



March 2021

EPNOE Newsletter

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Editorial

Dear Readers,

We have a gift for you! We are starting our membership campaign and we are offering 30% discount to welcome you to EPNOE. We are glad to offer you opportunities and resources to network and to be even more successful in your research and your business. EPNOE is a vibrant organization and EPNOE members are highly qualified experts working in all fields related to polysaccharide science and technology. This year we are very active to build joint consortia for Horizon Europe in an ambient of trust and excellence and by using our newly designed website member area with unique features to connect people, organizations and companies. We will also offer support to build and write competitive proposals and to give training to our members. Our public website now also has video lectures of senior and young scientists and soon EPNOE webinars will be available.

EPNOE activities are booming now with preparation of our EPNOE Research and Education Roadmaps, building of strategic collaboration with other European Societies, organization of the EPNOE2021 Conference, creation of EPNOE Junior Working Group, organization of Horizon Europe match-making events, edition of books and special issues in journals and much more that will be able to find in our newsletter.

Looking forward to seeing you in EPNOE.



Pedro Fardim
President of EPNOE

Find us on



...
News & Announcements



EPNOE CONFERENCE 2021

Abstract submission is now open!

The 7th international congress of the European Polysaccharide Network of Excellence will be held in Nantes **from 11th to 15th of October, 2021**. This conference is jointly organized with the Cellulose and Renewable Materials (CELL) Division of the American Chemical Society and the Cellulose Society of Japan. The conference will cover a wide range of topics proposed by recognized researchers in the field of polysaccharides. The 7th EPNOE congress will pursue the organization launched in Aveiro by proposing thematic sessions organized by leading researchers in the field and covering as broadest scopes as possible to debate about the recent results in polysaccharides research. **For all sessions topics, [click here](#).**

Abstract submissions are now open and more than 170 oral presentations slots are available as well as 150 poster spaces. Submission can be processed until Wednesday 31 March 2021, [click here](#) to access the abstract submission page

Nantes is an attractive touristic, eco-friendly and comfortable-sized city, easily accessible from all over Europe. Nantes is an industrially active city in many fields using polysaccharides such as food and agro-industries. The EPNOE congress will be held in “La cité” of Nantes, a large infrastructure dedicated to the reception of international events, located in the heart of the city, close to the train station and connected to the “Nantes Atlantique” airport by shuttle bus. “La Cité” location also allows easy access to hotels, restaurants and city sites.

Welcome to France, welcome to Nantes!

The hosting consortium

- Bernard Cathala and Johnny Beaugrand, INRA BIA, Nantes
- Tatiana Budtova, CEMEF/MINES ParisTech, Sophia Antipolis
- Alain Dufresne, LGP2-PAGORA, Grenoble
- Etienne Fleury, IMP-INSA, Lyon
- Nicolas Le Moigne and Stéphane Corn, C2MA / IMT Mines, Alès





Join us now – 30% off

first year membership fee

Connecting

THE INTERNATIONAL POLYSACCHARIDE COMMUNITY

For more information concerning this campaign, email: contact@epnoe.eu



DuPont's Polysaccharide business is now part of IFF

The acquisition of DuPont's Nutrition & Bioscience business by IFF (Industrial Flavors & Fragrances) on February 1st also included DuPont's polysaccharide business.

Known brands as METHOCEL™, ETHOCEL™, AVICEL™, Ac-Di-Sol™, PROTANAL™ or the "Grindsted™" products are now part of IFF's new four business divisions (Pharma Solutions, Health & Bioscience, Nourish and Scent). The polysaccharide business fits more than well into IFF's ambitious target to do more good and reduce the environmental footprint.

More about IFF on www.iff.com

Where science & creativity meet



Partnership EPNOE - eseia

EPNOE and eseia have recently joined forces. This collaboration creates opportunities for our members, more specifically we have identified joint applications for Horizon Europe calls and joint Summer Schools such as the following project:

Joint international Summer School 2022: "Next Generation EU - Smart Energy Materials"

more info: contact@epnoe.eu.

Meet the EPNOE Junior Working Group Chairs

Epnoe has set up a Junior working group with representatives from all members. We are pleased to introduce the chairs of the working group below. More information about the activities will be available soon.

If you have any suggestions or questions feel free to contact them at juniors@epnoe.eu.



Carmen-Mihaela Popescu
(Co-Chair)



Julian Selinger (Chair)



Martin Gericke (Co-Chair)



Yuanyuan Li (Co-Chair)

Carmen-Mihaela Popescu (Co-Chair) *Petru Poni Institute of Macromolecular Chemistry (Romania)*

mihapop@icmpp.ro

"I got involved in EPNOE after I finished my PhD. The network allows me to get in contact with colleagues and researchers from other universities and institutes. I am happy I am part of this network of experts who share my enthusiasm for polysaccharides

and their important role in the modern world.”

Julian Selinger (Chair) *Graz University of Technology (Austria) and Aalto University (Finland)*; julian.selinger@tugraz.at
 “I got involved in EPNOE during the participation of an EPNOE workshop in spring 2020, I became curious to contribute to EPNOEs network and I am very happy to be actively involved now.”

Martin Gericke (Co-Chair) *Friedrich-Schiller-University of Jena (Germany) and Aalto University (Finland)*;
martin.gericke@uni-jena.de

“I got involved in EPNOE during the beginning of my PhD studies. The network enabled me to do research in a foreign lab, learning new skills and methods. To this day, I cherish this experience both on a personal and professional level.”

Yuanyuan Li (Co-Chair) *KTH Royal Institute of Technology (Sweden)*; yua@kth.se

“I got connection with EPNOE during my postdoc studies. I appreciate the knowledge and the opportunities provided from the platform and I am happy to contribute from my side.”

EPNOE TALKS

EPNOE Talks bring different personal perspectives about the science and technology of polysaccharides and their great impact for the future of sustainability and well-being.

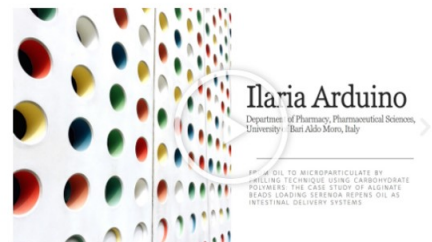
We regularly add EPNOE talks and other videos to the [epnoe website](#), [click here](#) to view the latest uploads.



Online presentations of 4th International EPNOE Junior Scientist Meeting

The 4th International EPNOE Junior Scientist Meeting was organised online in February and the event was a great success. The high-level program chaired by Wim Thielemans and his team had 48 oral presentations, 41 posters and 4 keynote presentations. The EPNOE Young Scientist Award was given for the first time to Dr Yuanyun Li at this event. You can find the recorded oral presentations [here](#).

VIDEOS FROM THE JUNIOR SCIENTIST MEETING 2021



... New Projects

New Project at Łukasiewicz Research Network- Institute of Biopolymers and Chemical Fibres (Łukasiewicz-IBWCh), Lodz, Poland

UNLOCK / Unlocking a new feather bioeconomy for keratin-based agricultural products. (BBI 2020 SO1 D1/ Resolve supply-chain hurdles for turning residual waste streams into functional molecules for food and/or non-food market applications)

UNLOCK project aims to design and demonstrate of an economically and environmentally sustainable supply-chain for a feather-based bioeconomy which will generate innovative bio-based functional materials for agricultural applications. UNLOCK proposes new keratin-based bioplastics and geotextiles that can provide added functionalities and advantages derived from the use of feather keratin: a) tailor-made biodegradation adjusted to the crops' duration, b) input on organic nitrogen to the soil, c) zero waste generation at their end of life and d) cost competitive materials.

Grant number: 101023306, Funding Agency: EC, start date 01.05.2021 (duration 48 months)

New Project at Åbo Akademi University (ÅA)

Novel Fiber Surfaces Functionalized by Lignins Refined and Engineered from Finnish Biorefinery Processes (LigninReSurf)

Plastics with many society benefits are widely used for packaging and other applications in our daily life, however, have mostly ended up as for single-use and have accumulated in the landfills, oceans, waterways, and other natural environment and further entered into animal and humans bodies, threatening our health. It was estimated by 2015, human beings have produced 5.7 billion tons plastics and of that, 4.9 billion tons were discarded into the natural environment. Plant biorefinery is a renewable and sustainable alternative to the current petroleum-based industry and thus it is of key importance to address UN Sustainability Goal. Lignin accounts for up to 30% of dry mass of plants, but so far, most of it is burnt for energy.

The LigninReSurf consortium project plans to use the relevant lignin streams from Finnish biorefinery processes as raw materials to apply lignin-refining approaches to achieve well-defined fractions with well-characterized structures. Thus after, lignin copolymers will be further developed. The project will also underline the application of lignin copolymers in tailoring fiber surface. The project is hosted by Åbo Akademi University in collaboration with international partners (BOKU and IEM). The consortium also includes industrial partners from biomass fractionation to energy, chemical, and material producers covering the entire bio-based value chain.

Grant number: 43674/31/2020, Funding agency: Business Finland, start date: 01.01.2021, end date: 31.12.2023

Project at IMT Mines Alès

Agrobranche : Valorization of wood branches from agroforestry in the bio-based materials and chemistry sectors

Agrobranche project investigates the possibility of strengthening the economic model of agroforestry by improving the valorization of intermediate biomass in the fields of bio-based materials and chemistry. Indeed, agroforestry management requires regular pruning of the branches, especially to control shade. The branches thus constitute a resource that can be mobilized throughout the life of the trees. The project aims to:

- Qualify the industrial potential of valorization of agroforestry chips in the field of materials and chemistry,
- Identify "good quality" agroforestry chips to be produced from the available resource,
- Define upstream the production routes of these chips and downstream the dedicated technological routes for the extraction of the fibers and molecules targeted,
- Validate the results by testing the implementation of materials / extracted molecules at the laboratory and / or pilot scale.

Funding agency: ADEME, start date: 01/07/2018, end date: 01/07/2022

[Click here](#) for more information

New Project at CEMEF/MINES ParisTech, Sophia Antipolis

3D printing of hyaluronic acid aerogels as on-demand removable wound dressings (3D-AER-HYAL)

Wound-related health problems will be accentuated in the years to come because of the aging of the population whereby the prevalence of wounds, in particular chronic wounds, will increase. The objective of the 3D-AER-HYAL project is the preparation of on-demand removable, hyaluronic acid-based aerogels obtained by additive manufacturing for application as wound dressings which are capable of releasing biologically active agents. Laurianne Legay has started on March 1st 2021 as a PhD student to work on this highly interdisciplinary project for 3 years. The work will be performed at the Center for Materials Forming (CEMEF) of Mines ParisTech in Sophia Antipolis (France) under the supervision of Dr. Tatiana Budtova and Dr. Sytze Buwalda. Secondments will take place at the Institute of Biomolecules Max Mousseron (IBMM) in Montpellier (France).

Grant number: ANR-20-CE06-0004, Funding agency: French National Agency for Research (ANR), start date: 01/03/2021, end date: 29/02/2024

Project at Institute of Wood Science – Hamburg University

HolzMat3d: Wood-based high-performance materials for 3D printing and thermoplastic production

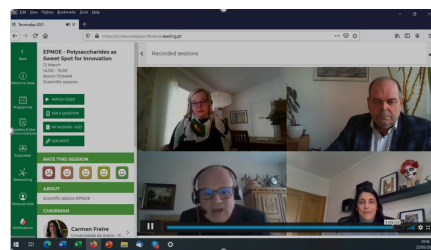
Principal Investigator: Dr. Julien R.G. Navarro

The project HolzMat3D aims to develop new sustainable materials, made of cellulose fibers and cellulose nanofibrils, and proceed them through 3D manufacturing. The HolzMat3D project is focusing on the chemical surface modification of those raw materials and their processing through numerous 3D manufacturing techniques: Fused Deposition Modeling, Selective Laser Sintering, Direct Ink Writing (gel ink) & Injection molding. The HolzMat3D project include one Researcher position (Dr. J. Benedikt Mietner), 3 PhD & 1 Technician positions.

Grant number: 2220HV024X, Funding agency: Fachagentur Nachwachsende Rohstoffe e.V. (FNR) / Bundesministerium für Ernährung und Landwirtschaft (BMEL), start date: 01.11.2020, end date: 31.12.2023

For more info [click here](#)

Events



EPNOEConnect Workshop “ Polysaccharides as Sweet Spot for Innovation”

The EPNOEConnect event was organised at the XXV TECNICELPA / XI CIADICYP Conference 2021 (Online, March 09th to 12 th) .This event joined Academics, Scientists, Engineers and Manufacturers from all over the world working in the Forestry, Biorefineries and Pulp and Paper sectors. The EPNOEConnect Workshop offered 3 invited talks from EPNOE members:

- Katariina Torvinen, VTT (Finland), “New ERA of sustainable bio-based electronics and photonics”
- Birgit Kosan, Marcus Krieg, Frank Meister, Thüringisches Institut für Textil und Kunststoff- TITK (Germany) “Cellulose Gap - Challenges and Methods of resolution in cellulose man-made fibre production”
- Maurice Essers, Wageningen University & Research (Netherlands), “Superheated steam treatment of Wheat Bran”

EPNOE would like to acknowledge the Organization of the Conference for the opportunity to set-up this successful event and congratulate the speakers for their excellent contributions.



EPNOE Horizon Europe Workshop

The next EU Research & Innovation Investment Programme (2021-2027)
 March 31st, from 10:00 to 12:00
 For EPNOE Members only

Biohydrogels Day 2021

The “**Society for Biohydrogels**”, Sapienza University of Rome and University of Nantes organize a full day virtual immersion in the exciting world of biohydrogels. “Biohydrogels 2021” will be held on April 23rd, 2021. Six invited speakers will guide participants from basic science and design to translations and applications of hydrogels in drug delivery and regenerative medicine. For more information, [click here](#).

16th Summer Course Glycosciences

The **16th Summer Course Glycosciences** will take place **online** on **10, 11, 17 and 18 June 2021**. This broad course in glycosciences combines general introductions in the field of carbohydrates and glycoproteins with in-depth sessions. This gives participants the opportunity to focus on specific interests without losing a broad education. This course is organised by the Graduate School VLAG in co-operation with Wageningen University and Research, University of Groningen and Leiden University Medical Center

The course is at graduate level. The course is a must for those working in academia, research institutes or industry that want to refresh their knowledge on carbohydrates and for graduate students working on a PhD project related to carbohydrate chemistry, biochemistry, biology, chemical technology or food science. **All participants are encouraged to present a poster in one of the online poster sessions in which they introduce themselves and their work.**

The course will be held online on Thursday 10 June / Friday 11 June / Thursday 17 June and Friday 18 June 2021. The study load of this course is 1.2 ECTS credits. Participants will receive 0.5 ECTS extra when presenting a poster. For more information, [click here](#)



RRB 2021
 RENEWABLE RESOURCES & BIOREFINERIES

**17th International Conference
 on Renewable Resources & Biorefineries**

6 - 8 September 2021
 Aveiro • Portugal

www.rrbconference.com



For more information, [click here](#)

...
Research

Formulation and optimization of antibiotic-loaded nanoparticles, included within membrane based on bacterial cellulose for treatment of resistant, pathogen, intercellular bacteria during therapy of post-operative infection

Selestina Gorgieva^{1,2} and Beti Djurdjic³

¹Institute of Engineering Materials and Design, Faculty of Mechanical Engineering, University of Maribor, Maribor, Slovenia

²Institute of Automation, Faculty of Electrical Engineering and Computer Science, University of Maribor, Maribor, Slovenia

³Centre of Excellence for Biomedical Researches (CEBIMER), Institute for Physical medicine, Rehabilitation and Rheumatology "Dr Simo Milosevic" JSC Igalo, Montenegro

Bilateral project (BI-ME/21-22-002) presents initiation of common research activities between research teams from University of Maribor, Slovenia (Faculty of Mechanical Engineering) and Institute of Public Health, Podgorica, Montenegro. The project proposes biopolymer-based, particulate formulation with the targeted action of incorporated antimicrobial medicinal substances, through the design of nanoparticles for selective, passive targeting, providing the controlled release, and increased efficacy of therapy. Specific project objectives are as follows:

- Design, formulation, and optimization of nanoparticles for the targeted action of antibacterial medicinal substances. The nanoparticles will be prepared using natural biopolymer (chitosan), antibiotics for the treatment of resistant bacteria (*Staphylococcus aureus*, *Pseudomonas aeruginosa*) and auxiliary substances for preparation and auxiliary stabilization nano-systems;
- Selection and establishment of a reproducible pharmaceutical-technological process for the preparation of nanoparticles with incorporated antibiotics;
- Physicochemical and biopharmaceutical characterization of prepared nano-formulations (size determination, particle size distribution, morphology, zeta potential and electrophoretic mobility, determination of the incorporation efficiency and content of the drug substance in the nano-particulate system);
- Determination of interactions between nano-system components (polymer, drug substance, adjuvants);
- In vitro methods for monitoring the rate of release of an incorporated drug substance;
- Comparative determination of antimicrobial efficacy of formulated nano-systems and conventional antibiotics and
- The optimal formulation will be incorporated into the bacterial cellulose membrane and evaluated for its potential biomedical use in the treatment of postoperative infections.

Developed chitosan nanoparticles (antimicrobial drug carriers) are expected to show increased antibiotic efficacy in the treatment of resistant bacteria, while reducing the frequency of dosing and the incidence of their side effects. The proposed project will stimulate innovation in the biomedical industry as well as facilitate the integration of research laboratories and interdisciplinary collaboration between pharmacists, microbiologists and material scientists in the application of nanotechnology as a multidisciplinary science in nano-systems and their future use for the effective treatment of infectious diseases.

Acknowledgement: Research core program group for Textile Chemistry No. P2-0118, and project BI-ME/21-22-002, financed by the Slovenian Research Agency (ARRS) and Ministry of education, science, culture and sports, Montenegro.

Recent publication in Biomaterials Science on the potential use of bacterial nanocellulose for hernioplasty. Excellent collaboration between the NNGroup at ICMAB-CSIC and B.Braun Surgical.

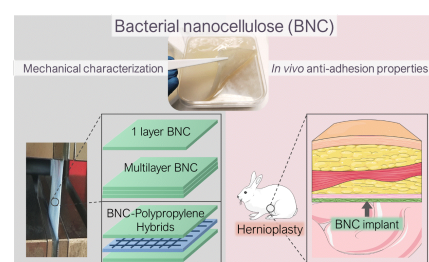
In vivo Soft Tissue Reinforcement with Bacterial Nanocellulose

Irene Anton-Sales[‡], Soledad Roig-Sanchez[‡], Kamelia Traeger, Christine Weis, Anna Laromaine, Pau Turon and Anna Roig

[‡] Authors with equal contribution

Biomat. Sci. 2021. Open access. The Royal Society of Chemistry.

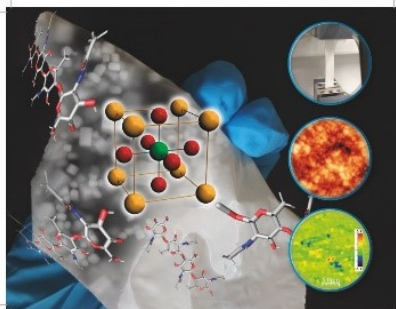
<https://pubs.rsc.org/en/content/articlelanding/2021/bm/d1bm00025j#!divAbstract>



The use of surgical meshes to reinforce damaged internal soft tissues has been instrumental for successful hernia surgery; a highly prevalent condition affecting yearly more than 20 million patients worldwide. Intraperitoneal adhesions between meshes and viscera are one of the most threatening complications, often implying reoperation or side effects such as chronic pain and bowel perforation. In this study, bacterial nanocellulose (BNC), a bio-based polymer, is evaluated as a soft tissue reinforcement material regarding mechanical properties and *in vivo* anti-adhesive performance. The *in vivo* study of implanted BNC patches in a rabbit model demonstrated excellent anti-adherent characteristics 21-days after implantation and the animals were asymptomatic after the surgery. BNC emerges as a novel and

versatile hernioplasty biomaterial with outstanding mechanical and anti-adherent characteristics.

Flexible Piezoelectric Chitosan and Barium Titanate Biocomposite Films for Sensor Applications



Dayana L. Guzmán Sierra; Igor Bdkin; Alexander Tkach; Paula M. Vilarinho; Cláudia Nunes; Paula Ferreira (2021), *European Journal of Inorganic Chemistry*, 2021(9):792 803. <https://doi.org/10.1002/ejic.202000938>

This article was published in the *European Journal of Inorganic Chemistry*, describing the development of flexible functional biocomposite films composed of chitosan biopolymer and BaTiO₃ particles, which were prepared by environmentally benign methodologies.

The chitosan-based composite films were flexible, and their mechanical properties could be tailored to enhance the elasticity by the addition of BaTiO₃ particles. The films showed to be piezoelectrics, being promising materials for the design of flexible piezoelectric sensor films. This work was developed under the scope of the projects CICECO – Aveiro Institute of Materials (UIDB/50011/2020 & UIDP/50011/2020), NANOTRONICS (IF/300/2015); and FLEXIDEVICE (PTDC/CTM-CTM/29671/2017)

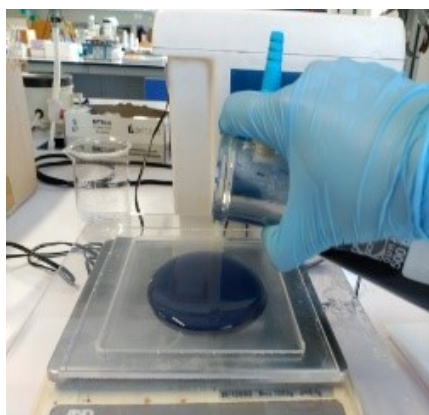
Potato peel phenolics as additives for developing active starch-based films with potential to pack smoked fish fillets,



Joana Lopes, Idalina Gonçalves, Cláudia Nunes, Bárbara Teixeira, Rogério Mendes, Paula Ferreira, Manuel A. Coimbra (2020) *Food Packaging and Shelf Life*, 28:100644. <https://doi.org/10.1016/j.fpsl.2021.100644>

This work shows that starch/potato peel phenolics-based plastics allow to dehydrate smoked fish fillets, originating a foodstuff with new sensory properties, thus offering potential to be used as active food packaging, while valorizing potato byproducts.

Relevance of genipin networking on rheological, physical, and mechanical properties of starch-based formulations.



Idalina Gonçalves, Diana Hernández, Cátia Cruz, Joana Lopes, Ana Barra, Cláudia Nunes, José A. Lopes da Silva, Paula Ferreira, Manuel A. Coimbra (2020) *Carbohydrate Polymers*, 254: 117236. <https://doi.org/10.1016/j.carbpol.2020.117236>

This work shows that starch-rich byproducts, when combined with genipin, are promising for surpassing the starch-based films hydrophilicity and mechanical fragilities while providing light barrier properties.

Coffee silverskin and starch-rich potato washing slurries as raw materials for elastic, antioxidant, and UV-protective biobased films.

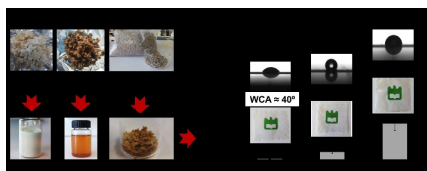
Gonçalo Oliveira, Idalina Gonçalves, Ana Barra, Cláudia Nunes, Paula Ferreira,



Manuel A. Coimbra (2020)
Food Research International, 138(A): 109733.

This work shows that crude coffee silverskin can be incorporated into starch-based formulations to develop active biobased materials, allowing to repurpose potato and coffee roasting industry byproducts-derived films.

Tailoring the surface properties and flexibility of starch-based films using oil and waxes recovered from potato chips byproducts



Idalina Gonçalves*, Joana Lopes, Ana Barra, Diana Hernández, Cláudia Nunes, Kamila Kapusniak, Janusz Kapusniak, Dmitry V. Evtugin, José António Lopes da Silva, Paula Ferreira, Manuel A. Coimbra (2020), *International Journal of Biological Macromolecules*, 163: 251-259. <https://doi.org/10.1016/j.ijbiomac.2020.06.231>

This work shows that potato washing slurries are a great source of starch suitable to be used on preparation of bioplastics and that potato frying residues and potato peels can be sources of oil and waxes, respectively, that allow to enhance the water tolerance and flexibility of starch-based films.

Education

Welcome to new students and researchers

University of Jena

Patrick Schuchard joined the group as B. Sc. student. He is working in the field of nanocontainers for targeted drug delivery. (supervised by Prof. Thomas Heinze)

IMT Mines Alès

Dr. Estelle Doineau joined the Polymer Hybrid & Composites (PCH) team to work on the Agrobranche project funded by ADEME and that aims to evaluate the potential of various wood species from agroforestry as a sustainable fillers for Wood-Plastic Composites.

Since October 2020, **Antoine Ishak** started his PhD in the PCH team to work on the functionalization of natural fibres by silazane molecules in order to improve their hydrophobicity and flame retardancy. Supervisors: Claire Longuet, Rodolphe Sonnier

Sherryhane Labeni and **Van-Thao Le** have started their Master 2 internships in the PCH team to work on the flammability and resistance to fire of biobased concretes. Supervisor: Rodolphe Sonnier

Erwan Huguet joined the PCH team and Laboratory of Mechanics and Civil Engineering (LMGC). His PhD work will focus on the dimensional and mechanical characterization of natural fibres in controlled environmental conditions. Supervisors: Patrick Lenny, Stéphane Corn, Nicolas Le Moigne

PhD defenses

University of Jena

Dr. Sascha Blohm has defended his PhD thesis entitled "Thermoplastic starch esters: Synthesis and structure-property-relationships"

Open Positions

PhD student position in "Developing 3D-printable Biopolymer-based Composite Materials with Tailored Structure and Properties", University of Warwick, UK (apply by 2nd May 2021; position starts in June 2021). Contact: Dr David Fengwei Xie (d.xie.2@warwick.ac.uk). More information: [click here](#)

Member in highlight

New Scientific and Research Center at Jan Dlugosz University in Czestochowa (Poland): Innovative and Pro-Health Food (InnoFood) Head: Univ. Prof. Janusz Kapuśniak, PhD, DScv

We are pleased to announce the launch of the new Scientific and Research Center at Jan Dlugosz University in Czestochowa (Poland) and we encourage you to cooperate in the field of food polysaccharides and their applications and polysaccharide-based materials as advanced food packaging.



Laboratory of Functional Foods

The laboratory deals with the development, characterization and implementation of new food products with health-promoting properties. The research interests of the team focus on the preparation and characterization of new preparations with the properties of dietary fiber and the development of new food products enriched with dietary fiber. The currently implemented research issue is the development of technology and implementation for the production of vegetable and fruit mousses enriched with a soluble dietary fiber from potato starch with prebiotic properties.



Laboratory of Biological Functions of Food

The laboratory examines the modification of the composition of the intestinal microbiota of overweight and obese children under the influence of fiber preparations, especially these made from potato and maize starches. Moreover, it deals with the assessment of the microbiological purity of food, determination of the influence of new nutrients on the growth and activity of the intestinal microbiota, determination of the bacteriostatic and antibacterial activity of newly synthesized compounds.



Laboratory of Metabolomics

The laboratory studies on the spectrum of metabolites (metabolome) present in body fluids in order to identify biomarkers related to, inter alia, with nutrition, the presence of contaminants in food and biomarkers of diseases and health disorders. Metabolomic tests also enable the tracking of metabolic pathways of nutrients, chemical compounds taken in food, drugs and dietary supplements, which, as a consequence, can be used for early diagnosis of health disorders as well as treatment options and preventive measures.

Food Safety Laboratory

The research topics of the laboratory include: innovative food products for the nutrition of the elderly, security of catering production, nutrition of the elderly, "zero



waste" in food production, catering and distribution, limiting losses and food waste in gastronomic production.



Laboratory of Green Technologies and Functionalisation of Natural Resources

The laboratory deals with the development of new methods of functionalisation of natural resources and the management of post-production waste. Currently, research is focused on: designing new polymer materials for the production of biodegradable packaging, designing ecological biodegradable surfactants based on renewable raw materials, biocatalysed synthesis of hydrophobic starch derivatives.

Contact: Univ. Prof. Janusz Kapuśniak, PhD, DSc

e-mail: j.kapusniak@ujd.edu.pl

phone: +48 34 3784131

Recent Scientific Publications of EPNOE Members



[View List of Publications](#)

Call for Papers

MDPI | Special Issue "Food Polysaccharides: Structure, Properties and Application" (open till 15 September 2021) managed by Prof. Juszczak from Agriculture University in Krakow and and Janusz Kapuśniak from Jan Długosz University in Czestochowa

Polish Chitin Society was established in 1993 and since that time it supports knowledge exchange among scientists engaged in chitin/chitosan research, developing contacts and links with other scientific societies both at home and abroad, representing same or similar activities

Since the beginning of its activity PChS edited a journal "Progress on Chemistry and Application of Chitin and its Derivatives" (PCACD) as an annual (published in September). Nearly all issues of the journal are available for free at [our website](#). Journal is indexed by SCOPUS, CAS, DOI, EBSCO and we wait for 5-year IF (WoS)

I would like to encourage you to submit papers in PCACD (free of charge). The regular papers, reviews and preliminary investigations are welcome. The deadline for submitting for the XXVI volume (2021) is **30th March 2021**.

You will find the guideline for manuscript preparation at our website, [click here](#) for more information.

Manuscripts should be sent at the following e-mail address: malgorzata.jaworska@pw.edu.pl

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