



European Polysaccharide
Network Of Excellence

N°27 - MAY 2014



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

editorial

Dear Readers of the EPNOE Newsletter,

Excellence is the trademark of EPNOE scientists. After Thomas Heinze (university of Jena, Germany) and Hans-Peter Fink (Fraunhofer Society, Golm, Germany) received the American Chemical Society Anselme Payen awards in 2010 and 2012, the EPNOE community has the great pleasure to learn that Thomas Rosenau (university of Natural Resources and Life Sciences, Vienna, Austria) received the 2014 Anselme Payen award. This extraordinary series of EPNOE scientist awards is a source of pride for EPNOE.

EPNOE is continuing its efforts for bringing together academic and industrial scientists. Among the many meetings organized by EPNOE scientists, two have the endorsement of EPNOE. The first is the Japan-European Workshop in Cellulose and Functional Polysaccharides, October 14-16, 2014 in Berlin, organized by our colleagues from the Fraunhofer Institute for Applied Polymer Research IAP, Potsdam-Golm. The second is EPNOE 2015 (4th EPNOE International Polysaccharide Conference) on Polysaccharides and Polysaccharide-based Advanced Materials: from science to industry, co-sponsored by EPNOE and the American Chemical Society and organized by our Polish colleagues from the Institute of Biopolymers and Chemical Fibres (IBWCh) in Warsaw (Poland), 19-22 October 2015.

EPNOE scientists have been deeply involved in the building of proposals following the first calls of the new Horizon 2020 research and innovation programme of the European Commission. The first results are very positive, with three accepted projects over three submissions to the Wood Wisdom NET+ programme (Hemicell, Bioshapes and Aerowood).

Best wishes,



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

news

Member's info



New staff:

• At the **Friedrich Schiller University of Jena**, Germany:

- DC Christian Achtel "Thermochromic polysaccharide derivatives" (Supervisor: Thomas Heinze);

- DC Peter Schulze "Design of Biosensors" (Supervisor: Thomas Heinze);

- M. Sc. Mengbo Zhou "Hybrid materials based on magnetic nanoparticles and meltable polysaccharide derivatives for controlled-release applications" (Supervisor: Thomas Heinze);

- B. Sc. Philipp Riehl "Antibacterial modification of surfaces by polysaccharide derivatives" (Supervisor: Thomas Heinze);

- B. S. Martin Obst "Stimuli-responsive polysaccharide derivatives" (Supervisor: Thomas Heinze).

• At **ARMINES-C2MA**, France:

- Laurent Puech (PhD) "Study of the interface in natural fibres reinforced biocomposites" (Supervisor: Anne Bergeret, Nicolas Le Moigne)

- Margot Chauvet (Master) "Processing of new natural fibres fractions reinforced biocomposites" (Supervisor: Anne Bergeret, Nicolas Le Moigne)

- Klervi Dalle (Master) "Extraction of polysaccharides from microalgae by various solvents" (Supervisor: Nicolas Le Moigne, Jean-Charles Benezet)

• At **ARMINES-Cemef**, France:

- Calypso Beloli (Master) "Polymer-based composites with sorghum and maize fillers" (Supervisor: Patrick Navard)

- Ran Lu (Master) "Effect of miscanthus genotype on composite properties" (Supervisor: Patrick Navard)



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EPNOE Member's research

Fraunhofer IAP strengthens its solution spinning capabilities

Fraunhofer IAP has a long standing expertise in the field of solution spinning, in particular of shaping cellulose into filaments from various solvent systems. In addition to the existing equipment, a new spinning line with tripled capacity (3k) was successfully put into operation in March 2014. With this investment Fraunhofer IAP reacts to an increasing market demand in the field of man-made cellulose filament spinning. By its flexible and adjustable arrangement of spinning units, bathes and rollers the new custom-made solution spinning line allows to vary the processing conditions in a broad range. Both the traditional viscose and NMMO technologies as well as alternative methods using ionic liquids as a direct solvent or cellulose carbamate as the fiber forming derivative can now be investigated on a larger scale. In combination with the multitude of analytical methods for structure and property characterization available at Fraunhofer IAP optimized spinning processes can be developed with up-to-date technology.



The new Fraunhofer IAP solution spinning line

This article was proposed by Dieter Hofmann, Fraunhofer Institute for Applied Polymer Research, Germany.

news (continued)

Member's info



Events:

- **Wageningen University**, the Netherlands:

The Summerschool on Glycosciences :The 13th European Training Course on Carbohydrates was held in Wageningen University, the Netherlands, on April 13-17, 2014.

- **Friedrich Schiller University of Jena**, Germany:

The Cellulose Symposium 2014 will be held in the frame of the Annual ZELLCHEMING Meeting (June 24-26, 2014) on June 24 and 25, 2014 at Messe Frankfurt. Contributions under the general topic "Cellulose- and polysaccharide chemistry" will be given.

New innovation and research platform:

- The three-year project « AE-ROWOOD » started in 2014 in the frame of WoodWisdom-Net+ programme operating under the FP7 ERA-NET Plus. The goal is to prepare aerogels based on components from wood (cellulose, hemicellulose, lignin), and develop applications for packaging and drug release.

Project coordinator is Maija Tenkanen (University of Helsinki) and partners are University of Natural Resources and Life Sciences Vienna (Falk Liebner), Cemef-Mines ParisTech (Tatiana Budtova), University of Hamburg (Bodo Saake) and University of Maribor (Uros Maver).

New position:

- University of Nottingham, UK:

Tim Foster was promoted to the ranks of Professor in March, 2014.



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EPNOE Member's news

6th Biopolymer Colloquium of Fraunhofer IAP January 23rd in Berlin

On 23 January 2014 the Fraunhofer Institute for Applied Polymer Research IAP organized the 6th Biopolymer Colloquium with a substantial co-funding from the National Agency for Renewable Resources FNR (Fachagentur Nachwachsende Rohstoffe). This year the event was held again in the International Congress Center ICC in Berlin as part of the accompanying scientific program of the International Green Week, the world's biggest fair for food, agriculture and horticulture. About 70 participants could follow the presentations of latest developments in the field of biopolymers given by national and international experts from industry and academia. The colloquium was opened by welcome speeches of Prof. Hans-Peter Fink, the director of the Fraunhofer IAP and by Dr. Andreas Schütte, the managing director of the FNR.

The scientific program started with a presentation of Prof. Derek Gray (MacGill University, Montreal) about nanocellulosic materials and their future potential, followed by a contribution of Prof. Dr. Thomas Scheibel (University of Bayreuth) dealing with the secrets of spider silks – from the natural model to first products. The next presentations came from Prof. Markus Biesalski (Technical University Darmstadt) about functional papers and from Prof. Bohumil Kasal (Fraunhofer WKI, Braunschweig) about current trends in wood research. The program was finished by Dr. Niklas Garoff (Stora Enso, Stockholm) who talked about "Kraft lignin – Trends regarding industrial production and applications" and Dr. Mathias Hahn (Fraunhofer IAP, Potsdam) with a presentation about new PLA materials with increased market potential.

After the colloquium the participants had the chance to visit the nature.tec exposition at the Green Week. This annual exposition is devoted to demonstrate the potential of energetic and material use of renewable resources to a wider public. The Fraunhofer Gesellschaft FhG was involved with a large exhibition booth coordinated by Fraunhofer IAP.



Professor Derek Gray and Prof. Hans-Peter Fink during the discussion of Prof. Gray's presentation at the 6th Biopolymer Colloquium.

This article was proposed by Dieter Hofmann, Fraunhofer Institute for Applied Polymer Research IAP, Germany.



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EPNOE Member's news

POLINTEGRA: a new network in Poland

EPNOE and POLINTEGRA signed a cooperation agreement during the ceremony held in Polish Ministry of Economy for establishing POLINTEGRA on 15 April 2014.

POLINTEGRA

Three Polish research institutes, Institute of Biopolymers and Chemical Fibres (Łódź), Institute of Heavy Organic Synthesis "Błachownia" (Kędzierzyn-Koźle) and Industrial Chemistry Research Institute (Warsaw) the Scientific/Industrial Centre took the initiative to create a network called "(BIO)-Polymers-Materials- Technologies for Economy, in short POLINTEGRA. It will be a network gathering business organisations (companies, consulting, ..), research institutes, institutes of the Polish Academy of Sciences and university research centers. POLINTEGRA will provide the right forum for an effective cooperation between scientific entities and entrepreneurs. POLINTEGRA is a permanent consortium aimed at developing R & D projects focused on several designated research areas. So far, 27 research units and 32 business organisations are intending to join the Centre. The essential tasks of the Centre are to develop partner's competences as well as supporting and coordinating their activities, building common research projects as within Horizon 2020 and coordinating activity towards technology transfer and innovation.

Cooperation with EPNOE

EPNOE and POLINTEGRA have as a common objective the promotion and development of research-based innovation in scientific and technological areas where polysaccharides and polysaccharide-based products are developed. It is thus rather obvious that both networks would cooperate in developing a series of common actions in order to foster and enlarge effective relations between academic, research and industrial activities. The objective is to help the members of both networks to better interact with each other. The goal is to increase their overall competence and their knowledge of the activities performed in other member's laboratories and companies in order to boost the possibilities of knowledge transfer and ultimately innovation.

The cooperation activities and exchanges between the two networks which are planned will include:

- Exchange of information; Organization of meetings; Brain-storming sessions;
- Establishment of projects between members of EPNOE Association and members of POLINTEGRA;
- Building of R&D proposals between members of EPNOE Association and members of POLINTEGRA;
- Common participation to stakeholder's events.



This article was proposed by Ewa Wesolowska, Łódź (Poland)



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EPNOE Member's news

Welcome to YNSECT: a new BIC member



Ynsect is a world pioneer company in insect industrial biotechnologies, with green chemistry and agrifood activities. We develop insect biorefineries. This breakthrough technology consists, on the one hand, of rearing insects at large scale. On the other hand, it consists of recovering and processing specialty molecule streams for high-tech industrial and medical applications (peptides, chitin derivatives...) and feed (proteins, lipids...).

Affiliated members: a new class of members for EPNOE

EPNOE is organized through a legal body under which the EPNOE network is acting, called EPNOE Association. It is a non-profit institution registered in France (association loi 1901). Members can only be legal, registered bodies.

Recently, EPNOE members decided to change the membership structure. Up to now, only two categories of legal bodies could be members, the 16 academic universities or research institutions and companies. From now on, EPNOE Association has three types of members:

1. Regular Members (the 16 founding academic/research organisations) which are responsible for the overall management of the network
2. Business and Industry Club (BIC) Members, only composed of companies.
3. **Affiliated Members**, established mid-2014. Affiliated members can be any type of legal organization except companies. They have no direct management duties. They have the responsibility to vote the Plan of Activities during the annual General Assembly. They are associated to all EPNOE activities.

We are now inviting any organization not being a company to join us as an Affiliated Member and participate to all our networking activities.



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EPNOE training courses

EPNOE members decided to boost the organization of training courses for industrial scientists, academic researchers and post-graduate students. The following courses are planned for 2015. We will inform you directly when dates and venues will be known.

Colloidal stability in drinks

Beginning of 2015 in Helsinki (Finland)
Organizer: VTT for Northern Europe

Polysaccharides in health and well-being

Spring 2015 in Maribor (Slovenia)
Organizers: Carmen Boeriu, Karin Stana-Kleinschek, Jan van Dam

Polysaccharides in building construction

February-March 2015 in Sophia Antipolis (France)
Organizers: Jan van Dam, Patrick Navard

Cellulose dissolution

8-9 April 2015 in Jena (Germany)
Organizers: Tim Liebert, Thomas Heinze, Andreas Koschella
In collaboration with COST 1205

Physics and Chemistry in Polysaccharide Research: From Molecules to Materials

18 October 2015 in Warsaw (Poland)
Organizers: Danuta Ciechańska, Patrick Navard
Pre-EPNOE 2015 conference course.

Local training courses for the Food industry

Organisation of local training courses for the industry, targeted towards the needs of companies of a given geographic area. Knowledge exchanged outside the food area, trying to move knowledge from other fields into food science, will be incorporated. Courses will be decided mid-2014 for being held in 2015.



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New EC collaborative projects with EPNOE members

EPNOE members are very active in building projects in response to calls launched by the European Commission. Many proposals are under review or in preparation.

We are listing here the latest accepted projects funded by the European Commission where several EPNOE members are involved.

COST Action 1205 (2013-2017)

- Project title: Innovative applications of regenerated wood cellulose fibres
- EPNOE Association members in Management Committee: Armines/Mines ParisTech (France); Boku Vienna (Austria); Åbo Akademi University (Finland); VTT Technical research Centre of Finland; University of Jena (Germany); Wageningen University (the Netherlands); Petru Poni" Institute of Macromolecular Chemistry (Romania).

Wood Wisdom NET+ "Hemicell" project (2014-2017)

- Project title: Wood based chemicals, in particular chemical modified hemicellulose, used as functional additives to enhance the material properties of cellulose esters
- EPNOE Association members: Armines/Mines ParisTech (France) and Södra (EPNOE company member, Sweden).

Wood Wisdom NET+ "Bioshapes" project project (2014-2016)

- Project title: Polysaccharide bioshapes – chemical design and shaping into new biomaterials
- EPNOE association members: University of Jena (Germany); Abo Akademi university (Finland); University of Maribor (Slovenia); TITK- Thuringian Institute of Textile and Plastics Research (Germany), University of Graz (Austria).

Wood Wisdom NET+ "Aerowood" project (2014-2016)

- Project title: Wood-based aerogels
- EPNOE association members: Armines/Mines ParisTech (France); Boku Vienna (Austria); University of Hamburg (Germany); University of Maribor (Slovenia).



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EPNOE 2015

4th EPNOE International Polysaccharide Conference

After the successful EPNOE meetings held in Abo (Finland) in 2009, Wageningen (the Netherlands) in 2011, Nice (France) in 2013, EPNOE is proud to announce that the next **EPNOE 2015** conference will take place in **Warsaw (Poland) from 19 to 22 October 2015**.

As in 2013, EPNOE 2015 is promoted and organized jointly by the European Polysaccharide Network of Excellence (**EPNOE**) and the Cellulose and Renewable Materials division of the American Chemical Society (**ACS**).

The topic of EPNOE 2015 is: **POLYSACCHARIDES AND POLYSACCHARIDE-BASED ADVANCED MATERIALS: FROM SCIENCE TO INDUSTRY**

An EPNOE member, the Institute of Biopolymers and Chemical Fibres (IBWCh) situated in Łódź (Poland) will take care of the organization of **EPNOE 2015**.



Scientific Programme

The 4th EPNOE 2015 conference will address all topics dealing with polysaccharides and polysaccharide-based products, in particular:

- Polysaccharide biosynthesis: structural and chemical aspects
- Polysaccharide dis-assembling, isolation and extraction
- Physical, structural, surface and chemical characterisation of polysaccharides
- Chemical and enzymatic degradation, functionalisation and modification of polysaccharides
- Nanopolysaccharide production, characterisation and uses, including nanocellulose and MFC
- Polysaccharides in food or feed
- Polysaccharides in health care, personal care, and cosmetics
- Materials for green engineering and building construction
- Biorefinery (pulp & paper, use of co-products and wastes)
- Bioplastics and fiber-reinforced composites



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EPNOE 2015 (continued)

Pre-Conference Course

A pre-conference course on "Physics and Chemistry in Polysaccharide Science: From Molecules to Materials" will be organised on Sunday 18 October, 2015. We wish to encourage young scientists, in particular graduate students and post-doctoral fellows, to attend this Pre-Conference course. We consider active participation of young scientists to be one of the meeting's greatest assets.

Conference Venue

Warsaw, for over 400 years a proud capital, is Poland's largest city and an economic, political, and cultural centre. The symbol of the city is the Mermaid, featured on the city seal. Warsaw is a bustling metropolis and features an unforgettable history.

Situated in the Mazowieckie province, in east-central Poland, the city spans the Vistula River and all the main tourist sites are on the left bank, while the right bank contains the increasingly fashionable Praga district. The tourist epicenter of Warsaw is the Royal Route, which runs north-south from the New and Old Towns, past the fashionable shops of Nowy Swiat, the palaces that survived the war and the royal gardens of Lazienki Park, before reaching Wilanow Palace to the south of the city centre. See: http://www.galileo.it/warsaw/documents/warsaw_in_short_english.pdf

The peak tourist season is from May to October, when the weather is most pleasant, although there will be some odd days when the temperature rises above 30°C (86 F).

Warsaw has the largest airport in Poland (Warsaw Chopin Airport), with more than 100 flights to many cities around the world.

Important dates

- 1 January 2015: Opening of abstract submission
- 15 June 2015: Deadline for submitting abstracts
- 15 August 2015: Deadline for early registration

Contact: epnoe2015@ibwch.lodz.pl