

Organization:

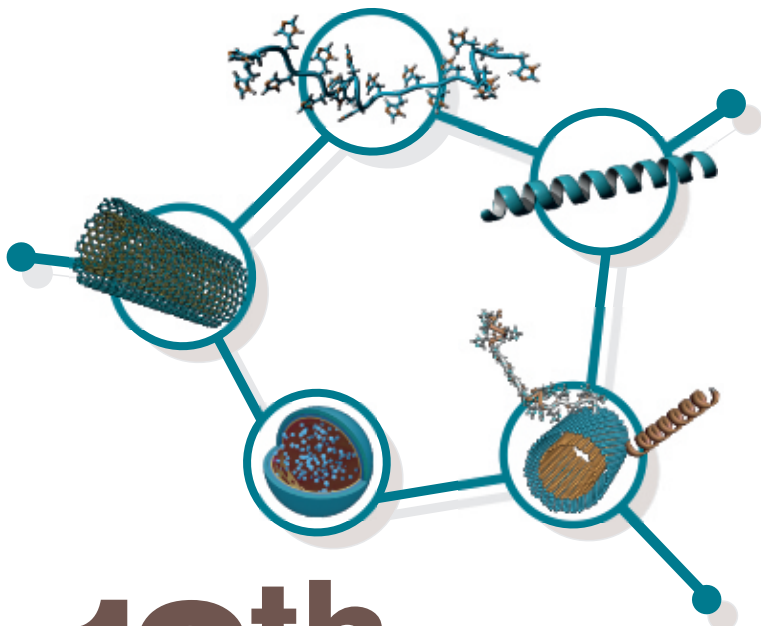


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# 13th

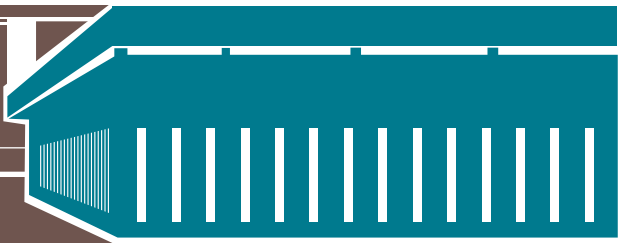
Hellenic Polymer Society  
International Conference

2021  
Live



12-16 December  
VIRTUAL EVENT

[www.polyconf13.gr](http://www.polyconf13.gr)



HELLENIC REPUBLIC

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WELCOME

It is my pleasure to welcome all the participants of the 13th Hellenic Polymer Society International Conference (Polyconf 13). Due to safety reasons, Polyconf 13 was postponed until 2021 and will be finally held virtually. We are excited to announce that a Special Session will take place on Sunday December 12th presenting the impressive advancements in Macromolecules during the last 101 years since the proof of their existence by Prof. Hermann Staudinger, who received the 1953 Nobel Prize in Chemistry for this work.

Polyconf is a highly interdisciplinary conference focusing on all aspects of Polymer Science and Technology addressing global problems regarding energy, environment and human health. A number of Plenary, Keynote and Invited lectures will be given by renowned scientists from Greece and all over the world, making Polyconf 13 an international forum of the highest quality. It is our goal to give the opportunity to as many young scientists as possible to present their work, and we are all looking forward to their presentations.

Thank you for your participation.

**Hermis Iatrou**

Sunday, December 12th 2021



18.00-20.30

**Special Event for the 101 Years of Macromolecular Science**

18:00-18:05

**Welcome Message** 100 Years of Macromolecules  
**Prof. Hermis Iatrou**  
*Director of Industrial Chemistry Lab, National and Kapodistrian University of Athens*

18:05-18:30

**Opening Remarks**

18:05-18:10

**Prof. S. Anastasiadis**  
*Director of the Institute of Electronic Structure & Laser (IESL) of the Foundation for Research & Technology - Hellas (FORTH)*

18:10-18:20

**Dr Antonios Gypakis**  
*Head of the Policy Planning Department  
General Secretariat for Research and Innovation*

18:20-18:30

**Dr. V.G. Gregoriou**  
*Director & Chairman of the Board of the National Hellenic Research Foundation*

18:30-20:30

**KEYNOTE LECTURES**

18:30-19:00

A Century of Polymer Science:  
Structural Foundations  
**A. Lovinger**

19:00-19:30

A Century of Polymer Chemistry:  
From Linear Polymers to Complex  
Macromolecular Architectures  
**N. Hadjichristidis**

19:30-20:00

Polymer Theory and Simulation:  
The First 100 Years  
**D.N. Theodorou**

20:00-20:30

Polymers, electronics and the genesis of  
polymer printed flexible electronics  
**G. Hadziioannou**

Monday, December 13th 2021

09:00-09:20

Welcome

09:20 -10:30

**KEYNOTE LECTURES**

Chairperson: **M. Vamvakaki**

09:20-09:55

Diels–Alder Polymer Networks with Temperature-Reversible Cross-Linking-Induced Emission  
**N. Hadjichristidis**

09:55-10:30

Solid-state structure stability of ferroelectric vinylidene fluoride-based polymers  
**G. Hadziioannou**

10:30-10:45

**Break**

10:45-11:45

**INVITED LECTURES**

Chairperson: **M. Vamvakaki**

10:45-11:05

Synthesis, Molecular Characterization and Phase Behaviour of Miktoarm Star Copolymers of the  $AB_n=2,3$  and  $BA_n=2,3$  Sequences where A is Polystyrene and B is Poly(dimethylsiloxane)  
**A. Avgeropoulos**

11:05-11:25

Next Generation Multiblock Copolymers with Concurrent Control over Sequence and Dispersity  
**A. Anastasaki**

11:25-11:45

Design of Water-Soluble Copolymers for the Development of Functional Coatings  
**G. Bokias**

11:45-13:30

**ORAL PRESENTATIONS**

Chairperson: **C. Tsitsilianis**

(OP01- OP07)

11:45-12:00

Complex Star Architectures of Well-Defined Polyethylene-Based Co/ Terpolymers  
**K. Ntetsikas**

12:00-12:15

Transformer-Induced Metamorphosis of Polymeric Nanoparticle Shape at Room Temperature  
**K. Parkatzidis**

**Monday, December 13th 2021**

- 12:15-12:30 Poly(Vinylidene Fluoride)/Polymethylene-Based Block Copolymers and Terpolymers  
**G. Zapsas**
- 12:30-12:45 Synthesis And Characterization of Biotin/Folic Acid Functionalized Biocompatible and Biodegradable Block Copolymers. Encapsulation of Hydrophobic Drug Model Compounds in Micelles  
**I. Choinopoulos**
- 12:45-13:00 Biodegradable Alternative to Poly(2-Oxazoline) Synthesized by Organocatalytic Ring-Opening Polymerization of N Acylated-1,4-Oxazepan-7-One  
**X. Wang**
- 13:00-13:15 Vanillic Acid: A Promising Monomer for Biobased Aromatic Polyesters  
**A. Zamboulis**
- 13:15-13:30 Non-Covalent Supramolecular Ab Diblock and Asymmetric A1ba2 Triblock Copolymers: Synthesis and Microphase Separation  
**S. Bhaumik**

ORAL PRESENTATIONS

- 13:30-14:30 BREAK/e-Poster Viewing (see pg 30)**  
 Recent Developments in Polymer Synthesis and Characterization Methods **eP1-eP22**  
 Polymer Engineering **eP45-eP55**  
 Polymers In Industry **eP116-eP126**

**14:30-15:05 KEYNOTE LECTURE**  
 Chairperson: **D. Achilias**

14:30-15:05 Expanding the Scope of Surface-Initiated Polymerization  
**H.-A. Klok**

**15:05-16:05 INVITED LECTURES**  
 Chairperson: **D. Achilias**

15:05-15:25 New Developments in the Use of Graphene as a Multi-Functional Additive to Polymers and Composites  
**C. Galiotis**

**Monday, December 13th 2021**

15:25-15:45 Revisiting Entangled Polymer Dynamics: Networks and Loops  
**D. Vlassopoulos**

15:45-16:05 Tailoring the sol-gel transition of thermoresponsive gels  
**T. Georgiou**

**16:05-16:20 Break**

**16:20-16:55 KEYNOTE LECTURE**  
 Chairperson: **C. Chochos**

Directed Assembly & Targeted Delivery using Polymer NPs  
**E. Giannelis**

**16:55-17:35 INVITED LECTURES**  
 Chairperson: **C. Chochos**

16:55-17:15 Ligand-Specific X-ray Nano-Contrast Agents for Enhancement of Breast Cancer Detection  
**E. Gkikas**

17:15-17:35 Aryl Ether Free Ion Solvating Blend Membranes for Alkaline Water Electrolysis  
**C. Deimede**

**17:35-18:35 ORAL PRESENTATIONS**  
 Chairperson: **C. Chochos** (OP08-OP11)

17:35-17:50 Multicrystalline Multiblock Polymers via a Combination of Polyhomogation, Ring-Opening Polymerization and Organic/Metal Catalyst-Switch  
**V. Ladelta**

17:50-18:05 Poly(N-Vinylpyrrolidone) Based Amphiphilic Block Copolymers: Synthesis via Reversible Addition-Fragmentation Chain Transfer Polymerization, Thermal Properties and Association Behavior in Dilute Solutions  
**N. Roka**



Monday, December 13th 2021



- 18:05:18:20      Modeling of Extrusion Flow Instabilities of Polymer Nanocomposites: Influence of Filler Amount  
**C. Georgantopoulos**
- 18:20-18:35      Tailor-Made Epoxy Loaded Poly (Urea-Formaldehyde) Microcapsules for Self-Healing Coatings  
**C. Zotiadis**

ORAL PRESENTATIONS

**Tuesday, December 14th 2021**

**09:00-09:35 KEYNOTE LECTURE**  
 Chairperson: **G. Bokias**

09:00-9:35 Strain-sensitive, Highly Stretchable and Recyclable Gel Polymer Electrolytes Based on Dynamic Covalent Amphiphilic Polymer Conetworks  
**C. Patrickios**

**09:35-10:35 INVITED LECTURES**  
 Chairperson: **G. Bokias**

09:35-09:55 Thermoresponsive polymers based on Poly(L-lysine) grafted by NIPAM  
**C. Tsitsilianis**

09:55-10:15 Ion Mobility in Photosensitive Polymeric Films Incorporated as Dielectrics in Electronic Devices and Potential Applications  
**P. Argitis**

10:15-10:35 Designing All-polymer Nanostructured Electrolytes for Energy Storage  
**E. Glynos**

**10:35-10:50 Break**

**10:50-11:30 INVITED LECTURES**  
 Chairperson: **G. Bokias**

10:50-11:10 Photo-sensitive nano-vehicles for drug delivery  
**M. Vamvakaki**

11:10-11:30 Protein-polymer nanocarriers: design, synthesis and applications  
**K. Velonia**

**11:30-13:30 ORAL PRESENTATIONS**  
 Chairperson: **C. Deimede** (OP12-OP19)

11:30-11:45 Nanostructured Biomaterials Based on Biopolymers with Potential in Biomedical and Food Sciences  
**A. Papagiannopoulos**

**Tuesday, December 14th 2021**

11:45-12:00	Fluorescent Biodegradable Triblock Copolymer Micelles for Simultaneous Anticancer Drug Delivery and Cellular Imaging <b>B. Kulkarni</b>
12:00-12:15	Theranostic Nanoparticles Based on Peo-Polyacetal Diblock Copolymers for Drug Delivery <b>T. Manouras</b>
12:15-12:30	Structure and Thermal Stability of Rop And Rm6 Proteins via All-Atom Molecular Dynamics Simulations <b>M. Arnittali</b>
12:30-12:45	Ph/Thermo-Responsive Sodium Alginate-Based Injectable Hydrogels: Enrichment of Responsiveness by Boronic Acid Conjugations and/or Ca <sup>2+</sup> Cations <b>S.F. Saravanou</b>
12:45-13:00	Mechanical Properties of Pmma Resin Composites for Interim Fixed Prostheses Reinforced with Calcium B-Pyrophosphate <b>E. Vouvoudi</b>
13:00-13:15	Hybrid Chitosan-Based Films Exhibiting a Strong Antimicrobial Action under Visible-Light Irradiation and Stimuli-Renewable Properties <b>E. Vasilaki</b>
13:15-13:30	Miscibility Study of Modified with Vanillin Chitosan Blends and their Application in 3d Printing <b>G. Michailidou</b>

**ORAL PRESENTATIONS**

**13:30-14:30 Break / e-Poster Viewing (see pg 30)**  
 Biopolymers & Applications **eP56-eP85**  
 Advances in Polymer Theory and Simulations **eP107-eP115**  
 Polymers in Industry **eP127-eP133**

**14:30-15:50 INVITED LECTURES**  
 Chairperson: **G. Petekidis**

14:30-14:50 Topological interactions in melts of ring polymers and their effect on dynamic and rheological properties  
**V. Mavrantzas**

**Tuesday, December 14th 2021**

14:50-15:10	Prediction of Crosslinking Kinetics and Viscoelastic Properties of Tyramine Functionalized Hyaluronic Acid Cross-linkable Solutions Using Stochastic and Deterministic Computational Methods <b>F. Karageorgos</b>
15:10-15:30	Mechanical Properties of Glassy Polymer Nanocomposites via Simulations Across Scales: From Atoms to the Continuum Scale <b>V. Harmandaris</b>
15:30-15:50	Hyperbranched Poly(ethylene imine) - Graphene Oxide Nanocomposites as Dye Adsorbents for Water Purification: a Molecular Dynamics Study <b>C. Karatasos</b>

**15:50-16:05 Break**

**16:05-16:40 KEYNOTE LECTURE**  
Chairperson: **G. Floudas**

16:05-16:40 Polymer-Surfactant Binding for Environmental Separations  
**P. Alexandridis**

**16:40-17:00 INVITED LECTURE**  
Chairperson: **G. Floudas**

16:40-17:00 Green Polymeric Materials from Renewable Resources: Poly(Alkylene 2,5-Furandicarboxylate)S  
**G. Papageorgiou**

**17:00-18:45 ORAL PRESENTATIONS**  
Chairperson: **G. Floudas** **(OP20-OP26)**

17:00-17:15 Capillary Flow of Ionomers and their Corresponding Copolymers: Effects of Ionic and Hydrogen Bonding Associations  
**E. Mitsoulis**

17:15-17:30 Molecular Simulations of Multi-Process Aging of Polymer Glasses: Current Status and Perspectives  
**G. Vogiatzis**

Tuesday, December 14th 2021



- 17:30-17:45 Clusters of Free Volume Accessible to Small Penetrants and their Connectivity in Polymer Nanocomposites Containing Carbon Nanotubes through a Geometric Analysis  
**P. Mermigkis**
- 17:45-18:00 Self-Assembly of Amphiphilic Polymer Conetworks in the Bulk via Dissipative Particle Dynamics Simulations  
**D. Tsalikis**
- 18:00-18:15 Polybutadiene Copolymers via Atomistic and Systematic Coarse Grained Simulations  
**A. Rissanou**
- 18:15-18:30 Individual Contributions of Adsorbed and Free Chains to Microscopic Dynamics of Unentangled Poly(Ethylene Glycol)/Silica Nanocomposite Melts and the Important Role of End Groups: Theory and Simulation  
**E. Skountzos**
- 18:30-18:45 Patchy-Like Mikto-Arm Star Polymers: Atomistic Study of Soft Building Blocks  
**P. Bacova**

ORAL PRESENTATIONS

Wednesday, December 15th 2021

<b>09:00-10:40</b>	<b>INVITED LECTURES</b> Chairperson: <b>P. Argitis</b>
09:00-09:20	Adsorption Kinetics of cis-1,4-Polyisoprene in Nanopores by In Situ Nanodielectric Spectroscopy <b>G. Floudas</b>
09:20-09:40	Tuning colloidal gels by shear: A paradigm to manipulate metastable soft matter systems <b>G. Petekidis</b>
09:40-10:00	Molecular mobility in semi-crystalline polymer nanocomposites: Disentangling the impact of nanoparticles and crystallinity <b>A. Kyritsis</b>
10:00 -10:20	Metal Oxide/Polymer Nanocomposites and Lithographic Patterning <b>E. Makarona</b>
10:20-10:40	Mechanistic Studies on Type II Bichromophoric Photoinitiator Systems <b>M. Siskos</b>
<b>10:40-10:55</b>	<b>Break</b>
<b>10:55-11:30</b>	<b>KEYNOTE LECTURE</b> Chairperson: <b>P. Argitis</b>
10:55-11:30	The three C's: Cobalt, Copper and Control <b>D. Haddleton</b>
<b>11:30-12:10</b>	<b>INVITED LECTURES</b> Chairperson: <b>A. Kyritsis</b>
11:30-11:50	Polymer brush swelling and the role of interfacial phenomenon <b>K. Kaur</b>
11:50-12:10	What Limits the Efficiency in Organic Solar Cells at Negligible Energy Level Offsets? <b>C. Chocho</b>

Wednesday, December 15th 2021

**12:10-13:40 ORAL PRESENTATIONS**

Chairperson: **A. Kyritsis**

(OP27-OP32)

- 12:10-12:25 Biopolymer Based Organic/Inorganic Hybrid Nanoparticles Relevant to Bioimaging Applications  
**M. Karayianni**
- 12:25-12:40 Synthesis of Double Responsive Nanoparticles for Encapsulation and Delivery of Doxorubicin  
**D. Skourtis**
- 12:40-12:55 Functional Ph-Responsive Polyesters for Tissue Engineering Applications  
**M. Kaliva**
- 12:55-13:10 Effects of Nanometer Confinement on the Self-Assembly and Dynamics of Poly( $\Gamma$ -Benzyl-L-Glutamate) Homopolymers and Its Copolymers with Polyisobutylene  
**M. Spyridakou**
- 13:10-13:25 Amphiphilic Copolymers Based on Poly(E-Caprolactone) with Tunable Properties for Controlled Release Formulations of the Anticancer Drug Paclitaxel  
**E. Christodoulou**
- 13:25-13:40 Bio-Based Thermosetting Epoxy Composites Utilizing Kraft Lignin  
**C. Pappa**

**13:40-14:30 Break / e-Poster Viewing (see pg 30)**

Polymers for Emerging Technologies  
(Energy, Organic Electronics, Environment,  
Nanotechnology, Aerogels) **eP86-eP106**

Polymer Physics **eP23-eP44**

**14:30-15:05 KEYNOTE LECTURE**

Chairperson: **H. Iatrou**

- 14:30-15:05 Hierarchically-structured drug delivery systems for the treatment of brain tumors and osteoarthritis  
**P. Decuzzi**

Wednesday, December 15th 2021

**15:05-15:45 INVITED LECTURES**  
Chairperson: **H. Iatrou**

15:05-15:25 Current challenges in polymer recycling  
**D. Achilias**

15:25-15:45 Polymer Nanocomposites: From Structure to Dynamics and Properties  
**K. Chrissopoulou**

**15:45-16:00 Break**

**16:00-18:30 ORAL PRESENTATIONS**  
Chairperson: **K. Velonia** (OP33-OP42)

16:00-16:15 Ion Transport in Polymerized Ionic Liquids  
**A. Pipertzis**

16:15-16:30 Dynamics of Polymer Solution Thin Liquid Films  
**E. Chatzigiannakis**

16:30-16:45 Effect Of Confinement on The Dynamics Of 1-Propanol and other Monohydroxy Alcohols  
**A. Ananiadou**

16:45-17:00 Synergistic Effects of Humidity and Temperature on The Rheology of Supramolecular Organogelators  
**E. Vereroudakis**

17:00-17:15 Layers of Distinct Mobility in Densely Grafted Dendrimer Arborescent Polymer Hybrids  
**P. Kardasis**

17:15-17:30 Processable Aromatic Polyethers Containing Conjugated Chromophores or Metallocomplexes With Controllable Light Emission for Large Area Pleds  
**A. Andreopoulou**

17:30-17:45 Conjugated Polymer Nanoparticles as Potential Theranostic Agents of Breast Cancer  
**P. Koralli**



Wednesday, December 15th 2021



- 17:45-18:00 Aging Assessment of Everyday-Used Polymers Under Uv-B Exposure: An Insight Into Physicochemical Alterations And Microplastics' Formation  
**N.M. Ainali**
- 18:00-18:15 Stimuli-Responsive Photonic Liquid Marbles Based on Hydroxypropyl Cellulose  
**M. Anyfantakis**
- 18:15-18:30 Controlling the Supramolecular Self-Assembly of Nucleobase-Containing Block Copolymer Nanostructures  
**S. Varlas**

ORAL PRESENTATIONS



Thursday, December 16th 2021

- 11:40-11:55 Biological Cell Killing Induced by Anisotropic Magnetic Polymersome Rotation Under Low Frequency Alternating Magnetic Field  
**D. Kazaryan**
- 11:55-12:10 Characterisation and Pyrolysis of the Plastic Fraction from Waste Electric and Electronic Equipment (Weee)  
**M.A. Charitopoulou**
- 12:10-12:25 Preparation and Characterization of Polysiloxane-Multiwalled Carbon Nanotube Nanocomposites for Potential Sensoring Applications  
**P. Ketikis**
- 12:25-12:40 New Aspects on the Direct Solid State Polycondensation (Dssp) of Aliphatic Nylon Salts: The Case of Hexamethylene Diammonium Dodecanoate  
**A. Mytara**
- 12:40-12:55 Development of Superhydrophobic and Water Repellent Polymer Coatings  
**F. Krasanakis**
- 12:55-13:10 Weathering Resistant Flame Retarded Polyethylene Compounds for Outdoor Applications  
**A. Porfyris**
- 13:10-13:25 Thermal characterization of polymers in non standard (High Pressure, large volume, in solution...) conditions  
**S. Moreau**



13:25-13:40 Closing conference-Prizing awards

# ORAL PRESENTATIONS

## OP01

### COMPLEX STAR ARCHITECTURES OF WELL-DEFINED POLYETHYLENE-BASED CO/ TERPOLYMERS

Konstantinos Ntetsikas<sup>1</sup>, George Zapsas<sup>1</sup>, Panayiotis Bilalis<sup>1</sup>, Yves Gnanou<sup>1</sup>, Xueyan Feng<sup>2</sup>, Edwin L. Thomas<sup>2</sup>, Nikos Hadjichristidis<sup>1\*</sup>

<sup>1</sup>Physical Sciences and Engineering Division, Polymer Synthesis Laboratory, King Abdullah University of Science and Technology (KAUST), Thuwal 23955, Saudi Arabia

<sup>2</sup>Department of Materials Science and NanoEngineering Rice University, Houston, TX 77030, USA

## OP02

### TRANSFORMER-INDUCED METAMORPHOSIS OF POLYMERIC NANOPARTICLE SHAPE AT ROOM TEMPERATURE

Kostas Parkatzidis<sup>a</sup>, Nghia P. Truong<sup>a</sup>, Athina Anastasaki<sup>a</sup>

Laboratory of Polymeric Materials, Department of Materials, ETH Zurich

## OP03

### POLY(VINYLIDENE FLUORIDE)/POLYMETHYLENE-BASED BLOCK COPOLYMERS AND TERPOLYMERS

G. Zapsas, Y. Patil, P. Bilalis, Y. Gnanou, N. Hadjichristidis

Physical Sciences and Engineering Division, King Abdullah University of Science and Technology (KAUST), Thuwal 23955, Kingdom of Saudi Arabia

## OP04

### SYNTHESIS AND CHARACTERIZATION OF BIOTIN/FOLIC ACID FUNCTIONALIZED BIOCOMPATIBLE AND BIODEGRADABLE BLOCK COPOLYMERS. ENCAPSULATION OF HYDROPHOBIC DRUG MODEL COMPOUNDS IN MICELLES

Ioannis Choinopoulos, Nikos Karanikolopoulos, Marinos Pitsikalis

Industrial Chemistry Laboratory, Department of Chemistry, National & Kapodistrian University of Athens, Panepistimiopolis Zografou, 15 771 Athens, Greece

## OP05

### BIODEGRADABLE ALTERNATIVE TO POLY(2-OXAZOLINE) SYNTHESIZED BY ORGANOCATALYTIC RING-OPENING POLYMERIZATION OF N-ACYLATED-1,4-OXAZEPAN-7-ONE

Xin Wang, Nikos Hadjichristidis\*

King Abdullah University of Science and Technology (KAUST), Physical Sciences and Engineering Division, KAUST Catalysis Center, Polymer Synthesis Lab., Saudi Arabia

## OP06

### VANILLIC ACID: A PROMISING MONOMER FOR BIOBASED AROMATIC POLYESTERS

Alexandra Zamboulis<sup>1</sup>, Eleftheria Xanthopoulou<sup>2</sup>, Lazaros Papadopoulos<sup>1</sup>, Zoi Terzopoulou<sup>1,2</sup>, George Z. Papageorgiou<sup>2</sup>, Dimitrios N. Bikiaris<sup>1</sup>

<sup>1</sup>Department of Chemistry, Aristotle University of Thessaloniki, Thessaloniki, Greece

<sup>2</sup>Department of Chemistry, University of Ioannina, Ioannina, Greece

## OP07

### NON-COVALENT SUPRAMOLECULAR AB DIBLOCK AND ASYMMETRIC A1BA2 TRIBLOCK COPOLYMERS: SYNTHESIS AND MICROPHASE SEPARATION

Saibal Bhaumik<sup>1</sup>, Konstantinos Ntetsikas<sup>1</sup>, Wenpeng Shan<sup>2</sup>,  
Edwin Thomas<sup>2</sup>, Nikos Hadjichristidis<sup>\*1</sup>

<sup>1</sup>Physical Sciences and Engineering Division, KAUST Catalysis Center, Polymer Synthesis Laboratory, King Abdullah University of Science and Technology (KAUST), Thuwal 23955, Saudi Arabia

<sup>2</sup>Materials Science and Engineering Department, Texas A & M University, College Station, TX 77843, USA

## OP08

### MULTICRYSTALLINE MULTIBLOCK POLYMERS VIA A COMBINATION OF POLYHOMOGATION, RING-OPENING POLYMERIZATION AND ORGANIC/METAL CATALYST-SWITCH

Viko Ladelta, George Zapsas, Nikos Hadjichristidis

KCC, King Abdullah University of Science and Technology (KAUST), Thuwal 23955, Saudi Arabia.  
Physical Sciences and Engineering Division, KAUST Catalysis Center, Polymer Synthesis Laboratory, Saudi Arabia

## OP09

### POLY(N-VINYLPYRROLIDONE) BASED AMPHIPHILIC BLOCK COPOLYMERS: SYNTHESIS VIA REVERSIBLE ADDITION-FRAGMENTATION CHAIN TRANSFER POLYMERIZATION, THERMAL PROPERTIES AND ASSOCIATION BEHAVIOR IN DILUTE SOLUTIONS

Nikoletta Roka, Marinos Pitsikalis

Industrial Chemistry Laboratory, Department of Chemistry, National & Kapodistrian University of Athens, Panepistimiopolis Zografou, Athens 157 71, Greece

## OP10

### MODELING OF EXTRUSION FLOW INSTABILITIES OF POLYMER NANOCOMPOSITES: INFLUENCE OF FILLER AMOUNT

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## OP11

### TAILOR-MADE EPOXY LOADED POLY(UREA-FORMALDEHYDE) MICROCAPSULES FOR SELF-HEALING COATINGS

Christos Zotiadis<sup>1</sup>, Ioannis Patrikalos<sup>1</sup>, Vasileia Loukaidou<sup>1</sup>, Dimitrios Korres<sup>1</sup>, Antonis Karantonis<sup>2</sup>, Stamatina Vouyiouka<sup>1</sup>

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## OP12

### NANOSTRUCTURED BIOMATERIALS BASED ON BIOPOLYMERS WITH POTENTIAL IN BIOMEDICAL AND FOOD SCIENCES

Aristeidis Papagiannopoulos

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## OP13

### FLUORESCENT BIODEGRADABLE TRIBLOCK COPOLYMER MICELLES FOR SIMULTANEOUS ANTICANCER DRUG DELIVERY AND CELLULAR IMAGING

Bhagyashree Kulkarni,<sup>1</sup> Somayah Salah Qutub,<sup>2</sup> Viko Ladelta,<sup>1</sup> Niveen M. Khashab,<sup>2,\*</sup> Nikos Hadjichristidis<sup>1,\*</sup>

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## OP14

### THERANOSTIC NANOPARTICLES BASED ON PEO-POLYACETAL DIBLOCK COPOLYMERS FOR DRUG DELIVERY

Theodore Manouras, Maria Vamvakaki

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## OP15

### STRUCTURE AND THERMAL STABILITY OF ROP AND RM6 PROTEINS VIA ALL-ATOM MOLECULAR DYNAMICS SIMULATIONS

Maria Arnittali<sup>1,2,\*</sup>, Anastassia N. Rissanou<sup>1,2</sup>, and Vagelis Harmandaris<sup>1,2,3</sup>

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## OP16

### pH/THERMO-RESPONSIVE SODIUM ALGINATE-BASED INJECTABLE HYDROGELS: ENRICHMENT OF RESPONSIVENESS BY BORONIC ACID CONJUGATIONS AND/OR Ca<sup>2+</sup> Cations

Sofia - Falia Saravanou, Fotoula Kounelaki, Vasilis Alexandris, George Pasparakis, Constantinos Tsitsilianis

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## OP17

### MECHANICAL PROPERTIES OF PMMA RESIN COMPOSITES FOR INTERIM FIXED PROSTHESES REINFORCED WITH CALCIUM $\beta$ -PYROPHOSPHATE

Iouliana Chrysa<sup>1</sup>, Eleana Kontonasaki<sup>2</sup>, Antonios Anastasiou<sup>3</sup>, George Vourlias<sup>1</sup>, Evangelia Vouvoudi<sup>4</sup>, Dimitris Bikiaris<sup>4</sup>

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## OP18

### HYBRID CHITOSAN-BASED FILMS EXHIBITING A STRONG ANTIMICROBIAL ACTION UNDER VISIBLE-LIGHT IRRADIATION AND STIMULI-RENEWABLE PROPERTIES

Theodore Manouras<sup>1</sup>, Evangelia Vasilaki<sup>1</sup>, Eleftherios Koufakis<sup>1</sup>, Ioanna Peraki<sup>2</sup>, Maria Vamvakaki<sup>1</sup>

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<sup>2</sup>Institute of Molecular Biology and Biotechnology, Foundation for Research and Technology–Hellas, 700 13 Heraklion, Crete, Greece

## OP19

### MISCIBILITY STUDY OF MODIFIED WITH VANILLIN CHITOSAN BLENDS AND THEIR APPLICATION IN 3D PRINTING

Georgia Michailidou, Dimitrios Bikiaris

Laboratory of Polymer Chemistry and Technology, Department of Chemistry, Aristotle University of Thessaloniki, Thessaloniki, Greece

## OP20

### CAPILLARY FLOW OF IONOMERS AND THEIR CORRESPONDING COPOLYMERS: EFFECTS OF IONIC AND HYDROGEN BONDING ASSOCIATIONS

Tanja Tomkovic<sup>1</sup>, Evan Mitsoulis<sup>2</sup>

<sup>1</sup> Department of Chemical and Biological Engineering, UBC

<sup>2</sup> School of Mining Engineering and Metallurgy, NTUA

## OP21

### MOLECULAR SIMULATIONS OF MULTI-PROCESS AGING OF POLYMER GLASSES: CURRENT STATUS AND PERSPECTIVES

Georgios Vogiatzis<sup>1</sup>, Lambèrt van Breemen<sup>2</sup>, Markus Hütter<sup>2</sup>, Doros Theodorou<sup>1</sup>

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## OP22

### CLUSTERS OF FREE VOLUME ACCESSIBLE TO SMALL PENETRANTS AND THEIR CONNECTIVITY IN POLYMER NANOCOMPOSITES CONTAINING CARBON NANOTUBES THROUGH A GEOMETRIC ANALYSIS

Panagiotis Mermigkis<sup>1</sup>, Vlas Mavrantzas<sup>2,1</sup>

<sup>2</sup> Department of Chemical Engineering, University of Patras, & Forth/Ice-Ht, Department of Mechanical And Process Engineering, Eth Zurich

## OP23

### SELF-ASSEMBLY OF AMPHIPHILIC POLYMER CONETWORKS IN THE BULK VIA DISSIPATIVE PARTICLE DYNAMICS SIMULATIONS

Dimitrios G. Tsalirikis<sup>1</sup>, Yuji Higuchi<sup>2</sup>, Mihai Ciobanu<sup>3</sup>, Costas S. Patrickios<sup>3</sup>

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<sup>2</sup>Institute for Solid State Physics, The University of Tokyo

<sup>3</sup>Department of Chemistry, University of Cyprus

## OP24

### POLYBUTADIENE COPOLYMERS VIA ATOMISTIC AND SYSTEMATIC COARSE GRAINED SIMULATIONS

Anastassia Rissanou<sup>1</sup>, Antonis Chazirakis<sup>1</sup>, Vagelis Harmandaris<sup>2</sup>

<sup>1</sup>*Institute of Applied and Computational Mathematics (IACM), Foundation for Research and Technology Hellas, (FORTH), IACM/FORTH, FR-71110 Heraklion, Greece; Department of Mathematics and Applied Mathematics, University of Crete, GR-71409, Heraklion, Crete, Greece*

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## OP25

### INDIVIDUAL CONTRIBUTIONS OF ADSORBED AND FREE CHAINS TO MICROSCOPIC DYNAMICS OF UNENTANGLED POLY(ETHYLENE GLYCOL)/SILICA NANOCOMPOSITE MELTS AND THE IMPORTANT ROLE OF END GROUPS: THEORY AND SIMULATION

Emmanuel Skountzos<sup>1</sup>, Dimitrios Tsalikis<sup>2</sup>, Pavlos Stephanou<sup>3</sup>, Vlasiv Mavrantzas<sup>21</sup>

<sup>2</sup>*Chemical Engineering Dept., University of Patras, & Forth/Ice-Ht, Patra*

<sup>3</sup>*Chemical Engineering Dept., Cyprus University of Technology, Cyprus*

## OP26

### PATCHY-LIKE MIKTO-ARM STAR POLYMERS: ATOMISTIC STUDY OF SOFT BUILDING BLOCKS

Petra Bacova<sup>1</sup>, Dimitris G. Mintis<sup>2</sup>, Eirini Gkolfi<sup>3</sup>, Vagelis Harmandaris<sup>2,3</sup>

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<sup>3</sup>*Department of Mathematics and Applied Mathematics, University of Crete, Crete*

## OP27

### BIOPOLYMER BASED ORGANIC/INORGANIC HYBRID NANOPARTICLES RELEVANT TO BIOIMAGING APPLICATIONS

Maria Karayianni, Stergios Pispas

*Theoretical and Physical Chemistry Institute, National Hellenic Research Foundation*

## OP28

### SYNTHESIS OF DOUBLE RESPONSIVE NANOPARTICLES FOR ENCAPSULATION AND DELIVERY OF DOXORUBICIN

Dimitrios Skourtis, Dimitra Stavroulaki, Iro Kyroglou, Hermis Iatrou

*Chemistry Department, National and Kapodistrian University of Athens, Athens*

## OP29

### FUNCTIONAL PH-RESPONSIVE POLYESTERS FOR TISSUE ENGINEERING APPLICATIONS

Maria Kaliva, Stella Afroditi Mountaki, Konstantinos Loukelis, Maria Chatzinikolaidou, Maria Vamvakaki

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### OP30

#### EFFECTS OF NANOMETER CONFINEMENT ON THE SELF-ASSEMBLY AND DYNAMICS OF POLY( $\Gamma$ -BENZYL-L-GLUTAMATE) HOMOPOLYMERS AND ITS COPOLYMERS WITH POLYISOBUTYLENE

Marianna Spyridakou<sup>1</sup>, Manos Gkikas<sup>2</sup>, Martin Steinhart<sup>3</sup>, George Floudas<sup>1,4</sup>

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### OP31

#### AMPHIPHILIC COPOLYMERS BASED ON POLY(E-CAPROLACTONE) WITH TUNABLE PROPERTIES FOR CONTROLLED RELEASE FORMULATIONS OF THE ANTICANCER DRUG PACLITAXEL

Evi Christodoulou<sup>1</sup>, Alexandra Zamboulis<sup>1</sup>, Panagiotis Klonos<sup>2</sup>, Maria Kasimatis<sup>3</sup>, Hermis Iatrou<sup>3</sup>, Dimitrios N. Bikiaris<sup>1</sup>

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### OP32

#### BIO-BASED THERMOSETTING EPOXY COMPOSITES UTILIZING KRAFT LIGNIN

Christina Pappa, Konstantinos Triantafyllidis

Department of Chemistry, Aristotle University of Thessaloniki, Thessaloniki, Greece

### OP33

#### ION TRANSPORT IN POLYMERIZED IONIC LIQUIDS

Achilleas Pipertzis<sup>1</sup>, George Papamokos<sup>1</sup>, Markus Mühlhngaus<sup>2,3</sup>, Oskar Sacknig<sup>2,3</sup>, Markus Mezger<sup>4</sup>, Ullrich Scherf<sup>2,3</sup>, George Floudas<sup>1</sup>

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<sup>4</sup>Max Planck Institute for Polymer Research, 55128 Mainz, Germany

### OP34

#### DYNAMICS OF POLYMER SOLUTION THIN LIQUID FILMS

Emmanouil Chatzigiannakis, Jan Vermant

Materials, Department of Materials, Soft Materials group, ETH Zurich

### OP35

#### EFFECT OF CONFINEMENT ON THE DYNAMICS OF 1-PROPANOL AND OTHER MONOHYDROXY ALCOHOLS

Antonela Ananiadou<sup>1</sup>, George Papamokos<sup>1</sup>, Martin Steinhart<sup>2</sup>, George Floudas<sup>1,3</sup>

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<sup>3</sup>University Research Center of Ioannina (URCI) - Institute of Materials Science and Computing, Ioannina, Greece

### OP36

#### SYNERGISTIC EFFECTS OF HUMIDITY AND TEMPERATURE ON THE RHEOLOGY OF SUPRAMOLECULAR ORGANOGELATORS

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### OP37

#### LAYERS OF DISTINCT MOBILITY IN DENSELY GRAFTED DENDRIMER ARBORESCENT POLYMER HYBRIDS

Panagiotis Kardasis<sup>1</sup>, Nikolaos Kalafatakis<sup>2,3</sup>, Mario Gauthier<sup>4</sup>, Dimitris Vlassopoulos<sup>2</sup>, George Floudas<sup>1,4</sup>

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### OP38

#### PROCESSABLE AROMATIC POLYETHERS CONTAINING CONJUGATED CHROMOPHORES OR METALLOCOMPLEXES WITH CONTROLLABLE LIGHT EMISSION FOR LARGE AREA PLEDs

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### OP39

#### CONJUGATED POLYMER NANOPARTICLES AS POTENTIAL THERANOSTIC AGENTS OF BREAST CANCER

Panagiota Koralli<sup>1</sup>, Spyridon Tsikalakis<sup>2</sup>, Maria Goulielmaki<sup>1</sup>, Stella Arelaki<sup>3</sup>, Janina Müller,<sup>2,4</sup> Alkmini D. Nega<sup>5</sup>, Friederike Herbst<sup>3</sup>, Claudia R. Ball<sup>6</sup>, Vasilis G. Gregoriou<sup>7</sup>, Antonia Dimitrakopoulou-Strauss<sup>5</sup>, Stefan Wiemann<sup>2</sup>, Christos L. Chocho<sup>1</sup>

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## OP40

### AGING ASSESSMENT OF EVERYDAY-USED POLYMERS UNDER UV-B EXPOSURE: AN INSIGHT INTO PHYSICOCHEMICAL ALTERATIONS AND MICROPLASTICS' FORMATION

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## OP41

### STIMULI-RESPONSIVE PHOTONIC LIQUID MARBLES BASED ON HYDROXYPROPYL CELLULOSE

Manos Anyfantakis<sup>1</sup>, Venkata S. R. Jampani<sup>2</sup>, Rijeesh Kizhakidathazhath<sup>1</sup>, Bernard P. Binks<sup>3</sup>, Jan P. F. Lagerwall<sup>1</sup>

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## OP42

### CONTROLLING THE SUPRAMOLECULAR SELF-ASSEMBLY OF NUCLEOBASE-CONTAINING BLOCK COPOLYMER NANOSTRUCTURES

Spyridon Varlas,<sup>1,2</sup> Jeffrey C. Foster,<sup>2</sup> Marjolaine Thomas,<sup>2</sup> Zan Hua,<sup>3,4</sup> Rachel K. O'Reilly<sup>2</sup>

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## OP43

### NOVEL CONDUCTING TRIMERS FOR IN VIVO ELECTRONIC FUNCTIONALIZATION OF TISSUES

Daniele Mantione<sup>1</sup>, Emin Istif<sup>1</sup>, Gwennael Dufil<sup>2</sup>, Lorenzo Vallan<sup>1</sup>, Daniela Parker<sup>2</sup>, Eleni Stavrinidou<sup>2</sup>, Eleni Pavlopoulou<sup>1,3</sup>

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## OP44

### SYNTHESIS OF MODEL CYCLIC POLYMERS VIA EFFICIENT ETHERIFICATION-BASED BIMOLECULAR RING-CLOSURE STRATEGY

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## OP45

### BIOLOGICAL CELL KILLING INDUCED BY ANISOTROPIC MAGNETIC POLYMERSOME ROTATION UNDER LOW FREQUENCY ALTERNATING MAGNETIC FIELD

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## OP46

### CHARACTERISATION AND PYROLYSIS OF THE PLASTIC FRACTION FROM WASTE ELECTRIC AND ELECTRONIC EQUIPMENT (WEEE)

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## OP47

### PREPARATION AND CHARACTERIZATION OF POLYSILOXANE-MULTIWALLED CARBON NANOTUBE NANOCOMPOSITES FOR POTENTIAL SENSING APPLICATIONS

Panayiotis Ketikis<sup>1</sup>, Achilleas Syrmos<sup>1</sup>, Panagiotis Klonos<sup>2</sup>, Apostolos Kyritsis<sup>2</sup>, Petroula A. Tarantili<sup>1</sup>

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## OP48

### WEATHERING RESISTANT FLAME RETARDED POLYETHYLENE COMPOUNDS FOR OUTDOOR APPLICATIONS

Athanasios Porfyrus<sup>1</sup>, Stamatina Vouyiouka<sup>1</sup>, Adriaan Luyt<sup>2</sup>, Dimitrios Korres<sup>1</sup>, Sarah Malik<sup>2</sup>, Soumia Gasmi<sup>2</sup>, Michael Grosshauser<sup>3</sup>, Rudolf Pfaendner<sup>3</sup>, Constantine Papaspyrides<sup>1</sup>

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## OP49

### DEVELOPMENT OF SUPERHYDROPHOBIC AND WATER REPELLENT POLYMER COATINGS

Fanourios Krasanakis<sup>1</sup>, Thaleia Michaela Chatzaki<sup>1,2</sup>, Kiriaki Chrissopoulou<sup>1</sup>, Spiros H. Anastasiadis<sup>1,2</sup>

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## OP50

### **NEW ASPECTS ON THE DIRECT SOLID STATE POLYCONDENSATION (DSSP) OF ALIPHATIC NYLON SALTS: THE CASE OF HEXAMETHYLENE DIAMMONIUM DODECANOATE**

Angeliki D. Mytara, Athanasios D. Porfyris, Stamatina N. Vouyiouka, Constantine D. Papaspyrides

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## OP51

### **THERMAL CHARACTERIZATION OF POLYMERS IN NON STANDARD (HIGH PRESSURE, LARGE VOLUME, IN SOLUTION...) CONDITIONS**

S. Moreau

# E-POSTERS

## RECENT DEVELOPMENTS IN POLYMER SYNTHESIS AND CHARACTERIZATION METHODS

eP01

### TEOS-BASED SUPERHYDROPHOBIC COATING FOR THE PROTECTION OF STONE-BUILT CULTURAL HERITAGE

Fotios Adamopoulos<sup>1</sup>, Evangelia Vouvoudi<sup>1</sup>, Dimitris Achilias<sup>1</sup>, Ioannis Karapanagiotis<sup>2</sup>  
<sup>1</sup>Chemistry Department, Chemistry Department, Aristotle University of Thessaloniki, Thessaloniki, Greece

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eP02

### IDENTIFYING THE ORIGIN OF AGED VARNISHES FOR THE PROPER RESTORATION OF OLD PAINTINGS USING SPECTROSCOPIC AND SPECTROMETRIC TECHNIQS

Eleni Kargioti<sup>1</sup>, Evangelia Vouvoudi<sup>1</sup>, Christina Nannou<sup>2</sup>, Dimitris Bikiaris<sup>1</sup>,  
Dimitra Lambropoulou<sup>1</sup>

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eP03

### (PDMAEMA)X(POEGMA)Y MIKTO-ARM STAR-SHAPED COPOLYMERS VIA RAFT POLYMERIZATION AND THEIR HYDROPHOBIC MODIFICATIONS TOWARDS AMPHIPHILIC STAR COPOLYMERS

Martha Kafetzi, Stergios Pispas

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eP04

### A GREEN ENZYME-BASED PROCESS FOR THE PRODUCTION OF POLY (BUTYLENE SUCCINATE)

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eP05

### SYNTHESIS AND CHARACTERIZATION OF COMPLEX MACROMOLECULAR ARCHITECTURES EMPLOYING STATISTICAL AND BLOCK COPOLYMERS BASED ON POLYISOCYANATES WITH FUNCTIONAL END GROUPS AND/OR SIDE CHAINS. INVESTIGATION OF THEIR THERMAL AND OPTICAL PROPERTIES

Dimitra Mantzara, Maria Panteli, Aikaterini Katara, Ioannis Choinopoulos,  
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eP06

### SYNTHESIS OF A WELL-DEFINED SINGLE-ION MIKTOARM STAR COPOLYMER

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**SYNTHESIS AND CHARACTERIZATION OF THE NOVEL NE-9-  
FLUORENYLMETHOXYCARBONYL-L-LYSINE N-CARBOXY ANHYDRIDE.  
SYNTHESIS OF BRANCHED POLYPEPTIDE**

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eP08

**STATISTICAL COPOLYMERS OF N-VINYLPYRROLIDONE AND ISOBORNYL  
METHACRYLATE: SYNTHESIS VIA FREE RADICAL AND RAFT POLYMERIZATION,  
CHARACTERIZATION, REACTIVITY RATIOS AND THERMAL PROPERTIES**

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**INVESTIGATION OF HIGH- $\chi$  BLOCK COPOLYMERS WITH LINEAR OR COMPLEX  
ARCHITECTURE**

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eP10

**HYPERBRANCHED POLYMERS/GRAPHENE OXIDE NANOCOMPOSITES: EFFECT  
OF GO DEGREE OF OXIDATION**

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**COPOLYMERIZATION STUDIES OF VINYL ETHERS EMPLOYING ACTIVATED  
METALLOCENE COMPLEXES AS CATIONIC INITIATORS. CHEMICAL  
MODIFICATION OF THE COPOLYMERS FOR THE SYNTHESIS OF GRAFT  
COPOLYMERS**

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eP12

**CONTROLLED BLOCK-POLYMERIZATION OF STYRENE, DIVINYLBENZENE AND  
ETHYLENE OXIDE. INTERMOLECULAR CROSS-LINKING TOWARDS WELL-  
DEFINED MIKTOARM COPOLYMER STARS**

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**TRIPLE-STIMULI RESPONSIVE SPIROPYRAN-BASED TRIBLOCK COPOLYMERS**

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**MELT RHEOLOGY OF SINGLE - CHAIN NANOPARTICLES AND THEIR BLENDS WITH LINEAR HOMOPOLYMERS**

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**SYNTHESIS AND CHARACTERIZATION OF POLY(DMAEMA-co-LMA-co-OEGMA) TERPOLYMERS**

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**SYNTHESIS AND CHARACTERIZATION OF MACROMOLECULAR BRUSHES AS SOLID POLYMER ELECTROLYTES IN LITHIUM-ION ELECTROCHEMICAL CELLS**

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**AGGREGATION STUDY OF APHIPHILICK BLOCK COPOLYMERS FEATURING A SURFACE LIGAND**

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**SYNTHESIS OF STAR AND BLOCK COPOLYMERS BASED ON POLY(N-VINYLPYRROLIDONE) THROUGH REVERSIBLE ADDITION FRAGMENTATION CHAIN TRANSFER POLYMERIZATION (RAFT)**

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**SYNTHESIS OF POLY(N-HEXYL ISOCYANATE) AND POLY(B-BENZYL L-ASPARTATE) BLOCK COPOLYMER, VIA COMBINATION OF COORDINATION AND RING OPENING POLYMERIZATION**

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**AMPHIPHILIC POLYMER CONETWORKS BASED ON POLY(L-ALANINE) AND FOUR-ARMED POLY(ETHYLENE GLYCOL) STARS: SYNTHESIS AND CHARACTERIZATION**

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## CONTROLLED POLY(ESTER AMIDE) VIA ORGANOCATALYTIC SEQUENCE-SELECTIVE RING-OPENING COPOLYMERIZATION OF N-SULFONYL AZIRIDINES AND CYCLIC ANHYDRIDES

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## OXYGEN-TOLERANT SYNTHESIS OF GIANT AMPHIPHILES VIA CUAAC AND THIOL-YNE POST-FUNCTIONALIZATION

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## POLYMER PHYSICS

### eP23

## SELF ASSEMBLY OF LOW MOLECULAR WEIGHT ASYMMETRIC LINEAR TRIBLOCK TERPOLYMERS: HOW LOW CAN WE GO?

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## ALTERING THE SURFACE PROPERTIES OF FLEXIBLE SUBSTRATES BY UTILIZING NANOSTRUCTURED COATINGS

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## INTERACTIONS, MORPHOLOGY, AND THERMAL PROPERTIES OF ALL-POLYMER NANOCOMPOSITES MATERIALS COMPOSED OF MIKTO-ARM COPOLYMER STAR/LINEAR POLYMER BLENDS

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### EXPLORING "SOFT-NATURE" DIENE-SILOXANE ELASTOMERS

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#### eP27

### SYNTHESIS AND SELF-ASSEMBLY BEHAVIOR OF LINEAR AND NON-LINEAR STAR BLOCK COPOLYMERS

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#### eP28

### ASSOCIATING POLYMERS AND SELF-ASSEMBLIES UNDER HIGH PRESSURE

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### POLYMER CRYSTALLIZATION IN THE PRESENCE OF INORGANIC NANOPARTICLES

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#### eP30

### APPLICATION OF ALTERNATIVE AND ECO-FRIENDLY METHODS TO ESTIMATE COPOLYMER COMPOSITION IN LAB SCALE MICROBIALY PRODUCED PHBVS BY RAMAN SPECTROSCOPY AND DIFFERENTIAL SCANNING CALORIMETRY

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### eP31

#### DEVELOPMENT OF FUNCTIONAL MATERIALS SURFACES

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### eP32

#### EFFECT OF CONFINEMENT ON POLYMER CRYSTALLIZATION AND DYNAMICS IN POLY(ETHYLENEOXIDE)/NANOCCLAY NACRE-MIMETIC NANOCOMPOSITES

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#### SYNTHESIS AND STUDY OF WELL-DEFINED SINGLE CHAIN POLYSTYRENE NANOPARTICLES IN SOLUTION AND BULK

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#### CALORIMETRIC AND DIELECTRIC STUDIES ON POLY-(LAURYL METHACRYLATE)-co-POLY-(OLIGO ETHYLENE GLYCOL METHACRYLATE) (PLMA-co-POEGMA) RANDOM COPOLYMERS

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#### EFFECT OF STAR ARCHITECTURE ON THE DYNAMICS OF 1,4-CIS-POLYISOPRENE UNDER NANOMETER CONFINEMENT

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#### NON-DEBYE SEGMENTAL RELAXATION OF POLY-N-VINYL-CARBAZOLE IN DILUTE SOLUTION

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**PROTON-TRANSFER AND ROTATIONAL-ISOMERIC EQUILIBRIA IN POLY-VINYL-ALCOHOL AQUEOUS SOLUTIONS BY MEANS OF ULTRASONIC RELAXATION SPECTROSCOPY**

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**SUB-ROUSE DYNAMICS IN POLY(ISOBUTYLENE) (PIB) AS A FUNCTION OF MOLAR MASS**

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**COARSE-GRAINED MOLECULAR DYNAMICS SIMULATIONS OF DENDRONIZED POLYMERS**

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**RENEWABLE POLY(ALKYLENE FURANOATE)-BASED NANOCOMPOSITES – INTERFACIAL INTERACTIONS, MOLECULAR MOBILITY AND CRYSTALLIZATION**

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**THERMAL CONDUCTIVITY IN POLYMER NANOCOMPOSITES**

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**CHITOSAN NANOPARTICLES BY ELECTROSTATIC INTERACTIONS WITH MULTIFUNCTIONAL ACIDS**

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**BIOBASED POLYMYRCENE: EFFECT OF BRANCHING ON THE DYNAMICS AS A FUNCTION OF TEMPERATURE AND PRESSURE**

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**NANO-ASSEMBLIES FROM AMPHIPHILIC PnBA-b-POEGA COPOLYMERS AS DRUG NANOCARRIERS: STRUCTURE AND DRUG-POLYMER INTERACTIONS**

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**POLYMER ENGINEERING**

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**DERIVATION OF SIMPLE QUALITATIVE MODEL TO PREDICT SPATIAL CHARACTERISTICS OF EXTRUSION FLOW INSTABILITIES**

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**ANNULAR POISEUILLE FLOW OF A BINGHAM PLASTIC WITH WALL SLIP**

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**POLY(UREA – FORMALDEHYDE) MICROCAPSULES FOR SELF-LUBRICATING APPLICATIONS**

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**EFFECT OF HUMIDITY LEVEL ON THE THERMAL AND MECHANICAL PROPERTIES OF POLY(VINYL ALCOHOL) AND POLY(VINYL PYRROLIDONE) BLEND FILMS**

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**DESIGN AND DEVELOPMENT OF NEW CONJUGATED POLYMERS FOR APPLICATIONS IN ORGANIC PHOTOVOLTAIC DEVICES**

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## **INTEGRATING MULTI-FUNCTIONALITY IN Fe<sub>3</sub>O<sub>4</sub>/BaTiO<sub>3</sub>/EPOXY RESIN HYBRID NANOCOMPOSITES**

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## **Fe<sub>3</sub>O<sub>4</sub>/MWCNTs/EPOXY NANOCOMPOSITES: DEVELOPMENT, THERMO-MECHANICAL AND MAGNETO-DIELECTRIC BEHAVIOUR**

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## **THERMOMECHANICAL BEHAVIOR OF POLYVINYLIDENE FLUORIDE(PVDF)-GRAPHENE NANOCOMPOSITES**

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## **DEVELOPMENT, CHARACTERIZATION AND FUNCTIONALITY OF EPOXY RESIN/ GRAPHENE NANOCOMPOSITE SYSTEMS**

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## **DIELECTRIC BEHAVIOR OF POLYOXYMETHYLENE/ POLYURETHANE/FLUOROHECTORITE TERNARY NANOCOMPOSITES**

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## **RECYCLING HDPE FOR THE SYNTHESIS OF ECOFRIENDLY WOOD/PLASTIC COMPOSITE PRODUCTS**

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### COMBINING POLYLACTIDE WITH POLYPEPTIDES FOR MATERIALS APPLICABLE IN THE TREATMENT OF PERIODONTITIS

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### SELF-HEALING pH- AND ENZYME STIMULI-RESPONSIVE HYDROGELS FOR TARGETED DELIVERY OF GEMCITABINE TO TREAT PANCREATIC CANCER

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### RENEWABLE UNSATURATED POLYESTER RESINS BASED ON ADIPIC ACID

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### LONG-ACTING INJECTABLE FORMULATIONS OF PALIPERIDONE PALMITATE BASED ON BIOCOMPATIBLE POLY(ALKYLENE SUCCINATE) MICROSPHERES

Rizos D. Bikiaris, Evi Christodoulou<sup>1</sup>, Maria Kasimatis<sup>2</sup>, Hermis Iatrou<sup>2</sup>, Nikolaos Nikolaidis<sup>1</sup>

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### DEVELOPMENT, CHARACTERIZATION AND IN VITRO EVALUATION OF CHITOSAN-FISH GELATIN-GLYCEROL HYDROGEL MEMBRANES FOR WOUND HEALING APPLICATIONS

Andreas Karydis-Messinis<sup>1</sup>, Dimitrios Moschovas<sup>1</sup>, Maria Markou<sup>2</sup>, Carol Murphy<sup>2</sup>, Anastasios Vasileiadis<sup>3</sup>, Apostolos Avgeropoulos<sup>1</sup>, Nikolaos Evangelos Zafeiropoulos<sup>1</sup>

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**H-[P(OEGMA-co-LMA)] : NOVEL HYPERBRANCHED RANDOM AMPHIPHILIC COPOLYMERS AS SELF-ASSEMBLED NANOCARRIERS FOR DRUG DELIVERY AND BIO-IMAGING APPLICATIONS**

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**THE BINDING KINETICS OF A MULTILAYER FILM COMPOSED OF ALTERNATING PROTEIN-POLYSACCHARIDE LAYERS AND ITS RESPONSIVENESS ON PH CHANGES**

Nikolitsa Katsenou<sup>1</sup>, Nikolaos Spiliopoulos<sup>1</sup>, Dimitris Anastassopoulos<sup>1</sup>,  
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**PREPARATION OF POLY (LACTIC ACID)/POLY (ETHYLENE ADIPATE) BLENDS AS DRUG DELIVERY SYSTEM VIA ELECTROSPINNING TECHNIQUE**

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**PRODUCTION OF (NANO)CELLULOSE FROM AGRICULTURAL AND LIGNOCELLULOSIC BIOMASS**

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**pH-SENSITIVE NANOGATES BASED ON POLY(L-HISTIDINE) FOR CONTROLLED DRUG RELEASE FROM PEGYLATED MESOPOROUS SILICA NANOPARTICLES**

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**SYNTHESIS AND CHARACTERIZATION OF PH- AND REDOX-RESPONSIVE POLY(ETHYLENE OXIDE)-B-POLY(HISTIDINE-CO-CYSTEINE) TERPOLYMERS**

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**“SYNTHESIS AND CHARACTERIZATION OF AMPHIPHILIC ABA TRIBLOCK COPOLYMERS FOR THE DEVELOPMENT OF NOVEL HYDROGEN PEROXIDE RESPONSIVE MEMBRANE-BASED BIOSENSORS COUPLED WITH SMARTPHONES”**

Papadopoulos G.<sup>1</sup>, Moutsios I.<sup>1</sup>, Tzianni E.<sup>2</sup> Moschovas D.<sup>1</sup>, Prodromidis M.<sup>2</sup>,  
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Aimilia Barmdaki<sup>1</sup>, Evangelia Zavvou<sup>1</sup>, Emmanouela Mystiridou<sup>2</sup>, Ioannis Iliopoulos<sup>3</sup>, Panagiota Karahaliou<sup>1</sup>, Panagiotis Svarnas<sup>4</sup>, Stavroula Georga<sup>1</sup>, Christoforos Krontiras<sup>1</sup>

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**NANOPARTICLES FEATURING GOLD NANOSHELLS THROUGH HYBRID POLY(L-HISTIDINE) POLYMERS, THEIR NIR ABSORBANCE AND MOLECULAR CHARACTERISTICS**

Varvara Athanasiou<sup>1</sup>, Dimitra Stavroulaki<sup>1</sup>, Foteini Arfara<sup>1</sup>, Dimitrios Kabras<sup>1</sup>, Ioannis Kleideris<sup>1</sup>, Niki Roumelioti<sup>1</sup>, Panagiota G. Fragouli<sup>2</sup>, Georgios Patias<sup>3</sup>, David Haddleton<sup>3</sup>, Hermis Iatrou<sup>1</sup>

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**DEVELOPMENT OF NEW AQUEOUS CONJUGATED POLYMER NANOPARTICLES FOR BIOIMAGING AS FLUORESCENT PROBES**

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**FUNCTIONAL BIODEGRADABLE POLYESTERS WITH AN UPPER CRITICAL SOLUTION TEMPERATURE IN WATER**

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**RESPONSIVE 3D-PRINTED POLYESTER SCAFFOLDS FOR TISSUE-ENGINEERING APPLICATIONS**

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**MOLECULAR DYNAMICS SIMULATION OF THE FORMATION OF POLYCATION-BASED DNA COMPLEXES INTENDED FOR GENE DELIVERY APPLICATIONS**

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**SELF-ASSEMBLED PDMAEMA-B-PTHPMA DIBLOCK COPOLYMERS COMPRISING BIOCIDAL AND SELF-POLISHING PROPERTIES**

Theodore Manouras<sup>1,4</sup>, Apostolos Vagias<sup>2</sup>, Eleftherios Koufakis<sup>1,4</sup>, Peter Müller-Buschbaum<sup>2</sup>, Spiros Anastasiadis<sup>3,4</sup>, Maria Vamvakaki<sup>1,4</sup>

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**FERMENTATIVE PRODUCTION OF BIOPOLYMERS FOR ADIPOGENESIS, MYOGENESIS AND BONE FORMATION**

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**POLYPEPTIDE SYNTHESIS USING THE NOVEL MACRO-INITIATOR GLYCIRRHETINIC ACID WITH AMINO ENDING GROUPS TO TARGET CANCER CELLS**

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**THE CHARACTERIZATION OF THE HEATING PROPERTIES OF BIO-BRIQUETTES OF COAL AND CORN COB**

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**A BIOBASED APPROACH FOR NEW ADHESIVES IN THE WOOD INDUSTRY**

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**FULLY BIO-BASED PLASTICS VIA SOLVENT FREE MODIFICATION OF POLYSACCHARIDES**

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**3D-PRINTED CHITOSAN/GELATIN/COLLAGEN DRESSING FOR WOUND HEALING**

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**LIGHT- AND ACID-INDUCED MAIN-CHAIN SCISSION OF A POLYACYLHYDRAZONE-DOXORUBICIN PRODRUG**

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**3D-PRINTED ANTI-INFLAMMATORY & ANTIBACTERIAL PATCHES FOR CHRONIC WOUND HEALING**

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**USING XANTHAN-BASED POLYSACCHARIDE/PROTEIN NANOPARTICLES TO ENCAPSULATE AND PRESERVE CURCUMIN**

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**DETERMINATION OF PROTEIN STRUCTURE AND DYNAMICS BY COMBINING MOLECULAR SIMULATIONS WITH EXPERIMENTAL DATA**

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**THERMO-MECHANICAL PROPERTIES OF PLA CONTAINING INORGANIC FILLERS**

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## **POLYMERS FOR EMERGING TECHNOLOGIES (ENERGY, ORGANIC ELECTRONICS, ENVIRONMENT, NANOTECHNOLOGY, AEROGELS)**

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### **DEVELOPMENT OF POLY(ETHYLENE OXIDE) BASED COPOLYMER MEMBRANES FOR EFFICIENT GAS/VAPOR SEPARATION**

Alkistis Ioannidi<sup>1</sup>, Dionysios Vroulias<sup>2</sup>, Joannis Kallitsis<sup>1</sup>, Theophilos Ioannides<sup>2</sup> Valadoula Deimede<sup>1</sup>

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### **DESIGN OF MICROCAPSULES AS POTENTIAL SELF-HEALING ADDITIVES FOR WATER BASED POLYURETHANES**

Efterpi Avdeliodi<sup>1</sup>, Amaia Soto Beobide<sup>1,2</sup>, George A. Voyiatzis<sup>1,2</sup>, Athena Fidelli<sup>3</sup>, Poppy Krassa<sup>3</sup>, Georgios Bokias<sup>1</sup>, Joannis K. Kallitsis<sup>1</sup>

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### **THE EFFECT OF FILLER LOADING ON THE THERMAL PROPERTIES OF GRAPHITE-REINFORCED SILANE CROSSLINKED HIGH-DENSITY POLYETHYLENE**

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### **SYNTHESIS OF GLYCIDYL METHACRYLATE-BASED AMPHIPHILIC COPOLYMERS AND THEIR ORGANIZATION PROPERTIES IN AQUEOUS MEDIA**

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### **BIOCIDAL WATER-BASED POLYMERIC COATINGS FOR AIR-CLEANING FILTERS**

Denisa Druvari<sup>1,3</sup>, Ioanna Tzoumani<sup>1,2</sup>, Alexios Vlamis-Gardikas<sup>1,2</sup>, Georgios Bokias<sup>1,2</sup>, Iliana Tselenti<sup>3</sup>, Joannis K. Kallitsis<sup>1,2</sup>

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### **FORMATION OF MICELLEPLEXES BETWEEN CATIONIC BLOCK COPOLYMER MICELLES AND DNA**

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**SYNTHESIS, SELF-ORGANIZATION AND EMULSIFYING / FOAMING CAPABILITY OF 2-ACRYLAMIDO-2-METHYL-1-PROPANESULFONIC ACID (AMPSA)-BASED AMPHIPHILIC COPOLYMERS**

Zacharoula Iatridi<sup>1,2</sup>, Christina Ntente<sup>1,2</sup>, Maria Theodoropoulou<sup>2</sup>,  
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**EVALUATION OF SHELF LIFE OF LOW DENSITY POLYETHYLENE (LDPE) FILMS WITH ENCAPSULATED ANTIMICROBIAL SUBSTANCES FOR APPLICATION IN MEDICAL WASTE MANAGEMENT**

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**CONTROL OF WETTING AND FRICTION PROPERTIES ON FLUORINATED ETHYLENE PROPYLENE SURFACES USING PLASMA MICRO-NANOTEXTURING**

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**LARGE-AREA MEMBRANE DEVELOPMENT OF OPTIMIZED, SCALED-UP AND HIGHLY DOPABLE POLYMER ELECTROLYTES FOR HIGH TEMPERATURE PEM FUEL CELLS**

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**FEASIBILITY OF SOLID-STATE POLYMERIZATION AS AN ALTERNATIVE ROUTE TO SYNTHESIZE FOSSIL- AND BIO-BASED VITRIMERS FROM COMMERCIALY AVAILABLE POLYESTERS**

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**POLY(E-CAPROLACTONE)-CO-POLY(2-HYDROXYETHYL METHACRYLATE) FOR THE REMOVAL OF METHYLENE BLUE FROM AQUEOUS SOLUTIONS**

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**DEVELOPMENT, ELECTRICAL AND MECHANICAL CHARACTERIZATION OF BORON CARBIDE/EPOXY RESIN NANOCOMPOSITES**

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**COATING POROUS PVDF-HFP MEMBRANES WITH SUPERHYDROPHOBIC NANOPARTICLES IMPROVES MEMBRANE DISTILLATION PERFORMANCE**

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**LOW-CYTOTOXICITY CONJUGATED POLYMER NANOPARTICLES AS PHOTOACOUSTIC CONTRAST AGENTS IN NIR-II REGION**

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**COPPER/EPOXY MULTILAYERED COMPOSITE SYSTEMS: DEVELOPMENT, PROPERTIES AND FUNCTIONALITY**

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**ARE POLYDIENES SOLUTIONS PHOTOREACTIVE?**

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**ADSORPTION OF PHARMACEUTICALS ONTO VIRGIN AND AGED BIOBASED MICROPLASTICS**

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**FLUOROPOLYMERS APPLICATION IN BIO-FUNCTIONAL SURFACES CREATION  
VIA LITHOGRAPHY**

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SOLVENTS FOR THE FIRST TIME**

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ATOMISTIC SIMULATIONS PARAMETRIZED ON DENSITY FUNCTIONAL THEORY  
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Nikolaos Patsalidis<sup>1</sup>, Georgios Papamokos<sup>2</sup>, George Floudas<sup>2,3</sup>, Vangelis Harmandaris<sup>1,4,5</sup>,  
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**STRUCTURAL AND DYNAMICAL PROPERTIES OF HYBRID POLYMER  
NANOCOMPOSITES SYSTEMS THROUGH ATOMISTIC MOLECULAR DYNAMICS  
SIMULATIONS**

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**SYNTHESIS, REACTION KINETICS AND CHARACTERIZATION OF INNOVATIVE  
THERMO-RESPONSIVE NANOCOMPOSITES BASED ON BIOCOMPATIBLE OLIGO-  
ETHYLENE GLYCOL ACRYLATES (POEGA)**

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**ON THE ROLE OF MOLECULAR ARCHITECTURE IN POLYMER SIZE AND  
DIFFUSION: THE CASE OF RING AND LINEAR POLY(ETHYLENE OXIDE) CHAINS  
IN AQUEOUS SOLUTIONS**

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**MODELING NON-EQUILIBRIUM DYNAMICS OF COARSE-GRAINED MOLECULAR  
SYSTEMS**

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**CONFORMATION AND DYNAMICS OF SHORT LINEAR AND RING DNA  
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Terpsichori Alexiou<sup>1,2</sup>, Dimitrios Tsalikis<sup>2</sup>, Pavlos Stephanou<sup>1</sup>, Vlasis Mavrantzas<sup>2</sup>

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**BIOADHESION OF POLYMERIC FORMULATIONS TO BIOLOGICAL SURFACES:  
MULTISCALE MODELING AND COMPUTATIONAL METHODS**

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**MICELLIZATION THROUGH COMPLEXATION OF OPPOSITELY CHARGED  
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ARCHITECTURE AND SALT OF DIFFERENT VALENCY**

Christos Gioldasis<sup>1</sup>, Leonidas Gergidis<sup>2</sup>, Costas Vlahos<sup>1</sup>

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**STRUCTURAL AND DYNAMICAL BEHAVIOR OF STAR-SHAPED POLYSTYRENE  
AND POLY(ETHYLENE-OXIDE) MELTS, THROUGH ATOMISTIC MOLECULAR  
DYNAMICS SIMULATIONS**

Eirini Gkolfi<sup>1,2</sup>, Petra Bačová<sup>2</sup>, Vagelis Harmandaris<sup>1,2,3</sup>

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## POLYMERS IN INDUSTRY

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### EMPLOYING BIOBASED MONOMERS TO DEVELOP ADHESIVES FOR THE WOOD INDUSTRY

Lazaros Papadopoulos<sup>1</sup>, Electra Papadopoulou<sup>2</sup>, Lamprini Malentzidou<sup>1</sup>, Konstantinos Chrissafis<sup>1</sup>, Charles Markessini<sup>2</sup>, Dimitrios Bikiaris<sup>1</sup>

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### DYEING PROPERTIES OF CURCUMIN POWDER ON SYNTHETIC OR NATURAL FIBERS AND THEIR ANTIMICROBIAL ENHANCEMENT

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### MULTI-RESPONSIVE P(OEGMA-co-DIPAEMA) HYPERBRANCHED COPOLYMERS VIA RAFT POLYMERIZATION

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### DEVELOPMENT OF PROCESS - MOLECULAR STRUCTURE – END-USE POLYMER PROPERTY RELATIONSHIPS USING BIG DATA-DRIVEN COMPUTATIONAL METHODS

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### TENSILE PROPERTIES AND MICROMECHANICAL MODELING FOR THE ELASTIC MODULUS PREDICTION OF GRAPHITE REINFORCED SILANE CROSSLINKED HIGH-DENSITY POLYETHYLENE

Dimitra Kourtidou<sup>1</sup>, Zoi Terzopoulou<sup>2</sup>, Dimitrios Bikiaris<sup>2</sup>, Konstantinos Chrissafis<sup>1</sup>  
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### TOWARDS SUSTAINABILITY: SYNTHESIS AND CHARACTERIZATION OF NOVEL ADIPIC ACID-BASED UNSATURATED POLYESTER RESINS

Eleftheria Xanthopoulou<sup>1,2</sup>, Lazaros Papadopoulos<sup>1,2</sup>, Alexandra Zamboulis<sup>1</sup>, Christina Kyriakou- Tziamtzi<sup>3</sup>, Nikolaos Athanasopoulos<sup>4</sup>, Stavros Tsompanidis<sup>4</sup>, Electra Papadopoulou<sup>5</sup>, Konstantinos Chrissafis<sup>3</sup>, Dimitrios N. Bikiaris<sup>1,2</sup>

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### CHARACTERIZATION OF OLIVE-TREE DERIVED BIOMASS FOR SUSTAINABLE WOOD-BASED PANELS

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### CONTROLLING THE SEPARATION OF GRAPHENE OXIDE SHEETS IN AQUEOUS POLYMER NANOCOMPOSITE SYSTEMS

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### POLY (ETHYLENE TEREPHTHALATE) CARBON-BASED NANOCOMPOSITES: A CRYSTALLIZATION AND MOLECULAR ORIENTATION STUDY OF TWISTED FILAMENT YARNS FOR POTENTIAL APPLICATION IN PROTECTIVE TEXTILES

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### NANOCOMPOSITE POLYPROPYLENE DRAWN FIBERS WITH VARIOUS INORGANIC FILLERS

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### PHYSICOCHEMICAL CHARACTERIZATION OF CATIONICALLY MODIFIED COTTON TEXTILES BY BIFUNCTIONAL POLYMERS FOR ECOFRIENDLY IMPROVEMENT OF THEIR DYEING AFFINITY

Konstantinos Papapetros<sup>1,3</sup>, Konstantinos Andrikopoulos<sup>2,3</sup>, Labrini Sygellou<sup>3</sup>, Loukia Tsimpouki<sup>4</sup>, Charalampos Anastasopoulos<sup>4</sup>, Georgios Bokias<sup>4</sup>, Joannis Kallitsis<sup>4</sup>, Amaia Soto-Beobide<sup>3</sup>, George Voyiatzis<sup>3</sup>

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**ANTIBACTERIAL POLYMER COATINGS ON FLEXIBLE SUBSTRATES**

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**CHARACTERIZATION AND SELF-HEALING PROPERTIES OF PUDS  
INCORPORATING GO AND HYDROPHILIC CLAYS**

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**IMPACT OF INORGANIC NANOADDITIVES ON THE PROPERTIES OF  
POLYURETHANE DISPERSIONS**

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**MACROCYCLIC SELF-ASSEMBLED CAGES TO ROTAXANES CONSISTING OF  
FUNCTIONALIZED BODIPY-DYES FOR LIGHT-HARVESTING AND CONTROLLED  
ENERGY TRANSFER**

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**STIMULI-RESPONSIVE POLYPEPTIDE HYDROGELS FOR TARGETED DRUG  
DELIVERY AGAINST PANCREATIC CANCER**

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**SQUARED PLGA MICROPLATES AS INJECTABLE DEPOT FOR THE  
MANAGEMENT OF POST-TRAUMATIC OSTEOARTHRITIS**

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Valentina Di Francesco<sup>1</sup>, Fang Yu<sup>2</sup>, Miguel Ferreira<sup>1</sup>, Daniele Di Mascolo<sup>1</sup>,  
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**REGENERATING THE DIABETIC HEART AND KIDNEY BY USING STRESS-SPECIFIC  
THYROID HORMONE NANOCARRIERS**

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**OPTIMIZED PROCESS OF PLA PRODUCTION FROM FOOD WASTE**

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