

FINAL PROGRAM

5th International Conference on
**ADVANCED POLYMER
SCIENCE AND ENGINEERING**

October 23-25, 2024 | Athens, Greece | Hybrid



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Meeting ID: 823 6511 6997

Passcode: 508756

09:10 Opening Remarks & Introduction

Keynote Session

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

09:20 **TPEs for Use in the Energy Sector**
Richard Spontak, North Carolina State University, United States

10:00 **No Longer a Pipe Dream? Green Cationic Polymerization**
Stewart Lewis, Pyramid Polymers, United States

10:40 Coffee Break

11:00 **Biodegradable Polymers Application in Medicine, Packaging and Environmental Areas of Human Activities**
Alexey Iordanskii, Semenov Research Center of Chemical Physics, Russian Federation

Polymer Synthesis, Characterization & Applications

Featured Presentations

Chair: Stewart Lewis, Pyramid Polymers, United States

11:40 **Polymer Nanocomposites: Structure, Dynamics and Properties**
Kiriaki Chrissopoulou, FORTH/IESL, Greece

12:00 **Hybrid Polymeric Nanostructures from Synthetic Polymers and Biological Macromolecules**
Stergios Pispas, National Hellenic Research Foundation, Greece

12:20 **Self-assembled Biopolymer Nanostructures for Applications in Food Technology and Biomedicine**
Aristeidis Papagiannopoulos, National Hellenic Research Foundation, Greece

12:40 **Synthesis and Characterization of Statistical and Block Copolymers of Various Isocyanates via Coordination Polymerization**
Marinos Pitsikalis, National and Kapodistrian University of Athens, Greece

13:00 Group Photo & Lunch Break

14:00 **Facile Design of Libraries of Multi-functional Copolymers Based on Dialkylamino-derivatives**
Zacharoula Iatridi, University of Patras, Greece

14:20 **Polyethylene-co-norbornene Polyolefins Characterization and Chemical Recycling: A Starting Point Towards Photocatalytic Upgrade**
Daniel Serrano Garcia, Charles III University of Madrid, Spain

14:40 **From Single Molecule to Molecular Aggregate**
Zhen Li, Wuhan University, China

15:00 **Thermoresponsive Polymer Drug Conjugates for Precision Oncology**
George Pasparakis, University of Patras, Greece

15:20 **Young Researcher: Thermoresponsive Polymer Particles with Both LCST and USCT-type Behaviours Produced via RAFT Mediated PISA**
Beth Jordan, Loughborough University, United Kingdom

15:35 **Young Researcher: Numerical Study of the Mechanical Behavior of a Conceptual Polymeric Modular Design System for Hydroponics**
Andre Filipe Costa Gomes, PIEP - Innovation in Polymer Engineering, Portugal

15:50 Coffee Break

@ Foyer

Computational Modeling & Simulation of Polymeric Materials

Chair: [Anastassia Rissanou](#), National Hellenic Research Foundation, Greece

16:10 **Hierarchical Multiscale Modelling Schemes for Polymer Systems and Molecular Simulation Methods for the Study of Gas Sorption and Diffusion in Polymer Matrices**

[Niki Vergadou](#), National Centre for Scientific Research "Demokritos", Greece

16:30 **Connectivity-altering Monte Carlo in Polymer Melts: An Overview and Perspective**

[Loukas D. Peristeras](#), National Centre for Scientific Research "Demokritos", Greece

16:50 **Application of Flexible Tools in Magnesia Sector: The Case of Grecian Magnesite**

[Christos Evaggelou](#), CERTH/CPERI, Greece

17:10 **Introducing the Tailored Design of Polymers**

[Yianourakou Marianna](#), Materials Design, Inc., France

17:30 Poster Presentations

PC01 **Technical, Environmental, and Safety Aspects of Producing Colloidal Lignin Particles on the Pilot Scale**
[Elham Khalati](#), Aalto University School of Chemical Engineering, Finland

PC02 **Colorless and Soluble High-performance PFAS-free Polyimides from Aliphatic Anhydrides**
[Sara Greco](#), Valsynthese SA, Switzerland

PC03 **Comparative Analysis of 3D Printing and Injection Molding for Biocomposites: Quantifying Limitations in 3D Printing**
[Sunil Kumar L. Ramamoorthy](#), Swedish Centre for Resource Recovery, University of Borås, Sweden

PC04 **Efficient and Recyclable Solid-supported Pd(II) Catalyst for Microwave-assisted Suzuki Cross-coupling in Aqueous Medium**
[Abdulrahman M. Alazemi](#), Kuwait University, Kuwait

PC05 **Dillenia Indica Mucoadhesive Hydrogel Infused with Amphiphilic Polyphenol: Emerging Adsorbent and Antioxidant**
[Debolina Ghosh](#), Indian Institute of Technology Guwahati, India

PC06 **Single-step Synthesis ¹⁹F MRI Tracers with Enhanced Sensitivity via Gradient Copolymerization-induced Self-assembly**
[Vyshakh Manayath Panakkal](#), Charles University, Czech Republic

PC07 **Polymer Engineering for Biomedical Applications**
[Mariam Ksovreli](#), Agricultural University of Georgia, Georgia

PC08 **Green Reinforcement of Plastic Packaging by Starch Addition: A Coupled Computational and Experimental Study**
[Pietro Calandra](#), CNR, Italy

PC09 **Chemical Recycling and Physical Tuning of Necklace-shaped Polydimethylsiloxanes Bearing Anthracene Dimer Units**
[Atsuro Mori](#), Kumamoto University, Japan

PC10 **Architectural Influence of Polymer Brush-modified Tri-compartmental Anisotropic Particles in Stabilizing Pickering Emulsion**
[Subhashree Subhasmita Pradhan](#), Indian Institute of Technology Delhi, India

PC11 **DTI Analysis of the Implantation of Biomaterials Derived from Polyaniline for Tissue Regeneration in the Spinal Cord**
[Puebla-Garcia Melissa](#), Metropolitan Autonomous University Iztapalapa, Mexico

PC12 **Analysis of the Implantation of Biomaterials Derived from Polyaniline for Tissue Regeneration in the Spinal Cord Using Magnetic Resonance Spectroscopy**
[Ortega-Cruz Thania](#), Metropolitan Autonomous University Iztapalapa, Mexico

PC13 **Mechano-responsive and Photochromic Dithienylethene-polycaprolactone Conjugates**
[Medeina Steponaviciute](#), Yale-NUS College, Singapore

PC14 **Nanofibrillation of Technora and Production of Nanofiber Nonwoven Fabric**
[Gayeon Jeong](#), Chungnam National University, Korea (South)

08:50 Opening Remarks

Keynote Session

Chair: **Alberto Garcia-Penas**, Institute of Chemistry and Materials Technology, Spain

09:00 **Gasification Processes for a Circular Economy**

Alberto Garcia-Penas, Institute of Chemistry and Materials Technology, Spain

09:40 **Temperature Cycles Limits of PCT-based Smart Heaters from Conductive Polymers**

Petr Spatenka, Czech Technical University in Prague, Czech Republic

10:20 **Coffee Break**

@ Foyer

Advanced Applications of Polymers

Featured Presentations

Chair: **Stewart Lewis**, Pyramid Polymers, United States

10:40 **Biocompatible Drug Delivery Systems Able to Co-deliver Antimicrobial and Anticancer Agents**

Daniela Ailincăi, "Petru Poni" Institute of Macromolecular Chemistry, Romania

11:00 **Smart Nanostructured Materials as Drug Delivery Carriers to Treat Cancer, Kidney and Cardiovascular Diseases**

Hermis Iatrou, National And Kapodistrian University of Athens, Greece

11:20 **Hydrogels and Nanogels for Biomedical Applications**

Nikolaos Politakos, National Hellenic Research Foundation, Greece

11:40 **Multiphase Materials for 3D Printing Technology**

Jan Sezemsky, Czech Technical University in Prague, Czech Republic

12:00 **Thermoresponsive and Biodegradable Poly(oligoethylene glycol methyl ether methacrylate) Nanogels for Targeted Drug Model Release**

Mazrina Mazlan, University of Manchester, United Kingdom

12:20 **Plasma-synthesized Pyrrole-derived Polymer Evolution Implanted in Rhesus Monkey Spinal Cord Transection Model**

Axayacatl Morales-Guadarrama, Metropolitan Autonomous University Iztapalapa, Mexico

12:40 **Development of Planctomycetota Cell Factory Utilizing Cryogel-based Bioreactor**

Yafang Guo, Friedrich Schiller University, Germany

13:00 **Lunch**

14:00 **Young Researcher: Wound Sealing Polymers**

Ashrit Nair, Indian Institute of Technology Delhi, India

Environmental and Sustainable Polymers

Featured Presentations

Chair: **Petr Spatenka**, Czech Technical University in Prague, Czech Republic

14:15 **Manufacture of Cellulose- and Lignin-based Polymeric Biomaterials from Rice Straw for Use in the Footwear Industry**

Henoc Perez, INESCOP, Spain

14:35 **Polymers Tribology in Food Packaging Equipment**

Silvia Rossi, Tetra Pak, Italy

- 14:55 **Depolymerization of Different Structures of Polyurethane by Under Pressure Alcoholysis**
Jeanson Natacha, Chemistry Research Institute of Paris (IRCP), PSL University, France
- 15:15 **Targeting and Maintaining Stable Chromatographic Properties of Polymethacrylate-based Monoliths for Separation of Plasmid DNA**
Ines Bergoc, Sartorius BIA Separations d.o.o., Slovenia
- 15:35 **Self-sensing Structural Composites: A Piezoresistive Approach**
Joao Pedro Nunes Pereira, University of Beira Interior, Portugal
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- 15:55 **Coffee Break** @ Foyer
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- 16:15 **RAFT Polymerisation of Fatty Acid Acrylamide Monomers Derived from Plant Oils**
Oliver Harris, Loughborough University, United Kingdom
- 16:35 **Novel Green Pre-treatment for Improved Polyethylene Terephthalate (PET) Waste Degradability**
Francesco Millucci, University of Perugia, Italy
- 16:55 **Designing a Conceptual Model for the Digital Transformation of Digital Sports Businesses in the Era of Maturity**
Arman Heidari, University of Kurdistan, Iran
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- 19:00 Onwards **Social & Networking Dinner (*Ticket Required)**
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08:50 Opening Remarks

Keynote Talk

Chair: Alexey Loranskii, Semenov Research Center, Russian Federation

09:00 Investigating the Properties of Polybutadiene and Styrene-Butadiene Copolymers: A Comparative Study Using Atomistic and Systematic Coarse-Grained Models
Anastassia Rissanou, National Hellenic Research Foundation, Greece

Cutting-edge Research in Polymers

Featured Presentations

09:40 Computer Simulations of Polymer/Graphene Oxide Composites
Kostas Karatasos, Aristotle University of Thessaloniki, Greece

10:00 Smart Degradable Polymers
Maria Kaliva, FORTH/IESL, Greece

10:20 Coffee Break

@ Foyer

10:40 Water Effects in Amphiphilic Block Copolymers with Thermoresponsive Behavior
Apostolos Kyritsis, National Technical University of Athens, Greece

11:00 Breaking the Classic Boundary of Shape Memory Polymers with Dynamic Network Design
Tao Xie, Zhejiang University, China

11:20 Use of Analytical Techniques in the Study of an Industrial Metal-Polymer Surface Segregation Problem
Joshua Cunday, Newcastle University, United Kingdom

11:40 **Young Researcher:** Effect of h-BN and m-BN Nanosheets on Gas barrier and Weather Resistance Properties of Thermoplastic Polyurethane
Rishabh Tiwari, Indian Institute of Technology Delhi, India

11:55 **Young Researcher:** Effect of Epoxy-based Chain Extender on the Mechanical Properties of R-PET for Food Contact
Gustavo Kampa Santana, PIEP - Innovation in Polymer Engineering, Portugal

12:10 **Young Researcher:** Polymeric eBike - Replacement of Conventional Materials
Ana Vicente Ribeiro Barroso, PIEP - Innovation in Polymer Engineering, Portugal

12:25 In-Person Closing Remarks

12:40 Lunch & Departures

Chair: Eri Yoshida, Toyohashi University of Technology, Japan

- 14:00 **Versatile Hindered Amine-supporting Polymer for Capturing Acidic Pollutants to Form Unique Polymer Composites**
Eri Yoshida, Toyohashi University of Technology, Japan
- 14:20 **Calculation of Number-average Functionality and Gel-point for Stepwise Polymerization**
Hui Deng, Ruiyan Technology Co., Ltd., China
- 14:40 **Spiropyran-Merocyanine-Based Photoswitchable Polymer Systems**
Vadim Annenkov, Limnological Institute Siberian Branch of Russian Academy of Sciences, Russian Federation
- 15:00 **E-Poster: Photo- and pH-Sensitive Systems Based on Polyacids and Polyamines with o-Nitrobenzyl Ether Groups**
Elena Danilovtseva, Limnological Institute Siberian Branch of Russian Academy of Sciences, Russian Federation
- 15:10 **E-Poster: Progress in Self-repairing Water-blocking Materials for Engineering Uses in Water-associated Settings**
Wentong Lu, Shanghai University of Engineering Science, China
- 15:20 **Development of an Eco-friendly Rubber Shoe Sole Using Fly Ash as a Filler**
Chamal De Silva, The Plastics and Rubber Institute of Sri Lanka, Srilanka
- 15:35 **Revealing the Role of Chain Conformations on the Origin of the Mechanical Reinforcement in Glassy Polymer Nanocomposites**
Hilal Reda, The Cyprus Institute, Cyprus
- 15:55 **Furan-based Polymers Designed ad Hoc for Sustainable Monomaterial Food Packaging**
Valentina Siracusa, University of Catania, Italy

Chair: Jelena Jovanovic, Institute of General and Physical Chemistry, Yugoslavia

- 16:30 **Identifying Relationships between Hybrid Carrageenan Chemical Structures and the Viscoelastic Properties of the Formed Hydrogels**
Loic Hilliou, Institute for Polymers and Composites, University of Minho, Portugal
- 16:50 **Application of Geopolymer Material on Open Pit Mine Road: A Review**
Abdoul Wahab Ali Moussa, China University of Mining and Technology, Cameroon
- 17:10 **Impact Resistance of Layered Aramid Fabric: A Numerical Study on Projectile-induced Damage**
Larisa Titire, "Dunarea de Jos" University of Galati, Romania
- 17:30 **Optimization of Clutch Friction Disc Material Using Neural Networks**
Balasoiu George, "Dunarea de Jos" University of Galati, Romania
- 17:50 **Influence of Curcumin in Overall Migration of Polyurethane Films for Fruits and Vegetables Packaging**
David Ruiz, University of La Sabana, Colombia
- 18:10 **The Effects of Hydrogel Type on the Kinetics of Dehydration Process**
Jelena Jovanovic, Institute of General and Physical Chemistry, Yugoslavia
- 18:30 **E -Poster: Ballistic Impact Study of an Aramid Fabric by Changing the Projectile Trajectory**
Larisa Titire, "Dunarea de Jos" University of Galati, Romania
- 18:40 **E-Poster: Wind Turbine Blades Materials Behavior in Abrasive Wear Conditions**
Balasoiu George, "Dunarea de Jos" University of Galati, Romania

Virtual Closing Remarks

We wish to see you at
Polymer Connect-2024



Website: <https://polymersconference.yuktan.com/>

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