YUKTAN TECHNOLOGIES

FUTURE MATERIALS
OCTOBER | TENERIFE, CANARY ISLANDS

Program

6th INTERNATIONAL CONFERENCE ON MATERIALS SCIENCE & NANOTECHNOLOGY

Future Materials 2025

TENERIFE, SPAIN | OCTOBER 27-29, 2025
ONLINE, ZOOM | OCTOBER 30, 2025

Committee Members

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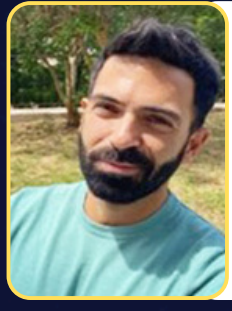

Marco Pelin
University of Trieste
Italy

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University Carlos III of Madrid
Spain

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ICMAB-CSIC
Spain

WELCOME TO FUTURE MATERIALS 2025!

Dear Attendees,

Welcome to **Future Materials 2025**, the 6th International Conference on Materials Science & Nanotechnology to be held October 27-30, 2025, in *GF Gran Costa Adeje Hotel*, Santa Cruz de Tenerife, Spain and Online.

We are organizing an attractive program that will address the most current issues and challenges in Materials Science. The conference is designed to attract and stimulate scientists working in areas as diverse as chemistry, physics, biomedicine, and engineering. It is intended to be a forum to foster collaboration, exchange of ideas, and creativity. Moreover, we will pay special attention to young researchers who represent the future of science, reserving slots for their oral talks and rewarding their best presentations and posters.

As chair of the conference, I would like to express my special thanks to the scientific committee for their helpful advice and brilliant suggestions in organizing the technical program and for their thorough and timely review of the abstracts. Many thanks to the organizers for their dedicated efforts in overseeing the various aspects of the conference and coordinating related social activities.

Santa Cruz de Tenerife, in the enchanting Canary Islands, offers a unique and inspiring setting where nature and innovation come together. This stunning destination promises to captivate attendees and provide an unforgettable experience, both academically and culturally.

We look forward to seeing you all in Santa Cruz de Tenerife.

Prof. Ester Vázquez Fernández-Pacheco
Conference Chair, Future Materials-2025
Director of IRICA
University of Castilla-la Mancha (UCLM)
Spain

Final Program Draft

Day-1, Monday | **Meeting Room Taburiente I** | **October 27, 2025**

08:00 On-site Registration & Badge Pickup

08:45 Welcome and Opening Remarks
Conference Chair: Prof. Ester Vazquez, *University of Castilla-La Mancha, Spain*

Moderator: Ester Vazquez, University of Castilla-La Mancha, Spain

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09:00 From Molecules to Nanostructures: The Versatile World of Carbon Nanodots
Maurizio Prato, University of Trieste, Italy & CIC biomaGUNE, Spain

Keynotes

09:40 Advancing Tissue Engineering and Regenerative Medicine: The Role of New Materials and Bioprinting Technologies in Next-Generation Therapeutic Applications
Daniel Nieto, University of A Coruña, Spain

10:10 Autonomous Electrochemical Sensing
Goreti Sales, University of Coimbra, Portugal

10:40 Networking & Coffee

11:10 Design and Development of TTF- and M-BDT-Based Molecular Conductors
Dulce Belo, Instituto Superior Técnico, Portugal

Symposium I: Future Biomaterials-Biomedical, Medicine and Other Applications (I)

Session 1: Biomaterials for Cancer Treatments

Chair: TBA

11:45 Photoactive Nanostructured Coordination Polymers as Novel Materials for Cancer Therapy
Fernando Novio, Autonomous University of Barcelona, Spain

12:05 Multifunctional Nanotubes for X-Ray Activated Photodynamic Therapy (X-PDT)
Valeria Secchi, University of Milano-Bicocca, Italy

12:25 Controlled Release of the Anticancer Drug Cyclophosphamide from a Superparamagnetic β-Cyclodextrin Nanosponge by Local Hyperthermia Generated by an Alternating Magnetic Field
Sebastián Salazar Sandoval, University of Chile, Chile

12:45 Dual Role of *Nerium oleander* L.: Investigating Its Potential for Heavy Metal Remediation and Colorectal Cancer Treatment
Naira Ibrahim, Jackson State University, United States

13:05 Group Photo followed by Lunch

Keynote

14:00 **Graphene and Post-Graphene Materials: Lessons from the Graphene Flagship**
Bengt Fadeel, Karolinska Institute, Sweden

Chair: Marco Pelin, University of Trieste, Italy

Session 2: BioNano- Toxicity and Safety

14:35 **Keynote Virtual: Advancing Safety and Innovation: OECD WPMN's Role in Nanomaterials and Advanced Materials**
Mar Gonzalez, OECD, France

15:05 **Reference and New Approach Methodologies in the Evaluation of New (Nano) Materials in the Safe and Sustainable by Design Framework: The INTEGRANO Project Experience**
Maurizio Gualtieri, University of Milano - Bicocca, Italy

15:25 **Simplified Life Cycle Assessment of Nanoenabled Products in Early Design Phases: Application to the Additive Manufacturing Sector**
Leire Barruetabeña, GAIKER Technology Centre, Spain

15:45 **Safety Assessment of Advanced Nanomaterials. Challenges and Gaps**
Blanca Suarez-Merino, TEMAS Solutions GmbH, Switzerland

16:05 **Networking & Coffee**

16:30 **Safety Evaluation of Two-Dimensional Nanomaterials: Overcoming Challenges in Skin Sensitization Testing**
Michela Carlin, University of Trieste, Italy

16:50 **Environmental Nanosafety of 2D-Nanomaterials: A Case Study on the Sexual Reproduction of Seed Plants**
Nida Zaib, University of Trieste, Italy
Fabio Candotto Carniel, University of Trieste, Italy

Session 3: Smart Biomaterials for Sensing and Recognition

Chair: Cristina Martín Jiménez, University of Castilla-La Mancha, Spain

17:10 **Nanomaterial-Based Smart Inks for Electrochemical Sensors**
Alessandro Silvestri, Ca' Foscari University of Venice, Italy

17:30 **Charge Density Modulation in Graphene FET Biosensors for Virus Detection via Chemical Modification**
Davide Campagnol, University of A Coruña (UDC), Spain

17:50 **Bio-LLPS Engineering**
Tomohiro Nobeyama, Kyoto University, Japan

18:10 **3D *In Vitro* Model of Human Skin Wound Healing Using Phen Drive-Y as a Biomimetic Basement Membrane**
Shirin Saberianpour, University of Brighton, United Kingdom

18:30 **Poster Presentation and Networking Drinks** @Foyer

Symposium II: Materials for Electronics, Optics and Photonics

Session 1: Next-Gen Luminescent and Optical Materials

Chair: Sergi Riera-Galindo, ICMAB-CSIC, Spain

11:45 **Luminescence-Based Optical Sensors and their Integration into 3D-Printed Materials**
Inocencio R. Martin, University of La Laguna, Spain

12:05 **Organic Semiconductors and Emitters for OLEDs and Optical Sensors**
Juozas V. Grazulevicius, Kaunas University of Technology, Lithuania

12:25 **Plasmonic Nano-Coatings for Sensing Applications**
Ribal Georges Sabat, Royal Military College of Canada, Canada

12:45 **Magneto-Photoresponse in 2D Optoelectronic Materials and Devices for Reconfigurable In-Sensor Vision Systems**
Yuyan Wang, Tsinghua University, China

13:05 **Group Photo in Room I** followed by **Lunch**

Session 2: Magnetism, Spintronics and Ferroelectrics

Chair: Gabriel A. Lopez, University of the Basque Country, Spain

14:35 **Regulation of Magnetic Structures and the Physical Properties in Antiperovskite Antiferromagnetic $Mn_3XN(C)$ Compounds**
Cong Wang, Beihang University, China

14:55 **Highly Efficient Room-Temperature Spin-Orbit Torque in an Epitaxial Half-Heusler Alloy NiMnSb Single Layer**
Miao Jiang, Beijing Institute of Technology, China

15:15 **Nanoscale Distortions Produce Mesoscale Modulations in Li-Doped KTa/NbO_3 Perovskite Ferroelectrics**
Raffaella Soave, CNR SCITEC, Italy

15:35 **The Origin of the Spin-Peierls Transition in π-Stacked 1,2,3,5-Dithiadiazolyl Radicals**
Yassine Beldjoudi, University of Nizwa, Oman

15:55 **Networking & Coffee**

Session 3: Advanced Electronic & Semiconductor Materials

Chair: Gabriel A. Lopez, University of the Basque Country, Spain

16:25 **Atomic-Scale Characterization of Artificial Defects in Epitaxial Graphene by Scanning Tunneling Microscopy**
Van Dong Pham, Paul Drude Institute for Solid State Electronics (PDI), Germany

16:45	**Gaussian Distribution of Barrier Heights in Pd/n-Type $Si_{0.90}Ge_{0.10}$ Schottky Diode from Reverse Current-Voltage Characteristics** **Mohammed Mamor,** Cadi Ayyad University, Morocco	
17:05	**Judd-Ofelt Analysis of Pr^{3+}: A Direct Emission Spectrum Approach for Advanced LED Phosphors and Scintillators** **Aleksandar Ciric,** University of Belgrade, Serbia	
17:25	**Uniformly Assembled 2D-Engineered Electroactive CuO Nanoleaflet Sensor for Glucose Monitoring** **Sisonke Sigonya,** University of South Africa, South Africa	
17:45	**Structural, Magnetic and Magnetocaloric Performance of Double Layered Manganites and Potential Utilization of Van der Waals Compounds** **Akshay Kumar,** Changwon National University, Republic of Korea	
18:30	**Poster Presentation and Networking Drinks**	@Foyer

List of Poster Presentations

FM-1 **Covalent Modification of Polymers as a Tool for the Production of New, Bioactive Materials for the Regeneration of Osteochondral Defects**
Katarzyna Haraźna, Cracow University of Technology, Poland

FM-2 **3D-Printed Bioactive Composites: Polymer-Ceramic Materials for Bone Repair**
Dagmara Słota, Cracow University of Technology, Poland

FM-3 **Influence of PEEK Processing Methods on its Physicochemical Properties and its Potential Use as a Biomaterial**
Julia Sadlik, Cracow University of Technology, Poland

FM-4 **Calcium Phosphates in Biomedical Applications: Influence of Synthesis Methods on Biological Properties**
Karina Niziołek, Cracow University of Technology, Poland

FM-5 **Physicochemical Properties of Calcium Phosphates Obtained by Different Methods**
Edyta Kosińska, Cracow University of Technology, Poland

FM-6 **Nano-Composite Scaffolds for Osteochondral Tissue Regeneration**
Dominika Trager, Cracow University of Technology, Poland

FM-7 **Innovative Polymer-Ceramic Composites for Functional Osteochondral Tissue Reconstruction**
Bożena Tyliszczak, Cracow University of Technology, Poland

FM-8 **3D-Printed, Biologically Active Layered Scaffolds for Osteochondral Tissue Regeneration**
Agnieszka Sobczak-Kupiec, Cracow University of Technology, Poland

FM-9 **Multi-Aspect Cathode Porosity Shaping to Increase the Efficiency of High-Temperature Fuel Cells**
Gabriela Komorowska, Warsaw University of Technology, Poland

FM-10 **Antimicrobial and Cytotoxic Evaluation of Carvone Encapsulated in Chitosan Particles**
Tomáš Skala, Czech University of Life Sciences Prague, Czech Republic

FM-11 ***In Vitro* Antimicrobial and Cytotoxic Activity of Encapsulated Cinnamon Essential Oil in Chitosan Nanoparticles**
Jan Hájíček, Czech University of Life Sciences Prague, Czech Republic

FM-12 **Optimization of Glass Capillary Geometries for Maximum Gravimetric Hydrogen Storage Efficiency**
Ramon Beck, Technical University Berlin, Germany

FM-13 **Photo-Assisted Energy Harvesters and Sensors Using PVDF Matrix Stabilized α-$FAPbI_3$ Perovskite**
Niloy Mridha, Indian Institute of Technology Bombay, India

FM-14 **Solid State Electrolytes by Hybridization of Ionomer Membrane: Structure-Properties Interplay**
Jean Alchemaly, CEA / University of Grenoble Alpes, France

FM-15 **Tailoring Electronic Properties of 3D Pt-doped Hydrogenated TiO_2 Nanotube Arrays for Enhancing Hydrogen Evolution in Acidic Media**
Hoang Tuan Nguyen, Jeonbuk National University, Republic of Korea

FM-16 **3D Hierarchical Electrocatalyst Derived from Pt,Mo-Dually Doped $NiSeO_4$/$NiSe_2$-Coated Co_2P Enables High-Performance Overall Water Splitting**
Thokchom Anjali Devi, Jeonbuk National University, Republic of Korea

FM-17 **Rational Design of High Entropy Alloy Nanoparticles-Immobilized Graphene with Rich Exposed Multiple Active Sites for Promoting Water Splitting Kinetics**
Nguyen Tram Anh Duong, Jeonbuk National University, Republic of Korea

FM-18 **Rational Design of CoNi-PtCoNi Dual-Alloy Catalyst for pH-Universal Outstanding Hydrogen Evolution**
Duy Thanh Tran, Jeonbuk National University, Republic of Korea

FM-19 **Lattice Restructuring in Transitional Metal Hexacyanoferrate Positrodes for High Performance Sodium Ion Pouch Batteries**
Nam Hoon Kim, Jeonbuk National University, Republic of Korea

FM-20 **Development of Printed Circuit Board Materials Using Bio-Based Raw Materials**
Yohei Ito, Mitsubishi Electric Corporation, Japan

FM-21 **Modified Aluminum Powders with Enhanced Reactivity for Energy Systems**
Ayagoz Bakkara, The Institute Combustion Problems, Kazakhstan

FM-22 **Development of Cascade Catalyst for Sustainable Production of Even-Numbered Paraffins from Biomass-Derived Fats and Oils**
Il-Ho Choi, Korea Institute of Energy Research, South Korea

FM-23 **Biomass Waste for the Preparation of rGO-Like Carbon /TiO_2 Composites Derived from Cassava Residue for Counter Electrodes in Dye-Sensitized Solar Cells**
Wasan Maiaugree, Thammasat University, Thailand

FM-24 **Desalination Performance of MIL-68(In) MOF-Filled PVDF Membranes in Vacuum Membrane Distillation**
Roberto Castro-Munoz, Gdansk University of Technology, Poland

FM-25 **Functionalized Natural and Waste-Derived Zeolites for Elemental Mercury Control: Activation Strategies and Structural Considerations**
Piotr Kunecki, Mineral and Energy Economy Research Institute, PAS, Poland

FM-26 **Sustainable Materials for Purification of Effluents from Wastewater Treatment Plants by Permeable Reactive Barriers**
Marzhan Kalmakhanova, M. Kh. Dulaty Taraz University, Kazakhstan

FM-27 **Biofuel Cell based on Photosynthetic Reaction and its Application to Architecture**
Yasumitsu Matsuo, Setsunan University, Japan

FM-28 **Additive Manufacturing of Boron-Based Functional Ceramics for Photocatalytic Applications**
Greta Merkininkaitė, Center for Physical Sciences and Technology, Lithuania

FM-29 **Cu-NH_2-MIL-125(Ti) Protected by PVDF for Hydrogen Production**
Emilia Gontarek-Castro, University of Gdansk, Poland

FM-30 **Effects of Dopants on The Structural and Electrical Properties of Hafnium Oxide Thin Films Deposited by Atomic Layer Deposition**
Florin Nastase, IMT-Bucharest, Romania

FM-31 **Effect of the Zr/Ti Ratio on the Properties of $Ba(Zr_xTi_{1-x})O_3$ Ceramics with a Perovskite-Type Structure**
Jolanta Makowska, University of Silesia, Poland

FM-32 **Preparation and Characterization of $Ba_{0.996}La_{0.004}Ti_{0.999}O_3$ Perovskite Ceramics Doped with Special Glass**
Beata Wodecka-Duś, University of Silesia, Poland

FM-33 **Graphene-Based Inks with Controlled Antibody Orientation via Hydrazone Bond for Enhanced Biosensing Applications**
Riccardo Pinotti, University of A Coruña, Spain

FM-34 **Technological Optimization of MXenes' Dielectrophoretic Alignment within Polar Solvents**
Ina Turcan, Iasi University of Life Sciences, Romania

FM-35 **Enhancing Performance Behavior of Polybutylene Succinate Composites with Antimicrobial Chitosan Additives**
Janis Zicans, Riga Technical University, Latvia

FM-36 **Synergistic Effects of MWCNTs and Chemical Admixtures on the Foam Stability and Rheological Behavior of Lightweight Cement Pastes**
Jolanta Pranckevičienė, Vilnius Gediminas Technical University, Lithuania

FM-37 **Synthesis of N, B-Doped Carbon Quantum Dots from Spruce Lignin and Their Use as a Temperature Probe**
Jelena Papan Djaniš, University of Ljubljana, Slovenia

FM-38 **Eu^{3+}-Doped Sr_2LaF_7 Nanopowders for Indoor Plant Growth LED Applications**
Ljubica Dacanin Far, University of Belgrade, Serbia

FM-39 **Deep-Red Emitting $Mg_2TiO_4:Mn^{4+}$ and $Ag@SiO_2@Mg_2TiO_4:Mn^{4+}$ Nanoparticles**
Mina Medic, University of Belgrade, Serbia

FM-40 **Emission Enhancement by Bi^{3+} Co-Doping of Red-Emitting Nanophosphor for Horticulture LEDs**
Sanja Kuzman, University of Belgrade, Serbia

FM-41 **Green Synthesis of Bimetallic Nanoparticles and their Catalytic Activity in the Degradation of Harmful Organic Dyes**
Moldovan Bianca, Babeș-Bolyai University, Romania

FM-42 **Probing the Impact of Deposition Energy on CAE-PVD of Hard Multi-Nanolayer TiMoN/NbN Coatings**
Olga Maksakova, V.N. Karazin Kharkiv National University, Ukraine

FM-43 **Reduced Graphene Oxide Aerogels as Adsorbents for Gas Phase Separations**
Maksymilian Plata Gryl, Gdansk University of Technology, Poland

FM-44 **Investigation of Embraced Metal Effects on Super Atomic Molecular Orbital of C_{70}**
Tomohiro Nobeyama, Kyoto University, Japan

FM-45 **Aerobic Ethanol Oxidation by Magnetic Inductive Heating of Pd on Ni-Foam**
Anna Maria Ferretti, CNR SCITEC, Italy

FM-46 **The Magnetism of Hollow High-Entropy Spinel Oxide Nanofibers**
Anna Maria Ferretti, CNR SCITEC, Italy

FM-47 **CeO_2 Derived from MOFs for Spinel-Based Ceramics**
Klaudia Dymek, Cracow Institute of Technology, Poland

FM-48 **Sodium Ion Thermodiffusion in Aqueous Solutions Confined in Silica-Based Nanoporous Materials for Low-Grade Heat Conversion to Electricity**
Irina Oliseveca, University of Latvia, Latvia

FM-49 **Study of Structural, Optical and Photoelectric Properties of 3D-Printed Nanostructured CuO Films on Flexible Substrates for Environmentally Friendly Solar Cells: Effect of Thermal Annealing**
Anatolii Bukivskyi, Institute of Physics of National Academy of Sciences of Ukraine, Ukraine

FM-50 **Biogenic Cockle-Derived Calcium Chloride: A Potential Agent for Biomedical Applications**
Bridget C.N. Obitte, University of Nigeria - Nsukka, Nigeria

FM-51 **NIR-Responsive Laser-Textured Titanium Implants with MOF Coatings for Effective Antimicrobial Action**
Lekshmi Gopakumari, Lodz University of Technology, Poland

FM-52 **Plasma-Oxidation Driven Surface Instability in PDMS: Mechanisms and Morphological Evolution**
Sushree Ritu Ritanjali, Indian Institute of Technology Kharagpur, India

Day-2, Tuesday | Meeting Room Taburiente I | October 28, 2025

08:45 **Introduction and Day 2 Opening Remarks**

Moderator: Ester Vazquez, University of Castilla-La Mancha, Spain

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08:50 **Chemical Pattering of Graphene and Inorganic 2D-Materials**
Andreas Hirsch, University of Erlangen-Nuremberg, Germany
Talk Supported by: ***CICA- Interdisciplinary Center for Chemistry and Biology, Spain***

Keynotes

09:30 **Synthetic Extracellular Matrix Analogues: Driving Tissue Regeneration through Highly-Tuned Control of Bioligand Presentation to the Cells**
Matteo Santin, University of Brighton, United Kingdom

10:00 **Advances in Materials and Technology for Volumetric 3D Printing**
Christophe Moser, Ecole Polytechnique Fédérale de Lausanne, EPFL, Switzerland

10:30 **Networking & Coffee**

Symposium III: Nanotechnology and Nanomaterials (I)

Session 1: Characterization and Modeling

Chair: TBA

11:00 **Atomistic Simulation for Nanoparticle and Nanodevice Design**
Panagiotis Grammatikopoulos, University of Castilla-La Mancha, Spain

11:20 **Advanced Characterization of Oxide Nanomaterials Using Infrared Spectroscopy**
Iñigo González de Arrieta, University of the Basque Country UPV/EHU, Spain

11:40 **Ternary $W_xTi_{1-x}O_2$ and Heterostructured TiO_2-WO_{3-x} Nanoarchitectures: Scalable Microwave-Assisted Synthesis, Hot-Carriers Dynamics and Photocatalytic Effectiveness in the Solar Range**
Riccardo Scarfiello, CNR-NANOTEC, Italy

12:00 **Tailoring the Ultrafast Coincidence Time Resolution in Novel Highly Luminous Metascintillators**
Irene Villa, University of Milano-Bicocca, Italy

12:20 **Study of Water and Ethanol Sorption in ZIFs for Heat Storage**
Ciara Byrne, National Institute of Chemistry, Slovenia

Session 2: Bioengineered Nanomaterials

Chair: TBA

12:40 **Development and Characterization of Thermoplastic Starch Composites with Carrageenan Additive and Reed Biomass Derived Reinforcement**
Remo Merijs-Meri, Riga Technical University, Latvia

13:00 **Lunch**

Keynote

14:00 **Electroactive Framework Materials for Energy Storage: Dual Proton-Electron Conductors and Organic Electrodes for Rechargeable Batteries**
Manuel Souto Salom, University of Santiago de Compostela, Spain

Session 2: Bioengineered Nanomaterials *Continues*

14:35 **Mucoadhesive and Nanoparticle-Based Drug Delivery System for Oral Mucosa: Production and *In Vitro* Evaluation**
Giuseppina Nocca, Catholic University of the Sacred Heart, Italy

14:55 **Anti-Wear Laser Dimples on Ti/HAp Bio Composites Loaded with Gentamycin**
Agnieszka Maria Tomala, Cracow University of Technology, Poland

15:15 **Tailored Chemistry of Magnetic Nanomaterials for Neural Control**
Danijela Gregurec, Friedrich-Alexander University of Erlangen-Nuremberg, Germany

15:35 **Synthesis of Magnetoelectric Nanoparticles via Hydrophobic Layer Deposition of Barium Titanate and their Application in Neuron Stimulation**
Vicente Duran Toro, Friedrich-Alexander University of Erlangen-Nuremberg, Germany

16:10 **VISIT followed by Informal Dinner (20:00)** (Ticket Required)

Day-2, Tuesday | Room II | October 28, 2025

Symposium IV: Future Materials for Energy, Environment and Sustainability (I)

Session 1: Functional Materials and Fundamental Studies

Chair: TBA

11:00 **Super-Emitting and Porous Materials for Applications In Energy-Water-Air Nexus**
Primož Poredoš, University of Ljubljana, Slovenia

11:20 **Sulfur Tuned Advanced Carbons: Towards Subtle Modifications of Sulfur Lining**
Teresa J. Bandosz, The City College of New York, United States

11:40 ***Ab Initio* Study of Reaction Kinetics Occurring at the Surface of $SrFeO_3$-Based SOFC/SOEC**
Mario Italo Trioni, CNR SCITEC, Italy

12:00 **Hidden Aspects of Solid-State Reactions - View Under the Hood**
Nikola Biliskov, Rudjer Boskovic Institute, Croatia

12:20 **Removal of Azo Dyes from Water Using Carbon Based Material - A DFT Study**
Eva Scholtzová, Institute of Inorganic Chemistry, Slovak Academy of Sciences, Slovakia

12:40 **Boosting Cathodes for Next-Gen Sodium-Ion Batteries through Interface Engineering with *In Situ* Electropolymerized PEDOT**
Rafael Orlando Klee Morán, University of Córdoba, Spain

13:00 **Lunch**

Session 2: Solar Energy and Photoelectrochemistry

Chair: TBA

14:35 **SYNATRA Project - Synergistic Architectures for Next Gen Agrivoltaics Incorporating Transparent Organic Solar Modules**
Ignasi Burgés-Ceballos, Polytechnic University of Catalonia (UPC), Spain

14:55 **Towards Two New Atomic Layer Deposition Processes for the Synthesis of Single-Phase CoO or Co_3O_4 Layers for the Conversion of Solar Energy into Hydrogen**
Olivier Debieu, CRISMAT - ENSICAEN, France

15:15 **$Ag_1(InGa)_1(S1Se_{1-x})_2$ Quantum Dot Sensitized Cobalt Sulphide Cocatalyst Activated TiO_2 Photoelectrode for Photoelectrocatalytic Water Splitting**
Oluwasesan Adegoke, University of Dundee, United Kingdom

15:35 **Organic Photovoltaics for Urban Environments**
Sergi Riera-Galindo, ICMAB-CSIC, Spain

16:10 **VISIT followed by Informal Dinner (20:00)** (Ticket Required)

Day-3, Wednesday | Meeting Room Taburiente I | October 29, 2025

08:30 **Introduction and Day 3 Opening Remarks**

Moderator: Ester Vazquez, University of Castilla-La Mancha, Spain

08:40 **Advanced Electronic Materials- *Wiley Journal Talk***
Gaia Tomasello, Editor in Chief - Advanced Electronic Materials

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09:00 **Nanotechnology-Enabled Energy Efficiency Electronics**
Bingqing Wei, University of Delaware, United States

Keynotes

09:40 **Polypeptide-Based Therapeutics: Exploring Tropism and Overcoming Biological Barriers**
Maria Jesus Vicent, The Príncipe Felipe Research Center Foundation (CIPF), Spain

10:10 **Serendipity Sometimes Works**
José Luis Vilas Vilela, University of the Basque Country UPV/EHU, Spain

10:40 **Networking & Coffee**

Symposium III: Nanotechnology and Nanomaterials (II)

Session 3: Functional and Hybrid Nanomaterials

Chair: TBA

11:10 **Functionalization of 2D Materials and the Development of Nano-Hybrid Platforms for Biosensing and Nanofluidic Applications**
Martina Lihter, Institute of Physics, Croatia

11:30 **Novel Magnetic Cellulose Nanocomposite Coating as a Potentially Flexible Electronic Material**
Andrei Chumakov, DESY - German Electron Synchrotron, Germany

11:50 **Design of Protein-Based Hydrogels Loaded with Graphene**
Giulia Quaglia, University of Perugia, Italy

Young Researchers Presentations (I)

12:10 **Reductant Assisted Hydrothermally Synthesized Ni-Fe Based Magnetic Nanoalloys for Tunable Magnetization**
Aiswarjya Bastia, Indian Institute of Technology (BHU) Varanasi, India

12:25 **MXene-Reinforced Carrageenan/PVA Nanocomposite Films with Advanced Functionalities for Sustainable Packaging Applications**
Hongna Yuan, Queen Mary University of London, United Kingdom

12:40 **Transport of Micrometer Sized Chips with Patterned Liquid Micro Rails**
Pedro H. O. Moreira, Ilmenau University of Technology, Germany

12:55	**Design Evolution of Pillar[5]arene-Based Nanopores: From Dynamic Control to High Sensitivity Sensing** **Kharina Fenton,** King's College London, United Kingdom
13:10	**Advances in MOF-Based Magnetic Composites and MOF-Derived Nanomaterials: Synthesis and Catalysis** **Priyanka,** University of Delhi, India
13:25	**Lunch**

Keynote

14:10	**Development of Self-Healing Aluminium Alloys** **Cecilia Poletti,** IMAT- TU Graz, Austria

Session 4: Synthesis and Nanoarchitectures

Chair: TBA

14:45	**Ultra-Fast DC Sputtering of Silver Nanoparticles for Tailored Plasmonic Architectures Without Templates** **Arturo Rodríguez-Gómez,** Institute of Physics - UNAM, Mexico
15:05	**Graphene-Si_3N_4 Nanocomposites: From the Powder Synthesis to the Properties** **Alicia Weibel,** CIRIMAT / University of Toulouse, France
15:25	**Nanomaterials Based on Quinoid Complexes: From Solution to Surface** **Olivier Siri,** Aix-Marseille University, France
15:45	**Synthesis and Characterization of TiO_2 Nanostructures on $Ti_{28}Nb_4Sn$ Alloy via Electrochemical Anodization** **José Rodrigo Muñoz Hoyos,** Antonio Narino University, Colombia
16:05	**Light-Driven Skyrmion Crystal Generation in Plasmonic Metasurfaces Through the Inverse Faraday Effect** **Mathieu Mivelle,** CNRS, Sorbonne University, INSP, France
16:25	**Coffee**

Session 5: Smart and Sustainable Nanomaterials

Chair: TBA

16:45	**Engineering Innovative Nanobiosensors with Tunable SERS Hotspots for Ultra-Sensitive Detection of Viral Pathogens in Food and Water** **Ojodomo Achadu,** Teesside University, United Kingdom
17:05	**Molecularly Imprinted Polymer for IL-6 Using Conductive Nanomaterials** **Ana Rita Cardoso,** BioMark@UC- University of Coimbra, Portugal
17:25	**Eco-Design of Porous Silica Adsorbents** **Ivalina Trendafilova,** Institute of Organic Chemistry with Center of Phytochemistry, BAS, Bulgaria

17:45	**Smart Solutions for Liquid Purification: Porous Materials for Water and Oil** **Sunny Freitas,** NOVA School of Science and Technology, Portugal
18:10	**Awards Distribution** followed by **In-Person Clossing Remarks**

Symposium IV: Future Materials for Energy, Environment and Sustainability (II)

Session 3: Catalysis for Energy and Environment (Evolution and Reduction Reactions)

Chair: TBA

11:10 **Nickel-Induced Reduced Graphene Oxide Nanoribbon Formation on Highly Ordered Pyrolytic Graphite for the Hydrogen Evolution Reaction**
Gonzalo García, University of La Laguna, Spain

11:30 **Nickel, Cobalt and Ferrocene: Promising Combined Catalysts for Enhanced Oxygen Evolution Reaction**
Jose María Abad, Consejo Superior de Investigaciones Científicas (CSIC), Spain

11:50 **Influence of Li and Na Addition on the Stability, Structure and Electrocatalytic Activity of (Mg, Co, Ni, Cu, Zn)O High Entropy Oxide for Oxygen Evolution Reaction**
Mohammad Imteyaz Ahmad, Indian Institute of Technology (BHU), India

Young Researchers Presentations (II)

12:10 **Solid State Electrolytes By Hybridization of Ionomer Membrane: Elaboration and Properties**
Jean Alchemaly, CEA / University of Grenoble Alpes, France

12:25 **Microstructure Modeling for Efficient Processing**
Talina Terrazas, IMAT - Graz University of Technology, Austria

12:40 **Harnessing the Dual Functionality of Carbon Nano-Onions: A Synergistic Approach to Light-Driven Biomedical Applications**
Julia M. Requena Ramírez, ICMol - University of Valencia, Spain

12:55 **Hydrogel-Based 3D Printed Anthropomorphic Phantoms for Microwave Breast Imaging**
Carlos Martín Andreu, University of Castilla-La Mancha/IRICA, Spain

13:10 **Lunch**

Session 4: Advanced Energy Storage

Chair: TBA

14:45 **Low-Carbon Footprint Synthesis of Si Anodes for Li-Ion Batteries from the SiO_2 Shells of Diatom Microalgae**
Maria Valeria Blanco, ICMAB-CSIC, Spain

15:05 **Strategies to Enhance the Performance of the LNMO Cathode for Generation 3b Li-Ion Batteries**
Jordi Jacas Biendicho, Catalonia Institute for Energy Research-IREC, Spain

15:25 **Alternative Polymer Host Matrix for Lithium Metal Polymer Solid-State Batteries**
Shanmukaraj Devaraj, CIC EnergiGune, Spain

15:45	**Molecular Dynamics Insights into the Ethaline|$Au_{(100)}$ Interface for Sustainable Memory/Storage Applications** **M. Natalia D.S. Cordeiro,** LAQV-REQUIMTE, University of Porto, Portugal
16:05	**Networking & Coffee**

Session 5: Electrochemical Conversion and Storage (Supercapacitors and Hydrogen)

Chair: TBA

16:35	**Green Energy Harvesting from the Air by Capturing CO_2 in an Electrochemical Capacitors** **Andrea Lamberti,** Polytechnic University of Turin, Italy
16:55	**Nickel@Polypyrrole nanofiber as a High-Performance Electrode Material for Supercapacitor Applications** **Suparna Das,** CIIAE - Iberian Centre for Research in Energy Storage, Spain
17:15	**Development and Investigation of High Surface Area Porous Carbon for Efficient Hydrogen Storage** **Fail Sultanov,** National Laboratory Astana, Nazarbayev University, Kazakhstan
17:35	**Fabrication, Characterization, and Evaluation of Guar Gum-Grafted Tannic Acid based Polymer Composite for the Removal of Pb(II) from Wastewater** **Ghada Taha,** National Research Centre, Egypt
18:10	**Awards Distribution** followed by **In-Person Clossing Remarks**

Day-4, Thursday | **Online** Western European Summer Time (WEST) | **October 30, 2025**

10:20 **AV Check**

10:30 **Introduction and Day 4 Opening Remarks**

Keynote

10:40 **Building Human Organs with Butterfly, Graphene and Stem Cell**
Alexander Seifalian, NanoRegMed Ltd, Nanoloom Ltd, & Liberum Health Ltd, United Kingdom

Online Symposium I: Future Biomaterials-Biomedical, Medicine and Other Applications

Chair: TBA

11:10 **"Smart" Photoactive Theranostic Nanoplatforms for Precision Cancer Therapy**
Ding-Kun Ji, Shanghai Jiao Tong University, China

11:30 **Mechanics Meets Light in Biomaterials: Novel MechanoOptical Biomarkers for Cancer and Pulmonary Fibrosis**
Andreas Stylianou, European University Cyprus/ EUC Research Centre, Cyprus

11:50 **3D Printed Magnetic Scaffolds for Precise and Tunable On-Demand Drug Delivery**
Elizabeth Rendon-Morale, University of Sussex, United Kingdom

Online Symposium II: Nanotechnology and Nanomaterials

Chair: TBA

12:10 **Carbon Dots Powering Innovation in Health and Environment**
Gil Alberto Batista Gonçalves, University of Aveiro, Portugal

12:30 **Effect of Graphene Additives on the Physical and Mechanical Properties of Zirconium Dioxide**
Edvin Hevorkian, University of Life Sciences in Lublin, Poland

Online Symposium III: Future Materials for Energy, Environment and Sustainability

Chair: TBA

12:50 **Nanostructured Materials for Energy Conversion**
Maria Gimenez Lopez, CIQUS- University of Santiago de Compostela, Spain

13:10 **Comparative Safety Assessment of Commercial Cylindrical 18650 Sodium-ion Cells and POLiS Reference Pouch Cells**
Carlos Ziebert, Karlsruhe Institute of Technology, Germany

13:30 **Designing Carbonaceous Materials for Environmental Applications**
Nieves López Salas, Paderborn University, Germany

13:50 **Mass Transport in Iron, FeCr Alloys and Ferritic Steels**
Olga Kulitckaya, University of Münster, Germany

14:10 **E-Poster: Computational Evaluation of Copolymer Synthesizability for New Materials for Environmental Sustainability**
Sidh Jaddu, Thomas Jefferson High School For Science and Technology, United States

14:20 **Break**

Online Symposium IV: Materials for Electronics, Optics and Photonics

Chair: TBA

14:30
Artificial Magnetoelectric Multiferroic Thin Films Combining Ferrites and Barym Titanate
Antoine Barbier, Université Paris-Saclay, CEA, CNRS, SPEC, France

14:50
Highly Efficient Polymeric Electrochromic Devices- Modifying the Chemical Structure of the Chromophores and the Polymer Backbone
Laura Maggini, University of Vienna, Austria

15:10
Carbon Nanotube Device Engineering
Taher Ghomian, University of Maine, United States

15:30
Exploring Thermoluminescence Properties of Gadolinium Aluminum Borate Phosphors Doped with Europium: Effects of Europium Incorporation Under Beta Radiation
Osama Madkhali, Jazan University, Saudi Arabia

15:50
YRP: On the Strong Composition Dependence of the Martensitic Transformation Temperature and Heat in Shape Memory Alloys
Asmaa Hassan, University of Debrecen, Hungary

16:05 **Online Closing Remarks** *(Zoom Session)*