



European Polysaccharide
Network Of Excellence

N°43 - JANUARY 2018



***“Nature makes polysaccharides,
EPNOE turns them into products”***

editorial

In case you need more information, visit our web site www.epnoe.eu or send an email to contact@epnoe.eu

Subscribe to the EPNOE Newsletter on www.epnoe.eu

Dear Readers of the EPNOE Newsletter,

In the name of all EPNOE members, I wish you, your family and the all ones you love a very enjoyable, successful and healthy year 2018. Let's hope that peace will be first in mind of the inhabitants of our tiny and fragile planet.

Several meetings will be organised in 2018. The list is in page 2.

The program of the April event dedicated to EC projects is described in this Newsletter. It is only open to EPNOE members. This offers the opportunity to recall that now, individual membership is possible. Any of you willing to join EPNOE can do it. It is free of charge for undergraduates and PhD students.

This issue has several pages presenting several French “Pôles de Compétitivité (competitiveness cluster)”. A competitiveness cluster is a partnership, based around a specific theme and a specific region. It brings together large and small firms, research laboratories and educational establishments, all working together in a specific region to develop synergies and cooperative efforts. Other partners may be brought in, such as public authorities, either local or national, as well as firms providing business services.

The goal of competitiveness clusters is to build on synergies and innovative, collaborative projects in order to give partner firms the chance to become first in their fields, both in France and abroad.

I hope you will enjoy reading this 43th Newsletter and I thank you for your support to EPNOE.

With my best wishes,



Dr. Patrick Navard
Coordinator of EPNOE
Armines/Mines ParisTech/CNRS
CEMEF - Centre for Material Forming
Sophia-Antipolis (France)

news

▶ Member's info



Masters & PhD defenses:

- At **Armines-CEMEF, France:**

- Yang Fu defended his PhD thesis on December 2017. "Morphology of PLA/PBAT/PA ternary blends". Supervisors: E. Peuvrel-Disdier, P. Navard.

- At **BOKU University, Austria:**

- **Dr. Irina Sulaeva**, Novel Approaches to Molar Mass Analysis of Polymers Derived from Renewable Resources. Supervisors: A. Potthast, U. Henniges, T. Rosenau.

- **DI Mario Holzlechner**, Lignin decolourization through oxidative and reductive bleaching. Supervisors: S. Böhmendorfer, T. Rosenau.

- **DI Oliver Musl**, Chemical Effect during Modification of Kraft Lignin with Ozone under Alkaline Conditions. Supervisors: S. Böhmendorfer, T. Rosenau.

- **Frauke Kikul**, MSc., Development of a Method for Quantification of Chromophores in Cellulosic Materials. Supervisors: A. Potthast, T. Rosenau.

- **Kristina Missbach**, MSc., Quantification of Lignin in Pulp. Supervisors: U. Henniges, A. Potthast.

New staff:

- At **Jena University, Germany:**

- M. Sc. Chih-Ying Chien from Tokyo University joined the group for three months to carry out synthesis of sugar-branched polysaccharide derivatives

- M. Sc. Liang Quing Zhang joined the group as PhD student working in the field of synthesis and characterization of polysaccharide-based hybrid materials. She is supervised by Prof. Thomas Heinze and Dr. Martin Gericke

- M. Sc. Natascha Kuhl joined the group to work in a project of the German Science Foundation dealing with magnetic hybrid materials based on polysaccharide derivatives and magnetic nanoparticles for the design of nanostructures initiated by external magnetic field and drug release controlled by external magnetic field



European Polysaccharide
Network Of Excellence

"Nature makes polysaccharides, EPNOE turns them into products"



EPNOE meetings 2018

In case you need more
information, visit our
web site www.epnoe.eu
or send an email to
contact@epnoe.eu

Subscribe to the
EPNOE Newsletter
on www.epnoe.eu

Year 2018 will see a series of events organized by EPNOE:

- Spring 2018. Meeting on health related matters with the Controlled Release Society. (Italy). *Only for EPNOE members.*
- 11-13 April 2018. Collective preparation for the COST, Marie Skłodowska-Curie Innovative Training Networks (ITN) and EC calls. Sophia Antipolis (France). *Only for EPNOE members.*
- 14-15 May 2018. 3rd International EPNOE Junior Scientists Meeting, Maribor, Slovenia
- Spring 2018. Meeting with BioNanoNet (Germany). *Only for EPNOE members.*
- 5-6 June 2018. "Polysaccharides as Sweet Spot for Innovation". Leuven (Belgium).
- 11-12 July 2018. "Fiber-reinforced composites". Feldkirch (Austria).
- October 2018. "Towards flame retardant biopolymers and biocomposites: current research strategies, scientific barriers and application perspectives". Alès or Lyon (France).
- Autumn 2018: series of topical brainstorming and face-to-face meetings for project preparation. Location to be decided. *Only for EPNOE members.*
- End of 2018. "Chitosan and derivatives, for medical applications". Lyon (France).





European Polysaccharide
Network Of Excellence

In case you need more
information, visit our
web site www.epnoe.eu
or send an email to
contact@epnoe.eu

Subscribe to the
EPNOE Newsletter
on www.epnoe.eu

"Nature makes polysaccharides, EPNOE turns them into products"



A major internal EPNOE meeting

In April 2018, EPNOE members will gather in Sophia Antipolis for an intensive three-day meeting dedicated to the preparation of proposals to EC calls.

We performed several times in the past this exercise with excellent result.

The program of the three days is given below. *This meeting is only open to EPNOE Members.*

Wednesday 11 April 2018

13h30-13h45 : Welcome. Presentation of the meeting

13h45-14h45: General assembly of EPNOE

14h45-15h45 : Overview of the different types of calls in H2020 (Sophie Cousin, Armines EU Project Manager).

15h45-16h15: Break

16h15-17h45 : Overview of the accepted EC projects accepted the last five years dealing with polysaccharides or polysaccharide-based topics (Maribor team).

17h45-18h15 : Free discussion.

Thursday 12 April 2018

8h30-12h30 : Course : how to write a competitive proposal for H2020. Sean Mc Carthy, Hyperion, Ireland

12h30-14h00 Lunch with informal discussions

14h00-16h00 : Collective brain-storming for building ITN and COST projects

16h00-16h30 : Break

16h30-18h00 : Confidential face-to-face meetings between participants

Friday 13 April 2018

8h30-12h30 : Confidential face-to-face meetings between participants

12h30 Lunch. End of the meeting



European Polysaccharide
Network Of Excellence

In case you need more
information, visit our
web site www.epnoe.eu
or send an email to
contact@epnoe.eu

Subscribe to the
EPNOE Newsletter
on www.epnoe.eu

"Nature makes polysaccharides, EPNOE turns them into products"



EPNOE in China

EPNOE researchers participated in the Chinese German Symposium on "Polysaccharides: New Chemistry and Materials". The event was held at the South China University of Technology in Guangzhou, China from 24th-29th of September 2017 and provided a platform for 45 young polysaccharide researchers from 30 different institutions. It was jointly organized by Prof. Dr. Kai Zhang - Georg August University of Göttingen - Germany and Prof. Dr. Haisong Qi - South China University of Technology - China and generously funded by the Sino-German Center for Research Promotion - www.sinogermanscience.org.cn.

Prof. Dr. Thomas Heinze, Dr. Martin Gericke both from Friedrich Schiller University Jena, Germany, Dr. Marco Beaumont, University of Natural Resources and Life Sciences, Austria and Dr. Rupert Kargl University of Maribor - Slovenia and Graz University of Technology, Austria presented their work, promoted the EPNOE community and were able to disseminate results and to establish new contacts among European and Chinese research groups. The EPNOE participants are thankful for this invitation which enhanced the visibility of EPNOE in China and which demonstrates its significance in international polysaccharide research.





European Polysaccharide
Network Of Excellence

In case you need more
information, visit our
web site www.epnoe.eu
or send an email to
contact@epnoe.eu

Subscribe to the
EPNOE Newsletter
on www.epnoe.eu

"Nature makes polysaccharides, EPNOE turns them into products"



Presentation of the Polish Chitin Society (PTChit)



IBWCh is a seat of Polish Chitin Society – PTChit (<http://www.ptchit.lodz.pl/en>). The society has the following:

- supporting research in the entire spectrum of chitin and appropriate enzymes. The term 'chitin' is to be understood as also embracing chitosan and all derivatives of chitin and chitosan
- disseminating results of such research
- supporting and organizing exchange between scientists engaged in chitin-related activities
- research supporting implementation of research results in the field of chitin, chitosan and derivatives
- developing contacts and links with other scientific societies both at home and abroad, representing same or similar activities

PTChit has 69 members representing a wide range of research domains from polymers and fibres to agriculture and medicine. PTChit annually organizes a Conference: "New aspects on chemistry and application of chitin and its derivatives". These events contribute largely to the integration of our scientific community and prove the significance of Polish science in the world. The last conference was held in Wałbrzych, Poland, 20 – 22 September, 2017.

45 participants took part in the conference. 14 lectures were delivered in four specialized sessions: physico-chemical, medical, biotechnology and pharmaceutical and 24 posters were presented during a poster session lasting two days. The conference was attended by eminent foreign scientists who shared their experience, skills and knowledge:

- Professor George AF. Roberts

University of Nottingham, Nottingham NG 2RD, United Kingdom

- Professor Svetlana Bratskaya

Institute of Chemistry, Far East Branch of RAS, Russia

- Professor dr hab. Hermann Ehrlich

TU Bergakademie Freiberg, Institute of Experimental Physics, Germany

- Professor Samuel M. Hudson

North Carolina State University, USA,

Conference materials are available on line:

[http://www.ptchit.lodz.pl/pliki/PTChit_\(c8xnjjnyop2x17zu\).pdf](http://www.ptchit.lodz.pl/pliki/PTChit_(c8xnjjnyop2x17zu).pdf)

PTChit annually issues a periodical journal titled "Progress in Chemistry and Application of Chitin and its Derivatives", which is focused on all aspects of production, modification, enzymology and application of chitin and its many derivatives, including chitosan. The language of the journal is English and publication is free of charge. The journal is available in electronic format. http://www.ptchit.lodz.pl/en20,about_journal_pcacd.html



European Polysaccharide
Network Of Excellence

In case you need more
information, visit our
web site www.epnoe.eu
or send an email to
contact@epnoe.eu

Subscribe to the
EPNOE Newsletter
on www.epnoe.eu

"Nature makes polysaccharides, EPNOE turns them into products"



A French "Pôle de compétitivité" DREAM



What's DREAM

The **DREAM cluster** (Durabilité de la Ressource en Eau Associée aux Milieux [sustainability of water resources and aquatic environment]) is a competitiveness cluster in the Region Centre (France) that **brings together key players in the fields of research and training, as well as economic stakeholders**. It is now the recognised representative for the **field of green technology related to water and aquatic environment**. It develops tailor-made, sustainable solutions, both technical and socio-economic. The cluster **supports growth and competitiveness of its SMEs through innovation, a focus on research and technology transfer**.

DREAM's strategic activities

- 1- Diagnosis, monitoring, environmental information systems of water resources and aquatic ecosystems
- 2- Management of water resources and aquatic ecosystems
- 3- Alternative water and soil treatments
- 4- Adaptation of technologies, products, services and processes to emerging and developing countries

Who is DREAM designed to support ?

- SMEs
- Large groups
- Laboratories
- Trade associations
- Training agencies
- Organisations Clusters

What is a Competitiveness Cluster ?

A partnership based around a particular theme in a particular region...

A competitiveness cluster brings together research laboratories, training organisations and businesses of all sizes in a particular region to develop synergies and cooperative initiatives. It may also include other partners, such as local and national public authorities and business service providers.

...designed to achieve success

The idea is to use synergies and innovative collaborative projects to help the businesses involved achieve a leading position in their respective fields, both in France and internationally.

(continued overleaf)



European Polysaccharide
Network Of Excellence

In case you need more
information, visit our
web site www.epnoe.eu
or send an email to
contact@epnoe.eu

Subscribe to the
EPNOE Newsletter
on www.epnoe.eu

"Nature makes polysaccharides, EPNOE turns them into products"



A French "Pôle de compétitivité" DREAM

(continued)

What are the aims of competitiveness clusters ?

To strengthen the competitiveness of the French economy and stimulate employment and growth in the country's key markets by :

- Focusing on innovation,
- Consolidating creative and high technology activities, primarily industrial, within the cluster zones,
- Making France more attractive through increased visibility on a global scale.

Some innovative projects

- **DUTS** is aiming to develop a remote water management system with low energy consumption.
- **ECOSMETOCENTRE** aims to find molecules with biological activity for cosmetic applications in plants from natural wetlands in the Centre Region. The project thus aims to breed plants that currently form maintenance "waste" in natural wetlands and put them to good use by extracting the main active ingredients.
- **FLOCON BIO** offers an innovative, ecological solution in the industrial and community "dirty" water processing market. It involves developing new flocculants from natural renewable products as an alternative to the synthesis flocculants used commonly nowadays.
- **HYDROFLUV** aims at developing a system capturing the kinetic energy of rivers to supply economic and regular electric production : a cross-flow hydrokinetic turbine (HYDROQUEST design).
- **PHYTORIA** is aiming to propose new techniques for treating extensive or semi-extensive, food-processing industrial effluents based on the planted reed filter solution, thereby ensuring purification. The technology is also aiming to be developed for the emerging countries in tropical climates.
- **SAS** is planning to develop a modelling, yield forecast and decision aid system applied to wheat. It is based on the use of highly-innovative new technologies, dynamic modelling at plot level combined with radar satellite imaging, to forecast crop yields better.
- **SVEH** has the goal of offering a competitive "monitoring station" specific for hospital water, combining optimised technologies and services for monitoring and biological measurement coupled with chemical analysis.
- **ZHART** aims at developing and industrialising planted discharge areas at the exit of treatment plants to convert them into a genuine artificial wetland guaranteeing the treatment of micropollutants and ecological diversity.

More information on <http://www.poledream.org/>



European Polysaccharide
Network Of Excellence

In case you need more
information, visit our
web site www.epnoe.eu
or send an email to
contact@epnoe.eu

Subscribe to the
EPNOE Newsletter
on www.epnoe.eu

"Nature makes polysaccharides, EPNOE turns them into products"



A French "Pôle de compétitivité"

IAR



IAR, your gateway to the French Bioeconomy

The bioeconomy encompasses the sustainable production of renewable resources and their conversion into food, feed, fibres, materials, chemicals and bioenergy, through efficient and innovative technologies.

IAR is the French bioeconomy cluster. It brings together over 350 stakeholders from farmer cooperatives, research organisations and universities to venture capital firms, start-ups, SMEs and large industries, including end-users, around a common goal: the optimal use of renewable resources.

IAR focuses on all dimensions of the bioeconomy: from feedstock production to its valorisation into food, industrial (bio-based chemicals and biobased materials) and energy (biofuels and biogas) applications. IAR supports the development of the bioeconomy in France and, more specifically, in the regions of Hauts-de-France and Grand Est."



More information on <http://www.iar-pole.com/>



European Polysaccharide
Network Of Excellence

In case you need more
information, visit our
web site www.epnoe.eu
or send an email to
contact@epnoe.eu

Subscribe to the
EPNOE Newsletter
on www.epnoe.eu

"Nature makes polysaccharides, EPNOE turns them into products"



A French "Pôle de compétitivité"

Elastopôle



Elastopôle is the French competitiveness cluster for the rubber and polymers sector. This inter-regional cluster with a national outlook and European ambitions is mainly active on the geographical area comprised by the four regions Centre Val de Loire (headquarters), Auvergne Rhône Alpes, Pays de la Loire and Ile de France. Within its 120 members are worldwide leaders (Michelin, Hutchinson), a very large number of SMEs, and top French research and education centers. Elastopôle was created 10 years ago and has managed more than 200 major projects, of which 77 have been financed. Elastopôle's value chain analysis integrates the entire products' life cycle from Cradle to Grave, from raw material to recycling, including manufacturing, for the benefit of all industrial sectors. Biobased materials and green chemistry are part of its strategic directions. Elastopôle promotes the idea that the cardinal virtue of elastomeres, discreet but omnipresent, is to contribute to the comfort and the safety of individuals.

Elastopôle's Value Chain Analysis integrates the entire Products' Life cycle from Cradle to Grave, from Raw material and green chemistry to recycling



More information on www.elastopole.com



European Polysaccharide
Network Of Excellence

In case you need more
information, visit our
web site www.epnoe.eu
or send an email to
contact@epnoe.eu

Subscribe to the
EPNOE Newsletter
on www.epnoe.eu

"Nature makes polysaccharides, EPNOE turns them into products"



A French "Pôle de compétitivité"

Qualitropic



**A UNIQUE COMPETITIVENESS
CLUSTER SPECIALISED
IN TROPICAL BIOECONOMICS**

THE CHALLENGE

To develop and put on the market - locally, regionally, globally - new products and services with high added value and new increasingly competitive processes of high environmental quality.

AMBITION

To become a tropical bioeconomic and island self-sufficiency economic systems model within the context of circular economics.

APPROACH

To unite a network of research and training companies and institutions around one common objective and innovative individual and collaborative projects.

OBJECTIVES

Competitiveness, reputation, economic development and invigoration of the Reunion area.

KEY-FACTS

- 100 members, of which 75% companies
- 1 inter-industry structuring project supported by the State and local authorities: The Reunion Ecoex shared innovation platform
- 30 experts dedicated to the evaluation of projects
- A Board of Directors of 22 members
- Numerous partnerships:
 - directly operational with NEXA, BPI France, Business France, les Instituts CARNOT...
 - with other national and regional competitiveness clusters...

**More than 100 projects accredited since 2006 raising 45M Euros
(of which 18M Euros of public financing) on 30th November 2017**

(continued overleaf)



European Polysaccharide
Network Of Excellence

In case you need more
information, visit our
web site www.epnoe.eu
or send an email to
contact@epnoe.eu

Subscribe to the
EPNOE Newsletter
on www.epnoe.eu

"Nature makes polysaccharides, EPNOE turns them into products"



A French "Pôle de compétitivité"

Qualitropic

(continued)

BIOECONOMICS IS WITHOUT A DOUBT THE ECONOMIC MODEL OF THE FUTURE ...



It brings together economic activities linked to innovation, development, production with the use of products and processes from the living and renewable world... in response to the global issues of climate change, the increasing scarcity of fossil fuels, food security, preservation of biodiversity, public health, etc... These serious issues are exacerbated in a tropical island context. Tropical bioeconomics focuses on the use and development of all tropical plant, animal or marine resources (product, by-product, waste) whether for food or non-food use. It focuses on markets in the fields of crop yields, industrial processes (food processing industry, environment, energy, etc.), and human and animal health. Still largely unknown by the general public it undoubtedly holds the key to the growth of the future world as well as our island.

FOUR STRATEGIC AREAS OF ACTIVITY

1. Development of tropical resources (To study, preserve and use Reunion Island biodiversity in an environmentally friendly way)
2. Improvement of sustainability of industrial, agricultural and fishing resources (To slow down and fight against environmental damages and to replace current practices by less polluting solutions)
3. Recovery and development of organic by-products and waste (To develop solutions based on circular economic models)
4. To meet market demands (To provide interdisciplinary answers to sector wide and territorial issues using products and support services)

**BECAUSE INNOVATION IS IN YOUR GENES,
YOU CAN WIN TOO INNOVATING WITH**



Quartier d'Affaires La Mare / 5 rue André Lardy / 97438 Sainte-Marie / Ile de La Réunion
qualitropic@qualitropic.fr / www.qualitropic.fr



European Polysaccharide
Network Of Excellence

In case you need more
information, visit our
web site www.epnoe.eu
or send an email to
contact@epnoe.eu

Subscribe to the
EPNOE Newsletter
on www.epnoe.eu

"Nature makes polysaccharides, EPNOE turns them into products"



NANOELMEM

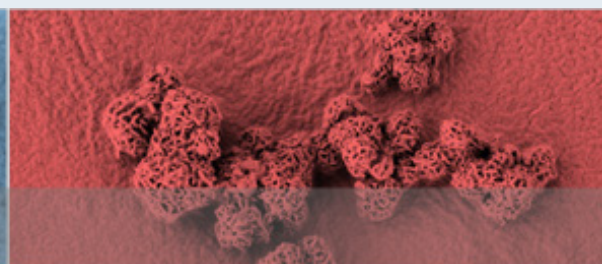
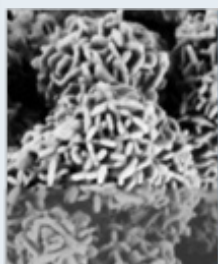
Designing new renewable nano-structured electrode and membrane materials for direct alkaline ethanol fuel cell (M-era.Net Project)

**Mojca Božič^{1,2}, Silvo Hribernik^{1,2}, Alenka Ojstršek^{1,2}, Rupert Kargl^{1,2,3}, Manja Kurečič^{1,2,3},
Karin Stana Kleinschek^{1,2,3}**

¹Laboratory for Characterization and Processing of Polymers (LCCP), Faculty of Mechanical Engineering, University of Maribor, Smetanova 17, 2000 Maribor, Slovenia

²Institute of automation, Faculty of Electrical Engineering and Computer Science, University of Maribor, Koroška cesta 46, 2000 Maribor, Slovenia

³Institute for Chemistry and Technology of Materials (ICTM), Graz University of Technology, Stremayrgasse 9, 8010 Graz, Austria



Designing new renewable nano-structured electrode and membrane materials for direct alkaline ethanol fuel cell

Search for technical advances and optimal solutions in the field of energy, ranging from designing new power sources to securing its financial viability and environmental conformability, has been at the forefront of scientific and applied endeavors for a number of years now. To a large extent, this has been driven by an increased demand for energy in combination with concerns over the environmental status of existing solutions. Also, taking into account growing costs of fossil fuel, one can clearly realize we are facing a multifaceted and complex problem, which involves scientific and technological, as well as societal, economical and geopolitical challenges.

In this context, NANOELMEM project - <http://nanoelmem.fs.um.si/>, funded by the Ministry of Education, Science and Sport of Slovenia, Ministry of Science and Technology of Taiwan and by the Research Council of Norway, intends to develop a novel stable and highly effective materials for the direct alkaline ethanol fuel cell (DAEFC), which directly converts ethanol to electric power. The enhancement of the performance of DAEFCs is based on the development of platinum (Pt)-free electrode catalysts and nano-composite membranes by using environmental-friendly inorganic and polysaccharide materials and technologies. The enormous technical and scientific potential of graphene will be explored by producing new graphene-polysaccharide based membranes.

The project brings together five partners from Slovenia, Norway and Taiwan:

- (i) University of Maribor from Slovenia, Laboratory for Characterization and processing of polymers, Prof. Dr. Karin Stana Kleinschek and Assist. Prof. Dr. Mojca Božič, a coordinator of the project,
- (ii) University of Nova Gorica from Slovenia, Laboratory of Organic Matter Physics, Assist. Prof. Dr. Egon Pavlica,
- (iii) Abalonyx, a Norwegian SME a producer of graphene oxide, Dr. Rune Wendelbo,
- (iv) Norwegian University of Science and Technology, Catalysis Group at the Department of Chemical Engineering, Prof. Dr. De Chen and Assoc. Prof. Dr. Jia Yang, and
- (v) Chang Gung University from Taiwan, Department of Chemical and Materials Engineering, Prof. Dr. Shingjiang Jessie Lue.



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
or send an email to
contact@epnoe.eu

Subscribe to the
EPNOE Newsletter
on www.epnoe.eu

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

Yuwang, P., Sulaeva, I., Hell, J., Henniges, U., Böhmendorfer, S., Rosenau, T., Chitsomboon, B., Tongta, S., Phenolic compounds and antioxidant properties of arabinoxylan hydrolysates from defatted rice bran. *J Sci Food Agric.* 98/1 (2018) 140-146.

Fontenot, KR, Edwards JV, Haldane, D., Pircher, N., Liebner, F., Condon, BD, Qureshi, H., Yager, D., Designing cellulosic and nanocellulosic sensors for interface with a protease sequestrant wound dressing prototype: implications of material selection for dressing and protease sensor design. *Journal of Biomaterial Applications* 32/5 (2017) 622-637.

Ghorbani, M., Konnerth, J., van Herwijnen, HWG, Zinovyev, G., Budjav, E., Requejo Silva, A., Liebner, F., Commercial Lignosulfonates from Different Sulfite Processes as Partial Phenol Replacement in PF Resole Resins. *Journal of Applied Polymer Science* 135/8 (2018) DOI: 10.1002/APP.45893

Ghorbani, M., Liebner, F., van Herwijnen, HWG, Konnerth, J., Ligneous resole adhesives for exterior-grade plywood. *European Journal of Wood and Wood Products* 76/1 (2018) 251-258.

McGath, MK, Hall, AKI, Zaccaron, S., Wallace, J., Minter, WD, McGuiggan, PM, Stewing in Its Own Juices? The Permeability of PET by Water and Acetic Acid. *Restaurator* 38/4 (2017) 355-382.

Schedl, A., Zweckmair, T., Kikul, F., Bacher, M., Rosenau, T., Potthast, A., Pushing the limits: Quantification of chromophores in real-world paper samples by GC-ECD and EI-GC-MS. *Talanta* 179 (2018) 693-699.

Lee, S., Kang, K.-Y., Jeong, M.-J., Potthast, A., Liebner, F., Evaluation of supercritical CO₂ dried cellulose aerogels as nano-biomaterials. *Journal of Korean Physical Society* 71/8 (2017) 483-486.

Kuzmina, O., Bhardwaj, J., Vincent, SR, Wanasekara, ND, Kalossaka, LM, Griffith, J., Potthast, A., Rahatekar, S., Eichhorn, SJ, Welton, T., Superbase ionic liquids for effective cellulose processing from dissolution to carbonization. *Green Chemistry* 19/24 (2017) 5949-5957.

Mao, J., Abushammala, H., Hettegger, H., Rosenau, T., Laborie, M.-P., Imidazole, a new tunable reagent for producing nanocellulose, part I: Xylan-coated CNCs and CNFs. *Polymers* 9/10 (2017) article 473.

Zwirschmayr, NS, Elder, T., Bacher, M., Hofinger-Horvath, A., Kosma, P., Rosenau, T., 2,4,5-Trihydroxy-3-methylacetophenone: A Cellulosic Chromophore as a Case Study of Aromaticity. *ACS Omega* 2/11 (2017) 7929-7935.

Mayr, M., Odabas, N., Eckhart, R., Henniges, U., Bauer, W., Cationization of Lignocellulose as a Means to Enhance Paper Strength Properties. *BioResources* 12/4 (2017) 9338-9347.

Zwirschmayr, NS, Hosoya, T., Henniges, U., Gille, L., Bacher, M., Furtmüller, P., Rosenau, T., Degradation of the Cellulosic Key Chromophore 5,8-Dihydroxy-[1,4]-naphthoquinone by Hydrogen Peroxide under Alkaline Conditions. *Journal of Organic Chemistry* 82/21 (2017) 11558-11565.

Rosenau, T., Zwirschmayr, NS, Hosoya, T., Hofinger-Horvath, A., Bacher, M., Potthast, A., Janus-faced 5-methyl group in 2-hydroxy-5-methyl-[1,4]-benzoquinone. *Tetrahedron* 73/45 (2017) 6421-6427.



European Polysaccharide
Network Of Excellence

In case you need more
information, visit our
web site www.epnoe.eu
or send an email to
contact@epnoe.eu

Subscribe to the
EPNOE Newsletter
on www.epnoe.eu

"Nature makes polysaccharides, EPNOE turns them into products"



EPNOE Member's Scientific Publications

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

Silbermann, S., Weilach, C., Kliba, G., Fackler, K., Potthast, A., Improving molar mass analysis of cellulose samples with limited solubility. *Carbohydrate Polymers* 178 (2017) 302-310.

Veigel, S., Lems, E.-M., Gröll, G., Hansmann, C., Rosenau, T., Zimmermann, T., Gindl-Altmutter, W., Simple green route to performance improvement of fully bio-based linseed oil coating using nanofibrillated cellulose. *Polymers* 9/9 (2017) article 425.

Brückle, I., Henniges, U., Thoughts on Bleaching Guidelines. *Journal of Paper Conservation* 18/1 (2017) 10-17.

Nypelö, T., Laine, C., Colson, J., Henniges, U., Tammelin, T., Submicron hierarchy of cellulose nanofibril films with etherified hemicelluloses. *Carbohydrate Polymers* 177 (2017) 126-134.

Ahead of Print

Stutzenstein, P., Bacher, M., Rosenau, T., Pfeifer, C., Optimization of Nutrient and Carbon Recovery from Anaerobic Digestate via Hydrothermal Carbonization and Investigation of the Influence of the Process Parameters. *Waste and Biomass Valorization* 2017. DOI: 10.1007/s12649-017-9902-4.

Oberlerchner, JT, Fuchs, C., Grausgruber, H., Potthast, A., Böhmendorfer, S., A cote calibration - Making optimal use of time and space in quantitative high performance thin layer chromatography. *J. Chromatogr. A* 2017. DOI: 10.1016/j.chroma.2017.12.016.

Ghorbani, M., Mahendran, A., van Herwijnen, HWG, Liebner, F., Konnerth, J., Paper-based laminates glued with kraft lignin rich phenol formaldehyde resoles meet the standard requirements for outdoor usage, *European Journal of Wood and Wood Products* 76/2 (2018) xxx. DOI 10.1007/s00107-017-1248-x.

Hell, S., Ohkawa, K., Amer, H., Potthast, A., Rosenau, T., "Dialdehyde cellulose" nanofibers by electrospinning as polyvinyl alcohol blends: Manufacture and product characterization. *J. Wood Chem. Technol.* 2017. DOI: 10.1080/02773813.2017.1381743.

Liu, J., Bacher, M., Rosenau, T., Willför, SM, Mihranyan, A., Potentially Immunogenic Contaminants in Wood-based and Bacterial Nanocellulose: Assessment of Endotoxin and (1,3)- β -D-glucan Levels, *Biomacromolecules* (2017), DOI: 10.1021/acs.biomac.7b01334.

Bazafkan, H., Beier, S., Stappler, E., Böhmendorfer, S., Oberlerchner, J., Sulyok, M., Schmoll, M., SUB1 has photoreceptor dependent and independent functions in sexual development and secondary metabolism in *Trichoderma reesei*. *Mol Microbiol* 2017. DOI: 10.1111/mmi.13842.

Tisch, D., Pomraning, KR, Collett, JR, Freitag, M., Baker, SE, Chen, CL, Hsu, PW, Chuang, YC, Schuster, A., Dattenböck, C., Stappler, E., Sulyok, M., Böhmendorfer, S., Oberlerchner, J., Wang, TF, Schmoll, M., Omics analyses of *Trichoderma reesei* CBS999.97 and QM6a indicate a relevance of female fertility for CAZyme and transporter levels. *Appl Environ Microbiol* 2017. DOI: 10.1128/aem.01578-17.

Mamadaliyeva, NZ, Azimova, SS, Abdullaeva, NS, Rosenau, T., Böhmendorfer, S., Fakhruddinova, M., Composition of essential oils from four Apiaceae and Asteraceae species growing in Uzbekistan. *Nat Prod Res* 2017. DOI: 10.1080/14786419.2017.1375928.



European Polysaccharide
Network Of Excellence

In case you need more
information, visit our
web site www.epnoe.eu
or send an email to
contact@epnoe.eu

Subscribe to the
EPNOE Newsletter
on www.epnoe.eu

"Nature makes polysaccharides, EPNOE turns them into products"



EPNOE Member's Scientific Publications

At Friedrich Schiller University of Jena, Germany:

Chitosan-cellulose multifunctional hydrogel beads: Design, characterization and evaluation of biocompatibility with breast adenocarcinoma and osteoblast cells
P. Trivedi, T. Saloranta-Simell, U. Maver, L. Gradišnik, N. Prabhakar, J.-H. Smatt, T. Mohan, M. Gericke, Th. Heinze, P. Fardim
Bioengineering (2018), bioengineering-247936

Xylans: Biopolymers for the design of highly engineered polysaccharide derivatives with promising properties
L. Gabriel, Th. Heinze
In: (M. Koller ed.) Current Advances in Biopolymer Processing and Characterization. Chapter 3, ISBN 978-1-53612-710-2, Nova Science Publishers Inc., 2017, pp. 49-75.

Polyelectrolyte complex beads by two-step process for improved performance of viable whole-cell Baeyer-Villiger monooxygenase by immobilization
T. Krajčovič, M. Bučko, A. Vikartovská, I. Lacík, L. Uhelská, D. Chorvát Jr, V. Neděla, E. Tihlaříková, M. Gericke, Th. Heinze, P. Gemeiner
Catalysts 7 (2017) 353.

Cellulose modification and shaping – a review
K. Jedvert, Th. Heinze
Journal of Polymer Engineering 37 (2017) 845-860.

Dissolution capacity of novel cellulose solvents based on triethyl(n-octyl)ammonium chloride
Ch. Achtel, K. Jedvert, B. Kosan, O. A. El Seoud, Th. Heinze
Macromolecular Chemistry and Physics 218 (2017) 1700208.

Synthesis and characterization of novel water-soluble and bactericidal cationic starch esters
A. Pfeifer, R. Hampe, Th. Heinze
Starch/Stärke 69 (2017) 1700029.



European Polysaccharide
Network Of Excellence

In case you need more
information, visit our
web site www.epnoe.eu
or send an email to
contact@epnoe.eu

Subscribe to the
EPNOE Newsletter
on www.epnoe.eu

"Nature makes polysaccharides, EPNOE turns them into products"



Other News

Positions opened

Postdoctoral Associate Position

The University of Georgia Complex Carbohydrate Research Center's "Analytical Service and Training Laboratory" seeks a Postdoctoral Associate to work on structural analysis of bacterial and plant polysaccharides. This work will involve isolation, purification, and sequencing of polysaccharides using 1D and 2D NMR techniques and various mass spectrometry methods. To apply please contact Christian Heiss at cheiss@uga.edu.

The **Laboratory of Food Biochemistry** at the Institute of Food, Nutrition and Health, ETH Zurich led by Prof. Laura Nyström is looking for a **PhD Student - Organic Chemistry, Food Chemistry**

Questions regarding the position should be directed to Prof. Laura Nyström, by email laura.nystrom@hest.ethz.ch (no applications).

SPECIAL COMPETITIVE POSITION OPEN IN EXCELLENCE NETWORK IN MONTPELLIER

KNOWLEDGE-BASED METHODS TO IMPROVE LIFE-CYCLE OF LIGNIN-RICH BIOSOURCED MATERIALS. A position is open for 18 months, (starting as soon as possible in Montpellier, Marcoule or Alès for a postdoctoral fellow. The aim of the research is to perform test treatments of model bio-sourced materials in cm3 or mm3 regime with available and/or original methods.

Contact for general information : pauline.charriaux@polechimie-balard.fr

Conferences

The Department of Chemistry of Biomaterials and Cosmetics, Nicolas Copernicus University in Torun, Poland, announces the **first International conference on CHEMISTRY FOR BEAUTY AND HEALTH**. The conference will be held on **13-16 June 2018** in the city of Toruń at Nicolaus Copernicus University. The conference will be held under the auspices of European Polymer Federation and Polish Society for Biomaterials.

More details at: https://beauty-torun.umk.pl/pages/main_page/

15th International Conference of the European Industrial Hemp Association

12 – 13 June 2018, Maternushaus, Cologne, Germany

Specialists from all over the world will meet in order to exchange information regarding the latest developments in hemp applications for fibres, shivs, seeds and oil as well as cannabinoids. Applications are biocomposites in automotive and construction, textiles, food, food supplements and pharmaceuticals. We are expecting again more than 300 international participants from more than 40 countries – we are looking forward to the biggest event on industrial hemp ever!

More information at: <http://eiha-conference.org/>



European Polysaccharide
Network Of Excellence

In case you need more
information, visit our
web site www.epnoe.eu
or send an email to
contact@epnoe.eu

Subscribe to the
EPNOE Newsletter
on www.epnoe.eu

"Nature makes polysaccharides, EPNOE turns them into products"



Other News

Conferences

The 8th Workshop on Cellulose Regenerated Cellulose and Cellulose Derivatives

Karlstad, Sweden, November 13–14, 2018

This 8th semi-annual international workshop will be arranged in cooperation between Umeå University and Karlstad University and is focused on basic and applied studies in the field of cellulose, nanocellulose, regenerated cellulose and cellulose derivatives. The workshop is sponsored by leading suppliers of dissolving pulps and machinery to guarantee that the workshop will have a mix of academic and applied presentations.

Topics of interest for submission include, but are not limited to:

- Cellulose chemistry and derivatives
- Cellulose structures and composites
- Dissolution of cellulose
- Dissolving pulp preparation and properties
- Nanocellulose, Regeneration of cellulose
- Spinning of cellulosic fibres

Deadlines for abstracts

Abstracts of one A4 page are welcome to ola.sundman@chem.umu.se or ulf.germgard@kau.se latest May 31, 2018. If the abstract is accepted extended abstracts of max four A4 pages are welcome until October 31.

Information

For more information visit www.celluloseworkshop.com or contact:

Professor Ulf Germgård, email ulf.germgard@kau.se, Tel +46(0)54 7001780 or Professor Leif Jönsson, e-mail leif.jonsson@umu.se Tel +46(0)90 7866811

Annual European Congress on Rheology (AERC 2018)

Sorrento, Italy, from 17-20 April 2018

Session on Food, Pharmaceuticals & Cosmetics

More information at : <https://rheology-esr.org/aerc2018/welcome>

26th European Biomass Conference and Exhibition - EUBCE 2018

14 – 18 May 2018 | Copenhagen, Denmark

The conference programme will address topics from biomass to bioliquids and biofuels for heat and electricity, transport and biobased products. It will cover all aspects of each value chain, from supply and logistics to conversion technologies, from industrial application of research results to impacts on the environment, from market and trade aspects to policy strategies, not least to the role of biomass as a source in integrated energy systems.

The EUBCE is supported by European and international organizations such as the European Commission, UNESCO – United Nations Educational, Scientific and Cultural Organization – Natural Sciences Sector, WCRE – the World Council for Renewable Energy, EUBIA – the European Biomass Industry Association, The Central European Initiative, The Global Bioenergy Partnership and other organisations.

The Technical Programme is coordinated by European Commission, Joint Research Centre.

More information at: <http://www.eubce.com>