

PROGRAM

4<sup>th</sup> International Conference on  
**Advanced  
Polymer Science  
and Engineering**

23-25 October, 2023 | Valencia, Spain | Hybrid



**Barcelo Valencia HOTEL**  
Av. de Franca, 11, 46023 Valencia,  
Valencia, Spain



**Timezone:**  
CEST (Spain Time)



**Join Zoom Meeting:**

<https://us06web.zoom.us/j/88566177933?pwd=GRCXZy2MYFwDObPJCnWQA67dhaFYVX.1>

Meeting ID: **885 6617 7933**

Passcode: **569891**

8:15 Onsite Registrations

8:50 Opening Remarks and Introduction

### Keynote Session | (35+5) Minutes

9:00 **Water-activated Carbon-capture: From Nanostructured to Hybrid-integrated Membranes**  
**Richard Spontak**, North Carolina State University, United States

9:40 **Application of Organic Catalysis and Sustainable Chemistry Towards AI-assisted Materials Discovery**  
**James Hedrick**, IBM Almaden Research Center, United States

10:20 **Coffee Break**

### Session 1: Polymer Engineering for Biomedical Applications (15+5) Minutes

**Session Chair:** **Richard Spontak**, North Carolina State University, United States

10:40 **Changes in Ion Concentrations Upon the Binding of Short Polyelectrolytes on Phospholipid Bilayers: Computer Simulation Study**  
**Karel Prochazka**, Charles University, Czech Republic

11:00 **Development of PVA Electrospun Nanofibers for Fabrication of Bacteriological Swab**  
**Rebecca Pellegrino**, University of Salento, Italy

11:20 **Preparation and Characterization of a Biodegradable Hydrogel for Female Hygiene Products**  
**Vimla Paul**, Durban University of Technology, South Africa

11:40 **Bio-inspired Polyamines: Synthesis, Self-organization and Delivery Systems**  
**Vadim Annenkov**, Limnological Institute Siberian Branch of Russian Academy of Sciences, Russian Federation

12:00 **An Advanced Approach for Preparation of Spherical Nucleic Acids with Polymer or Hybrid Polymer/ Phospholipid Cores**  
**Emi Haladjova**, Institute of Polymers, Bulgarian Academy of Sciences, Bulgaria

12:20 **Original Synthesis of Novel Amphiphilic Polymeric Systems by Initiator-free Thiol-ene "Click" Coupling Reactions**  
**Natalia Toncheva-Moncheva**, Institute of Polymers, Bulgarian Academy of Sciences, Bulgaria

12:40 **Lunch**

### Session 2: Advances in Polymer Composites & Colloids Research (15+5) Minutes

**Session Chair:** **Alexey Iordanskii**, Semenov Research Center of Chemical Physics, Russian Federation

13:40 **Covalent Adaptable Networks as Biobased Binders in Composites**  
**Julio Vidal**, Aitiip Centro Tecnológico, Spain

14:00 **Thermoplastic Composites with Plasma Treated Polyethylene Matrix**  
**Petr Spatenka**, Czech Technical University in Prague, Czech Republic

14:20 **Effects of UV and Atmospheric Plasma Treatments on Fracture Toughness of Glass Fibre Reinforced Thermoplastic Composites**  
**Alojz Ivankovic**, University College Dublin, Ireland

14:40 **Evolution of Fused-Filament-PLA Properties Due to Physical Aging**  
**Jaime Orellana-Barrasa**, Universidad Politecnica de Madrid, Spain

- 15:00 **Effect of Fiber Loading on Thermal, Morphological Properties of Biodegradable Polybutylene Succinate/Waste Natural Fiber Composites**  
**Mohau Phiri**, Vaal University of Technology, South Africa

**Session 3: Advanced Polymer Materials Research  
(15+5) Minutes**

**Session Chair:** **James Hedrick**, IBM Almaden Research Center, United States

- 15:20 **Electrospun Polymer Materials with Targeted Design for Pollutant Removal**  
**Olya Stoilova**, Institute of Polymers, Bulgarian Academy of Sciences, Bulgaria
- 15:40 **Alcoholysis of Poly(bisphenol A carbonate) Computational Investigation of Environmental-friendly, Economic, and Effective Way to Degrade Plastics**  
**Shiru Lin**, Texas Woman's University, United States
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- 16:00 **Coffee Break**
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- 16:20 **Rheological Properties of Aqueous Graphene Oxide/TEMPO-oxidized Cellulose Nanofibrils Suspensions**  
**Iris Malnaric**, University of Ljubljana, Slovenia
- 16:40 **Rheology and Reactivity of Different Acid Systems with Carbonate Rocks**  
**Bader Alharbi**, Aramco, Saudi Arabia
- 17:00 **Comparison of the Friction Behaviour of Textured Surfaces Between Different Polymer Materials**  
**Isabela da Conceicao Evangelista**, University College of Dublin, Ireland
- 17:20 **Diffusion Phenomena in Biodegradable Composites: From Barrier Packaging to Electrospun Fibrils for Drug Delivery**  
**Alexey Iordanskii**, Semenov Research Center of Chemical Physics, Russian Federation
- 17:40 **Polyacrylonitrile Membranes Doped with Carbonaceous Materials in Low Salinity Water Desalination Process**  
**Diego Merchan**, Ecopetrol SA, Colombia

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08:50 Opening Remarks

### Keynote Session | (35+5) Minutes

09:00 **Effect of Polymer Interlayers in Perovskite Solar Cells and Memory Devices**

**Antonio Guerrero**, Institute of Advanced Materials (INAM), Spain

09:40 **Liposome Serum Development Utilizing Hydrolyzed Collagen from Seafood Industry By-product for Facial Nourishment**

**Thanaporn Amnuaikit**, Prince of Songkla University, Thailand

10:20 **Coffee Break**

### Session 4: Innovations in Sustainable Polymer Materials and Recycling (15+5) Minutes

**Session Chair: Antonio Guerrero**, Institute of Advanced Materials (INAM), Spain

10:40 **The Plastics Paradox**

**Sibele Cestari**, Innovation in Polymer Engineering (PIEP), Portugal

11:00 **Re-valORIZING Industrial Biogenic Waste – Sustainable Substitutes for Fossil-based Polymers**

**Marius Wolf**, Fraunhofer IWKS, Germany

11:20 **Paving the Way to Sustainability: Exploring the Synthesis of Ligninderived Diisocyanates for Bio-based Polyurethanes Elaboration**

**Alienor Delavarde**, Institute Charles Gerhardt Montpellier, France

11:40 **Development of Specific & High Affinity Polymer-binding Peptides for Microplastic Identification and for Enhanced Enzymatic Degradation**

**Sonja Harter**, Helmholtz Institute Freiberg for Resource Technology, Germany

12:00 **Teaching Sustainability Using 3D Printing in Engineering Education: An Observational Study**

**Thanh Tuan To**, Swinburne University of Technology, Australia

12:20 **Development of Bio-based Derived Thermosets Derived from Acrylated Epoxidized Soybean Oil (AESO) and Environmentally Friendly Cinnamates**

**Jaume Gomez Caturla**, Polytechnic University of Valencia, Spain

12:40 **Compatibilization of PLA/Posidonia Composites with Cinnamon Derived Plasticizer by Means of Reactive Extrusion**

**Juan Ivorra Martinez**, Polytechnic University of Valencia, Spain

13:00 **Lunch**

14:00 **Compatibilization Solution for Enhancing Plastic Waste Content in Bitumen**

**Mateusz Malus**, Gdansk University of Technology, Poland

14:20 **Functionalisation of Lignocellulosic Fibres for the Fabrication of Porous SiC(O) Ceramics from Pre-ceramic Precursors**

**Romain Lucas-Roper**, IRCER, France

## Session 5: Advances in Polymer Materials and Applications (15+5) Minutes

Session Chair: **Michael D. Gilchrist**, University College Dublin, Ireland

- 14:40 **Semiconductor Wide Band Gap Cd<sub>1-x</sub>BexTe Crystals-based Dye-sensitized Solar Cells**  
**Diksha Singh**, Nicolaus Copernicus University, Poland
- 15:00 **Extremely Stretchable Sustainable Elastomeric Conductor for Printed Soft Electronics**  
**Gurunathan Thangavel**, Technology Innovation Institute, United Arab Emirates
- 15:20 **Magnetoactive Elastomer Lamellar Surfaces: Frustration, Optical Properties and Object Transport**  
**Gasper Kokot**, Jozef Stefan Institute, Slovenia

15:40 **Coffee Break**

- 16:00 **Polymers Tribology in Food Packaging Equipment**  
**Rossi Silvia**, Tetra Pak Packaging Solutions Spa, Italy
- 16:20 **Hybrid Bioactive Materials for Bone Tissue Engineering**  
**Khalil El Mabrouk**, Euromed University of Fes, Morocco
- 16:40 **Collapse Dynamics of Chemically Active Flexible Polymer**  
**Namita Jain**, IISER BHOPAL, India
- 17:00 **Chemical Recycling of Polyolefins: An Approach to Reduce Power Consumption**  
**Marcelo Calagua Vega**, Universidad Carlos III de Madrid (UC3M), Spain

17:20 Onwards

Poster Presentations

- P-1 **PHBV Production by Haloferax Mediterranei Cell Factory Through Agricultural Wastes Valorization**  
**Maria Nicolas Liza**, Cectec Biotechnology, Spain
- P-2 **Effects of Graphene on Bone Cement (PMMA-based) Curing Times**  
**Jaime Orellana-Barrasa**, Polytechnic University of Madrid, Spain
- P-3 **Polymer Coated Silicone Urinary Catheters with Anti Fouling Properties**  
**Jan Tejbrant**, Cytacoat AB, Sweden
- P-4 **Smart Hydrophilic Polymers with Multiple Sensitivity**  
**Elena Danilovtseva**, Russian Academy of Sciences, Russian Federation
- P-5 **Oxepine-based p-Conjugated Ladder Polymer**  
**Nathan Man-Wai Wu**, Massachusetts Institute of Technology, United States
- P-6 **Birch Outer Bark Extraction Residue as a Feedstock to Replace Synthetic Polymer Constituents**  
**Janis Rizikovs**, Latvian State Institute of Wood Chemistry, Latvia
- P-7 **Polymeric Binders for Metal Injection Molding: Simulation Studies**  
**Isabel Lado-Tourino**, European University of Madrid, Spain
- P-8 **A Study on the Bonding Performance of Steel-polymer Hybrid Materials Under Vehicle Driving Temperature Conditions**  
**Jinho Park**, Korea Automotive Technology Institute, South Korea
- P-9 **A Study on Miscibility Properties of Polyacrylonitrile Blending Films with Biodegradable Polymer, Shellac**  
**Beom-Gon Cho**, Korea Automotive Technology Institute, South Korea
- P-10 **Preparation of Polyimide/Silica Sol Nanocomposite Coatings with High Transparency and Self-cleaning Properties**  
**Yun-Je Choi**, Yonsei University, South Korea
- P-11 **The Effects of Different Physical Fields on Swelling Kinetics of PMAA-LTA Zeolite Composite Hydrogel Under Controlled Isothermal Conditions**  
**Jelena Jovanovic**, Institute for General and Physical Chemistry, Serbia
- P-12 **Direct In-situ Polymerization to Produce Polycaprolactone/Montmorillonite Nanocomposite**  
**Amine Harrane**, Department of Chemistry FSEI, Algeria

- P-13 **Production of Low-density Nanocellular Foam Based on PMMA/PEBAX Blends**  
**Nigus Maregu Demewoz**, National Taiwan University of Science and Technology, Taiwan
- P-14 **Natural and Recyclable Alginate Hydrogels as Extracting Media for Recovering Valuable Metals of Spent Lithium-ion Batteries from a Deep Eutectic Solvent**  
**Yifeng Wang**, BCmaterials, Spain
- P-15 **Insight and Comparison of Property Improvement in LTA and MFI Zeolite Reinforced Poly(methacrylic acid) Highly Concentrated Composite Hydrogels**  
**Vesna Panic**, University of Belgrade, Yugoslavia
- P-16 **New Perspectives for ORR Electrocatalysts: Challenges and Opportunities of Graphene-based Materials**  
**Adriana Marinoiu**, ICSI Rm. Valcea, Romania
- P-17 **Amine Grafted Poly(acrylic-maleic) for Stainless Steel Corrosion Inhibition**  
**Bader Alharbi**, Aramco, Saudi Arabia
- P-18 **Valorization of Plastic and Cork Wastes in the Production of New Composite Materials**  
**Svetlana Petlitchkaia**, University of Corsica, France
- P-19 **Recycling and Refund of PET and Aluminum Packaging – The REAP Project**  
**Sara Magalhaes da Silva**, Aveiro University, Portugal
- P-20 **Influence of Expanded Graphite on Fire Hazard Parameters Composites of EPDM Rubber**  
**Przemyslaw Rybinski**, Jan Kochanowski University, Poland
- P-21 **Valorization of Marine Residues for Textile Application**  
**Sandra Sampaio**, PIEP, Portugal

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8:50 Opening Remarks

**Session 6: Advances in Polymer Science, Synthesis and Characterization of Polymeric Materials  
(15+5) Minutes****Session Chair:** Alexey Iordanskii, Semenov Research Center of Chemical Physics, Russian Federation9:00 **Measuring Structural Composite Panel Temperature Exposed to a Flame**

Fabien Dupont, Telops, Canada

9:20 **Breaching the Outer Limits of Cationic Polymerization in the Quest for Sustainability**

Stewart P. Lewis, Pyramid Polymers LLC, United States

9:40 **Innovative Catalysts Based on Nitrogen-doped Graphene Materials**

Adriana Marinoiu, ICSI Rm. Valcea, Romania

10:00 **Coffee Break**10:20 **New Biodegradable Bio-based Plastic Film Developed from Cotton Gin Trash (A Byproduct of Cotton Industry)**

Renuka Dhandapani, Cotton Incorporated, United States

10:40 **Results of the Castor Oil-based Polyurethane Development in the Absorption of Impacts**

Graziella Trovati, University of Sao Paulo, Brazil

11:00 **An Insight Into Ziegler-Natta Catalyst Active Site Distribution for Polyolefins: Application of Jitter Differential Evolution**

Harshad Ramdas Patil, Reliance Industries Limited, India

11:20 **Precision Injection Moulding of Polymer Micro-components: Determining Heat Transfer Coefficient and Process Simulation**

Michael D. Gilchrist, University College Dublin, Ireland

11:40 **Separation of Liquid Mixtures Using Polymeric Membranes of Crosslinked PIM-1**

Sulaiman Aloraini, University of Manchester, United Kingdom

12:00 **Damage Analysis of Glass/Epoxy Composite on Varying the Matrix Weight Fraction under Low Velocity Impact & Flexural Loading**

Amit Kumar, DRDO, India

12:40 **Lunch & In-person Departures**

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- 14:30 **Moisture Kinetics and Long-term Durability of Ambient Cured Polymer Composites**  
Vistasp M. Karbhari, The University of Texas at Arlington, United States
- 15:10 **ChAgG-PCL/PVP Electrospun Fibers and their Potential Application as Wound Dressing**  
Luis Jesus Villarreal Gomez, Autonomous University of Baja California, Mexico
- 15:50 **Surface Modification of Biomimetic Moth Eye-like Patterned Polymer Films by Functional Materials via Interfacial Reaction**  
Do Sung Huh, Inje University, South Korea
- 16:30 **Recent Progress in Polyurethanes Using Renewable Resources**  
Ram K Gupta, Pittsburg State University, United States
- 17:10 **Controlled-release Protein-based Matrices from Agrowastes: A Novel Method of Fertilization**  
Mercedes Jimenez Rosado, University of Seville, Spain

**Oral Presentations | (15+5) Minutes****Session Chair:** Ram K Gupta, Pittsburg State University, United States

- 17:50 **Vacuum Pyrolysis of Waste Plastics into High-purity Monomers Using Spirit Lamp Flame for Convenient Chemical Recycling**  
Eri Yoshida, Toyohashi University of Technology, Japan
- 18:10 **Approach to Fool Proof Selectivity of Synthetic Analogues of Biological Receptors (MIPs)**  
Meenakshi Singh, Banaras Hindu University, India
- 18:30 **E7 Nematic Liquid Crystal Encapsulated in a Polymeric Photonic Crystal**  
Alexandra Mocanu, Politehnica University of Bucharest, Romania
- 18:50 **Oxygen Scavenger and Antioxidant LDPE/EVOH/PET-based Films Containing  $\beta$ -Carotene Intended for Fried Peanuts (*Arachis hypogaea* L.) Packaging: Pilot Scale Processing and Validation Studies**  
Ana Beltran Sanahuja, University of Alicante, Spain
- 19:10 **Poloxamer-407-induced Model of Triglyceridemia**  
Tatiana A. Korolenko, University of Missouri, Russia
- 19:30 **Special Aspects of Fatigue Testing for Composites**  
Aleksandr Elkin, Skoltech, Russian Federation
- 19:50 **The Impact of Different Inorganic Fillers on the Thermal Conductivity of Crosslinked Polytartaric Acid**  
Alexandrina Nan, Institute for Research and Development of Isotopic and Molecular Technologies, Romania
- 20:10 **A Metamaterial Absorber for Energy Harvesting and Specific Absorption Rate Applications in 28 GHz 5G Band**  
Buket Akin, Turkish Aerospace, Turkey
- 20:30 **Covalent Immobilization of Glucoamylase from *Aspergillus niger* on Epoxy Activated Supports**  
Yakup Aslan, Siirt University, Turkey



- 20:50 **Applications of Polymers to Help Reduce Water Pollution from Synthetic Dyes**  
**Januka Budhathoki-Uprety**, North Carolina State University, United States
- 21:10 **Proposing a Framework for the Digital Transformation Maturity of Electronic Sports Businesses in Developing Countries**  
**Arman Heidari**, University of Kurdistan, Iran
- 21:30 **Preparation of Herbal Loaded Alginate Based Hemostatic Dressing**  
**Ankita Sharma**, IIT Delhi, India
- 21:50 **Comparison of Fibre Reorientation of Short-and Long-fibre Reinforced Polypropylene by Injection Molding With a Rotating Mold Core**  
**David Diring**, University of Applied Sciences Osnabruck, Germany

### E-Poster Presentation (8+2) Minutes

- 22:10 **Use of Peruvian Native Potato Starch (Kulli Papa) in the Production of Biodegradable Films**  
**Leandro Neodini Remedio**, University of Engineering and Technology, Peru
- 22:20 **Ciprofloxacin Loaded Mixed Polymeric Micelles as Effective Antibiofilm Agents**  
**Emi Haladjova**, Institute of Polymers, Bulgarian Academy of Sciences, Bulgaria
- 22:30 **Preparation of Novel Polymeric Nanocarriers for Immobilization and Controlled Delivery of the Proteolytic Enzyme Serratiopeptidase**  
**Katya Kamenova-Stoyanova**, Institute of Polymers, Bulgarian Academy of Sciences, Bulgaria
- 22:40 **Design of Nanosized Drug Delivery Systems: Surface Modification of Niosomes by Amphiphilic (Co) Polymers**  
**Rumena Stancheva**, Institute of Polymers, Bulgarian Academy of Sciences, Bulgaria



We wish to see you again at  
**Polymer Connect-2024**



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**Email:** [committee@polymersconference.com](mailto:committee@polymersconference.com)

**Organising Partner**

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