



Editorial

Dear Readers,

2024 is going to be a wonderful year for us!

In February, we will kick off the year by introducing the **EPNOE Web-Togethers** - a dedicated initiative for EPNOE members and particularly for Junior Scientists. Our aim is to offer online activities to support the skill development of EPNOE members.

For March, we are organising a Symposium titled "*Polysaccharides as Future Sustainable Materials: Challenges, Opportunities and Future Directions*" at the **ACS Spring 2024** in New Orleans (LA). May will bring forth an innovation-focused roundtable in collaboration with **COST Action ECO – Aerogels** in Udine (Italy). In June, there will be an **EPNOE workshop** in Zurich (Switzerland) centered around the Analytics of Polysaccharides.

The **6th EPNOE International Junior Scientist Meeting** will be held in Vienna (Austria) in September, and we expect strong engagement and participation of young scientists from all around the world. In the same month, our journey takes us to Chengdu (China) for the "*2nd International Symposium on Cellulose and Renewable Materials*". In October we will be in Brazil for the Symposium *Polysaccharide-Based Materials*, and later on in Jaipur (India) co-organising the APA-EPNOE Conference on "*Polymers for Advanced Technology*".

In addition to all these activities, we have a great opportunity for you: our **Membership Campaign 2024** is now open, offering exceptional advantages to those who choose to join EPNOE.

Stay tuned!

Pedro Fardim
President of EPNOE **us on**

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News & Announcements

Highlights on the Bioeconomy Innovation Day



The Bioeconomy Innovation Day - "Advancing Resource Efficiency and Value Creation in Europe" organised in cooperation with **FINNCeres**, **Treesearch**, and **B2BE**, and that took place on 16 November 2023 in Brussels offered "*valuable insights on what is needed to enable bioeconomy innovations in Europe (...)*".

Discover the event's highlights [here](#).

Mark your Calendar: EPNOE Workshop on Analytics, 25-26 June



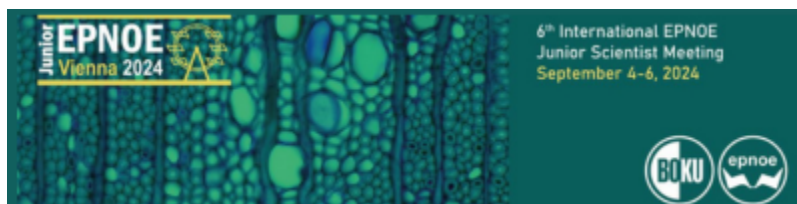
The **EPNOE Working Group on Analytics of Polysaccharides** is organising an **in-person workshop on Analytics of Polysaccharides**.

Taking place in **Zürich**, on **25-26 June, 2024**, this workshop is open both to **EPNOE members** and **non-members**.

For more information, please get in touch with us at contact@epnoe.eu, and keep an eye on our website and social media channels.

Events

Submit Your Abstract: 6th EPNOE International Junior Scientist Meeting



The **6th EPNOE International Junior Scientist Meeting** is a biennially organised conference designed for young researchers (i.e., PhD students, Post-Doctoral Researchers, and Junior Assistant Professors at an early stage of their scientific career) to meet and build their personal networks in

the polysaccharide field, while also presenting their recent work and brainstorming the direction and future of polysaccharide research. Senior scientists and industrial researchers are invited to share their experiences and knowledge with the new generation of scientists.

The upcoming edition will be held in the vibrant **Vienna**, at the University of Natural Resources and Life Sciences (BOKU), on **4-6 September**.

The **7 Thematic Sessions** spanning from computational methods to innovations, are a great resource for junior scientists coming from different backgrounds.

The 6th EPNOE Junior Scientist Meeting 2024 Committee welcomes the submission of high-quality abstracts for **oral presentations, pitch and poster presentations**.

More information on submission guidelines can be found [here](#).

For registration and information on deadlines and pricing, please refer to [this webpage](#).

Submit your abstract!

Save the Date: Training school ECO-AERoGELS, 29-31 May



EPNOE is partnering with the ECO-AERoGELS CIG and the Food Technology groups from the **University of Udine** for the organisation of a **Training School** on “**Technical, commercial and societal innovations on aerogels towards circular economy**”.

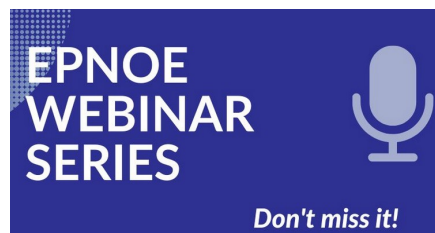
Taking place on **29-31 May, 2024**, at the University of Udine (Italy), this will be an excellent opportunity to acquire specialised knowledge in a rapidly evolving field.

The training school will emphasise cutting-edge technical solutions in the field of **aerogels**, addressing current European requirements for **environmental sustainability, one-health, and circular economy** frameworks. Trainees will benefit from both **technical sessions** and **hands-on laboratory activities**.

More information will be soon available [here](#).

To register, please submit [this form](#).

Save the Date: EPNOE Webinar, 7 March



The next EPNOE Webinar is taking place via **Zoom** on Thursday, **7 March, 2024**, from **13:00 to 14:30** (CET).

This edition's lectures will be given by **Jaakko Pajunen** (Boreal Bioproducts - ex Montinutra, Finland) and **Martin Lackeus** (Chalmers University of Technology, Sweden)

More information on the topics and registration will be available soon [here](#). Stay tuned!

APA-EPNOE Conference on "Polymers for

Advanced Technology", Jaipur (India), 16-18 October, 2024



The Asian Polymer Association (APA) and EPNOE are co-organising a conference on **Polymers for Advanced Technology**, taking place in Jaipur (India), on **16-18 October, 2024**.

In association with Gujarat Fluorochemicals Ltd, this event will feature two interesting thematic symposia:

- EPNOE Symposium on Functional Polysaccharides
- GFL Symposium on Hydrogen Energy & Storage

2nd International Symposium on Cellulose and Renewable Materials (ISCRM), Chengdu, (China), 20-23 September, 2024



Yuanyuan Li (KTH) is part of the Organising Committee of the **2nd International Symposium on Cellulose and Renewable Materials (ISCRM)**, taking place in Chengdu (China), **20-23 September, 2024**.

Pedro Fardim (EPNOE) will be one of the chair men, leading a great event which focuses on the latest scientific and technical advancements in cellulose and renewable materials, bringing

together universities, research centers, technological institutions, companies, and passionate individuals.

Read more [here](#).

ACS Spring 2024



Prof. Pedro Fardim, President of EPNOE, and **Prof. Elisabete Frollini**, EPNOE Ambassador in Brazil, will participate in the **ACS Spring 2024 event**, on **17-21 March 2024** in **New Orleans, (LA)** and will present an engaging symposium titled *"Polysaccharides As Future Sustainable Materials: Challenges, Opportunities, and Future Directions."*

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.

Read more [here](#).

XXII B-MRS Meeting 2024, 29 September - 3 October



The **XXII B-MRS Meeting** will take place in **Santos, São Paulo, Brazil**, from **29 September to 3 October, 2024**.

EPNOE is organising a symposium titled **"2nd Polysaccharide-based Materials"**.

Polysaccharide-based materials, such as films, composites, membranes, gels, biomedical materials, and sensors, are vital in promoting the **circular bioeconomy**. These materials offer a range of technical benefits, making them essential for various applications. The aim is to investigate the **cutting-edge developments** in polysaccharide-based materials and their utilisation in diverse research fields while engaging experts from Brazil and other nations.

Read more [here](#).

Projects

University of Maribor

Fabrication of high capacitance electrospun fibrous net for flexible supercapacitor

Funding Agency: Slovenian Research and Innovation Agency

Grant Number: J2-50087

Start Date: 01/10/2023

End Date: 30/09/2026

The tremendous research interest has been focused recently on flexible high-capacitance supercapacitors (SCs) as energy storage devices to power up wearable and portable electronics, due to their good flexibility, high power density, rapid charge/discharge rate and long lifecycle times.

In spite of numerous research on this field, it is still a technological challenge to develop mechanically flexible and lightweight electrodes with superior electrochemical performance that would work consistently for a long period of time.

Therefore, the main goal of the project is to fabricate highly conductive and highly capacitance electrospun fibrous net as flexible electrodes in a symmetrical supercapacitor (SC), based on the incorporation of MXene/carbon nanotubes into the cellulose-based matrix during electrospinning, considering ecologically friendly, sustainable approach.

Moreover, some additional functionalities will be evaluated, e.g., water-repellency and flame-retardancy, widening the application scope of a newly developed electrospun fibrous net.

The main challenge in the project is to achieve a stable homogenous solution for electrospinning at maximum MXene loading, from which the highly conductive electrospun fibrous net will be fabricated, without sacrificing the excellent flexibility and lightweight.

In addition, the fibrous-based flexible electrode in SCs often degrades when applied on smart textiles, due to the action of mechanical forces, high temperature and detergent/water during multiple laundering or long time wearing. Consequently, SC loses the desired capacitance.

Thus, it is necessary to pay special attention to the selection of an appropriate hydrophobic final finish, based on its adhesion strength, transparency, price, low environmental impact, high washing durability, and abrasion resistance.

Mid Sweden University

Cellulose-based triboelectric filters for airborne particles (Tribofilter)

Funding agency: FORMAS – A Swedish Research Council for Sustainable Development

Start date: 01/01/2024

End date: 31/12/2027

The project aims to design and investigate a novel cellulose-based filter material with high particle retention and low-pressure drop based on triboelectric effect. The developed material is thought to act as a self-charging electrofilter that retains polluting particles harmful to humans.

Read more [here](#).

Modification of regenerated cellulose to boost triboelectric properties

Funding agency: The J. Gust. Richert foundation

Start date: 01/10/2023

End date: 30/09/2024

The transition of the energy system towards renewable and clean energy sources is urgent. At the same time, people's lifestyles have changed dramatically in recent decades due to smart electronics and constant internet connectivity.

Invented in 2012, the triboelectric nanogenerator (TENG) is a device that converts mechanical energy into electricity. The TENG extracts energy from its surroundings and is a possible piece of the puzzle to replace batteries in various applications in the future.

Read more [here](#).

Sustainable Innovations and Products in Forest Bioeconomy (HIPS)

Funding agency: EU's Regional Development Fund

Start date: 01/08/2023

End date: 30/11/2026

The project's goal is to use Mid Sweden University's cutting-edge research to strengthen small and medium-sized companies in the bioeconomy with their development and innovation capabilities and networks. The project also aims to promote sustainable initiatives and increase the region's international competence in wood, fiber and cellulose.

Read more [here](#).

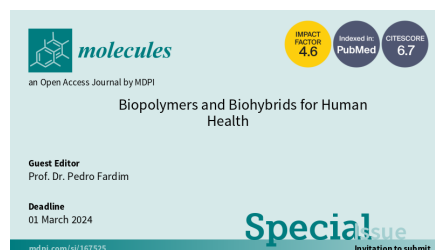
Education

Welcome to New Students, Researchers, and Staff Members within EPNOE network!

- Neptun Yousefi: Visiting PostDoc at BOKU, Institute of Chemistry of Renewable Resources - *"Preparation of Cellulose Nanocrystals"*

Call for Papers

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

Read more [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

Read more [here](#).

Open Positions

Internship: MASTER DE CHIMIE DE PARIS CENTRE - Capillary electrophoresis of polysaccharides and the unexpected detection by photooxidation

Host institution: Institut Parisien de Chimie Moléculaire

Internship period: 29/01/2024 to 15/07/2024

Read more [here](#).

PostDoc Position: Wood modification for multifunctionalities

Job location: KTH University, Sweden

Start date: According to agreement

Application deadline: 15 February, 2024

Contact: yua@kth.se

Short description:

Interest in biomaterials engineering, wood nanoengineering in particular, is growing with the pursuing for sustainable society development. We are looking for a highly motivated postdoc to join our team to develop wood modification strategies for functional materials design toward energy efficiency and water purification. The work will have an experimental focus which includes, but not limited to, wood modification and characterization, microscopy techniques, FTIR, NMR, and x-ray scattering.

The research will be conducted in division Biocomposites at the Department of Fibre and Polymer Technology. The Biocomposites group works in a multidisciplinary framework, with competences ranging from cellulose and polymer chemistry to mechanics and processing of composites and molecular dynamics modeling. Focus is on nanostructured biocomposites and cellulose materials. The scientific interest is new material concepts, where structural and functional properties are combined. Material components include nanocellulose, plant fibers, wood, biopolymers, and are used in nanomaterial systems such as aerogels, foams, biocomposites, polymer matrix nanocomposites, inorganic hybrids etc.

Please apply using [this link](#).

PostDoc Position: Cellulosic materials based sensor

Job location: KTH University, Sweden

Start date: According to agreement

Application deadline: 15 February, 2024

Contact: yua@kth.se

Short description:

In clinical practice, the supervision and the evaluation of a rehabilitation motion pattern remain a medical and engineering challenge due to the lack of biofeedback information from individual human biological tissues and structures. Skin electrodes are common, non-invasive tools used to record bioelectrical activity from the surface of the body. However, most skin-contact electrodes suffer from limited signal stability due to drying out of electrolytic gel, discomfort due to the stiffness and short circuit in multiple array electrodes grids.

The recent surge of material sciences in developing epidermal electronics such as printing electronics on thin plastic or paper substrates with large area offers a promising alternative. The objective of this project is to develop biocompatible sensor based on lignocellulose. The post doctor will investigate lignocellulose composite electrode fabrication and the electrode performance including conductive ink printability, ultrasound transparency. The experience of hydrogel will be an advantage.

Please apply using [this link](#).

Recent Scientific Publications of EPNOE Members

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colleague



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