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"Nature makes polysaccharides, EPNOE turns them into products"

editorial

U ear Readers of the EPNOE Newsletter,

EPNOE is entering a new phase where its organization will be changed. The major change for all of you is that starting in January 2018, EPNOE will be open to individual members. Up to now, due to the way EPNOE was constructed during the period of time it was a project financed by the European Commission, only legal bodies such as universities, research organizations and companies were members. This had two major disadvantages.

The first was that if a person from another department or institute of one of the members of EPNOE was willing to follow EPNOE activities, he/she had to go through the EPNOE contact point. This blocked many persons to be active in EPNOE.

The second disadvantage was that if a person was willing to join EPNOE, she/he had to embark the whole institution, a process impossible in many cases.

The individual membership will solve these two problems. We are thus inviting you to contact EPNOE (contact@epnoe.eu) to join us in 2018.

The next Newsletter in November will be devoted to describe this new organization, the activities which will be organized in this new context and the benefit of joining.

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



Job Vacancy:

- Graz University of Technology is offering a professorship in Chemistry and Technology of Organic Materials. Dealine 18 October 2017.

More information: https://www.tugraz.at/en/ tu-graz/working-at-tu-graz/job-vacancies/vacancies-for-professorships/#c87604

Masters & PhD defenses:

• At Armines-C2MA/IMT Mines d'Alès, France:

- Hazem BEN ABI ZID will defend his Master thesis focused on "y-irradiation of LDPE/ flax and LDPE/wood short fibres composites to control interfacial and mechanical properties" Supervisors: N. Le Moigne, A. Taguet & R. Sonnier.

- Saad NADER will defend his Master thesis focused on "Hydrophobization of plant fibres by chemical grafting of silicon compounds: thermal and irradiation routes" Supervisors: R. El Hage, C. Longuet, R. Sonnier, E. Fleury

Trainees:

At Armines-CEMEF, France:

- Katrina Chan, from Freiburg university, is working on pectin-CNC aerogels

- **Omar Cardenas**, from the university of Nottingham, is doing his Master degree on cellulose aerogel and xerogel beads.

- **Vivian Song** from MIT spent 2 months studying polymer crystallization in presence of ligno-cellulosic biomass.



"Nature makes polysaccharides, EPNOE turns them into products"

EPNOE News

EPNOE 2017 – A Summary

The fifth edition of the EPNOE conference has also been an outstanding event of the Polysaccharide community. More than 250 participants of 49 countries met from August 20th to 24th in the lecture halls of Jena University of Applied Sciences. It was arranged by the Friedrich Schiller University Jena and the TITK Rudolstadt. The meeting organisation was professionally realised by Conventus Congressmanagement & Marketing GmbH Jena.

PhD students, junior scientists, business professionals, industrial scientists related to the subjects of Polysaccharide isolation, molecular and super-molecular characterisation, Polysaccharide solvents, homogeneous chemical and physical derivatization and application in man-made fibres, nanomaterials, aerogels, pulp and paper as well as composites attended the conference.

The scientific conference program already started on Sunday. 6 invited lecturers and more than 80 attendees discussed in a PhD workshop aspects of Polysaccharide Solutions.

Tetsuo Kondo, Candance H. Haigler, Stephen Harding, Christian P. Lenges, Omar El Seoud, Run-Chang Sun, Jay-Lin Jane, Herbert Sixta, Karin Stana-Kleinschek and Thomas Heinze shared their long-lasting Polysaccharide knowledge together with the audience in their plenary lessons.

15 key-notes, more than 150 oral and 85 poster presentations were given, wherein the posters were presented in e-poster sessions for the very first time. The authors gave short summaries at the live-pictured flat-screens. Conference dinner took place at the Phyletic Museum, one of the most famous historical places of Jena.

Best poster presentation awards sponsored by Elsevier and Springer Publisher were awarded to Satomi Tagawa and Ana Morales-Burgos as well as Annu Rusanen and Peter Schulze.

Young Investigator Awards for the best oral presentations were awarded to Ziqiang Shao, Hikari Utsunomiya, Daniela Feirreira, Johanna M. Spöhrl, Arantzalu Valdes Garcia, Celine Fantou, Anna Palme and Eduarda S. Morais.



Conference opening ceremony in the auditorium of the Jena University of Applied Sciences

(Continued overleaf)

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EPNOE News

EPNOE 2017 – A Summary

(continued)

According to the feedback of the conference attendees, the conference was an organisation and scientific success. This is indeed the merit of the excellent local organisers of the conference, Conventus Congressmanagement, of the close collaboration of the EPNOE Association, ACS and the Centre of Excellence for Polysaccharide Research Jena-Rudolstadt, and also because of the active commitment of all conference participants. Special thanks are directed to Ms. Ann-Kathrin Schulte and her team from Conventus Congressmanagement & Marketing GmbH, who were highly professional contact persons for all request at all times at the EPNOE conference.



Networking talks at the EPNOE conference dinner



e-poster session at 5thInternational EPNOE conference

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"Nature makes polysaccharides, EPNOE turns them into products"

EPNOE News

Obituary

Cellulose researcher passed away

Cellulose scientist **Dr. Vasken Kabrelian** passed away at the 5th EPNOE International Polysaccharide Conference in Jena on September 23rd at the age of 57. He collapsed in front of the Lecture Hall of Jena's Friedrich University, Germany and was dead at once - just one day before he wanted to give his talk on "Preparation of xylan derivatives from hemi-rich alkaline process lye".

As a young Syrian scientist, Kabrelian was part of the group of Prof. Werner Berger at Dresden University, Germany. There he earned a doctorate in organic chemistry entitled "Synthesis, characterization and experiments for applications of new dipolar O-basic organic solvents for cellulose". He returned to Syria and finally worked as lecturer and researcher at Aleppo University. During a second stay in Germany in 2001 he assisted Prof. Dieter Klemm in his well-known cellulose research group at Jena's Friedrich University.

After bearing up against the war in Aleppo for more than three years he decided to leave his home country together with his wife and their twins in 2014. His family belongs to the Armenian Christian minority and life had really become a daily struggle. They had to start all over again in Austria after their daring escape. He worked as a project manager at Kompetenzzentrum Holz GmbH for Lenzing AG, where he continued his scientific work. He is the author of several patents and scientific publications.

Many appraised his cordiality. He was a warm hearted, optimistic and pleasant person spreading happiness and always ready for a little joke. He saved his family but unfortunately will not be able to enjoy the fruits.



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EPNOE News

6th

International EPNOE Polysaccharide Conference Aveiro, Portugal 7-10 October 2019

The ambition of the EPNOE International Polysaccharides Conferences is to bring together students, scientists and experts 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.

Following the enormous success of the first five editions, held in Turku, Wageningen, Nice, Warsaw, and Jena, the 6th International Polysaccharides Conference will take place in Aveiro, Portugal, from 7th – 10th of October, 2019. The short PowerPoint presentation shown in Jena, on the occasion of the 5th EPNOE International Polysaccharide Conference can be seen at: https://www.dropbox. com/s/0a511i3594u41e9/EPNOE%202019%20Aveiro%20-%20Portugal.pdf?dl=0.

The conference will be structured by Topics, each Topic being under the duty of 2-4 organizers. A specific call for Topics and Topic organizers will be launched before the end of 2017.

A pre-conference course on a topic to be defined will be organised on Sunday October 06, 2019.

On the behalf of EPNOE, we are welcoming you all in the beautiful and pleasant city of Aveiro.



Conference building



Aveiro City



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EPNOE News

3rd International EPNOE Junior Scientists Meeting Maribor, Slovenia 14-15 May 2018

One objective of EPNOE is the career advancement of young scientists. Researchers in an early stage of their scientific career face challenges that are very different from the ones of established senior researchers. Yet, their unique perspectives are an essential brick to the birth of innovative ideas for the development of polysaccharides in various application fields (e.g., materials, packaging, medical, electronics). Thus, EPNOE aims to build a strong and well-connected community of "Junior Scientists" with complementary expertise in the different fields of polysaccharide related research.

The EPNOE Junior Scientists Meetings that were first established in 2015 are organized by young researchers from the EPNOE community. The meetings are specifically addressed to young scientist from academia and industry and provide a unique platform to present recent results and share visions on how polysaccharide research will or should evolve in the future. It is a designated aim of these meetings to build up a strong personal network among fellow young colleagues. The first meetings were held in January 2015 (Wageningen / The Netherlands) and October 2016 (Sophia-Antipolis / France), were very successful in bringing together young researcher with different scientific background in a relaxed atmosphere.



Impressions of the 2nd EPNOE Junior Scientists Meeting in Sophia-Antipolis / France

The 3rd International EPNOE Junior Scientists Meeting - Advances in fundamental and applied polysaccharide research will be held from 14th – 15th of May, 2018 in Maribor, Slovenia. The registration and submission of abstracts (oral presentations and posters) will open 15th of October, 2017. The call for abstracts is open to all areas related to polysaccharide research and is specifically addressed to PhD students, Post-Doctoral scientists, junior Assistant Professors and industrial R&D person in an early stage of their career. Further information on the registration, abstract submission and the conference venue will soon be available from the EPNOE website (www.epnoe.eu/?q=content/epnoe-junior-scientists-meeting).



City of Maribor / Slovenia and Main Building of the University of Maribor



"Nature makes polysaccharides, EPNOE turns them into products"

EPNOE News

Company starts to produce polysaccharide derivatives for research and development

The chemical modification of polysaccharides is one of the most important paths to take full advantage of this amazing class of biopolymers. Polysaccharides are not only the most important renewable resource but also offer reactive sites for the chemical modification to design structures and hence properties. A broad variety of novel polysaccharide derivatives is studied worldwide as can be clearly realized by many scientific papers published. Polysaccharide chemistry is by no way a mystery but needs experiences, special equipments and analytical tools to do it efficiently and in a reproducible way. To foster research and development in the field of polysaccharides and to help scientists, PhD-, Master- and BSc-students and others to carry out research efficiently, the company RCMDT started to offer various polysaccharide derivatives – please see https://www.rcmdt.de.

The number of polysaccharide-based products available from RCMDT will be increased in the future and it is even possible to prepare polysaccharide-based products on request of a customer.

Just one example of a "novel" cellulose derivative, which is available, is cellulose sulfate; in the past cellulose sulfate was available by Sigma-Aldrich, however, it disappeared from the catalogue. However, cellulose sulfate (sulfuric acid half ester of cellulose, sodium salt, CAS 9005-22-5) represents a well water-soluble polyelectrolyte that may be bioactive (heparinoid activity, e.g.) and is very well suited for forming of polyelectrolyte complexes (symplexes) even in spherical form. Key publications regarding the symplex formation indicate the usefulness of cellulose sulfate1-3 (Figure 1).



Figure 1. Schematic representation of formation of polyelectrolyte complexes applying cellulose sulfate, shape of the products, immobilizations of enzyme (GOD) and prove of the GOD activity after immobilization

(Continued overleaf)

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EPNOE News

Company starts to produce polysaccharide derivatives for research and development

(continued)

The cellulose sulfate offered by RCMDT is not only a substitute of another products available in the past but also a product synthesized by an alternative path applying ionic liquid as reaction medium and possess high degree of substitution (DS) of 1.4 -1.6 (products of other DS may be available on request as well). Thus, it might be interesting to study cellulose sulfate for various other applications in innovative research and development projects.

I hope this information is useful for the reader of the EPNOE newsletter and more importantly will help you in planning and carrying out your research projects.

M. Gericke, T. Liebert, Th. Heinze, Interaction of Ionic Liquids with Polysaccharides - 8. Synthesis of Cellulose Sulfates Suitable for Symplex Formation, Macromolecular Bioscience 9 (2009) 343-353.
Th. Heinze, S. Daus, M. Gericke, T. Liebert, Semi-Synthetic Sulfated Polysaccharides - Promising Materials for Biomedical Applications and Supramolecular Architecture In: Polysaccharides: Development, Properties and Applications, Ed. A. Tiwari, Nova Science Publishers, 2010, pp. 213-259.
M. Gericke, T. Liebert, Th. Heinze, Polyelectrolyte Synthesis and In Situ Complex Formation in Ionic Liquids Journal of the American Chemical Society 131 (2009) 13220-13221.

This article was proposed by Thomas Heinze, Friedrich Schiller University of Jena and Horst Lindemann (CEO of RCMDT)



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EPNOE News

Looking for safe bio-based alternatives to toluene and NMP

The hazardous substances toluene and nitrogenous NMP are used worldwide at a very large scale as solvents in for example paints, coatings and medicines. The EU is researching whether the use of these substances, which are considered to be toxic, can be restricted. In the EU-BBI project RESOLVE Wageningen Food & Biobased Research is developing safe alternatives for toluene and NMP with technically similar properties. In addition, these alternatives are sustainable, because they are manufactured from vegetable, carbohydrate-rich residual flows.

'RESOLVE touches an important subject', says Laura Thissen of Wageningen Food & Biobased Research. 'The annual use of NMP and toluene amounts to hundreds of thousands to millions of tonnes, while they are extremely harmful to the health of people working with these substances. So it's with good reason that these feature on the List of Substances of Very High Concern. In this project, it is our aim to develop technically similar non-toxic alternatives with which we also make sustainability progress. We're cooperating with York University and a dozen European companies in this interesting project.'

Revolutionary approach

Thissen thinks that the project partners have opted for a revolutionary approach: 'When looking for alternatives, substances with a molecular structure similar to toluene and NMP are usuallylooked at. This is understandable, since it is then relatively simple to use these alternatives in current production processes. However, it is quite difficult to develop safe lookalikes, because the toxicity is related to the molecular structure. RESOLVE aims for developing alternatives with a completely different chemical structure, avoiding the chemical groups that make toluene and NMP toxic.'

Promising platform chemicals

Researchers from Wageningen Food & Biobased Research and York University have identified a number of promising bio-based platform chemicals which can be converted into high-quality solvents. Thissen: 'We are looking at carbohydrate-rich residual flows at an industrial scale as source material. For example, there is an abundant supply of sugar beet pulp and its quality is stable. This is required for scaling. We expect to be able to develop fully bio-based alternatives to toluene and NMP.'

Major breakthrough

Thissen expects that the promising bio-based alternatives can be tested at pilot scale level in 2019 or 2020. Then it will also become clear if their production is technically and economically feasible. Toxicological safety testing will be done before scaling up. If RESOLVE becomes a success, this might cause a break-through in the market of solvents. Thissen: 'This would be beneficial to the health of many thousands of people who now still work with very toxic substances, and also have sustainability benefits.'

Note for the editor

For more information, please contact:

Daan van Es, project leader and senior researcher Wageningen Food & Biobased Research, daan.vanes@wur.nl

This article was proposed by Wageningen University (WUR), The Netherlands



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EPNOE News

Experimental investigation of the shear behaviour of hemp and rice husk-based concretes using triaxial compression

Morgan Chabannes1,2, Frédéric Becquart1,2, Eric Garcia-Diaz3, Nor-Edine Abriak1,2,

Laurent Clerc3

1IMT Lille Douai, LGCgE-GCE, F-59508 Douai, France - 2 Université de Lille, F-59000 Lille, France 3 IMT Mines Alès, C2MA, F-30319 Alès, France

Recent decades have witnessed the emergence of plant-based building materials that combine crop residues with lime binders. This return to old building methods resulted in the development of hemp concretes. These ones are often used as infill materials manually tamped in timber stud walls. Precast blocks can also be manufactured by static loading or vibro-compaction of the freshly-mixed material. Such a process leads to improved compressive strength, rigidity and ductility. In either case, the structural design practice of wood frame walls associated with hemp concrete does not assume any contribution of the plant-based material whereas the latter may contribute towards the racking strength of the walls [1, 2]. In this context, it is necessary to study the shear behaviour of bio-based concretes since it is currently unknown.

The work was intended to evaluate the shear strength of two different bio-based concretes by means of triaxial compression. Hemp shives and whole rice husks were mixed with a lime-based binder according to the same mix proportioning and mixes were vibro-compacted in cylindrical forms. Then, samples were cured at 23°C and 65%RH before being tested under uniaxial and triaxial compression. The triaxial test was performed after 60 days of hardening on unsaturated specimens under drained conditions at air pressure and for growing initial effective confining pressure (from 25 to 150 kPa). The experimental set-up is illustrated in Figure 1.





Fig. 1. (a) Specimen with an impervious membrane and O-rings, (b) Final assembly with the specimen under confining pressure

The results made it possible to estimate the shear strength parameters (i.e. peak friction angle and cohesion) of plant-based concretes. The predominant influence of the aggregate type on the peak friction angle was underlined and leads to a first appropriate analysis of the relationship between the composition of the material (plant aggregates cemented with a binder) and its shear strength. The latter was found to be significant and should be considered for the design practice of building envelopes.

[1] Munoz P. and Pipet D., "Plant-based concretes in structures: Structural aspect - Addition of a wooden support to absorb the strain", in S. Amziane, L. Arnaud. Bio-aggreate building materials: applications to hemp concretes, WILEY-ISTE, 2013.

[2] Gross C. and Walker P., "Racking performance of timber studwork and hemp-lime walling", Construction and Building Materials, 66, 429-435, 2014.

This article was proposed by Laurent Clerc, Armines-C2MA/IMT Mines d'Alès, France Work published in Construction and Building Materials 143 (2017) 621-32



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EPNOE News

Establishment of the Collaborative Research Center (CRC) 1278 "Polymer-based nanoparticle libraries for targeted anti-inflammatory strategies" at the Friedrich Schiller University of Jena

Ulrich S. Schubert, Thomas Heinze

Friedrich Schiller University of Jena, Institute for Organic Chemistry and Macromolecular Chemistry, Humboldtstraße 10, 07743 Jena, Germany

Goal of the CRC 1278 is the development of new strategies for the treatment of infection-triggered inflammatory states, centered on a rational design of tailor-made nanoparticulate drug carriers. Pharmacologically active nanoparticles based on functional synthetic polymers and modified bio-polymers in particular polysaccharides will be obtained and characterized to address the fundamental questions of targeted nanomedicine from the bottom up. Based on the establishment of polymer libra-ries and a detailed molecular characterization of the nanoparticles, structure-property relationships will be studied to optimize the nanoparticles with respect to their biological and pharmaceutical function. The CRC concentrates on investigations of targeted delivery vehicles to elucidate the underlying principles of their biological activity in terms of cellular uptake, intracellular processing, and release mechanisms.

The close cooperation between scientists within the Jena Center for Soft Matter (JCSM) will allow to cover, in an interdisciplinary fashion, the wide parameter space related to the design of optimized polymers and the physicochemical properties of the nanoparticles, incorporated drugs and attached target molecules up to the investigation of the biomedical function. In this context, individual projects within the CRC will develop and systematically evaluate tailor-made nanoparticles with emphasis on a systemic delivery of anti-inflammatory drugs. Strategies to predict individual uptake in advance as well as the combination of therapy with companion diagnostics will be developed. Nanoparticles will be loaded with bioactive agents and decorated with labels and / or selective targeting functions. These systems will be characterized using multiple state-of-the-art methodologies, supported by high-end techniques e.g. for the visualization of soft matter nanoobjects.

Young researchers, trained in the interdisciplinary projects, will constitute a basis for widening the research activities, both in the subsequent phases of the CRC as well as in translation projects to (regional) companies. The highly interdisciplinary consortium involves experts from chemistry, physics, biochemistry, pharmacy, and medicine.



This article was proposed by Friedrich Schiller University of Jena, Germany



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EPNOE News

WUR and Vredestein develop tyre made of rubber from dandelions

Vredestein showed a prototype of its Fortezza Flower Power at the Eurobike exhibition in Friedrichshafen in August. This innovative road tyre is made of rubber extracted from the roots of dandelions. The prototype is the result of a EU joint initiative in which Vredestein and Wageningen University & Research (WUR) take part, called DRIVE4EU.

The prototype is the first bicycle tyre in the world produced with natural rubber extracted from the roots of the Russian dandelion (Taraxacum koksaghyz). This particular series of prototype tyres were made with rubber extracted from plants grown and harvested in the Netherlands.

Vredestein has worked closely together with WUR to develop this special natural rubber, make production viable and test various compounds. Each improvement in the process of rubber extraction has also led to a direct enhancement of the quality of the rubber. As a result, the special compound now used as a test on the Fortezza Flower Power prototype, provides better grip than traditional compounds. This is directly related to the higher concentration of natural resin in this particular variant of natural rubber. Studies are currently exploring whether this tyre can be mass produced in the future.

Apollo Vredestein (the parent company of the Vredestein brand) is one of the industrial partners taking part in DRIVE4EU, a European research project which focuses on developing the production of natural rubber and inulin from Russian dandelion. The project is coordinated by Wageningen University & Research. The aim is to explore ways to make the European countries less dependent on imports of natural rubber in the near future, partly as a response to the looming worldwide shortage of rubber.



More information is available at: http://www.drive4eu.eu/ For more information, please contact: Ingrid van der Meer, Business Unit Manager, at ingrid.vandermeer@wur.nl

This article was proposed by Wageningen University (WUR), The Netherlands



"Nature makes polysaccharides, EPNOE turns them into products"



EPNOE Member's Scientific Publications

At Armines-CEMEF, France:

L. CHUPIN, D. de RIEDER, S. JAFFUEL, A CLEMENT VIDAL, A. SOUTIRAS, E. GINEAU, G. MOUILLE, S. ARNOULT, M. BRANCOURT-HULMEL, C. LAPIERRE, D. POT, L. VINCENT, A. MIJA and P. NAVARD

"Influence of the radial stem composition on the thermal behavior of miscanthus and sorghum genotypes for composite end-use", Carbohydrate Polymers, 167, 12-19 (2017)

L. VO, J. GIRONES, C. BELOLI, L. CHUPIN, , E. di GIUSEPPE, A. CLEMENT VIDAL, A. SOUTIRAS, D. POT, D. BASTIANELLI, L. BONAL and P. NAVARD

"Processing and properties of sorghum stem fragment-polyethylene composites", Industrial Crops & Products, Industrial Crops & Products, 107, 386–398 (2017)

M.F.V. MARQUES, R.P. de MELO and P. NAVARD "Degradation studies and mechanical properties of treated curauá fibers and microcrystalline cellulose in composites with polyamide 6", J. Composite Mater., DOI: 10.1177/0021998317690446

M.F.V. MARQUES, R.P. de MELO and P. NAVARD "Composites of plasticized polyamide 66 and chemically modified cellulose fibres", Polymer-Plastics Technology and Engineering, http://dx.doi.org/10.1080/03602559.2017.1289391

J. GIRONES, J-M HAUDIN, L. FREIRE and P. NAVARD "Crystallization of polypropylene in the presence of biomass-based fillers of different compositions", Polymer, Polymer 127, 220-231 (2017)

L. CHUPIN, S. ARNOULT, M. BRANCOURT-HULMEL, C. LAPIERRE, E. GINEAU, and P. NAVARD "Polyethylene composites made from below-ground miscanthus biomass", Industrial Crops & Products, 109, 523–528 (2017)

E. DI GIUSEPPE, R. CASTELLANI, T. BUDTOVA, B. VERGNES "Lignocellulosic fiber breakage in a molten polymer. Part 2. Quantitative analysis of the breakage mechanisms during compounding", Composites: Part A, 95, 31–39 (2017)

F. BERZIN, J. BEAUGRAND, S. DOBOSZ, T. BUDTOVA, B. VERGNES "Lignocellulosic fiber breakage in a molten polymer. Part 3. Modelling of the dimensional change of the fibers during compounding by twin screw extrusion", Composites: Part A, in press.

S. M. GREEN, M. E. RIES, J. MOFFAT, T. BUDTOVA "NMR and Rheological Study of Anion Size Influence on the Properties of Two Imidazolium-based Ionic Liquids", Scientific Reports, 7, 8968, (2017).

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At Armines-C2MA / IMT Mines d'Alès, France:

Le Moigne, N., Sonnier, R., El Hage, R., Rouif, S. Radiation-induced modifications in natural fibres and their biocomposites: Opportunities for controlled physico-chemical modification pathways? Industrial Crops and Products, 109, 199-213 (2017)

Chabannes M., Becquart F., Garcia-Diaz E., Abriak N-E, Clerc L., Experimental investigation of the shear behaviour of hemp and rice husk-based concretes using triaxial compression. Construction and Building Materials, 143, 621-632 (2017) dx.doi.org/10.1016/j.conbuild-mat.2017.03.148.

Ramakrishnan KR, Corn S, Le Moigne N, Ienny P, Leger R, Slangen PR, High speed imaging for assessment of impact damage in natural fibre biocomposites. Proceedings of the SPIE Conference 10329, Optical Measurement Systems for Industrial Inspection X, Munich, Germany, June 26-29, (2017) doi: 10.1117/12.2271617

Dumazert L, Rasselet D, Pang B, Gallard B, Kennouche S, Lopez-Cuesta J-M. Thermal stability and fire reaction of poly(butylene succinate) nanocomposites using natural clays and FR additives. Polym Adv Technol. 1–15 (2017); doi.org/10.1002/pat.4090

Hamour, N. ; Boukerrou, A. ; Djidjelli, H. ; Yefsah, R. ; Corn, S. ; El-Hage, R. ; Bergeret, A., Effect of gamma irradiation ageing on mechanical and thermal properties of alfa fibre reinforced polypropylene composites: role of alfa fibre surface treatments. Journal of Thermoplastic Composite Materials, https://doi.org/10.1177/0892705717714831

Le Duigou, A. ; Bourmaud, A. ; Bergeret, A. ; Beigbeder, J., Analyse de cycle de vie des biocomposites et gestion de leur fin de vie. In : Composites polymères et fibres lignocellulosiques : Propriétés, transformation et caractérisation, F. Berzin. Editions Lavoisier, Coll Science et ingénierie des matériaux, France, (2017) pp 263-309.

Paul, L. ; Le Pluart, N. ; Le Moigne, A. ; Bergeret, A., Traitements de préparation et de fonctionnalisation des fibres végétales : Stratégies et conséquences sur les propriétés des fibres et composites. In : Composites polymères et fibres lignocellulosiques : Propriétés, transformation et caractérisation, F. Berzin. Editions Lavoisier, Coll Science et ingénierie des matériaux, France (2017) pp 39-88.

Badji C, Soccalingame L, Garay H, Bergeret A, Bénézet J-C, Influence of weathering on visual and surface aspect of wood plastic composites: Correlation approach with mechanical properties and microstructure. Polymer Degradation and Stability, 137, 162-172, (2017); dx.doi.org/10.1016/j.polymde-gradstab.2017.01.010

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At Armines-C2MA / IMT Mines d'Alès, France:

Abd El-Magied, M.O. ; Galhoum, A.A. ; Atia, A.A. ; Tolba, A.A. ; Maize, M.S. ; Vincent, T. ; Guibal, E. Cellulose and chitosan derivatives for enhanced sorption of erbium(III). Colloids and Surfaces A: Physicochemical and Engineering Aspects, 529, 580-593(2017). http://dx.doi. org/10.1016/j.cej.2017.05.103

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Biocompatibility and antibacterial effects of 6-deoxy-6-aminoethyleneamino cellulose S. Finger, M. Zieger, C. Wiegand, T. Liebert, Th. Heinze, P. Elsner, U.-C. Hipler Journal of Biosciences and Medicines (2017), # 2150442

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

Rosenau, T., Potthast, A., Zwirchmayr, N., Hettegger, H., Plasser, F., Hosoya, T., Bacher, M., Krainz, K., Dietz, T., Chromophores from hexeneuronic acids: identification of HexA-derived chromophores. Cellulose 24/9 (2017) 3671-3687.

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Other News

Permanent Research Position Open in functional Biobased Polymers

In order to reinforce the «Biobased Polymers and Composites» group, MINES ParisTech opens a "Chargé de recherche" position on functional biobased polymers for its Centre for Materials Forming (CEMEF, http://www.cemef.mines-paristech.fr/). The candidate is expected to perform fundamental and applied research in the area of biobased polymers, to participate to various teaching activities in MINES ParisTech, to be involved in tutoring of Post-Master students as well as in advising PhD students and to develop high-level research attracting inter¬national recognition, in collaboration with CEMEF researchers.

Deadline for applying: **October 1st, 2017**. More information at: http://www.cemef.mines-paristech.fr/sections/actualites/poste-charge-recherche-h

Contact: Dr. Tatiana Budtova / tatiana.budtova@mines-paristech.fr

Postdoctoral position available in Nantes, France

Post-doctoral position for 18 months to start end 2017.

Topic : Cellulose/silver hybrides nanoparticules for biocide activity

The objective of this project is to develop sustainable hybrid nanomaterials following a "safer by design" approach, so that the exposure and hazard risks are minimized without compromising their function efficiency. In this context, this project aims to create organic-inorganic hybrid nanos-tructures for which the cellulose constitutes a substrate on which silver is grafted in an extremely controlled way for an optimal release of Ag+ ions. This study will be carried out in collaboration with experts in toxicology and formulation through partners laboratories.

The candidate will investigate the preparation and characterization of these hybrid nanoparticles for fundamental research development but also will interact with partners for applications.

Required profile: Physicochemist or chemist of polymers, knowledge in polysaccharides being appreciated.

Practical information: This project will be located at Institut National de la Recherche Agronomique (INRA), Unité Biopolymères, Interactions, Assemblages in Nantes, France. The candidate must provide a CV with a motivation letter and references before 31st of October. To apply and for any information, contact by e-mail: isabelle.capron@inra.fr or tel: +33 (0)2 40 67 50 95.

7th Avancell Conference at Chalmers University of Technology

Göteborg 23-24 October, 2017

Chalmers, Göteborg, Sweden

Special topic this year, October 23: Creating a novel pulp fiber.

On October 23 we will follow the general theme Creating Value from the Swedish Forest Resources. Researchers are invited to contribute to the conference's technical program with oral and poster presentations. Participation in the conference is free of charge. Last day for submitting abstracts for oral presentation or posters is July 5 and the deadline for registration is October 7. More information: www.avancell.se

EUBCE 2018 - 26th European Biomass Conference and Exhibition 14 to 18 May 2018, Copenhagen, Denmark

Contributions are welcome on all aspects of biomass. Submit your abstract by 6 November 2017! More information at http://www.eubce.com/home.html

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7th International Conference and Exhibition on Biopolymers and Bioplastics October 19-21, 2017 San Francisco, USA For more information: https://goo.gl/sqwJa2

7th Biocomposites Conference Cologne (BCC) 6 – 7 December 2017, Maternushaus, Germany

Producers and inventors of innovative, new applications for WPC and NFC are invited to hand in their applications to the Innovation Award "Biocomposite of the Year 2017" until End of July. Also, the first version of the preliminary programme is now online. 16 speakers will present on the topics: Biocomposites in Automotive, Wood-Plastic Composites, Injection Moulding: Granulates and Applications, Biocomposites in 3D Printing, Structural Applications, Raw materials for Biocomposites – wood and natural fibres and polymers and more. More information: http://biocompositescc.com/home?lng=en

3rd European Conference on Fire-safe Textiles & Plastics – 12-13 October 2017 – New Zebra Gent, Belgium

Fire-retardant materials play a very important role in society. The main drivers are the growing international demand for flame-retardant products as a consequence of more stringent fire safety and environmental requirements, and new approaches to sustainability. The conference aims to identify the main changes and trends on the flame retardants market and to develop adequate strategies for today and tomorrow.

This international conference will provide a comprehensive update on all aspects of fire-retardancy and FR additives for textiles and plastics.

For futher information please visit www.centexbel.be/fire-safe-textiles-plastics

ECOMONDO: The green technologies expo, 7 – 11 November, Rimini (Italy)

Ecomondo is the leading Euro-Mediterranean area green and circular economy expo. An international event with an innovative format that brings together all sectors of the circular economy in a single platform: from material and energy recovery to sustainable development.

For further details, please visit www.ecomondo.com

EFIB: 10th European Forum for Industrial Biotechnology and Bioeconomy , 9-11 October 2017 – Brussels, Belgium www.efibforum.com

In 2017 the EFIB event we will be back in Brussels on 9-11 October. EFIB 2017 is a conference that covers topics such as:

- Public Procurement for promoting Europe's Biobased Industry
- Creating markets for biobased products
- Synthetic biology
- · Methodology to track and report bio based content in complex supply chains
- Bioserie Bioplastic Baby Products
- Biomaterial innovations in consumer goods
- Building the bio-based future
- Performance enabled by Nature