



November 2021

EPNOE Newsletter

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... Editorial

Dear Readers,

We have wonderful news for you! EPNOE can now be a partner in consortia and project applications to offer dissemination and communication activities. Our general assembly in Nantes approved our participation in European and National projects and we are glad to offer expertise to make your proposal more competitive for different calls. The EPNOE general assembly also re-elected the executive team for the term 2022-2023. Prof. Monica Ek will leave the executive board and Prof. Laura Nystrom from ETH Zurich was elected as our VP for Membership and Awards. We thank Prof. Ek for the excellent work and we welcome Prof. Nystrom to our executive team.

EPNOE is booming now with several successful activities such as conferences, workshops, roadmaps and policy-oriented actions, collaboration with other societies, publications and new networking opportunities to build and sustain circular bioeconomy solutions. You will find nice articles about many of our activities in this newsletter and more information on our website and social media. Moreover, we will be delighted to welcome you as new EPNOE member. We offer membership and attractive benefits to individuals, institutions, small enterprises and industry.

Looking forward to seeing you in EPNOE.



Pedro Fardim
President of EPNOE

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... News & Announcements

EPNOE Conference 2021

The **7th International Polysaccharide Conference** in **Nantes, France, 11-15 October 2021** was a huge success and attracted more than 330 attendees from 30 countries. The organisers delivered an impressive program: with 16 interesting sessions, over 200 in depth presentations, 90 informative posters. Everybody was happy to meet in person again after such a long period of online events. The social events were a real treat and were excellent for networking; people really enjoyed themselves. We congratulate **Prof. Thomas Heinze for the EPNOE Science Award 2021** and **Dr Juergen Engelhardt for the EPNOE Technology Award 2021**. The awards were presented during our conference dinner in Nantes.

Thanks again to the organisers who delivered such a splendid conference and to all the sponsors of the event (local sponsors, academic journals and exhibiting equipment companies).

We look forward to the next EPNOE Conference in 2023 which will take place in Graz, Austria. It will be organised by a consortium of 5 Austrian Universities. **Mark your calendars for 18-22.9.2023!**



EPNOE Junior Scientist Meeting 2022

Our major event in 2022 will be the EPNOE Junior Scientist Meeting in Aveiro, Portugal. We will be opening the website for abstract submissions from January 2022. Stay tuned!

New Member - University of Girona

The Laboratory of Sustainable Materials and Product Design (LEPAMAP-PRODISE) is a research group from University of Girona focused on the development of novel cellulose-based materials for a wide range of applications. The core areas of

expertise of LEPAMAP-PRODIS are papermaking, fiber-reinforced composites and nanofibrillated cellulose, covering topics such as:

- Value-added fibers from alternative raw materials (agricultural and forestry residues, industrial side-streams, etc.).
- Sustainable practices in paper production processes and paper products.
- Process engineering in cellulose-based production and real-time monitoring.
- Cellulose functionalization.
- Bio-based and biodegradable fiber-reinforced composites.
- Micromechanical analysis of composite materials and interfaces.
- Eco-design with sustainable materials.
- Computer-aided dynamic simulation of materials.
- Nanocellulose production, upscaling, and characterization.

Brazil - EU Workshop about Circular Bioeconomy

We had a very successful workshop with various speakers from Brazil and Europe, companies and research and universities. A presentation about the European Bioeconomy Strategy was also given by European Commission. More than 120 attendees from 17 countries joined the workshop. We will organize workshop follow up activities, like partner matchmaking and strategic high level meetings with all participants.

Workshop CNPEM-USP-KU Leuven (EPNOE) Challenges and opportunities to promote Circular Bioeconomy 23 rd and 24 th November 2021 Online workshop via Zoom 9:00-13:00 (Brazil) - 13:00-17:00 (CET) - November 23 rd	
09:00 (BR) 13:00 (CET)	Opening (20 min): - EPNOE overview - CNPEM (Sirius) overview - USP (bioeconomy-oriented labs) overview - KU Leuven (bioeconomy-oriented labs) overview
09:20 (BR) 13:20 (CET)	Session I: Opportunities of cooperation and funding in Bioeconomy (Moderator: Pedro Fardim, KU Leuven)
09:40 (BR) 13:40 (CET)	Bioeconomy strategy and perspective in Brazil - Eduardo Couto - LNBR/CNPEM Director
10:00 (BR) 14:00 (CET)	Bioeconomy strategy and perspective in Europe - Roman Brenne - European Commission
10:20 (BR) 14:20 (CET)	Multi-lateral funding opportunities (Horizon) - Moacyr Martucci Jr, USP, National Contact Point Coordinator for the Horizon Europe, Brazil
10:40 (BR) 14:40 (CET)	Round-table with speakers (20-25 min)
10:50 (BR) 14:50 (CET)	Break - 5 min
11:00 (BR) 15:00 (CET)	Session II: Biotechnological advances in biomass conversion/valorization (Moderator: Mario Murakami)
11:20 (BR) 15:20 (CET)	A competitive fungal platform for advanced (lignocellulosic) sugars - Mario Murakami (LNBR-CNPEM)
11:40 (BR) 15:40 (CET)	Enzyme technology - Igor Polikarpov (USP-São Carlos)
11:50 (BR) 15:50 (CET)	Cell biofactories - Michael Sauer (BOKU, Austria)
12:10 (BR) 16:10 (CET)	Microbial platforms for biomass valorization - Kevin Verstappen (KU Leuven)
12:30 (BR) 16:30 (CET)	Round-table with speakers (20-25 min)
12:45 (BR) 16:45 (CET)	Take home messages of day 1
12:55 (BR) 16:55 (CET)	End of Day 1

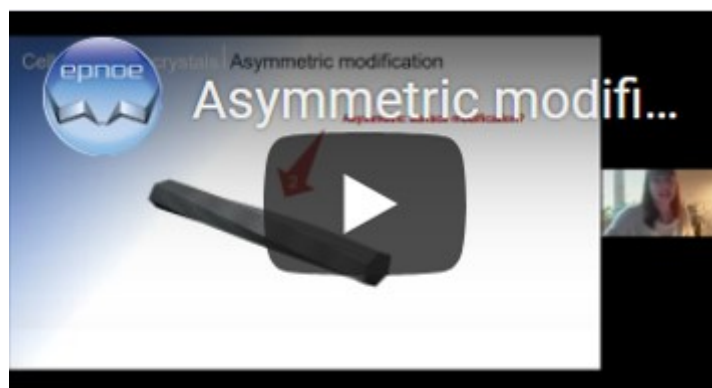
Workshop CNPEM-USP-KU Leuven (EPNOE) Challenges and opportunities to promote Circular Bioeconomy 23 rd and 24 th November 2021 Online workshop via Zoom 9:00-13:00 (Brazil) - 13:00-17:00 (CET) - November 24 th	
09:00 (BR) 13:00 (CET)	Session III: New bio-based technologies for transportation and energy (Moderator: Elisabete Frollini)
09:20 (BR) 13:20 (CET)	Biofuels - Rene Wijffels (WUR, The Netherlands)
09:40 (BR) 13:40 (CET)	Current status of 2G ethanol in Brazil and worldwide - Tassia Junqueira (LNBR/CNPEM)
10:00 (BR) 14:00 (CET)	Raizen - leading the energy transition - Mateus Schreiner Garcez Lopes (Raizen)
10:20 (BR) 14:20 (CET)	Biofuels - Juha Lehtonen (VTI, Finland)
10:40 (BR) 14:40 (CET)	Round-table with speakers (20-25 min)
10:50 (BR) 14:50 (CET)	(Break) 5 min
11:00 (BR) 15:00 (CET)	Session IV: Bio-based polymers / Polysaccharide-based materials (Moderator: Carmen Freire)
11:20 (BR) 15:20 (CET)	Bio-based polymers - Bert Volkert (Fraunhofer, Germany)
11:40 (BR) 15:40 (CET)	Nanostructured materials and biosensors - Oswaldo Novaes Oliveira Jr. (USP)
11:50 (BR) 15:50 (CET)	Bioplastics & Bioeconomy based on territorial regeneration - Luigi Capuzzi (Novamont, Italy)
12:10 (BR) 16:10 (CET)	How bio-based plastics can contribute to a net-zero carbon circular economy - Yuki Hamilton Onda Kabe (Braskem)
12:30 (BR) 16:30 (CET)	Round-table with speakers (20-25 min)
12:45 (BR) 16:45 (CET)	Final remarks and next steps for collaboration
12:50 (BR) 16:50 (CET)	End of workshop

EPNOE Webinar November - recordings available now!

Plenary lecture by Prof. Olli Ikkala, Aalto University, Finland
"New functions for polysaccharides: From strain hardening to optical fiber"



Research presentation by Katja Heise, Aalto University, Finland
"Asymmetric modifications of cellulose nanocrystals – concepts and challenges"



Upcoming EPNOE Webinar – December 2nd

To register for this webinar



Plenary lecture by
 Prof. Magnus Norgren, Mid Sweden University, Sweden



Research presentation by
 Rajesh Koppolu, Åbo Akademi, Finland

Research visits in "Petru Poni" Institute of Macromolecular Chemistry Iasi



In September 2021, PhD student Sandra Źarska and employees - Dr Arkadiusz Źarski and MSc Sylwia Ptak of the Faculty of Science and Technology Czestochowa, Poland, under the [#InternationalCooperationJDU](#), completed a scientific internship at the "Petru Poni" Institute of Macromolecular Chemistry of Romanian Academy in Iasi (Romania).

During their stay, they carried out research in order to obtain materials and results for the PhD thesis and writing a scientific article, using the extensive research infrastructure. Additionally, they confirmed their readiness for further cooperation.

The research internship supervisor on behalf of the host entity was Prof. Sergiu Coseri - head of the Laboratory of Polyaddition and Photochemistry. Professor Coseri is a specialist in the field of chemical modification of natural and synthetic polymers. It should be mentioned that Prof. Coseri was a visiting lecturer at Faculty of Science and Technology Czestochowa, Poland, twice.

The trip was financed by the international scholarship exchange of doctoral students and academic staff (PROM program).



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Knowledge development for the future use of nanocellulose in a sustainable and competitive paper industry in Spain (CON-FUTURO-ES)

grant number: PID2020-113850RB-C22

funding agency: National Research Agency – Ministry of Science and Innovation

start date: 01/09/2021

end date: 31/08/2024

CON-FUTURO-ES focuses on innovative research that will create prospects for economic (improved competitiveness of the paper sector) and societal applications (next generation of paper products). The project scientific objectives build upon and offer a substantial added value to the international state-of-the-art.

Despite the excellent properties of NC and the high interest showed by the research and industrial community, the NC market is still far from reaching its full potential at industrial scale. Research, in the last decade, has been focused on the production of NC and their characterization, as well as on the development of knowledge and prove of concepts to improve the properties of the final products.

Despite so much fundamental research, little is known about the effectiveness (or side-effects) of the NC application on a larger scale as in paper and board production. This justifies the high number of non-successful industrial trials, which are related to the side effects of NC production and application. Therefore, more specific research is required to fulfil the industrial needs related to NC production process, control and optimization, the effects of NC in the papermaking process and, finally the recyclability of NC contained papers. These issues are related to process stability and competitiveness and prevent the implementation of NC at industrial scale.

CON-FUTURO-ES is a three years project structured in 5 Work Packages (WP): encompassing NC production monitoring, control and optimization, with different pre-treatments routes and fibrillation strategies; how to implement NC in papermaking production processes; new NC coated papers for replacing single use plastics, closing the product life cycle with recyclability studies of NC-containing papers, and, finally, technical guides and protocols for industry will be elaborated, based on the results obtained at the four previous WPs.

The results of CON-FUTURO-ES will clearly contribute to: i) the development of environmentally friendly paper solutions, with the development of biodegradable and recyclable paper products replacing single use plastics; ii) the improvement of recycled paper products' quality and fibers life; and iii) the replacing of non-biodegradable polymer coatings.

The impact on the Society will be the development of new bio-based products, consolidating the University-Industry cooperation to minimize the risk of innovation.

Knowledge valorization and transfer for the implementation of nanocellulose in the paper production process (VALORCON-NC)

grant number: PDC2021-120964-C22

funding agency: National Research Agency – Ministry of Science and Innovation

start date: 01/12/2021

end date: 30/11/2023

The VALORCON-NC project is conceived with the purpose of valorizing and transferring the obtained results by the research teams from the University of Girona (UdG) and the University Complutense of Madrid (UCM) in the frame of the coordinated project NANOPROSOST (CTQ2017-85654-C2-1-R and CTQ2017-85654-C2-2-R), as well as responding to the demands of the papermaking industry and offering two case studies, specific but representative at the same time, both at national and international level.

VALORCON-NC will boost the transfer of the generated knowledge and results in the NANOPROSOST project, from the RETOS2017 call, to the papermaking industry.

The project is structured into 5 activities, covering the required development for the conversion of the obtained results in the NANOPROSOST project (Activities 1 and 2), demonstration at semi-industrial scale and development of technical project (Activity 3), results protection, valorization and transfer actions (Activity 4) and formation in terms of innovation and results transfer, both for the research team and professionals from the papermaking sector (Activity 5). Thus, the project encompasses the use of industrial raw materials and real process streams for the production and application of nanocellulose, the validation of the viability of using nanocellulose in the industrial papermaking processes, the conception of the specific dosing, dispersion, retention and drainage systems, and the development of a technical project adapted to the production processes of packaging and security papers that, at the same time, will be easily extrapolable to other relevant actors that might express their interest.

The results from VALORCON-NC will clearly contribute to the development of sustainable solutions for the papermaking sector, allowing an enhancement of the added value of the current products and reaching unconceivable properties with the current systems and processes. It is expected that VALORCON-NC will serve as precursor of future strategies based on nanocellulose at the papermaking industry, contributing thus to the transition towards a circular bioeconomy in an outstanding sector in this field, which has traditionally adopted recycling as a central part of its activities and whose raw material is clearly bio-based and renewable.

Development of self-healing polymeric matrices and composites with reduced impact for application in 3D printing (3DSELFCOMP)

Grant number: PID2020-117802RB-I00

Funding Agency: National Research Agency – Ministry of Science and Innovation

start date: 01/09/2021

end date: 31/08/2024

The purpose of this project is focused on the design and manufacture of a polymeric matrix based on poly (lactic acid) with self-healing and cross-linking capacity for application in the field of rapid FDM prototyping (Fused Deposition Modelling). Specifically, the chemical modification of commercial poly (lactic acid) (PLA) has been proposed by incorporating a chemical functionalization that allows the reaction of macromolecular chains under specific reaction conditions. Thus, based on the proven reactivity of coumarin derivatives, particularly that offered by its unsaturation in alpha; of the cyclic ester, through 2pi-2pi; reaction mechanism, chemical bonding between two independent polymeric chains is pretended by means of UV radiation (360nm) giving rise to a 2+2 cycloaddition. This selfhealing pathway has already been described in other types of polymeric matrices, such as polyurethanes in which the coumarin fragment was introduced into the polymer during its synthesis. In our case, the polymer has already been conceived and the incorporation of the coumarin derivative (7-hydroxycoumarin) is intended by means of a radical reaction between the -CH of PLA and a methacrylic group that has previously been introduced into the 7-hydroxycoumarin through the reaction of the hydroxyl group with methacryloyl chloride. With all this synthetic procedure, two effects are pretended: self-repair capacity of the matrix in which a defect has been generated (fracture) as well as introducing crosslinking capacity into the polymer, useful for the shaping process through the FDM methodology of processing in 3D.

The mechanical properties of a product manufactured using FDM are a function of the properties of the base material and the parameters of the process, since the internal structure of the product and its geometry have a considerable weight. The FDM process creates the shapes from flat sections printed from small extruded cylinders. In this way, the cylinders will show the properties of the base material, but the adhesion zones between cylinders and between layers will be thermally welded and therefore will be weaker. This increases the mechanical anisotropy of materials and makes it more difficult to predict their behaviour under boundary conditions. The project wants to know the dependence of the degree of anisotropy with respect to the internal geometry of standardized specimens and to know if the inclusion of natural reinforcing fibers has a positive or negative influence on the properties of the materials. Also, taking advantage of the possibility of printing specimens with two materials, it will be investigated whether it is possible to increase the mechanical resistance at the same time without compromising its deformation capacity. The use of materials capable of creating cross-link between extruded cylinders can be one way to increase the stability and isotropy of FDM printed products.

With all this argumentation, two targets are planned: the use of PLA beyond single-use applications, through self-healing of the matrix, lengthening its life in use as well as the use of crosslinking capacities to manufacture more stable products or components. and predictable under conditions of use.

MariMed

Grant number: 2112860-0611

Funding Foundation: Rannis – The Icelandic Centre for Research

start date: 01-09-2021

end date: 01-10-2024

Project supported by the Icelandic Technology Development Fund for three years 2021-2024, involving University of Iceland and two Icelandic Companies; Primex ehf and Össur hf. Full title: MariMed: Antimicrobial Marine Biopolymers to Improve Medical Devices. The MariMed project aims to develop applications for chitosan and N,N,N-trimethyl chitosan (TMC) to a) coat silicone in prosthetics to prevent microbial growth at the skin-prosthesis interface

Bluteeth

Grant number: 179012-0613

Funding Foundation: Rannis – The Icelandic Centre for Research / Marine Biotechnology Era-Net

start date: 01-10-2016

end date: 01-06-2020

BLUETEETH (The Marine Biotechnology ERA-NET(ERA-MBT)) - 2016-2020 Transnational project involving partners from Iceland, Portugal and Norway – Aiming for Sustainable and economically viable exploitation of the natural resources of coastal regions by development of a biocompatible and bioresorbable membrane for periodontal regeneration

Antimicrobial chitosan-natural compound conjugates to combat infections

Grant number: 185188 - 051

Funding Foundation: Rannis – The Icelandic Centre for Research / Marine Biotechnology Era-Net

start date: 01-10-2016

end date: 01-06-2020

National project, also involving partners for University of Copenhagen, supported by Icelandic Research fund 2018-2021. The project is to develop antimicrobial conjugates, combining chitosan and antimicrobial natural compounds, to combat infections

caused by biofilm producing microorganism.

Surflenses

Grant number: 13-1309

Funding Foundation: Rannis – The Icelandic Centre for Research / M-Era Net

start date: 01-10-2016

end date: 01-06-2020

M-ERA.NET transnational project involving partners from Iceland, Portugal and Belgium 2013-2017. The main objective of this project was to develop new efficient systems for the treatment of ocular diseases and post-surgical infections, based on the surface coating or modification of drug-loaded ophthalmic lens materials.

<https://surflenses.wixsite.com/surflenses>

Sustainable Binders and Coatings

Grant number: 2320/31/2021

Funding Foundation: Business Finland

start date: September 01, 2021

end date: November 30, 2023

SUSBINCO-project will develop innovations to substitute fossil-based binders and coatings with bio-based solutions. These solutions are urgently needed to produce safe alternatives, reduce greenhouse gases and dependency on fossil-based raw materials. The focus of the SUSBINCO is on bio-based binders and sustainable coatings, which can be used in packaging, paints, adhesives, sealants, and abrasives. The consortium project involves 11 industrial partners, Brightplus, CH-Bioforce, CH-Polymers, Kiilto, MetGen, Metsä Board, Mirka, Montinutra, Teknos, UPM-Kymmene, and Valmet Technologies and 7 research organisations, Åbo Akademi University (ÅAU), VTT Technical Research Center of Finland, Lappeenranta-Lahti University of Technology, University of Oulu, Natural Resources Institute of Finland, Tampere University, and University of Eastern Finland. In SUSBINCO project, ÅAU research team will go beyond the state-of-the-art by developing hemicellulose-based surfactants with tailored physicochemical properties that meet the needs as surfactants and co-binders in coatings.

Innovative and integrated recovery of biopolymer waste through intelligent microwave-assisted synthesis processes to obtain carbon materials for niche applications; Acronym: 4WASTEUPGRADE;

Competitiveness Operational Programme 2014-2020 co-financed by the European Regional Development Fund "Investing for your future"; Innovative Technological Project, duration: **2021-2023**.

SME beneficiary: SC Cosfel Actual SRL (project director Roxana Apolzan).

Partners: University Politehnica of Bucharest (partner responsible dr. Georgeta Predeanu).

"Petru Poni" Institute of Macromolecular Chemistry (partner responsible dr. Petrisor Samoila).

More than 80% of the toxic substances on the EU list included in The Directives on Dangerous Substances 76/464/EEC and 86/280/EEC are adsorbed well on activated carbon (AC). At present, the AC is not produced in Romania due to the disappearance of internal suppliers. The AC is exclusively imported at prices of up to 7,000 Euro/ton and the estimated need is around 10,000 tons/year. Most often the activated carbon is obtained using wood as raw material. But, wood is an expensive and deficient material from the environmental standpoint, directly influencing the reduction of the greenhouse effect (1ha wood consumes about 14 tons/year CO₂ and generates approx. 15 tons/year O₂).

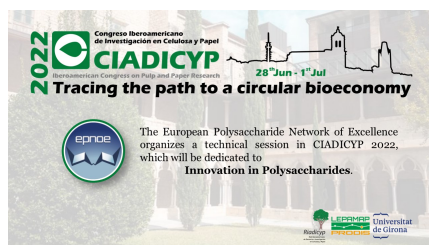
The main objective of the project is the realization of an innovative and integrated pilot-technological-line, for the synthesis in microwave field of AC materials by capitalizing some biopolymer/lignocellulosic wastes that are not currently exploited, such as fruit seeds and shells. The as-obtained AC will be used for applications in water treatment by adsorption and catalytic processes.

Events

CIADICYP 2022

The twelfth edition of the Iberoamerican Congress on Pulp and Paper Research (CIADICYP 2022) will take place in Girona (Spain) from 28th June to 1st July 2022.

The Abstract submission is open from 1st November to 18th January. In addition, EPNOE will organize a session on "Innovation in Polysaccharides" in the frame of the conference, where renowned speakers in the field of polysaccharides will discuss about the challenges and opportunities in this field.



We hope to meet you in Girona next June and work together in the definition of the path that will bring us closer to a more sustainable society.

For further details on topics, submission guidelines and registration, please visit www.ciadicyp2022.com or contact ciadicyp2022@udg.edu

Research

A life cycle inventory of flax fiber for technical textile. Towards environmental assessment of bio-based products.

Publication

A. Gomez-Campos, C. Vialle, A. Rouilly, **C. Sablayrolles**, L. Hamelin, 2021, Flax Fiber for Technical textile: a consequential life cycle inventory, Journal of Cleaner Production, 281, 125177 [WOS IF₂₀₁₉= 7,246, Q1]

<https://doi.org/10.1016/j.jclepro.2020.125177>

Partnership: on behalf of the PhD thesis of Alejandra Gomez-Campos

Laboratoire de Chimie Agro-industrielle: my colleagues Dr. Claire Vialle & Dr. Antoine Rouilly

Toulouse Biotechnology Institute: my colleague Dr. Lorie Hamelin

Contact (email): Dr. Caroline SABLAYROLLES, caroline.sablayrolles@toulouse-inp.fr

Key-words: Consequential LCA; System expansion; Life Cycle Assessment; flax fiber biobased materials; bioeconomy

Résumé

Through a cradle-to-gate LCA, the environmental performance of a flax-based technical textile was assessed. The presented consequential life cycle inventory aims to (but not limited to) be used by LCA practitioners and interested parties for performing LCA for comparing the environmental impact of products with one of their components being flax fiber. The proposed LCI allows for future assessments to be carried out considering either the whole supply chain of production and transformation of flax or with focus on specific processes, depending on specific system boundaries and the product of interest (i.e. short fibers). Efforts focused on presenting information in a clear and concise fashion for modifications to be easily made, allowing a better representation of a broad spectrum of scenarios as agricultural practices and market trends might evolve.



Valorisation

All of this was addressed and applied through a case study, referred to as the "BOPA project", resulted from an ADEME project an industrial collaboration with the SME VESO Concept® and an academic collaboration of the Insitut Clément Ader and CIRIMAT. It concerns the environmental evaluation of a prototype of biocomposite sandwich panel for an application in aeronautics, using flax fiber as reinforcement material.

DOI: 10.1016/j.jclepro.2020.124986

Education

Welcome to new students and researchers

University of Maribor, Slovenia

1. **Katja Kuzmič** joined the Laboratory for Characterisation and Processing of Polymers as a PhD student (in the frame of the Young researcher programme, funded by the Slovenian Research Agency), working on silicone-polysaccharide hybrid materials for advanced biomedical applications under the supervision of Dr. Matej Bracic and co-supervision of Dr. Tamilselvan Mohan.
2. **Laura Jug** joined the LBBE group as a PhD student (in the frame of the Young researcher programme, funded by the Slovenian Research Agency), working in the field of conductive cellulose-based fibrous materials for technical applications under the supervision of Dr. Alenka Ojstršek and co-supervision of Dr. Silvo Hribernik.

PhD theses defended in "Petru Poni" Institute of Macromolecular Chemistry Iasi

- **Andra-Cristina Humelnicu, topic:** "Studies on the modification of chitosan for medical applications in alternative energy production and environmental protection systems", supervised by **Dr. Valeria Harabagiu**
- **Ana-Lavinia Vasiliu, topic:** "Bio-inspired composite materials with biomedical and environmental applications" supervised by **Dr. Marcela Mihai**
- **Ioana A. Duceac, topic:** "New polymeric networks based on modified polysaccharides with potential medical applications" supervised by **Dr. Sergiu Coseri**

New PhD enrolled at "Petru Poni" Institute of Macromolecular Chemistry Iasi

- **Elena Daniela Lotos, topic:** "Micro and Nano structures based on polysaccharides for biomedical applications", supervisor: **Prof. Bogdan C. Simionescu**
- **Ioana Sabina Trifan, topic:** "The synthesis and characterization of photoreactive polysaccharides networks", supervisor: **Dr. Sergiu Coseri**
- **Denisse Iulia Bostiog, topic:** "Synthesis of advanced (macro)molecular systems, producing of well-defined supramolecular structures for biomedical applications", supervisor: **Dr. Mariana Pinteala**

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Open Positions

3 year PhD position starting in spring 2022: Impacts of contaminant cocktails originating from plastics in soil ecosystems

Université Côte d'Azur, Institut de Chimie, Nice, France - Mines ParisTech, Center for Materials Forming (CEMEF) Sophia Antipolis, France. Apply before January 31, 2022

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Recent Scientific Publications of EPNOE Members



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Call for Papers



an Open Access Journal by MDPI



Bio-Based Materials from Plant Cells: Strategies for Building Functional Bio-Assemblies and Composite Structure

Guest Editors:

Dr. Nicolas Le Moigne

Polymers Composites and Hybrids (PCH), IMT Mines Ales, 6 avenue de Clavières, 30319 Ales CEDEX, France
nicolas.le-moigne@mines-ales.fr

Prof. Dr. Ingo Burgert

Institute for Building Materials, ETH Zürich, 8093 Zürich, Switzerland
iburgert@ethz.ch

Dr. Johnny Beaugrand

INRAE Institut National de La Recherche Agronomique pour l'agriculture, l'alimentation et l'environnement, 75338 Paris, France
johnny.beaugrand@inrae.fr

Message from the Guest Editors

Dear Colleagues,

Plant cells are fascinating hierarchical bio-assemblies that are perfectly designed to fulfill a specific role in nature (structural, protection, energy storage, transportation, etc.) and can adapt in an evolutive environment via polymer remodeling. Though plants have been used for several thousands of years to satisfy human needs such as food, textile, mud houses, etc., new uses may arise from the growing interest in the development of bio-based and smart materials in technical and high-performance applications. In this regard, ongoing interdisciplinary research gathering plant biology, biotechnologies, wood science, and polymers and materials science is a driving force to boost ideas and innovations around the efficient use of wood and plant biomass for the development of new bio-based materials with original functionalities.

Keywords

- plant cells
- materials
- biopolymers
- functionalization
- deconstruction and reassembly
- processes

Deadline for manuscript submissions:
31 January 2022

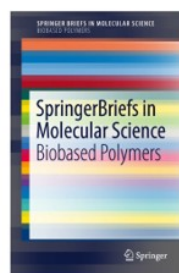


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Special Issue



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Biobased Polymers

Subseries of SpringerBriefs in Molecular Science

Series Ed.: N. Le Moigne

Published under the auspices of EPNOE, SpringerBriefs in Biobased Polymers covers all aspects of polysaccharide sciences, starting from their production and isolation from native sources (i.e. bioprocesses, genetics, agronomy, plant cell biology, biorefinery), over their characterization and processing (chemical / enzymatic modification, shaping, biodegradation) to the many applications in which they are used (food & feed, materials & engineering, biomedical).

The focus of this book series lies on publications related to all kinds of native or synthetic polysaccharides, polysaccharide-derived polymers, and composites containing polysaccharides as a fundamental component. Moreover, topics related to natural fibres, wood, polysaccharide containing biomass and bioplastics, life cycle assessments are within the scope.

Under the editorship of Nicolas Le Moigne, Li Shen, Martin Gerlich, Stefan Spitz, and Rupert Kargl, the series will include contributions from many of the world's most authoritative polysaccharide scientists, both from academia as well as industry. Readers will gain an understanding on the different strategies developed to obtain these biopolymers and what they can be used for. They will also be able to widen their knowledge and find new opportunities due to the multidisciplinary contributions (plant biology, biotechnologies, bio-based chemistry, wood science and polymers & materials science).

This series is aimed at advanced undergraduates, academic and industrial researchers, and professionals studying or using bio-based polymers. Each brief will bear a general introduction enabling any reader to understand its topic.

*EPNOE The European Polysaccharide Network of Excellence (www.epnoe.eu) is a research and education network connecting academic, research institutions and companies focusing on polysaccharides and polysaccharide-related research and business.

Recently published:

G. Gohlavá

Polyhydroxyalkanoates Biopolymers

Production Strategies

M. Štíglitz Smole, S. Hribnik, M. Kurec, A.U. Krajnc, T. Kreže, K.S. Kleinschek
Surface Properties of Non-conventional Cellulose Fibres

M.S. Thomas, R.R. Koshy, S.K. Mary, S. Thomas, L.A. Pothan
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