>Kimihisa Yamamoto</b> , Tokyo Institute of Technology, Japan
15.40 - 16.05	Coating of HMX Particles by NTO to Formulate Nano-Core-Shell Particles by Spray Flash Evaporation (SFE). <b>Maxime Blanchon</b> , Commissariat à l'Énergie Atomique et aux Energies Alternatives, France
<b>Network &amp; Refreshments (16.05 - 16.30) @ LOBBY BAR</b>	
16.30 - 16.55	Efficiency of PV Modules as a Driving Force of Innovation in Photovoltaics <b>Vítězslav Benda</b> , Czech Technical University in Prague, Czech Republic
16.55 - 17.20	Engineered Extracellular Vesicles (EVs) as Functional Nanotechnological Platform for Biomedical Applications <b>Francesca Susa</b> , Politecnico di Torino, Italy
17.20 - 17.45	Incorporation of Methylene Blue into Mesoporous Silica Nanoparticles for Singlet Oxygen Generation <b>Belen Albela</b> , Ecole Normale Supérieure de Lyon, France
17.45 - 18.10	Super-Hydrophobic Micro-Nano Patterned Materials for Multiple Imaging and Light Enhanced Spectroscopy of Lipidic Membrane and Ions Channels <b>Tania Limongi</b> , Politecnico di Torino, Italy
18.10 - 18.35	Development of a Thermosensitive Polyoxometalate Hybrid for Temperature Imaging in Hyperthermia Treatment <b>José Silveiras</b> , University of Aveiro, Portugal
18.35 - 19.00	Impact of Lactic Acid Concentration on the Corrosion Behavior of 316L Stainless Steel in Salivary Environments <b>Iulian Bounegru</b> , "The Lower Danube" University, Romania
19.00 - 19.25	Some properties of the Markov Chains of the Markov Models of Molecular Processes <b>Orchidea Maria Lecian</b> , Sapienza University of Rome, Italy

**Day-1 Concludes followed by Awards Ceremony**

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## Biomaterials & Biodevices

Day-2 : November 17, 2023

Meeting Hall: RIPA/TRASTEVERE

### Keynote Presentation

09:00 - 09:40	Buckling Structures, A Relevant Signature of the Mechanical Properties of Film/ Substrate Systems <b>Christophe Coupeau</b> , University of Poitiers, France
09:40 - 10:20	The Constructional Role of EPS Geofoam against Statical and Dynamic Loads <b>Walid El Kamash</b> , Suez Canal University, Egypt
10.20 - 11.00	Electrochemical Insights into the Corrosion Behavior of Pure Titanium Implants under Inflammatory Conditions <b>Lidia Benea</b> , "The Lower Danube" University, Romania

Network & Refreshments (11.00 - 11.30 ) @ LOBBY BAR

### Oral Presentations

Session Chair:	<b>Irina Ungureanu (Negut)</b> , National Institute for Lasers, Plasma and Radiation Physics Magurele, Romania
Session Chair:	<b>Kadem Al-Lamee</b> , Arterius Limited, United Kingdom

### Sessions:

Thin Films | Functional Materials | Advanced Functional Materials | Carbon Based Materials | Functional Biomaterials | Functional Materials | Synthesis and Characterizations | Functional Materials | Smart Materials | Advanced materials and Applications | Functional materials for Energy Harvesting | Storage, Solar Fuels and Renewable Energy | Advanced Functional Materials | Nanomedicine & Nanobiotechnology | 3D Bio Printing Technology | Biomaterials in Drug Delivery Systems | Biodegradable Biomaterials | Biofabrication | Biomaterials & Nano technology | Bioprinting

11.30 - 11.55	Mechanochemistry in Johnson Matthey <b>Maria Elena Rivas</b> , Johnson Matthey Technology Centre, United Kingdom
11.55 - 12.20	Performance of Potassium Bromate Active Electrolyte for Laser-Induced KBr-Graphene Supercapacitor Electrodes <b>Nagih Mohammed Shaalan</b> , King Faisal University, Saudi Arabia
12.20 - 12.45	Natural Deep Eutectic Solvent as Anti-Biofilm and Debriding Formulation in Wounds <b>Maria Belén Olivares</b> , Universidad del Desarrollo, Chile
12.45 - 13.10	Heterostructured Liquid Metal-Semiconductor Oxide 3D Networks as New Approach to Artificial Neural System <b>Serge Zhuiykov</b> , Ghent University Global Campus, South Korea

Lunch (13.10 - 14.00) @ RISTORANTE

14:00 - 14:25	Investigation of Thermodynamic Characteristics and Phase Transformations of Slurry in Molding Of Beryllium Ceramics <b>Zamira Sattinova</b> , L.N. Gumilyev Eurasian National University, Kazakhstan
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14:25 - 14:50	Phytochemicals Reducing/Capping Agent in Silver Nanoparticles Synthesis for Antibacterial Activity Improvement <b>Were I.I. Munyendo</b> , United States International University Africa, Kenya
14:50 - 15:15	Natural-Based Microsphere Formulations as Controlled Release Carriers in Biomedical Applications <b>Isabel Sousa</b> , University of Aveiro, Portugal
15:15 - 15:40	Assembly of Two Novels Microfibers-Hydrogel Composite Bio Platforms as a Lactate Delivery for Immediate and Sustained Release <b>Samuele Colombi</b> , Polytechnic University of Catalonia, Spain
15:40 - 16:05	A Review of Sarcopenia: Pathophysiology, Diagnosis, Treatment and Future Direction <b>Suk-kyoon Song</b> , Daegu Catholic University Medical Center, South Korea
16.05 - 16.30	The Potential of CO <sub>2</sub> Saturated Chitosan Hydrogel as a Raw Material for Additive Manufacturing Technology <b>Szymon Mania</b> , Gdansk University of Technology, Poland
<b>Network &amp; Refreshments (16.30 - 17.00) @ LOBBY BAR</b>	
17.00 - 17.25	Polyaniline Functionalized ZnO and ZnO-SiO <sub>2</sub> Nanoparticles as Corrosion Protection Films on Carbon Steel in Acidic Sodium Chloride Solutions: Computational, and Electrochemical Studies <b>Hany Mohamed Abd El-lateef Ahmed</b> , King Faisal University, Saudi Arabia
17.25 - 17.50	A Novel Dual Drug- Coated Balloon Device for Vascular and Cardiovascular Applications <b>Kadem Al-Lamee</b> , Arterius Limited, United Kingdom
17.50 - 18.15	Synthesis and Characterisation of Lignin Modified Phenol Formaldehyde Resins <b>Fatma Pinar Senkon</b> , Selcuk University, Turkey
18.15 - 18.40	Enhanced Photoluminescence of InP@ZnS Quantum Dots Induced by the Increase (In(MA) <sub>x</sub> )/(P(TMS) <sub>3</sub> ) Ratio of Molecular Precursors <b>Joel Díaz-Reyes</b> , National Polytechnic Institute, México
<b>Poster Presentations</b>	
POSTER-01	Inhibition of Tumor Growth Using Mesenchymal Stem Cell-Derived Exosomes Loaded with KRAS siRNA and Surface-Modified with Tumor-Targeted Proapoptotic Peptide <b>Byungheon Lee</b> , Kyungpook National University, South Korea
POSTER-02	Unconventional Agri-Glasses as Environmentally Friendly Fertilizers <b>Magdalena Szumera</b> , Agh University of Science and Technology, Poland
POSTER-03	Numerical Model of Micro-Galvanic Corrosion of Az31 Magnesium Alloy in a Physiological Environment <b>Carmine Borgia</b> , University of Calabria, Italy

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POSTER-04	Assessing the Impact of Raw Material Composition on Functional Fabrics for Heat and Flame Protective Clothing <b>Ivana Schwarz</b> , University of Zagreb, Croatia
POSTER-05	Shape Memory Polymers and Their Composites <b>Fatma Pinar Senkon</b> , Selcuk University, Turkey
POSTER-06	3D Temperature Imaging and Recording Using Polyoxometalate-Protein Hybrids <b>Maria Carolina Lopes</b> , University of Aveiro, Portugal
POSTER-07	Biological Properties of Chitosan-Agarose Composite as a Potential Bioink Component for 3D Printing <b>Adrianna Banach-Kopeć</b> , Gdansk University of Technology, Poland
POSTER-08	Preparation of Luminescent Nanofibers from Bioactive Glasses Containing Samarium <b>Albekova Aiman</b> , UCT Prague, Czech Republic
POSTER-09	Facile Hydrothermal Synthesis of Hierarchical NiO/ZnCo <sub>2</sub> O <sub>4</sub> Nanocomposite for High Energy Supercapacitor Applications <b>Fayssal Ynineb</b> , Research Center on Semiconductors Technology for Energetic, CRTSE, Algeria
POSTER-10	Preparation of PPA Based Composite Reinforcing with Glass Beads and Clays: Investigation of Sound Absorbing <b>Busra Simsek</b> , Selcuk University, Turkey
POSTER-11	Evaluating The Impact of Sustainable Mulching on Soil Temperature, Soil Moisture and Weed Control <b>Ivana Schwarz</b> , University of Zagreb, Croatia
POSTER-12	Post-Functionalization of Ether-Linked Polymers through the Ullmann Coupling Reaction: Synthesis and Characterization, and their Ability to Capture Carbondioxide (CO <sub>2</sub> ) Gas <b>Tareq Alshboul</b> , Yarmouk University, Jordan

### Video Presentation

VP -01	A Discrete Model for the Analysis of Linear and Nonlinear Free Vibrations of Multi-Stepped Functionally Graded Beams. <b>Nassima Ayoub</b> , Hassan II University of Casablanca, Morocco
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Day 2 Concludes followed by awards ceremony and Vote of thanks

# Biomaterials & Biodevices

### Virtual Presentations

Day-1 November 16th ,2023 (GMT)

11:00-11:15 **Introduction**

### Oral Presentations

11:15 -11:45 Advances and Perspectives in Nanomaterial Applications for Art Conservation  
**Shengdan Yang**, Tsinghua University, China

11:45- 12:10 Fabrication and Characterization of Hydroxiapatite from Bio-resources  
**Aasma**, NED University of Engineering and Technology Karachi, Pakistan

12:10- 12:35 Osteoconductivity Improvement of Apatite Cement Silica Composite- *in vivo*  
**Ira Artilia**, Jenderal Achmad Yani University, Indonesia

12:35- 12:55 New Antiviral Metal and Ceramic Materials  
**Katja Molan**, University of Ljubljana, Slovenia

12:55- 13:20 Decay of End loads in Biological Materials  
**Neta Blum**, Faculty of Aerospace Engineering Technion, Israel

### Lunch 13:20 - 13:50

13:50 - 14:15 Clinical Application and Interaction of a Cellular Composite Bone Adhesive in Relation with Canine Bone Healing and Immune System  
**Prarthana R**, ICAR-Indian Veterinary Research Institute, India

14-15: 14:40 Microbiome and Colorectal Cancer Management  
**Saryia Javed**, NHS Greater Glasgow and Clyde, UK

14:40 - 15:05 Bioenergy Experiment Proposal for Quantum Harmonic Oscillator Biosignature Power  
**Yang I. Pachankis**, S for Science, USA

15:05 - 16:30 Chitosan-Based Hemostatic Agents Functionalized with Enhanced Antibacterial Activity  
**Julita Smietana**, Cracow University of Technology, Poland

### Poster Presentation

16:30 - 16:50 Properties and Safety of Novel Combination of Hyaluronic Acid with the Addition of liposomal lecithin  
**Agnieszka Jelonek**, Biovico Sp. z o. o., Poland

16:50 - 17:10 3D Printed Auxetic Materials and Structures: Deformation Behavior and Energy Absorption Performance  
**Hytham Hassan**, KU Leuven, Belgium

### E-Poster Presentation

EP-01 Safety and Efficacy of Autologous Bone Marrow Clot as a Multifunctional Bio-Scaffold for Instrumental Posterior lumbar Fusion: A One-Year Follow-Up Pilot Study  
**Deyanira Contartese**, Irccs - Istituto Ortopedico Rizzoli, Italy

EP-02 Customized Cranial Prostheses Realized Through Incremental and Superplastic Forming: an *in vivo* study  
**Maria Sartori**, Irccs - Istituto Ortopedico Rizzoli, Italy

Day 1 Concludes