



European Materials Research Society

2023 Spring Meeting May 29 | June 2

40<sup>th</sup> Anniversary

Congress & Exhibition Centre, Strasbourg, France

## SYMPOSIUM H

Advanced strategies for smart functional  
and multifunctional biomaterials and biointerfaces

*Symposium Organizers:*

Grazia ML MESSINA, University of Catania, Italy

Ayşe G. KARAKECILI, Ankara University, Turkey

Paula E. COLAVITA, Trinity College Dublin, Ireland



**Monday May 29**

**H01**

**Bioinspired Materials**

**Rome (Ground floor)**

<b>09:00</b>	<b>2796</b>	<b>INV</b>	Supramolecular Broad-Spectrum Antivirals	<b>STELLACCI Francesco</b>
<b>09:30</b>	<b>254</b>		Nanoparticle-enabled Laser Tissue Soldering	<b>CIPOLATO Oscar</b>
<b>09:45</b>	<b>2331</b>		Bioinspired Nanomaterials for Drug-free Antipathogen Surfaces	<b>SHOKUHFAR Tolou</b>

**Monday May 29**

**H02**

**Smart Biohybrid Materials**

**Rome (Ground floor)**

<b>10:30</b>	<b>2793</b>	<b>INV</b>	Bioactive glasses as multifunctional biomaterials for tissue engineering, drug delivery and biofabrication	<b>BOCCACCINI Aldo R.</b>
<b>11:00</b>	<b>1353</b>		Combining Liquid Crystal Networks and Protein Motors for Milli-Scale Mechanical Devices	<b>PINCHIN Natalie</b>
<b>11:15</b>	<b>1561</b>		Functional Shape-Morphing Hydrogels for Soft Robotic Applications	<b>PINCHIN Natalie</b>
<b>11:30</b>	<b>986</b>		Versatile Ultra-Soft Electromagnetic Actuators with Integrated Strain Sensing Cellulose Nanofibril Foams	<b>MOHAMMADI Mohsen</b>
<b>11:45</b>	<b>1152</b>		Light-responsive azopolymer-based metamaterials as locally, anisotropically, and reversibly stretchable polymer substrates	<b>URBAN David</b>

**Monday May 29**

**H03**

**Biointerfaces at Electrodes**

**Rome (Ground floor)**

<b>14:00</b>	<b>2795</b>	<b>INV</b>	Single impact electrochemistry onto ultramicroelectrode surface for bacterial sensing	<b>LEBÈGUE E.</b>
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14:30	1090	On-bench Characterization and In-Vitro Biocompatibility of Nanowire-based Electrodes for Neural Interfaces	ARCHÉ-NÚÑEZ Ana
14:45	1627	Electric field mediated control of enzyme orientation for efficient electron transfer at bioelectrode surface	YOON Taeyoung
15:00	2465	Design and Characterization of Flexible and Wearable Low-Cost Stencil-Printing Electrodes for Enzyme-based Bioelectronics	TRICASE Angelo
15:15	1480	Ti based intermetallic thin films for a new generation of high performance wearable electrodes with enhanced biomedical sensing	LOPES Claudia
15:30	443	Kelvin probe force microscopy platform for antigen/antibody pair formation at a large electrode interface	DI FRANCO Cinzia
15:45	238	Molecularly Imprinting of Cortisol onto Conductive Polymer-Coated 3D Printed Microneedles	MUSTAFA Yasemin

**Monday May 29**

## **H\_P Poster session**

**Etoile (1st floor) - 4.30 p.m to 6.30 p.m**

01_1043	Polydiacetylenes-Based Colorimetric Sensors for Detecting Various Biohazard Metal ions	YANG Seah
02_1044	Study on Two-Photon Excitation Photodynamic Therapy and Fluorescence Bioimaging with Heavy-atom-free Photosensitizers based on Carbazole and Imidazole Conjugates.	HAN Jeonghye
03_988	Unraveling the unexpected behavior of polypyrrole artificial muscles	MASZCZAK Agata
04_1212	Design rules for remote controlled biology: Acoustic activation of synthetic cells using nanoparticle organelles	LI Zhuoer
05_759	Investigation of Printable Overhang Angle for Direct Printing of Sodium Alginate / Gelatin Hydrogel	MAHMOODI Nasim
06_1320	Long-term antibacterial properties of ZrN-Cu coatings deposited by industrial reactive magnetron sputtering	BEHRANGI Sahand

<a href="#">07_1386</a>	Engineering ECM-like hydrogels with Schiff-base dynamic covalent cross-links	<b>TEXIER I.</b>
<a href="#">08_1433</a>	The role of texture in governing the in-vitro bio-corrosion behaviour of Mg-4Zn-0.5Ca-0.8Mn alloy	<b>BAIRAGI Darothi</b>
<a href="#">09_1473</a>	Mesoporous Silica as the Carrier of Hydrophobic Drugs	<b>IQBAL Sumiya</b>
<a href="#">10_1481</a>	Current state of the art and next-generation of materials for a customized IOL according to a patient-specific eye power	<b>VACALEBRE Martina</b>
<a href="#">11_15</a>	3D-Printed ZnL2-BPs Composite Bone Scaffolds with Dual Antibacterial and Osteogenic Capabilities Aided by Mild Photothermal Regulation	<b>WU Yuzheng</b>
<a href="#">12_1518</a>	Zein based biomaterials for active wound healing	<b>GNOCCHI Chiara</b>
<a href="#">13_1581</a>	Rheological studies of a 3D Printable Sodium Alginate/Vitreous Humos Ink for cartilage regeneration	<b>MARTINEZ PÉREZ Carlos Alberto</b>
<a href="#">14_1596</a>	An integrated bioaerosol sampling and detection platform for on-site monitoring of airborne viruses	<b>LEE Inae</b>
<a href="#">15_161</a>	A highly sensitive magnetic SERS detection of hemozoin biomarker for rapid malaria diagnosis	<b>YADAV Sarjana</b>
<a href="#">16_1640</a>	Reactive Oxygen Species Mediated Theranostic Materials	<b>LIM Chang-Keun</b>
<a href="#">17_165</a>	Application of natural para rubber as a functional biodegradable-reinforced material for road reinforcement	<b>CHAIYAPUT Salisa</b>
<a href="#">18_1650</a>	All-Organic Nanomedicine for Photothermal (PTT)/Photodynamic (PDT) Combination Therapy	<b>URAZALIYEVA Anel</b>
<a href="#">19_1651</a>	Metal and Ceramic 3D printing for the fabrication of dental metal-ceramic restoration	<b>DIMITRIADIS Konstantinos</b>
<a href="#">20_169</a>	Functional Porous Glass-Ceramic biomaterials from Eggshell Waste for Biomedical Use as Prosthetic Eyes	<b>AYAWANNA Jiratchaya</b>
<a href="#">21_1722</a>	Colloidal AgBiS <sub>2</sub> Quantum Dots in Cellular Environments	<b>ONAL Asim</b>
<a href="#">22_1726</a>	NIR Signal-based Sensor Platform with Wireless Data Transmission System for Detection of infectious disease Virus	<b>KIM Suyeon</b>

<a href="#">23_1752</a>	Antibacterial activity of PDMS-Aminosilanes organic-inorganic hybrid coating	<b>PARK Yeji</b>
<a href="#">24_1834</a>	Folate receptor beta targeting pH-sensitive drug delivery system for non-small cell lung cancer therapy	<b>NAH Sanghee</b>
<a href="#">25_1895</a>	Facile fabrication of self-cleaning powder coating through surface-modified biogenic silica	<b>NAZARLOU Ziba</b>
<a href="#">26_1902</a>	Characterization of the viscoelastic properties of different gels and ex vivo animal tissues for ultrasound-guided imaging	<b>QUINAGORAN Dionella Jitka</b>
<a href="#">27_1914</a>	Study of the development of bacterial resistance to silver-chitosan nanocomposites and cross-resistance to common antibiotics	<b>SIHTMÄE Mariliis</b>
<a href="#">28_1918</a>	Multilayer structures based on Si-doped metal oxynitrides used for biological applications	<b>VITELARU Catalin</b>
<a href="#">29_194</a>	Facile synthesis of whiskered gold nanosheets with low percolation threshold for stretchable bioelectrodes	<b>LIM Chaehong</b>
<a href="#">30_2013</a>	Reprocessable and Weldable Shape Memory Vitriimer Enabled by Controlled Formulation for Extrusion-Based 4D Printing Applications	<b>PARK Sungmin</b>
<a href="#">31_1076</a>	ZrCuCa- based quaternary thin films metallic glasses used for medicine	<b>PANA Iulian</b>
<a href="#">32_2048</a>	pH Sensitivity and amino acid dependent interaction on the Aggregation Induced Emission of Surface Ligand Controlled Gold Nanoclusters.	<b>BERA Nanigopal</b>
<a href="#">33_2063</a>	Development of a SERS-based lateral flow immunoassay for detection of penicillin in milk via direct writing of functional materials	<b>RUSSO Alida</b>
<a href="#">34_2116</a>	Hemocompatibility studies of PTFE coated TiO <sub>2</sub> thin film for application in mechanical heart valves.	<b>MISHRA Subhashree</b>
<a href="#">35_2153</a>	Deformation-diffusion model of the CdSe-core / ZnS/CdS/ZnS-shell quantum dot with an electrically neutral impurity	<b>DAN'KIV Olesya</b>
<a href="#">36_2195</a>	Fabricating Mycelium-Agrowaste 3D Composite Materials for use in Building Construction Insulation	<b>BONGA Kumba Bintunia</b>
<a href="#">37_2220</a>	Sweat droplet evaporation: implications for human body health	<b>BEIGTAN Mohadese</b>
<a href="#">38_2231</a>	Photodithazine-nanoclay composites to improve antimicrobial activity	<b>TARGON CAMPANA Patricia</b>

39_2391	Studies on the Development of Titanium Foam for Bioimplant Application	<b>DUTTA MAJUMDAR Dibyendu</b>
40_2451	Mesoporous and Nano-Flowers (ZnO <sub>2</sub> ) via Hydrothermal Technique for Dye Removal and Antibacterial Applications	<b>AL NAIM Abdullah</b>
41_2536	Process window for electron beam melting of Ti-42Nb wt. %	<b>IRINA Grubova</b>
42_2593	Zwitterionic coatings on Polydimethylsiloxane Surface for biological application	<b>DINCA Valentina</b>
43_2538	Nanoprobes for intracellular imaging: testing reproducibility in the nanobiosciences	<b>SAID Maha</b>
44_2549	NIR-induced drug release from liposomes entrapped with gold nanoparticles for synergistic cancer therapy	<b>BUDIME SANTHOSH Poornima</b>
45_2594	New polyphenols-enriched excipients from grape processing waste to develop spray-dried matrix for buccal tablets useful to treat oromucosal diseases	<b>BELFIORE Elena</b>
46_2606	Composition impacts the structural, magnetic, and heating features of Mn <sub>x</sub> Fe <sub>3-x</sub> O <sub>4</sub> MNPs	<b>DEL SOL-FERNÁNDEZ Susel</b>
47_2623	Digital light 3D printing of robust, self-healing and recyclable polymer composite with tailorable mechanical properties	<b>HUANG Wei</b>
48_2668	Exploring the Size Effect of Silver Nanoparticle on Structural Properties of Coatings	<b>ABAKEVICIENE Brigita</b>
49_2684	Hybrid bio-platforms engineered by laser based method with tailored antibacterial and antitumor activity	<b>RUSEN Laurentiu</b>
50_65	The effect of heat treatment on the mechanical behavior of an ASTM-F2063 nitinol stent intended for venous application.	<b>SALLAMI Achref</b>
52_332	Development and Evaluation of the Bioinspired pH-responsive Sericin-Chitosan Based Hydrogels for the Controlled Colonic Delivery of PETase; Harnessing the PETase Triggered Degradation of Microplastics	<b>ULLAH Aziz</b>
53_55	Adipocyte-targeting Type I AIE Photosensitizer for Obesity Treatment via Photodynamic Lipid Peroxidation	<b>LEE Mei Suet</b>
54_56	A Ratiometric Theranostic System for Visualization of ONOO <sup>-</sup> Species and Reduction of Drug-Induced Hepatotoxicity	<b>CHAU Hon Chung</b>

<a href="#">55_567</a>	In situ characterization of the structural changes induced by acidity fluctuations in hydrated collagen hydrogels	<b>BRONNER Orit</b>
<a href="#">56_600</a>	Stimuli-responsive collagen-based thin films from Stichopus cf. horrens body wall	<b>SISICAN Kim Marie</b>
<a href="#">57_630</a>	Reduction-responsive and bioorthogonal carboxymethyl cellulose based soft hydrogels cross-linked via IEDDA click chemistry for cancer therapy application	<b>ALI Israr</b>
<a href="#">58_719</a>	Formation and Properties of Oxidized Metallographene-NSAID Nanoparticles	<b>RADZIUK Darya</b>
<a href="#">59_735</a>	Multiphysics computational modelling of the dynamic interface between on-chip microneedles and skin layers	<b>MOHIZIN Abdul</b>
<a href="#">60_835</a>	Structural, mechanical and degradation properties of Mg doped hydroxyapatite deposited on AZ31B alloys	<b>VITELARU Catalin</b>
<a href="#">61_875</a>	Antibacterial and antifungal efficacy of novel chitosan-silver nanocomposites	<b>KASEMETS Kaja</b>

**Tuesday May 30**

**H04**

**Functional Biomaterials**

**Rome (Ground floor)**

<b>10:00</b>	<b>2794</b>	<b>INV</b>	Tailoring Collagen Piezoelectricity	<b>RODRIGUEZ Brian</b>
<b>10:30</b>	<b>2696</b>		A synergy of laminin and strain-stiffening in hydrogels promotes directed migration of neural cells	<b>NAGHILOU Aida</b>
<b>10:45</b>	<b>1306</b>		Fabrication of uniaxially oriented DNA based hydrogel by controlling monomer diffusion	<b>KIM Juri</b>
<b>11:00</b>	<b>816</b>		Oleogel: a new thermoplastic-like material for bioengineering application	<b>LAMANNA Leonardo</b>
<b>11:15</b>	<b>91</b>		Polyethylene glycol diacrylate / poly (epsilon L-Lysine) hydrogels for preventing bacteria and fungi infections	<b>LEBAUDY Eloïse</b>
<b>11:30</b>	<b>2546</b>		Ex vivo detection of anal sphincter defects using a sensorised surgical glove	<b>SALVADORES FERNANDEZ Carmen</b>
<b>11:45</b>	<b>2539</b>		Smart functional pH-sensing scaffolds for extracellular pH mapping in in vitro tumor models	<b>ONESTO Valentina</b>

**Tuesday May 30**

**H05**

**Bioelectronics and Bioelectrochemical Systems**

**Rome (Ground floor)**

<b>14:00</b>	<b>2798</b>	<b>INV</b>	Multifunctional bandages as potential strategy for chronic skin wound management	<b>SZUNERITS Sabine</b>
<b>14:30</b>	<b>1747</b>		Development of nanoprobe array technology for high resolution electrophysiology of brain-on-chip.	<b>BELOT Emilie</b>
<b>14:45</b>	<b>1144</b>		Electric Field Tunability of Photoluminescence from a Hybrid Peptide–Plasmonic Metal Microfabricated Chip	<b>RICE James</b>
<b>15:00</b>	<b>2636</b>		Graphene-MoS2 heterostructure for promising detection of diabetes through acetone and glucose biomarkers	<b>KAPOOR Sakshi</b>

15:15	869	Multimodal machine learning in chronic wound management: A bright future for biomaterials and soft materials	MELINTE Sorin
15:30	200	Ultrasensitive Detection of Aromatic Water Pollutants Through Protein Immobilization Driven Organic Electrochemical Transistors	SAHU Subhankar

**Tuesday May 30**

**H06**

## Multifunctional Biomaterials

**Rome (Ground floor)**

16:30	1051	Mechanical, tribological, and in vitro and in vivo studies of commercially pure Zn-Cu-Mn/Mg alloys for biodegradable application	PALAI Debajyoti
16:45	1088	Surface modification by nanosecond laser texturing of biodegradable pure Zn: surface morphology and degradation behaviour	FIOCCHI Jacopo
17:00	376	Effect of laser surface remelting on the microstructure, mechanical, tribological and corrosion properties of the Ti <sub>40</sub> Nb <sub>25</sub> Zr <sub>25</sub> Ta <sub>10</sub> (with 0.5 at. % O) medium entropy alloy (MEA)	MUSTAFI Labani
17:15	991	Antibacterial Zn added NiTi alloy produced by laser powder bed fusion	TUISSI Ausonio
17:30	2680	Silver based MOFs Synthesis for antibacterial application and nanoMOFs growth on Titanium scaffold alloy.	PARATORE Vincenzo
17:45	2311	The Influence of the Nature of Doping on the Antibacterial Activity of SrSnO <sub>3</sub> Eu Perovskite Nanoparticles	MENEZES DE OLIVEIRA Andre Luiz

**Wednesday May 31**  
**H07**  
**Biointerfaces Engineering**  
**Rome (Ground floor)**

<b>10:30</b>	<b>2446</b>	Surface Functionalization of Poly(D, L-lactide-co-trimethylene carbonate) Nanofibers Incorporated with Hydroxyapatite Nanoparticles for Osteogenesis and Vascularization in Bone Tissue Engineering	<b>LI Huihua</b>
<b>10:45</b>	<b>33</b>	Fabrication of chitosan/gelatin hybrid aerogel for use as a drug carrier.	<b>CHAROENCHAITRAKOOL Manop</b>
<b>11:00</b>	<b>1853</b>	Spherical garnet-based persistent nanophosphors suitable for long-lasting optical imaging	<b>ARROYO Encarnacion</b>
<b>11:15</b>	<b>2345</b>	Multifunctional Nanocomposite Hydrogels for Bioanalytical and Antibacterial Applications	<b>SACHDEV Abhay</b>
<b>11:30</b>	<b>1251</b>	Three-dimensional extrusion printing of gelatin methacryloyl (GelMA)-based biomaterial ink with high shape integrity	<b>DAS Soumitra</b>

**Wednesday May 31**  
**H08**  
**New Materials for Biomedical Applications**  
**Rome (Ground floor)**

<b>14:00</b>	<b>2797</b>	<b>INV</b> Effect of Nanoparticles on the Bulk Shear Viscosity of a Lung Surfactant Fluid	<b>BERRET J.-F.</b>
<b>14:30</b>	<b>593</b>	4D Bioprinted Multilayered Biomimicking Scaffolds for Uterine Tissue Regeneration	<b>CHEN Shangsi</b>
<b>14:45</b>	<b>739</b>	Polymeric composites of electroactive P3HT-MWCNT thin films for bioelectronics application	<b>CAMPIONE Paola</b>
<b>15:00</b>	<b>829</b>	Lipid coated Mesoporous Silica as the Carrier of Hydrophobic Drugs	<b>IQBAL Sumiya</b>
<b>15:15</b>	<b>1172</b>	Laser assisted structuring of bio-polymer for the oriented proliferation of stem cells	<b>MURRU Clarissa</b>
<b>15:30</b>	<b>691</b>	A green and sustainable approach for the preparation of antimicrobial alginate fibers	<b>TORDI Pietro</b>

**Wednesday May 31**

**H09**

**New Materials for Biomedical Applications II**

**Rome (Ground floor)**

<b>16:30</b>	<b>2439</b>	Alternative peptide grafting strategies for enhancing PEEK bioactivity in bone regeneration	<b>CASSARI Leonardo</b>
<b>16:45</b>	<b>1543</b>	Atomic force microscopy for characterizing plasma proteins adsorption morphology on poly(styrene sodium sulfonate)-functionalized silicone surfaces	<b>LAM Mylan</b>
<b>17:00</b>	<b>2245</b>	PVA-based hydrogels with active biocidal effect: From polymer functionalization to real-time observation of the gels' efficacy against model bacteria through confocal laser scanning microscopy	<b>ROSCIARDI Vanessa</b>
<b>17:15</b>	<b>356</b>	Tracheal engineering to the reconstruction of the larynx	<b>BERTSCH Christelle</b>

**Thursday June 1**  
**H10**  
**Nanostructures and Nanoparticles for Biomaterials Applications**  
**Rome (Ground floor)**

<b>10:00</b>	<b>2799</b>	<b>INV</b>	High Temperature Stable Anti-microbial Photocatalytic Nanomaterials for Building Material Applications	<b>PILLAI Suresh C.</b>
<b>10:30</b>	<b>1672</b>		Smart core/shell magnetic nanoparticles and their further use in cancer therapy	<b>ALEM Halima</b>
<b>10:45</b>	<b>321</b>		Biofunctionalized circa 2 nm gold nanoparticles for exploring intracellular machineries of human cells at cryo-Electron Microscopy resolution level	<b>ZUBER Guy</b>
<b>11:00</b>	<b>2567</b>		A versatile and controllable strategy for synthesizing a cadherin-magnetic nanoparticle bioconjugate as a novel magneto-mechanical cell actuator	<b>CASTRO-HINOJOSA Christian</b>
<b>11:15</b>	<b>2608</b>		In vivo enhancement of tissue regeneration through Magnetic Hyperthermia mediated ROS production	<b>DEL SOL-FERNÁNDEZ Susel</b>
<b>11:30</b>	<b>338</b>		Synthesis of Surfactant-Free Starch-Based Microspheres in Different Size Ranges and Factors Affecting the Synthesis Process	<b>KARAGULLE Elif Naz</b>
<b>11:45</b>	<b>2024</b>		Application of hybrid magnetoplasmonic nanoparticles for SERS detection of cancerous kidney areas	<b>ADOMAVICIUTE-GRABUSOVE Sonata</b>

**Thursday June 1**  
**H11**  
**Bioinspired Coatings and Thin Film**  
**Rome (Ground floor)**

<b>14:00</b>	<b>96</b>		The antibacterial properties of multiple antigenic peptides: in vitro MIC evaluation and molecular dynamic simulations	<b>LEBAUDY Eloïse</b>
<b>14:15</b>	<b>435</b>		Poly(2-Ethyl-2-Oxazoline)-co-Polyethyleneimine and Heparin Multifunctional Coatings	<b>GHAZALEH Azizi Saadatlou</b>

<b>14:30</b>	<b>580</b>	Silicon bioinscriptive engineering for preventing microbial and fibrosis development	<b>DINCA Valentina</b>
<b>14:45</b>	<b>1003</b>	Biodegradable Zein/Polyvinylpyrrolidone-based films for underwater delivery of Curcumin mitigate thermal stress effects in corals	<b>CONTARDI Marco</b>
<b>15:00</b>	<b>1136</b>	Limiting bacterial adhesion through bioinspired combinations of thin film coatings and topography	<b>WHITELEY Amelia</b>
<b>15:15</b>	<b>174</b>	Crystal Engineering of Pyroelectric and Piezoelectric amino Acid mixed Crystals	<b>EHRE David</b>

**Thursday June 1**

**H12**

## **Bioinspired Coatings and Thin Film II**

**Rome (Ground floor)**

<b>16:30</b>	<b>2571</b>	Artificial extracellular matrices for organoid formation: from novel patient-derived preclinical models to human immune cell culture	<b>GUASCH Judith</b>
<b>17:00</b>	<b>797</b>	Physico-chemical and in vitro biological behavior of plate-like hydroxyapatite coatings obtained in pulsed galvanostatic mode	<b>VLADESCU (DRAGOMIR) Alina</b>
<b>17:15</b>	<b>350</b>	Aqueous Protein-Polymer Bioconjugation via Photoinduced RAFT Polymerization Using Porphyrinic Metal-Organic Frameworks	<b>HUANG Ya</b>
<b>17:45</b>	<b>596</b>	-45 3D Printing of Bioceramic Scaffolds with Graded Pore Sizes for Bone Regeneration	<b>WANG Yue</b>

