EPNOE Newsletter - September 2023

Connecting the international polysaccharides community

Editorial

Dear Readers,

EPNOE2023 in Graz was a great success!

We had more than **400 participants** from **universities**, **research institutes** and **companies,** as well as an excellent scientific programme, featuring high-level plenary and keynote speakers. For the first time in the EPNOE Conference history, we have introduced **roundtable discussions**, and the recommendations resulted from our conversations will be shared with policy-makers in the form of a comprehensive white paper.

During the Conference, we also launched the **EPNOE Skills Roadmap – Upskilling of Professionals for a Sustainable Europe**.

We are very grateful to everyone that contributed and participated in this event, particularly the **consortium of Austrian Universities** (TU Graz, University of Graz, University of Vienna, University of Innsbruk and BOKU). The **TU Graz team** led by EPNOE VP Karin Stana Kleinschek demonstrated exemplary hospitality and professionalism in hosting this event.

Looking ahead, **EPNOE2025** will be held in **Sundsvall**, one of the most fascinating cities in Sweden. Known as the "Stone City" (*Stenstaden* in Swedish), Sundsvall boasts breathtaking landscapes surrounded by nature's splendor.

Our activities for 2023 are still in full swing. Next week we will be organising a Symposium at the **Brazilian Materials Research Society** taking place in October in Maceió (Brazil), where we expect about **90 scientific contributions**.

On 16 November, in collaboration with **FinnCERES**, **Treesearch** and **B2BE facilitator**, we will host our **Bioeconomy Innovation Day** in Brussels. This high-level event will be a unique opportunity to discuss the **future of innovation in Europe** with key stakeholders in the field.

EPNOE is a vibrant organisation **creating bridges** between different stakeholders and **facilitating cooperation** between scientists, companies, and policy-makers.

We are looking forward to welcoming you at our upcoming events!

Pedro Fardim
President of EPNOEd **us on**

Follow us:

News & Announcements

Thank you to all the EPNOE2023 participants!

The EPNOE2023 has been a moment of **reunion** with colleagues and friends as well as a great opportunity to **create new connections**.

It not only **enriched our minds** with high-level knowledge but also **indulged our curiosity**. It also brought moments of **pure enjoyment**, including an exceptional beer workshop!

The EPNOE Team extends **heartfelt gratitude** to this incredible community.

Your participation has made this event truly special!

Events

Join us at the Bioeconomy Innovation Day!

Organised in cooperation with **Treesearch**, **FinnCERES**, and **B2BE**

facilitator, the "Bioeconomy Innovation Day" will take place on **16 November**, in **Brussels**.

This event is the perfect opportunity to bring together key innovators, policy-makers, researchers, and funding agencies to explore the **importance of the bioeconomy innovations in fostering resource efficiency, resilience, and value creation across Europe**.

The agenda is divided in **five sessions**, each featuring a different topic of discussion. The day will conclude with an **exhibition of companies' innovative ideas** and a **cocktail reception** designed to encourage collaborations and networking among various stakeholders.

Read more **here**.

Register now!

Last few days to register for the upcoming EPNOE Webinar!
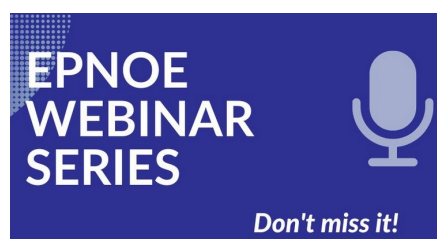
The upcoming EPNOE Webinar is taking place via **Zoom** on Thursday, **5 October**, 13:00 to 14:30 (CET).

Isabelle Capron from INRAE will be presenting a captivating **Plenary Lecture** titled *"Nanocelluloses at the oil-water interface."*

Roberto Juan Aguado from University of Girona will lead an insightful **Research Lecture** titled "A look at oil-in-water emulsions stabilized by anionic cellulose nanofibers."

This webinar is **free of charge**, but registration is mandatory.
The registration deadline is **Monday, 2 October**!

Register now!

Scientific Day: Inauguration of the axis Paper & Board of the Program "Recycling, recyclability and re-use of materials."

Taking place on **30 November**, this event stems from the recently launched **Programme et Équipements Prioritaires de Recherche (PEPR)** on **"Recyclage, recyclabilité et ré-utilisation des matières."**

Focused on a **systemic** and **holistic** approach, PEPR targets five essential material families in our daily lives: **plastics**, **composite materials**, **textiles**, **strategic metals**, and **paper/board**.

The event focuses on the **Paper & Paperboard axis**.

The *"Packaging, Recycling, Recyclability, Re-use of papers and cardboards"* project aims to **enhance sustainability** through **advanced recycled fiber techniques**, exploring recovery methods for waste, and innovating in composite material recycling.

Read more **here**.

Projects

BEST-CROP: an EU-funded project to deliver novel crops with enhanced photosynthesis and tailored straw for the circular economy

Funded by the **EU's Horizon Europe programme**, the **BEST CROP project** aims to enhance barley's photosynthetic capabilities and ozone assimilation, **creating novel crops with tailored straws for industry**.

The **University of Milan**, is leading a consortium of 18 European plant breeders, straw processors, and academic plant scientists aiming to use the major advances in photosynthesis to improve barley yield and to exploit the variability of barley straw quality and composition.

Read more **here**.

New Project from University of Girona (Spain)

Accelerating the industrial deployment of nanocellulose production processes through the use of artificial intelligence algorithms (ArtInNano)

Funding Agency: Spanish Ministry of Science and Innovation
Grant Number: CNS2022-135789
Start Date: 01/07/2023
End Date: 30/06/2025

The ArtInNano project arises from the need of accelerating the transition in production and characterization of nanocellulose, from laboratory to industrial scale. Currently, production processes of nanocellulose present a high uncertainty degree, making unfeasible the establishment of industrial productive centers with certain guaranty, as many of the involved mechanisms are still unknown and/or there are no monitoring systems available able to parameterize and control in real time, leading to excessive delays between sampling and the results.

ArtInNano is conceived to develop kinetic models of the most used pretreatments, as well as the seek of tangible parameters in real time with commercially available instrumentation.

Further, the fibrillation processes, in which it exists a change of scale (from micro to nano), require efficient monitoring systems and, in addition, properly correlated parameters with morphologic characteristics of nanocellulose. Not only this, but considering the myriad of raw materials, production processes and intensities, the development of algorithms based on artificial intelligence able to correlate the influence of raw material characteristics over production processes, and how the process conditions may affect the resulting characteristics of nanocellulose is a must.

In that sense, ArtInNano is divided into two work packages: the first one has as objective the determination of the involved mechanisms in TEMPO-mediated oxidation, determining the main kinetic parameters that affect the reaction, as well as its effects over the oxidized fiber characteristics.

On the other hand, to assess enzymatic hydrolysis processes, correlating the concentration of reducing sugars with easy-to-measure parameters of the processes and in real time. Finally, to assess the influence of both processes over the high-pressure homogenization process, as well as how are the morphological changes that fibers experience in their transition from micro to nano.

The second work package aims at transforming tacit to explicit knowledge, this is establishing correlations through artificial intelligence algorithms (artificial neural networks, random forests, linear regression) between raw material characteristics, processing conditions, and the final characteristics of cellulose nanofibers, being an innovative approach that only counts on few works in the literature.

Call for Papers

"Polysaccharides As Future Sustainable Materials: Challenges, Opportunities, and Future Directions" at the ACS Spring 2024


Prof. Pedro Fardim, President of EPNOE, and **Prof. Elisabete Frollini**, EPNOE Ambassadress in Brazil, are the organisers of an engaging symposium: **"Polysaccharides As Future Sustainable Materials: Challenges, Opportunities, and Future Directions."**

Taking place within the **ACS Spring 2024** event from **March 17 - 21** in **New Orleans, LA**, this symposium promises to delve into the compelling world of polysaccharides, exploring their pivotal role in functional materials for human health, renewable energy, environmental applications, and sustainable energy processes.

To submit your abstract, refer to **this webpage**.

Issues from Journals
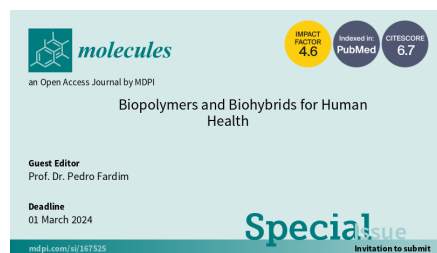
Title of the issue: "Biopolymers and Biohybrids for Human Health"

Journal: Molecules MDPI

Editor: Prof. Pedro Fardim

Submission Deadline: 01/03/2024

For more information read **here**.

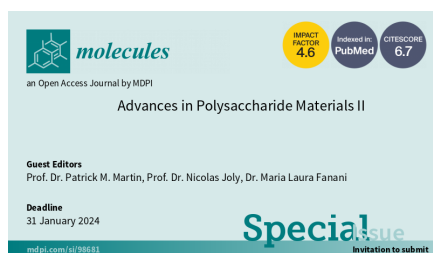**Title of the issue**: "Starch and Starch-Based Materials: Food and Non-Food

Application"

Journal: POLYMERS

Editors: Dr. Arkadiusz Zarski; Dr. Sergiu Coseri; Prof. Dr. Janusz Kapusniak

Submission Deadline: 29/02/2024

For more information read **here**.

Title of the issue: "Advances in Polysaccharide Materials II"

Journal: Molecules MDPI

Editors: Prof. Dr. Patrick M. Martin, Prof. Dr. Nicolas Joly & Dr. Maria Laura Fanani.

Submission Deadline: 31/01/2024

For more information read **here**.

Check out all the EPNOE open calls **here**!

Education

Welcome to new students, researchers, and staff members!

Giovana Signori-Iamin, PhD candidate

- Institution: Universitat de Girona
- Supervisor: Prof. Marc Delgado-Aguilar
- Topic: Machine learning and artificial intelligence tools for lignocellulose-based materials production and application

Samanta Sam, PhD candidate

- Institution: Universitat de Girona
- Supervisor: Prof. Quim Tarrés
- Topic: Development of active nanocellulose-based coatings for food packaging applications

Alan Silva, PhD candidate

- Institution: Joint doctorate between Universitat de Girona and Instituto Tecnológico de Aeronáutica (São Paulo, Brazil).
- Supervisor: Prof. Marc Delgado-Aguilar (UdG) & Prof. Luciana Cividanes (ITA)
- Topic: High-performance conductive nanocomposites based on nanocellulose/PLA reinforced by functionalized graphene derivatives

Margalida Fullana, PhD candidate

- Institution: Universitat de Girona
- Supervisor: Prof. Marc Delgado-Aguilar
- Topic: A critical assessment of biocomposites sustainability: a deep understanding of lignocellulose-reinforced biocomposites in the frame of circular bioeconomy

Open Positions

Professor position: Chemical Engineering - Modeling Transport Phenomena and Properties for Soft Matter in Bio- and Health Applications

KU Leuven, Belgium

Profile:
You have a combined teaching and research profile and hold a PhD. The quality of your research is evidenced by publications in leading international journals, books and proceedings of international conferences. You have demonstrable qualities related to academic education. International experience is an important advantage.
Industrial experience, an extensive network and/or a strong track record of collaborations with industry or medical sector are a plus.

You possess organisational skills and have a cooperative attitude. You also possess leadership capacities within a university context. A very good proficiency in English is required.
The official administrative language used at KU Leuven is Dutch. If you do not speak Dutch (or do not speak it well) at the start of your employment, KU Leuven will provide language training to enable you to take part in meetings and to acquire the level of Dutch that is required for tenure. Before teaching courses in Dutch or English, you will be given the opportunity to learn Dutch resp. English to the required standard.

Application Deadline: 07/11/2023

For more information, please read **here**.

PhD position: "Deep understanding of interface formation in fiber reinforced thermoplastic tapes for high quality composite structures"

LMGC, IMT Mines Alès, Université de Montpellier, CNRS, France

Requirements:

- Master 2 / Engineering Degree in Mechanics of Materials and/or Material Sciences (obtained or upcoming);
- Skills in development and adaptation of experimental methods;
- Interest in experimental work, applied research and modeling;
- Competences and interest in polymers and composites, bio-based materials and material processing;
- Good level in English and scientific communication (written and oral).

For more information, please read **here**.

PhD position: "Nanocellulose hydrogel in 3D printing serving as bioreactor for photosynthesis"

Åbo Akademi University, Turku, Finland

Requirements:

- Master's degree (or equivalent) in chemistry or chemical engineering closely related field suitable for the position;
- Excellent oral and written skills in English;
- Good knowledge in organic chemistry, materials chemistry, additive manufacturing or wood chemistry are considered a merit.

Application Deadline: 2023-10-06

For more information, please read **here**.

Postdoc position: "Fibre processing"

Åbo Akademi University, Turku, Finland

Requirements:

- Doctoral degree in biomass chemistry, chemistry or chemical engineering, or related field suitable for the position;
- Excellent oral and written skills in English;
- Good knowledge in biomass chemistry and biorefinery is considered a merit.

Application Deadline: 2023-10-13

For more information, please read **here**.

Recent Scientific Publications of EPNOE Members

Check out the recent **publications of our members!**

View List of Publications

Forward to a
colleague

For more information, please contact us at contact@epnoe.eu