



European Polysaccharide  
Network Of Excellence

N°49 - MAY 2019



**"Nature makes polysaccharides,  
EPNOE turns them into products"**

## editorial

**D**ear Readers of the EPNOE Newsletter,

EPNOE was established in May 2005, under leadership of Patrick Navard, as a project funded by the European Commission with 16 academic and research institutions from nine countries around Europe. Its mandate was to build up a collaborative program of research and education on polysaccharide science and technology covering a broad range of disciplines, including the food, forestry and materials sectors. Before the end of EC funding, EPNOE Association was created to continue its activities supported by members including industry and SMEs. EPNOE is now a strong Association of 40 members including academic and research institutions and companies, from 14 countries. Patrick Navard is retiring this month and we would like to warmly thank his energy and vision of making EPNOE a solid association, respected and recognized around the world.

We are starting a new chapter as a new management team was appointed by the general assembly. Our management team will be focusing on administration and marketing, workshops and conferences, project building, communication, education, membership and awards. We will work together to serve the EPNOE members, to inspire and involve young and talented scientists, to explore the rich and unique collaborative opportunities available in Europe and in the wonderful world of polysaccharides. The future is exciting and full of opportunities and we have a lot to offer to tackle growing scientific, technological and societal challenges. We would like to invite you to share this passion for science, innovation and creative collaboration with us.



Pedro Fardim  
President of EPNOE  
Professor  
Faculty of Engineering Science  
Department of Chemical Engineering  
KU Leuven (Belgium)

## news

### ► Member's info



#### Masters & PhD defenses:

- At Jena University, Germany:  
**Jan Himanek** defended his Bachelor Thesis entitled "Quaternary alkyl ammonium salts as solvents for cellulose"

#### • At INP-ENSIACET, France:

**Vincent Oriez** defended his PhD thesis on 29 January 2019 at ENSIACET, Toulouse INP, entitled "Production of biopolymers and synthons from lignocellulosic wastes". Supervisors: Pierre Yves PONTALIER & Jerome PEYDECAS-TAING

#### Conferences:

- The **3rd International Conference on Bamboo Application**, will be focused on 'green' technologies for industrial utilization of bamboo and the options for sustainable bamboo uses in the circular economy. It will be held at the Fuzhou University in Fujian (Province China) on June 16-18, 2019.

Deadline for submitting your proposal: April 15, 2019

Contact: jan.vandam@wur.nl

- **Polish Chitin Society Conference** entitled "New aspects in chemistry and the use of chitin and its derivatives" will be held in Toruń, Poland, 25-27 September 2019

Registration Deadline is May 31st 2019

More information: <http://www.ptchit.lodz.pl/en>



epnoe

European Polysaccharide  
Network Of Excellence

*"Nature makes polysaccharides, EPNOE turns them into products"*



## Meet the New Management Team

In case you need more information, visit our web site [www.epnoe.eu](http://www.epnoe.eu) or send an email to [contact@epnoe.eu](mailto:contact@epnoe.eu)

Subscribe to the EPNOE Newsletter on [www.epnoe.eu](http://www.epnoe.eu)

### Karin Stana Kleinscheck

#### Vice-President Research



Karin Stana Kleinschek, obtained her PhD degree from the Institute of Physical Chemistry of the University of Graz, Austria. Her field of expertise is surface modification and characterization of polysaccharides and its usability in biomedical applications. She works as Full Professor at the Faculty of Mechanical Engineering of the University of Maribor (UM), where she teaches various courses on Polymer Chemistry, Surface Characterization of Polymeric Materials and Textile chemistry.

From 2011- 2015 she was a Vice Rector for Research and Development of the UM. She is a member of various scientific organizations. Since 2013 she is a member of the European Academy for Science and Art and from 2014 associate member of Slovenian Academy of Engineering. Since October 2016 she is visiting professor at TU Graz. Her scientific bibliography consists of more than 1052 units, including 194 scientific peer-reviewed papers; she participates and coordinates numerous of national as well as international research projects.

### Carmen Freire

#### Vice-President Conferences and Workshops



Carmen Freire  
Vice-President Conferences and Workshops  
Principal Researcher  
CICECO- Aveiro Institute of Materials  
Department of Chemistry  
University of Aveiro (Portugal)

Carmen Freire is a Principal Researcher at CICECO-Aveiro Institute of Materials (University of Aveiro) in the area of Biorrefineries and Bio-based Materials. Her research interests include the production and application of bio-based nanofibers (nanocellulose and protein fibrils), nanostructured biocomposites and hybrid materials; biopolymeric materials for biomedical applications (e.g. 3D-bioprinting, wound healing and drug delivery); functional paper materials; chemical modification of (nano)cellulose fibers and other polysaccharides and their characterization and applications; and isolation, characterization and chemical transformations of bioactive components. She teaches Macromolecular Chemistry (Polysaccharides module).



epnoe

European Polysaccharide  
Network Of Excellence

In case you need more information, visit our web site [www.epnoe.eu](http://www.epnoe.eu) or send an email to [contact@epnoe.eu](mailto:contact@epnoe.eu)

Subscribe to the EPNOE Newsletter on [www.epnoe.eu](http://www.epnoe.eu)

"Nature makes polysaccharides, EPNOE turns them into products"



## Meet the New Management Team

### Monica Ek

#### Vice-President Membership and Awards



Monica Ek  
KTH, School of Engineering Sciences in Chemistry, Biotechnology and Health  
Teknikringen 56-58, SE 100 44 Stockholm  
Phone: + 468 790 6000  
[monicaek@kth.se](mailto:monicaek@kth.se)  
<https://www.linkedin.com/in/monica-ek-b4555411/>

MONICA EK is a professor in Wood Chemistry at KTH Royal Institute of Technology, and head of the Division of Wood Chemistry and Pulp Technology. Before joining KTH she has industrial experience from Stora Enso and Rise (Innventia). At KTH, she has been coordinator and partner in a number of international projects, especially within the Wood Wisdom ERANET, i.e. Wood Based Material and Fuels WOBAMA, NEWCELL, RECELL and PROBARK. All projects focusing at development of new materials and value added products from wood within the biorefinery concept and cellulose chemistry, such as nano-cellulose production and cellulose functionalization, i.e. antibacterial fibers. She has been Director of Graduate Studies at the School of Chemical Science and Engineering, including ~250 PhD students. She is teaching Material Chemistry and Properties and Biofiber Chemistry at the Engineering Chemistry program at KTH. M Ek is appointed American Chemical Society Award Chair for the Cellulose and Renewables Division and she received Stockholm City Innovation Price 2016 with her students.

### Janusz Kapusniak

#### Vice-President Education



Janusz Kapusniak  
Vice-President Education  
Associate Professor  
Faculty of Mathematics and Natural Sciences  
Institute of Chemistry, Health and Food Sciences  
JDU in Czestochowa (Poland)

Janusz Kapusniak began his independent scientific carrier as associate professor in 2009 after obtaining habilitation degree in food technology and human nutrition, speciality food chemistry and technology of carbohydrates. He has continuously developed research group carried out studies on chemical, physical and enzymatic modification of starch for food (dietary fibre, prebiotics, dietary supplements) and non-food (hydrophobically modified starch as packaging material, polymeric materials of new generation from cereals and milling processing, microcapsules for controlled release). From 2012 to 2016 he held the position of Dean of the Faculty of Mathematics and Natural Sciences and Head of the Department of Biochemistry and Technology of Bioproducts at JDU. In September 2016 he was elected Vice-Rector for Research and International Relations. He has an experience in implementation learning and teaching mobility programmes as Erasmus +, CEEPUS, joint degree programmes and double degree programmes.



epnoe

European Polysaccharide  
Network Of Excellence

"Nature makes polysaccharides, EPNOE turns them into products"



## Meet the New Management Team

### Avinash P. Manian Vice-President Communication



Avinash Manian graduated with a Bachelor's degree in Chemistry and Bachelor's and Master's degrees in Textile Chemistry from India, before obtaining a PhD in Textile Science from the USA. He joined the University of Innsbruck Research Institute of Textile Chemistry and Textile Physics in Austria in 2003 as a postdoc, and is now employed there as a Scientific Coworker. His research interests include cellulose fiber science and chemistry, technical applications of textiles, textile chemistry, heterogeneous and multiphase systems and interfaces.

In case you need more information, visit our web site [www.epnoe.eu](http://www.epnoe.eu) or send an email to [contact@epnoe.eu](mailto:contact@epnoe.eu)

Subscribe to the EPNOE Newsletter on [www.epnoe.eu](http://www.epnoe.eu)

### Nicolas Le Moigne Vice-President Administration and Marketing



Nicolas Le Moigne  
Vice-President Administration and Marketing  
Associate Professor  
Centre of Materials  
IMT Mines Alès (France)

Dr. Ing. Nicolas Le Moigne is Associate Professor at IMT Mines Alès. His current research areas include the processing of **bio-based polymers** and **(nano)composites** and the characterization of their physico-chemical and rheological properties, with emphasis on **microstructural analysis** and reinforcement/matrix **interfacial interactions**. Since 2005, he is involved in research projects aiming at studying and improving the selection, physical and **chemical functionalization**, and **processing of plant cells** (lignocellulosic fibres and microalgae) for the development of **functional bio-based polymer and composite materials** in packaging and structural applications. He teaches polymer physico-chemistry, rheology and bio-based polymer and composites engineering.

### Pedro Fardim President



Pedro Fardim is professor at KU Leuven in Belgium and at Åbo Akademi University in Finland. He has nine years of experience in industry, he is a Fellow of the Royal Society of Chemistry and the International Academy of Wood Science and a member of the American Chemical Society. He has experience in executive management, international relations and served in diplomatic delegations.

His research interest lies in topochemical engineering, a way to understand and mimic the bioassembly present in natural materials to create sustainable technologies for process and product design. His research is inspired on systems such as trees, plants and different microorganisms. He teaches sustainable chemical engineering for new materials and chemicals, biochemical process engineering and chemical engineering for human health.



epnoe

European Polysaccharide  
Network Of Excellence

"Nature makes polysaccharides, EPNOE turns them into products"



## News "Member's info"

**Introduction of a new researcher in the Centre of Materials Forming (CEMEF) of MINES ParisTech to the EPNOE community:**

**Dr. Sytze Buwalda**

Dear colleagues,

*It is my great pleasure to introduce to the polysaccharide community my new colleague, Dr. Sytze Buwalda. He joined our group of "Biobased polymers and composites" in December 2018. His expertise in biomedical applications of polymers will enlarge and enrich our activities related to polysaccharides. I hope for a long and fruitful collaboration. Welcome, Sytze!*

Tatiana Budtova

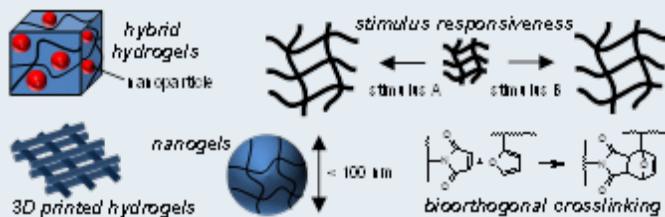


As a newcomer in the EPNOE society, I thank Tatiana for the opportunity to introduce myself. I pursued my PhD in biomedical materials science at Twente University where I developed biomedical hydrogels based on poly(ethylene glycol)-poly(lactide) (PEG-PLA) star block copolymers. I then took up a postdoctoral position at Utrecht University, where I developed antibody-drug conjugates employing a platinum-based coordinative linker.

I subsequently moved to the University of Toulouse, where I developed ionically crosslinked hydrogels based on PEG-PLA copolymers with acid side groups. In 2015 I obtained a Marie-Curie Individual Fellowship at the University of Montpellier, which allowed me to work on drug-releasing micelles that are core-crosslinked via coordination chemistry.

As Research Associate at the CEMEF of MINES ParisTech, I will combine my expertise (hydrogels for biomedical applications, Figure 1) and the expertise of the BIO group (biobased polymers and composites) headed by Dr. T. Budtova. In this respect, I will combine biobased polymers, hydrogels and support materials to create advanced hybrid materials with potential clinical and industrial applications in various fields.

I look forward to meeting you at an EPNOE event or elsewhere!



**Figure 1.** My research interests focus on new developments in the field of hydrogels for biomedical applications. Reprinted with permission from S.J. Buwalda, T. Vermonden, W.E. Hennink, *Biomacromolecules* 2017, 18, 316-330. Further permissions related to the material excerpted should be directed to the ACS.



**European Polysaccharide  
Network Of Excellence**

*"Nature makes polysaccharides, EPNOE turns them into products"*



## News "Member's info"

From IBWCh, Poland

In case you need more information, visit our web site [www.epnoe.eu](http://www.epnoe.eu) or send an email to [contact@epnoe.eu](mailto:contact@epnoe.eu)

Subscribe to the EPNOE Newsletter on [www.epnoe.eu](http://www.epnoe.eu)

We are pleased to inform that a group of scientists from the Institute of Biopolymers and Chemical Fibres (Poland) at the Invention, Innovation and Technology Exposition (IPITE, 2019) in Bangkok as well as at the Malaysia Technology Expo (MTE), 2019 in Kuala Lumpur have presented invention "Device for removing fat fumes, volatile organic compounds and microorganisms- Eco Fresh II". Cleaning device is equipped with a special filter based on poultry feathers. Invention being a result of the cooperation of the company Dytrych Sp. z o.o., University of Gdańsk and the Institute of Biopolymers and Chemical Fibres won the Gold Medal in the category of 'environment protection' and special prizes such as:

- CROATIA INNOVA SPECIAL AWARD, awarded by Croatia INOVA- BUDI UZOR
- MACRI SPECIAL AWARD, awarded by Malaysian Association of Creativity & Innovation
- SPECIAL GOLD MEDAL, awarded by Highly Innovative Unique Foundation (HIUF) in Kingdom of Saudi Arabia
- INNOPA SPECIAL AWARD, awarded by the Indonesian Association for the Promotion of Invention and Innovation
- WIIPA SPECIAL AWARD, awarded by the World Association of Intellectual Property
- Philippine Gold Award , granted by the International Federation of Inventors' Associations. IFIA



This article was proposed by Ewa Wesołowska from IBWCh Institute, Poland



European Polysaccharide  
Network Of Excellence

"Nature makes polysaccharides, EPNOE turns them into products"



## News "Member's info"

### Institute of Biopolymers and Chemical Fibers included in the Łukasiewicz Research Network

In case you need more information, visit our web site [www.epnoe.eu](http://www.epnoe.eu) or send an email to [contact@epnoe.eu](mailto:contact@epnoe.eu)

Subscribe to the EPNOE Newsletter on [www.epnoe.eu](http://www.epnoe.eu)



#### Łukasiewicz Research Network

From April 1st 2019, the **Institute of Biopolymers and Chemical Fibers**, together with other 37 research institutes from all over Poland representing various fields of science, including biotechnology, chemistry, pharmaceutics, electronics and electrical engineering, co-create the Łukasiewicz Research Network, under which the best researchers will conduct key research from the point of view of the interests of the state.

The incorporation of institutes into one larger structure is aimed at standardizing the key mechanisms for the functioning of the organization, such as management of finance, human resources, real estate or intellectual property rights. However, organizational advantages are not the most important issue.

The Bill on the Network is the implementation of the expose of Polish Prime Minister, who announced the establishing of a bridge between science and economy. The Polish state will benefit from better cooperation of these two areas. The basic task of the network is to conduct application research and development works, which are particularly important for the country's economic and innovation policy, as well as provide the transfer of knowledge to the economy.

The network will thus be an integral element of the National Innovation System. The network foundation is a part of the Strategy for Responsible Development.

We hope that Institute of Biopolymers and Chemical Fibres, thanks to the co-creation of the Network, will have the opportunity to conduct development work in priority areas for Poland and make groundbreaking discoveries.



epnoe

European Polysaccharide  
Network Of Excellence

"Nature makes polysaccharides, EPNOE turns them into products"



## News "Member's info"

### Environmental impact assessments of innovative bio-based products

In case you need more information, visit our web site [www.epnoe.eu](http://www.epnoe.eu) or send an email to [contact@epnoe.eu](mailto:contact@epnoe.eu)

Subscribe to the EPNOE Newsletter on [www.epnoe.eu](http://www.epnoe.eu)

The EPNOE member **Utrecht University**, partnered with COWIA/S, has recently finalised seven environmental life cycle assessment (LCA) studies of innovative bio-based products for the policy makers of the European Commission, as a part of the BIOSPRI project - "Study on Support to Research and Innovation Policy in the Area of Bio-based Products and Services". The full report is accessible via: [https://ec.europa.eu/knowledge4policy/publication/environmental-impact-assessments-innovative-bio-based-products\\_en](https://ec.europa.eu/knowledge4policy/publication/environmental-impact-assessments-innovative-bio-based-products_en)

This news was proposed by Li Shen from Utrecht University, The Netherlands



**epnoe**

**European Polysaccharide  
Network Of Excellence**

In case you need more information, visit our web site [www.epnoe.eu](http://www.epnoe.eu) or send an email to [contact@epnoe.eu](mailto:contact@epnoe.eu)

Subscribe to the EPNOE Newsletter on [www.epnoe.eu](http://www.epnoe.eu)

*"Nature makes polysaccharides, EPNOE turns them into products"*



## News "Member's info"



### E4th Young scientists Days Eco-composites and bio-based composites 28-29 March 2019 IMT Mines Alès (France)

The 4th edition of the Young Scientists Days on Eco-composites and Bio-based Composites, co-organized by the center of materials of **IMT Mines Alès** and **Laboratory of Mechanics and Civil Engineering** of Montpellier University, was held at IMT Mines Alès on the 28th and 29th of March, 2019. More than 40 PhDs, post-docs and researchers participated in this symposium whose purpose is to encourage regular exchanges between young scientists, to stimulate multi and inter-disciplinarity and transfers know-how and opportunities to promote the industrialization of eco-composites and bio-based composites.

The four sessions proposed during the conference have highlighted, through 15 talks and posters, the scientific advances concerning the constituents used as reinforcements in bio-based composite materials (extraction, synthesis, characterization), the physico-chemical treatments used to optimize the processing of the composites and their final properties, but also the implementation of mathematical models to predict the mechanical behavior and durability of these composites. In addition, a full session was devoted to wood as a building material and reinforcement.

The scientific committee has awarded the best oral and poster presentations:

- Valorization of flax shives as reinforcements in biocomposites, L. Nuez et al, IRDL Lorient, France
- Creep behavior of bio-based sandwich composites, B. Sala et al, FEMTO-ST Besançon, France

This conference was placed under the aegis of the scientific societies MECAMAT (Materials mechanics) and AMAC (Association for Composite Materials) and enrolled in the program of "Entretiens Nîmes-Alès" whose aim is to promote the research conducted in our territory towards companies and general public.

More information and full program : <https://jjc-ecocomp2019.sciencesconf.org/>



This news was proposed by Nicolas Le Moigne, IMT Mines d'Alès, France



European Polysaccharide  
Network Of Excellence

"Nature makes polysaccharides, EPNOE turns them into products"



## From millimeter to micron: reshaping cellulose aerogels

In case you need more information, visit our web site [www.epnoe.eu](http://www.epnoe.eu) or send an email to [contact@epnoe.eu](mailto:contact@epnoe.eu)

Subscribe to the EPNOE Newsletter on [www.epnoe.eu](http://www.epnoe.eu)

Aerogels are nanostructured open-pores materials with very high specific surface area; their classical applications are for thermal and acoustic insulation, in adsorption and absorption and as catalysts. Traditional aerogels are based on inorganic oxides or synthetic polymers. A new generation of aerogels was developed during the past 15 years: they are based on polysaccharides and are thus called bio-aerogels. As no toxic compound is involved in their preparation, bio-aerogels can be used in life science applications: pharma, bio-medical, cosmetics and food. The majority of these applications require aerogels in the form of particles, with controlled size and morphology.

European project NANOHYBRIDS, started in November 2015, is devoted to the development of aerogel particles for various applications. CEMEF/Mines ParisTech is responsible for shaping cellulose solutions to make "wet" and "dry" (aerogel) beads. Using NaOH-water or ionic liquids as cellulose solvents, we now master the preparation of cellulose aerogel beads of millimeter size down to few hundreds of microns, and of aerogel beads of the size of 10 – 30 microns (Figure 1). The first range of sizes can be obtained with JetCutting technique. To obtain micron-size beads was challenging and we used emulsion technique to reach to goal. The understanding of solutions' rheological and interfacial properties is needed for getting spherical particles. Pulps can also be used provided their complete dissolution.

Lucile Druel will defend her PhD thesis "Cellulose based aerogels: properties and shaping as beads" on the 10th of May.

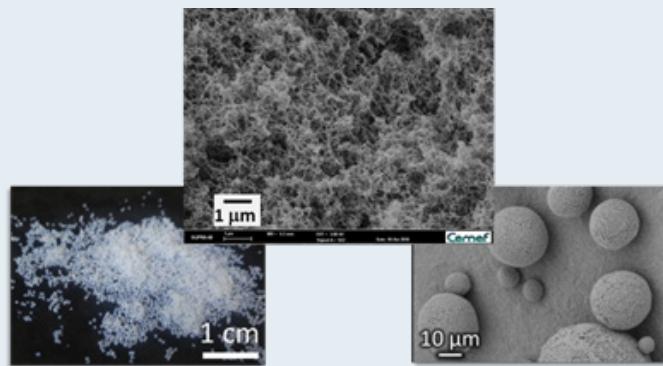


Figure 1. Cellulose aerogel beads: microstructure and particles of the size of 0.7 mm (left) and of 20  $\mu\text{m}$  (right)

This article was proposed by Tatiana BUDTOVA from Armines-CEMEF, France



epnoe

European Polysaccharide  
Network Of Excellence

"Nature makes polysaccharides, EPNOE turns them into products"



## Electrically conductive BIOFOODPACK

A new type of bioplastic film capable of conducting electricity is being developed by researchers from the University of Aveiro, Portugal, within the framework of the M-era.Net project - BIOFOODPACK.

# Bio FoodPack

BIO-COMPOSITE PACKAGING  
FOR ACTIVE PRESERVATION OF FOOD

The objective of BIOFOODPACK is to develop an electrically conductive material to allow the sterilization of food at low temperature by pulse electric fields technology, maintaining the food original characteristics such as taste, texture and nutritional content.

The University of Aveiro lead the BIOFOODPACK project. The partnership includes companies from different areas, Sonae (food retail), Energy Pulse Systems (pulse electric field systems), MKF-Ergis (plastic production) and the academic institutions, University of Minho, Wroclaw University of Science and Technology and Cyprus University of Technology.

The starting point of BIOFOODPACK is to use polysaccharide-base biopolymers as matrices of composites containing electrically conductive carbon nanostructures. If the necessary electrical conductivity is achieved in the composites, a food package will be developed and tested, by treating a packaged food product with an electric field of microseconds in order to inhibit the microorganism's growth.

Recently, the article "Eco-friendly preparation of electrically conductive chitosan-reduced graphene oxide flexible bionanocomposites for food packaging and biological applications" was published in the "Composites Science and Technology", concerning only the preparation of the composite film and may be consulted through the link: <https://www.sciencedirect.com/science/article/pii/S0266353818328380?dgcid=coauthor>.

This article was proposed by Paula Ferreira from University of Aveiro, CICECO, Portugal



epnoe

European Polysaccharide  
Network Of Excellence

"Nature makes polysaccharides, EPNOE turns them into products"



## Isolation and Characterisation of Polysaccharides from Baobab Fruit and Leaves

In case you need more information, visit our web site [www.epnoe.eu](http://www.epnoe.eu) or send an email to [contact@epnoe.eu](mailto:contact@epnoe.eu)

Subscribe to the EPNOE Newsletter on [www.epnoe.eu](http://www.epnoe.eu)

Vivian Offiah,<sup>a,b</sup> Katerina Alba,<sup>a</sup> Maria Dimopoulos,<sup>a</sup> Athanasios Angelis-Dimakis,<sup>c</sup> Alan Smith,<sup>d</sup> Kolawole Falade,<sup>b</sup> Vassilis Kontogiorgos<sup>a</sup>

<sup>a</sup> Department of Biological and Geographical Sciences, University of Huddersfield, UK

<sup>b</sup> Department of Food Technology, University of Ibadan, Nigeria

<sup>c</sup> Department of Chemical Sciences, University of Huddersfield, UK

<sup>d</sup> Department of Pharmacy University of Huddersfield, UK

Baobab is an indigenous African tree widespread in the savannah regions and once classified as "the lost crop of Africa" (Figure 1). It has attracted research interest from food and pharmaceutical industries because it is a significant source of polysaccharides. However, its potential has not been exploited due to limited information on its properties. In 2008, Baobab dried fruit pulp was authorised for the EU market by Commission Decision 2008/575/EC, making it a major product of international commerce. The present research, with sponsorship from Commonwealth Scholarship Commission (CSC), GCRF (Global Challenges Research Fund, UK), and in collaboration with the University of Ibadan, Nigeria, aims to isolate functional polysaccharides from leaves and pods of baobab, study their fine structures, properties and potential applications in food systems. In addition to extraction and characterization rheological measurements of the isolated polysaccharides by means of dilute solution rheology, steady shear and oscillatory rheological measurements are carried out to address their rheological properties. Furthermore, a techno-economic assessment (Life Cycle Analysis, LCA) is applied for the implementation of a scaled-up polysaccharide extraction facility in Nigeria. The analysis include factors that are usually neglected in the lab scale (e.g. energy costs) and take into account the specific economic characteristics (e.g. commodity prices) of Nigeria. Since baobab polysaccharides is a niche product at this stage of development with no established market, a determination of the minimum sale price of the polysaccharide will make the process economically viable, and thus contribute to Nigerian economy. Finally, a market analysis will assess the exporting potential of the final product to the UK.



Figure 1: Baobab leaf and fruit.



epnoe

European Polysaccharide  
Network Of Excellence

"Nature makes polysaccharides, EPNOE turns them into products"



## 6th EPNOE International Polysaccharide Conference

21-25 October 2019, Aveiro (Portugal)

In case you need more information, visit our web site [www.epnoe.eu](http://www.epnoe.eu) or send an email to [contact@epnoe.eu](mailto:contact@epnoe.eu)

Subscribe to the EPNOE Newsletter on [www.epnoe.eu](http://www.epnoe.eu)

This congress is an initiative of EPNOE, the Cellulose and Renewable Division of the American Chemistry Society (ACS), and the Cellulose Society of Japan (CSJ) and is being hosted in Aveiro, Portugal for the first time.

The ambition of the EPNOE International Polysaccharides Conferences is to bring together researchers from academia and industry working or interested in polysaccharides related R&D topics, to disseminate results and to promote a networking platform for close interactions between academia and industry.

We are pleased to offer you an excellent scientific programme, structured in Thematic Sessions covering different areas where polysaccharides have a relevant role, co-organized by scientific experts in each field.

We hope that it will be an enjoyable event that will provide an opportunity for delegates to discuss and share knowledge, ideas and expertise with colleagues and peers.

We wish you a fruitful meeting and a pleasant stay in Aveiro!

### DEADLINES

Abstract submission for oral communications- 1 st June 2019

Abstract submission for posters- 20th July 2019

Confirmation of acceptance of oral communications- 15th June 2019

Earlybird registration- 20th July

On behalf of the organizing committee,

### Local Organizers:

Carmen Freire

Manuel Coimbra

### EPNOE Association:

Patrick Navard

### EPNOE-ACS-CSJ committee:

Pedro Fardim

### ACS

Kevin Edgar

Steve Eichhorn

### CSJ

Tetsuo Kondo

Yoshinobu Tsujii

Hirofumi Ono

For more information, please visit <https://epnoe2019.sciencesconf.org/>



European Polysaccharide  
Network Of Excellence

"Nature makes polysaccharides, EPNOE turns them into products"



## 10th European Symposium on Biopolymers (ESBP 2019)

Straubing (Germany), 25th – 27th of September.



In case you need more information, visit our web site [www.epnoe.eu](http://www.epnoe.eu) or send an email to [contact@epnoe.eu](mailto:contact@epnoe.eu)

Subscribe to the EPNOE Newsletter on [www.epnoe.eu](http://www.epnoe.eu)

In the year 2019, we continue to face many problems such as climate change and a permanently growing population in combination with the need for sustainable industrial solutions. Thus, the basic idea of the European Symposium on Biopolymers has never been as relevant as it is today.

For nearly 20 years as a biannual conference, which takes place within a different European country, the ESBP comes back to Germany for its 10th anniversary.

Based on the initiation of outstanding scientists and pioneers in their field, the first ESBP was born in the year 2000 and took place in the beautiful city of Münster. From that time on it took place in many different countries to connect academic research with innovative future industrial applications. The 10th anniversary of the ESBP reflects the recent development of research and innovation in the field of biopolymers.

Today, new technologies in material processing and state-of-the art techniques for genetic engineering such as synthetic biology bring novel and innovative materials as well as applications and push the research on biopolymers towards a new level. Ergo, the focus of the 10th ESBP is still the same as in 2000, biopolymer production by a vast number of microbes and it will connect young and well-established outstanding researchers with industry to bring innovative and sustainable solutions to the market.

The location of Straubing is a perfect place for this anniversary meeting, since the city of Straubing is the center of the region of renewable resources, and the TUM Campus Straubing of Biotechnology and Sustainability, together with the Competence Center of Renewable Resources, represents a very strong nucleus of research in this field. Together with the C.A.R.M.E.N e.V. we organize this 10th anniversary meeting to link academia and industry and identify new perspectives on biopolymers.

We are very happy to welcome you to Straubing to experience a great and inspiring ESBP 2019 with compelling presentations, discussions, and new network contacts. Next to a great scientific program on all aspects of biopolymers with cutting-edge results, we also will enjoy the local attractions and delicacies such as the Bavarian beer.

For more information on the ESBP 2019, please visit [www.esbp2019.com](http://www.esbp2019.com)



European Polysaccharide  
Network Of Excellence

"Nature makes polysaccharides, EPNOE turns them into products"



## EPNOE Member's Scientific Publications

### At Armines-CEMEF, France:

- R. H. ABOU-SALEH, M. C. HERNANDEZ-GOMEZ, S. AMSBURY, C. PANIAGUA, M. BOURDON, S. MIYASHIMA, Y. HELARIUTTA, M. FULLER, T. BUDTOVA, S. D. CONNELL, M. E. RIES, Y. BENITEZ-ALFONSO, "Interactions between callose and cellulose revealed through the analysis of biopolymer mixtures", *Nature Communications* 9 , 4538 – 4551 (2018)
- K. GANESAN, T. BUDTOVA, L. RATKE, P. GURIKOV, V. BAUDRON, I. PREIBISCH, P. NIEMEYER, I. SMIRNOVA, B. MILOW , "Review on the Production of Polysaccharide Aerogel Particles", *Materials*, 11, 2144 - 2181 (2018)
- K. LABIDI, O. KORHONEN, M. ZRIDA, A. H. HAMZAoui, T. BUDTOVA, "All-cellulose composites from alfa and wood fibers", *Industrial Crops and Products* 127 , 135–141 (2019)
- T. BUDTOVA "Cellulose II aerogels: a review", *Cellulose* (2019) , <https://doi.org/10.1007/s10570-018-2189-1>

### At Jena University, Germany:

- Studies about reactive ene-functionalized dextran derivatives for Thiol-ene click reactions  
A. Sitterli, Th. Heinze  
*Reactive and Functional Polymers* 136 (2019) 66-74.
- Non-aqueous solvent for efficient dissolution of polygalacturonic acid  
H. Würfel, M. Kayser, Th. Heinze  
*Carbohydrate Polymers* 207 (2019) 791-795.
- Twenty-five years of cellulose chemistry: Innovations in the dissolution of the biopolymer and its transformation into esters and ethers  
M. Kostag, M. Gericke, Th. Heinze, O. A. El Seoud  
*Cellulose* (2018) DOI: 10.1007/s10570-018-2198-0
- Reactive nanoparticles with activated ester moieties from cellulose acetate phthalate derivatives  
P. Schulze, M. Gericke, Th. Heinze *Cellulose* (2018)  
DOI: 10.1007/s10570-018-2108-5

### At University of Trieste, Italy:

- Chitosan Acetylation Degree Influences the Physical Properties of Polysaccharide Nanoparticles: Implication for the Innate Immune Cells Response. Franco Furlani, Pasquale Sacco, Eva Decleva, Renzo Menegazzi, Ivan Donati, Sergio Paoletti, Eleonora Marsich *ACS Applied Materials & Interfaces* (2019)  
15 February 2019 (accepted)  
DOI: 10.1021/acsami.8b21791  
Free downloading for 50 times: <https://pubs.acs.org/articlesonrequest/AOR-VqT9hhUvkGhTiU8xPVEE>



European Polysaccharide  
Network Of Excellence

"Nature makes polysaccharides, EPNOE turns them into products"



## EPNOE Member's Scientific Publications

In case you need more information, visit our web site [www.epnoe.eu](http://www.epnoe.eu) or send an email to [contact@epnoe.eu](mailto:contact@epnoe.eu)

Subscribe to the EPNOE Newsletter on [www.epnoe.eu](http://www.epnoe.eu)

**At University of Natural Resources and Life Sciences Vienna (BOKU), Austria, Institute for Chemistry of Renewable Resources::**

### Most recent articles

- Jaxel, J., Fontaine, L., Krenke, T., Hansmann, C., Liebner, F., Bio-inspired conformational lip-ophilization of wood for scCO<sub>2</sub>-assisted colouring with disperse dyes. *Journal of Supercritical Fluids* 147 (2019) 116-125.
- Ahn, K., Zaccaron, S., Zwirchmayr, N. S., Hettegger, H., Hofinger, A., Bacher, M., Henniges, U., Hosoya, T., Potthast, A., Rosenau, T., Yellowing and brightness reversion of celluloses: CO or COOH, who is the culprit? *Cellulose* 26/1 (2019) 429–444.
- Fadavi, F. Abdulkhani, A. Hamzeh, Y. Bacher, M. Gorfer, M. Bandian, D. Rosenau, T. Hettegger, H., Photodynamic Antimicrobial Cellulosic Material Through Covalent Linkage of Protoporphyrin IX onto Lyocell Fibers. *J. Wood Chem. Technol.* 39/1 (2019) 57-74.
- Quraishi, S., Plappert, S., Ungerer, B., Taupe, P., Altmutter, W., Liebner, F., Bacterial cellulose - carbon dot hybrid nanopaper for sensing applications. *Appl. Sci.* 9/1 (2019) 107-121.
- Koide, M., Wataoka, I., Urakawa, H., Kajiwara, K., Henniges, U., Rosenau, T., Intrinsic characteristics of cellulose dissolved in an ionic liquid: the shape of a single cellulose molecule in solution. *Cellulose* 39/1 (2019) 14-30.
- Mimini, V., Sykacek, E., Syed Hashim, S. N. A., Holzweber, J., Hettegger, H., Fackler, K., Potthast, A., Mundigler, N., Rosenau, T., Compatibility of Kraft Lignin, Organosolv Lignin and Lignosulfonate with PLA in 3D Printing. *J. Wood Chem. Technol.* 26/4 (2019) 2233-2242.
- Ling, Z., Wang, T., Makarem, M., Santiago Cintron, M., Cheng, H. N., Kang, X., Bacher, M., Potthast, A., Rosenau, T., King, H., Delhom, C. D., Nam, S., Vincent Edwards, J., Kim, S. H., Xu, F., French, A. D., Effects of ball milling on the structure of cotton cellulose. *Cellulose* 26/1 (2019) 305-328.

### Ahead of print

- Amer, H., Mimini, V., Schild, D., Rinner, U., Bacher, M., Potthast, A., Rosenau, T., Gram-scale eco-nomical synthesis of trans-coniferyl alcohol and its corresponding thiol. *Holzforschung*, 2019, Ahead of Print. DOI: 10.1515/hf-2018-0297



epnoe

European Polysaccharide  
Network Of Excellence

*"Nature makes polysaccharides, EPNOE turns them into products"*



## Other news

In case you need more information, visit our web site [www.epnoe.eu](http://www.epnoe.eu) or send an email to [contact@epnoe.eu](mailto:contact@epnoe.eu)

Subscribe to the EPNOE Newsletter on [www.epnoe.eu](http://www.epnoe.eu)

### **EUROMAT 2019, 1-5 September 2019, Stockholm, Sweden**

EUROMAT is the premier international congress in the field of materials science and technology in Europe. More information <https://euromat2019.fems.eu/>

---

### **7th Avancell Conference at Chalmers University of Technology, Gothenburg, 9-10 October 2019**

Topic: The Modern Pulp Mill and the Next Step

More info and registration: [www.avancell.se](http://www.avancell.se)



European Polysaccharide  
Network Of Excellence

"Nature makes polysaccharides, EPNOE turns them into products"



**EPNOE BULLETIN D'ADHESION INDIVIDUEL - Membre Affilié**  
**EPNOE INDIVIDUAL MEMBERSHIP FORM – Affiliated Member**

In case you need more information, visit our web site [www.epnoe.eu](http://www.epnoe.eu) or send an email to [contact@epnoe.eu](mailto:contact@epnoe.eu)

Subscribe to the EPNOE Newsletter on [www.epnoe.eu](http://www.epnoe.eu)

**Je, I,** (nom et prénom, *name and firstname*):

.....

Organisation (*organization*):

.....

dont l'adresse est (*which address is*):

.....

e-mail : .....

déclare adhérer comme Membre Affilié **Individuel** à l'**Association EPNOE**, Association Loi 1901, sis 60 Bd St Michel 75006 Paris, déclarée le 14 décembre 2007 et publiée au Journal Officiel le 5 janvier 2008 sous le numéro 1006, et accepter ses statuts.

(*declare to join as Individual Affiliated Member the EPNOE Association, 60 Bd St Michel 75006 Paris, declared under law of 1901 on December 14th 2007 and published in the French Journal Officiel on January 5th 2008 under number 1006, and accept its statutes.*)

L'adhésion est effective pour l'année calendaire en cours dès le paiement de la cotisation annuelle.  
(*Membership is effective for the current calendar year upon payment of the annual membership fee.*)

**Cotisation annuelle** (*Annual membership fee*) 150 euros HT (hors taxes) (*net fee excluding taxes and duties*). 50 euros HT pour les étudiants en Master et en thèse. *50 euros for Master and PhD students.*

**Fait à** (lieu), **done in** (place):.....

**Date:** .....

**Signature:**

A compléter et envoyer à l'adresse postale suivante, *to be filled in and sent to the following postal address*:

Sylvie Massol, CEMEF ARMINES, CS10207  
F-06904 Sophia Antipolis – France

Ou par e-mail (or by e-mail to) [contact@epnoe.eu](mailto:contact@epnoe.eu)

(Note: any translation in this form is courtesy translation only).



European Polysaccharide  
Network Of Excellence

"Nature makes polysaccharides, EPNOE turns them into products"



**EPNOE BULLETIN D'ADHESION COLLECTIF - Membre Affilié**  
**EPNOE COLLECTIVE MEMBERSHIP FORM – Affiliated Member**

In case you need more information, visit our web site [www.epnoe.eu](http://www.epnoe.eu) or send an email to [contact@epnoe.eu](mailto:contact@epnoe.eu)

Subscribe to the EPNOE Newsletter on [www.epnoe.eu](http://www.epnoe.eu)

**Nous, We,** (nom du centre de recherche/institut, *name of the research centre/institute*):  
.....

dont la forme et le capital sont (*which form and capital are*):  
.....

dont l'adresse est (*which address is*):  
.....  
.....

déclarons adhérer comme Membre Affilié à l'**Association EPNOE**, Association Loi 1901, sise 60 Bd St Michel 75006 Paris, déclarée le 14 décembre 2007 et publiée au Journal Officiel le 5 janvier 2008 sous le numéro 1006, et accepter ses statuts.

(*declares to join as Affiliated Member the EPNOE Association, 60 Bd St Michel 75006 Paris, declared under law of 1901 on December 14th 2007 and published in the French Journal Officiel on January 5th 2008 under number 1006, and accept its statutes.*)

L'adhésion est effective pour l'année calendaire en cours dès le paiement de la cotisation annuelle.  
(*Membership is effective for the current calendar year upon payment of the annual membership fee.*)

**Cotisation annuelle** (*Annual membership fee*) 1 000 euros HT (hors taxes) la première année  
(*1 000 euros the first year net fee excluding taxes and duties*) et 700 euros les années suivantes (*700 euros the following years*)

**Fait à** (lieu), **done in** (place): .....

**Date:** .....

**Par** (nom), **By** (name): .....

**Titre, Title:** .....

dûment habilité(e) à cet effet (*duly empowered to that effect*).

**Signature:**

A compléter et envoyer à l'adresse postale suivante, *to be filled in and sent to the following postal address*:

Sylvie Massol, CEMEF ARMINES, CS10207  
F-06904 Sophia Antipolis – France

Ou par e-mail (or by e-mail to) [contact@epnoe.eu](mailto:contact@epnoe.eu)

(Note: any translation in this form is courtesy translation only).



**epnoe**

**European Polysaccharide  
Network Of Excellence**

*"Nature makes polysaccharides, EPNOE turns them into products"*



In case you need more information, visit our web site [www.epnoe.eu](http://www.epnoe.eu) or send an email to [contact@epnoe.eu](mailto:contact@epnoe.eu)

Subscribe to the EPNOE Newsletter on [www.epnoe.eu](http://www.epnoe.eu)

## BULLETIN D'ADHESION COLLECTIF – Membre BIC « Business & Industry Club »

### COLLECTIVE MEMBERSHIP FORM – BIC « Business & Industry Club » Member

Nous, We, (nom de la société/organisation, name of the company/organisation) :

.....  
dont la forme et le capital sont (which form and capital are) :

.....  
dont l'adresse est (which address is):  
.....

déclarons adhérer comme Membre BIC à l'Association EPNOE, Association Loi 1901, sise 60 Bd St Michel 75006 Paris, déclarée le 14 décembre 2007 et publiée au Journal Officiel le 5 janvier 2008 sous le numéro 1006, et accepter ses statuts.

(declare to join as BIC Member the EPNOE Association, 60 Bd St Michel 75006 Paris, declared under law of 1901 on December 14th 2007 and published in the French Journal Official on January 5th 2008 under number 1006, and accept its statutes.)

L'adhésion est effective pour l'année calendaire en cours dès le paiement de la cotisation annuelle.  
(Membership is effective for the current calendar year upon payment of the annual membership fee.)  
Cotisation annuelle (cocher la case) – Annual Membership fees (tick as appropriate)

- |   |  |
|---|--|
| Moins de 50 employés, less than 50 employees  | <input type="checkbox"/> 1000 euros HT, net fee. |
| 51 à 500 employés, 51 up to 500 employees     | <input type="checkbox"/> 2500 euros HT, net fee. |
| Plus de 500 employés, more than 500 employees | <input type="checkbox"/> 6000 euros HT, net fee. |

Fait à (lieu), **done in (place)**:

Date: .....

Par (nom), **By (name)**: .....

Titre, **Title**: .....

dûment habilité(e) à cet effet (*duly empowered to that effect*).

Signature:

**A compléter et envoyer à l'adresse postale suivante, to be filled in and sent to the following postal address:**

**Sylvie Massol, CEMEF ARMINES, CS10207  
F-06904 Sophia Antipolis – France**

Ou par e-mail (or by e-mail to) [contact@epnoe.eu](mailto:contact@epnoe.eu)

*(Note: any translation in this form is courtesy translation only).*