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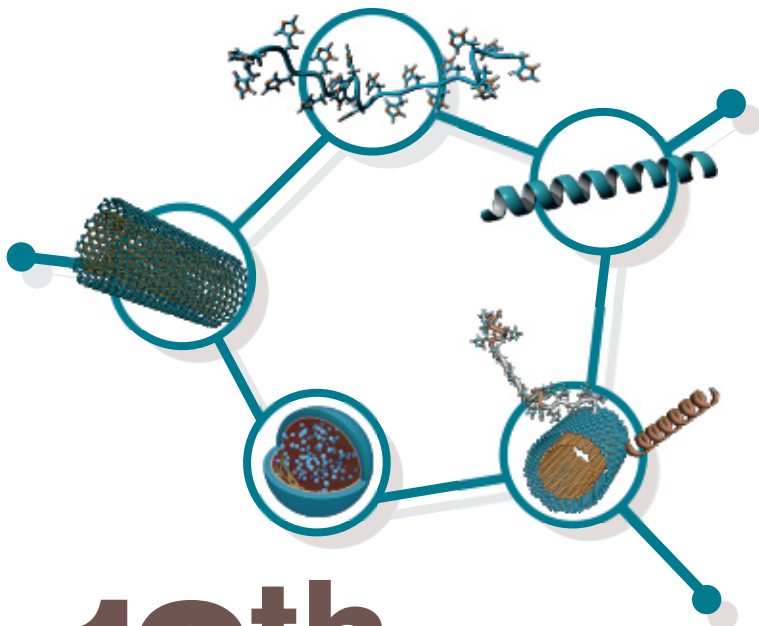


**Hellenic
Polymer
Society**

**Under the
auspices:**



**European
Polymer
Federation**



13th

**Hellenic Polymer Society
International Conference**

2021
Live 

12-16 December
VIRTUAL EVENT

www.polyconf13.gr



HELLENIC REPUBLIC

National and Kapodistrian
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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. Kulkarni
12:00-12:15	Theranostic Nanoparticles Based on PEO-Polyacetal Diblock Copolymers for Drug Delivery T. Manouras
12:15-12:30	Structure and Thermal Stability of Rop And Rm6 Proteins via All-Atom Molecular Dynamics Simulations M. Arnittali
12:30-12:45	Ph/Thermo-Responsive Sodium Alginate-Based Injectable Hydrogels: Enrichment of Responsiveness by Boronic Acid Conjugations and/or Ca ²⁺ Cations S.F. Saravanou
12:45-13:00	Mechanical Properties of Pmma Resin Composites for Interim Fixed Prostheses Reinforced with Calcium B-Pyrophosphate E. Vouvoudi
13:00-13:15	Hybrid Chitosan-Based Films Exhibiting a Strong Antimicrobial Action under Visible-Light Irradiation and Stimuli-Renewable Properties E. Vasilaki
13:15-13:30	Miscibility Study of Modified with Vanillin Chitosan Blends and their Application in 3d Printing G. Michailidou
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 F. Karageorgos
15:10-15:30	Mechanical Properties of Glassy Polymer Nanocomposites via Simulations Across Scales: From Atoms to the Continuum Scale V. Harmandaris
15:30-15:50	Hyperbranched Poly(ethylene imine) - Graphene Oxide Nanocomposites as Dye Adsorbents for Water Purification: a Molecular Dynamics Study C. Karatasos

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

09:00-10:40

INVITED LECTURES

Chairperson: **P. Argitis**

09:00-09:20

Adsorption Kinetics of cis-1,4-Polyisoprene in Nanopores by In Situ Nanodielectric Spectroscopy
G. Floudas

09:20-09:40

Tuning colloidal gels by shear: A paradigm to manipulate metastable soft matter systems
G. Petekidis

09:40-10:00

Molecular mobility in semi-crystalline polymer nanocomposites: Disentangling the impact of nanoparticles and crystallinity
A. Kyritsis

10:00 -10:20

Metal Oxide/Polymer Nanocomposites and Lithographic Patterning
E. Makarona

10:20-10:40

Mechanistic Studies on Type II Bichromophoric Photoinitiator Systems
M. Siskos

10:40-10:55

Break

10:55-11:30

KEYNOTE LECTURE

Chairperson: **P. Argitis**

10:55-11:30

The three C's: Cobalt, Copper and Control
D. Haddleton

11:30-12:10

INVITED LECTURES

Chairperson: **A. Kyritsis**

11:30-11:50

Polymer brush swelling and the role of interfacial phenomenon
K. Kaur

11:50-12:10

What Limits the Efficiency in Organic Solar Cells at Negligible Energy Level Offsets?
C. Chochos

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(Γ -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

09:00-09:35 KEYNOTE LECTURE
Chairperson: **E. Glynos**

09:00-09:35 Novel Biocompatible Bottle-Brush-Based Block Copolymers for Biomedical Applications
D. Ivanov

09:35-10:35 INVITED LECTURES
Chairperson: **E. Glynos**

09:35-09:55 Hydrogel membranes with fish waste gelatin for biomedical applications
N.E. Zafeiropoulos

09:55-10:15 Applications of Polymers in the Treatment of Stroke
A. Touris

10:15-10:35 The Discovery X3 DSC as a Tool to Increase Productivity in a QC as well as in an R&D Laboratory
D. Roedolf



10:35-10:50 Break

10:50-11:10 INVITED LECTURE
Chairperson: **K. Chrissopoulou**

10:50-11:10 Advance your Polymer GPC Characterisation by Combining Multi-Detection to High Resolution Separation
S. Cairns



11:10-13:25 ORAL PRESENTATIONS
Chairperson: **K. Chrissopoulou** (OP43-OP51)

11:10-11:25 Novel Conducting Trimers for in Vivo Electronic Functionalization of Tissues
E. Pavlopoulou

11:25-11:40 Synthesis of Model Cyclic Polymers via Efficient Etherification-Based Bimolecular Ring-Closure Strategy
S.K. Sharma

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 Ntetsikas¹, George Zapsas¹, Panayiotis Bilalis¹, Yves Gnanou¹, Xueyan Feng², Edwin L. Thomas², Nikos Hadjichristidis^{1*}

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

²Department of Materials Science and NanoEngineering Rice University, Houston, TX 77030, USA

OP02

TRANSFORMER-INDUCED METAMORPHOSIS OF POLYMERIC NANOPARTICLE SHAPE AT ROOM TEMPERATURE

Kostas Parkatzidis^a, Nghia P. Truong^a, Athina Anastasaki^a

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 Zamboulis¹, Eleftheria Xanthopoulou², Lazaros Papadopoulos¹, Zoi Terzopoulou^{1,2}, George Z. Papageorgiou², Dimitrios N. Bikiaris¹

¹Department of Chemistry, Aristotle University of Thessaloniki, Thessaloniki, Greece

²Department of Chemistry, University of Ioannina, Ioannina, Greece

OP07

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

Saibal Bhaumik¹, Konstantinos Ntetsikas¹, Wenpeng Shan²,
Edwin Thomas², Nikos Hadjichristidis^{*1}

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

²Materials 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, Marinós 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

Christos Georgantopoulos¹, Masood Khabazian¹, Ingo Naue¹, Andrea Causa², Roland Kádár³, Manfred Wilhelm¹

¹Karlsruhe Institute of Technology (KIT), Institute for Chemical Technology and Polymer Chemistry (ITCP), Karlsruhe, Germany

²Pirelli Tyre S.p.A., Milan, Italy

³Chalmers University of Technology, Department of Industrial and Materials Science, Gothenburg, Sweden

OP11

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

Christos Zotiadis¹, Ioannis Patrikalos¹, Vasileia Loukaidou¹, Dimitrios Korres¹, Antonis Karantonis², Stamatina Vouyiouka¹

¹Laboratory of Polymer Technology, School of Chemical Engineering, National Technical University of Athens, Zographou Campus, Athens, 157 80, Greece

²Laboratory of Physical Chemistry and Applied Electrochemistry, School of Chemical Engineering, National Technical University of Athens, Zographou Campus, Athens, 157 80, Greece

OP12

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

Aristeidis Papagiannopoulos

Theoretical and Physical Chemistry Institute, National Hellenic Research Foundation, Athens, Greece

OP13

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

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

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OP30

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LAYERS OF DISTINCT MOBILITY IN DENSELY GRAFTED DENDRIMER ARBORESCENT POLYMER HYBRIDS

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CONJUGATED POLYMER NANOPARTICLES AS POTENTIAL THERANOSTIC AGENTS OF BREAST CANCER

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

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

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DEVELOPMENT OF SUPERHYDROPHOBIC AND WATER REPELLENT POLYMER COATINGS

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

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RECENT DEVELOPMENTS IN POLYMER SYNTHESIS AND CHARACTERIZATION METHODS

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

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

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

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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

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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- χ BLOCK COPOLYMERS WITH LINEAR OR COMPLEX
ARCHITECTURE**

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

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EXPLORING "SOFT-NATURE" DIENE-SILOXANE ELASTOMERS

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

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POLYMER CRYSTALLIZATION IN THE PRESENCE OF INORGANIC NANOPARTICLES

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EFFECT OF CONFINEMENT ON POLYMER CRYSTALLIZATION AND DYNAMICS IN POLY(ETHYLENEOXIDE)/NANOCLAY 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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NON-DEBYE SEGMENTAL RELAXATION OF POLY-N-VINYL-CARBAZOLE IN DILUTE SOLUTION

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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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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 Fe₃O₄/BaTiO₃/EPOXY RESIN HYBRID NANOCOMPOSITES

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

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

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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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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

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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 NANO GATES 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”

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INFLUENCE OF THE CRYSTALLIZATION TEMPERATURE AND FILLER CONTENT ON THE PHYSICAL PROPERTIES OF POLY(L-LACTIC ACID)/TITANIUM DIOXIDE BIONANOCOMPOSITES

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

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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

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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 GLYCYRRHETINIC ACID WITH AMINO ENDING GROUPS TO TARGET CANCER CELLS

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

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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

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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

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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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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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INTRINSIC CANCER THERAPEUTIC PROPERTIES OF CONJUGATED POLYMER NANOPARTICLES

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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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**DEVELOPMENT OF CHIRAL HELICENE-BASED CONJUGATED POLYMERS OF
HIGH MOLECULAR WEIGHTS AND PROCESSABLE IN COMMON ORGANIC
SOLVENTS FOR THE FIRST TIME**

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ADVANCES IN POLYMER THEORY AND SIMULATIONS

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**PROPERTIES OF POLYBUTADIENE MELTS ADSORBED IN ALUMINA VIA
ATOMISTIC SIMULATIONS PARAMETRIZED ON DENSITY FUNCTIONAL THEORY
CALCULATIONS**

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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 MOLECULES IN THE CROSS-OVER FROM THE DILUTE TO THE SEMI-DILUTE SOLUTION REGIME: INSIGHTS FROM ATOMISTIC MOLECULAR DYNAMICS SIMULATIONS

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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 DIBLOCK COPOLYMERS: EFFECTS OF COMPOSITION, POLYMER ARCHITECTURE AND SALT OF DIFFERENT VALENCY

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

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POLYMERS IN INDUSTRY

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EMPLOYING BIOBASED MONOMERS TO DEVELOP ADHESIVES FOR THE WOOD INDUSTRY

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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

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TOWARDS SUSTAINABILITY: SYNTHESIS AND CHARACTERIZATION OF NOVEL ADIPIC ACID-BASED UNSATURATED POLYESTER RESINS

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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

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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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**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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