Letter from the Chair

Hello everyone! Hope your summer break is going well and you’re managing to clear your desks in time for well-earned break. Those of us in academic roles will doubtless have research to catch up with over the summer, but whatever our vocation in life we must at some point “down tools” and take a well-earned rest. I, for one, will be spending a large part of August in France with my family. Some of you will of course be heading to the ACS Fall Meeting in Boston, 19th-23rd August 2018. This year we have a program at the Fall meeting, as we did last year. Thanks once again to Maren Roman for her hard work in getting this set up. She of course has now stepped down as programming chair, and we welcome Wim Thielemans (KU Leuven) and his vice chair Glenn Larkin (Michigan Tech). Please do contact them if you would like to organize a CELL symposium in the future – I am sure they’ll take you up on it.

So, it comes to the end of my tenure as Division Chair. I will be stepping down in December of this year. It’s been a pleasure to serve the Division in this role, and to see so many people who are willing to give their time to make things happen. There is an unbelievable amount of organization to be done around the meetings, especially the Spring event. I wish to give my thanks to them, and also to the people who have volunteered to organize symposia. The Division is so much richer for the volunteers that make up our membership. Please do come forward if you would like to volunteer for the Division. We have received many nominations now for officer roles, and an election for those roles will take place during the summer break, or soon after. Please remember to vote, and more importantly consider putting yourself forward in the future. There are descriptions of the roles on our website (http://cell.sites.acs.org/) and we are always on the hunt for people who can help run the Division.

Finally, we look forward to Spring 2019, and the meeting in Orlando. This year is quite a convergence, because we will be celebrating the life and scientific work of Professor Orlando Rojas (Aalto). Did you see the connection? Please do consider coming to the Spring meeting to join in our community. This is where we as Cellulose and Renewable Materials researchers, students, industrial chemists, physicists, biologists and teachers in our fields meet to share our work in this growing field. I can think of few divisions where we have such a strong sense of community. Long may it continue!
**Division News**

**2018 Anselme Payen Award**

The 2018 Anselme Payen Award winner is Dr Orlando Rojas, Professor in Department of Bioproducts and Biosystems, School of Chemical Engineering at Aalto University. Dr Rojas will be presented with the award at the ACS Division Cellulose and Renewable Materials Awards Banquet following a symposium in his honor during the 2019 ACS Spring National Meeting in Orlando, FL. This is the second time in 57 years that an individual affiliated with Finnish research institutions receives the award, in an area that is of the highest importance to Finland.

Dr Rojas is interested in supporting global sustainable development through research on the fundamental and applied aspects of renewable resources. The core activities of his group involve biobased materials of different size scales, mainly those displaying large interfacial area such as fibers (micro/nano fibers), fiber networks, particles and colloidal systems. Dr Rojas’ research group is working on the utilization of lignocellulosic materials in novel, high performance applications and to unveil the interfacial and the adsorption behaviors of surfactants and polymers at solid/liquid interfaces. His recent work has focused on the development of nanostructures from the fiber cell wall; the dynamics of enzymatic degradation of cellulose and lignin; development of surface-responsive materials and biosensors; friction and adhesion in lignocellulosic interfaces; adsorption dynamics; and the separation, derivatization and use of natural polymers and amphiphilic molecules.

Dr Rojas has led research in the field of surfaces and colloids for more than 20 years after obtaining his Ph.D from Auburn University. He has published more than 224 peer-reviewed publications. He has authored or edited 14 books, book chapters, and together with his students, more than 345 contributions have been delivered in conferences at international or national meetings.

**2018 ACS Spring National meeting CELL Division Poster Awards**

The ACS Cellulose and Renewable Materials (CELL) Division in collaboration with Springer, the publisher of the periodical Cellulose, recognizes the best three student posters presented at the ACS Spring National Meeting. The winners of the CELL Division Poster Awards for the 2018 ACS Spring Meeting are:

1st place: Maria C. Iglesias Auburn University
2nd place: Kevin J. De France McMaster University
3rd place: Yefei Zhang University of Chicago
Congratulations to them!

2018 ACS Spring meeting – Best student presentations in the symposium on Functional Structures from Wood-Based Materials

The Symposium on Functional Structures from Wood-Based Materials at the ACS Spring meeting 2018 awarded the best student presentations. The awards were credit to support from MDPI Fibers journal, and Lenzing AG to acknowledge student presentations of outstanding quality judged by the style of presentation and the visual aid. Hugo Francon from KTH Royal Institute of Technology was awarded $500 from Lenzing as a recognition of outstanding oral presentation. MDPI fibres awarded Kajsa Markstedt (Chalmers University of Technology) with $400 and Michael Weissl (University of Technology Graz) with $300. The symposium organizers acknowledge also the support from DuPont and Adolphe Merkle Institute in University of Fribourg, Switzerland.
2018 ACS Fall Meeting – CELL Program

The 256th ACS National Meeting will be held in Boston, Massachusetts between August 19-23, 2018. For the full program and presentation abstracts for symposia being organized and sponsored by the Division of Cellulose and Renewable Materials at the ACS National Meeting in Boston, please visit [https://www.acs.org/content/acs/en/meetings/national-meeting/agenda/program.html](https://www.acs.org/content/acs/en/meetings/national-meeting/agenda/program.html). We do look forward to seeing you in Boston.

Meeting-at-a-glance of the 256th ACS Fall National Meeting & Exposition, Boston, MA, August 19-23, 2018

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2019 ACS Spring Meeting

The 257th ACS National Spring Meeting & Exposition will be held in Orlando, FL between March 31-April 4, 2019. The theme of the meeting is “Chemistry for New Frontiers”. The CELL division will be organizing 18 symposia:

- Lignocelluloses as a source of Materials, Colloids and Multiphase Systems: Anselme Payen Award Symposium in Honor of Orlando Rojas (Invitation only)
- ACS Sustainable Chemistry & Engineering Symposium (Invitation only)
- New Horizons (Kingfa and PhD student prize winners, Invitation only)
- Nanocellulose - from fundamentals to function
- Valorization of Renewable Resources and Residuals into New Materials and Multiphase Systems
- Ionic liquids processing of polysaccharides
- Advanced Chemistry of "Non-Traditional" Polysaccharides
- Fluorescence techniques applied to lignocellulose characterization
- Additive Manufacturing of Biobased and Renewable Materials
- Wood based polymers - From Functional Structures to Applications
- Failed brilliance in Nanocellulose Science and Technology (Invitation only)
- Advances in Renewable Materials
- Understanding cellulose crystallinity and non-crystalline aggregated states of cellulose
- Bio-based materials for energy conversion and storage applications
- Bioactive Delivery: Frontiers in Biomaterials
- Hemp processing: from weed to values
- Bio-based gels and porous materials
- Interplay of cellulose and other biopolymers in biological and designed materials systems

In addition, a poster session and Sci-Mix event will also be organized. Abstracts will be accepted from August 20 – October 29, 2018. We do look forward to seeing you in Orlando!
Call for Papers

257th ACS National Meeting
March 31 - April 4, 2019, Orlando FL

CELL Program Chair:
Wim Thielemans, wim.thielemans@kuleuven.be

Abstracts accepted: August 20 – October 29, 2018

Submit abstracts to the CELL Division at http://maps.acs.org. Inquiries should be directed to the symposium organizers or program chair.

Lignocelluloses as a source of Materials, Colloids and Multiphase Systems: Anselme Payen Award Symposium in Honor of Orlando Rojas (Invited papers only)

Organizers: Stephen Kelley, sskelley@ncsu.edu; Kevin Edgar, kjedgar@vt.edu; Justin Zoppe, justin.zoppe@unifr.ch; Junyong Zhu, jzhu@fs.fed.us

The symposium is organized in honor of the work of Orlando Rojas, the 2018 Anselme Payen Award Winner. Presentations will align with his core research activities involving biobased materials of different size scales, mainly those displaying large interfacial area such as fibers (micro/nano fibers), fiber networks, particles and colloidal systems. It will further cover the utilisation of lignocellulosic materials in novel, high performance applications and the elucidation of interfacial and adsorption behaviors of surfactants and polymers at solid/liquid interfaces.

ACS Sustainable Chemistry & Engineering Symposium (Invited lectures only)

Organizers: TBD
Cosponsors: I&EC, ACS Publications division

The symposium will honor the ACS Sustainable Chemistry & Engineering Lectureship winners. These will be announced in due course.

New Horizons (Kingfa and PhD student prize winners) (Invited lectures only)

Organizers: Emily Cranston, ecranst@mcmaster.ca

The symposium will honor the 2018 Kingfa and PhD student prize winners. These will be announced in August 2018.
Nanocellulose - from fundamentals to function
Organizers: Elina Niinivaara, niinivae@mcmaster.ca; Michael Reid, reidms@mcmaster.ca; Stephanie Kedzior, stephanie.kedzior@ucalgary.ca; Tiffany Abitbol, tiffany.abitbol@ri.se

Nanocelluloses such as cellulose nanofibrils (CNFs) and cellulose nanocrystals (CNCs) have become an important class of renewable nanomaterials that have the potential to enhance existing materials/products and open new classes of hybrid functional materials. Developing a thorough understanding of particle behaviour and surface chemistry is critical to fully optimize and exploit their use as rheological modifiers, emulsion stabilizers, catalytic supports and reinforcing agents, amongst others. This symposium aims to bridge the gap between fundamental research and nanocellulose applications by highlighting how a fundamental understanding and thorough characterization can lead to significant advancements in the use of nanocelluloses in functional materials. Characterization of CNFs and CNCs as well as their use in the preparation of novel nanomaterials will be highlighted with a strong focus on the links between nanocellulose properties and applications.

Valorization of Renewable Resources and Residuals into New Materials and Multiphase Systems
Organizers: Maria L. Auad, auad@auburn.edu; Orlando Rojas, orlando.rojas@aalto.fi; José Campos Terán, jcamos@correo.cua.uam.mx

This symposium will consider contributions in the area of valorization of residual lignocellulose and bio-based materials (biomass processing by-products, wastes, agricultural and fiber processing side-streams, etc.) to develop new materials (functional fibers, composites, films and particles) as well as multiphase systems, including dispersions, suspensions, foams, gels, emulsions, etc.

Ionic liquids processing of polysaccharides
Organizers: Steve Eichhorn, s.j.eichhorn@bristol.ac.uk; Michael Hummel, michael.hummel@aalto.fi; Janet Scott, J.L.Scott@bath.ac.uk; Alistair King, alistair.king@helsinki.fi

Adoption of novel solvents into industrial processing strategies is partly dependent on the complexity of the solvent. Ionic liquids have appeared as highly efficient solvents for the dissolution of cellulose and other polysaccharides and the rheological properties of the formed solutions are such that various processing technologies are applicable for production of marketable materials. However, their complexity creates challenges in process development. Thus, interest in ionic liquids is significant but progress has been slow. Such applications may be in the preparation of fiber-spinning, films, aerogel, composites, in chemical modification (bulk application of more advanced regioselective syntheses) or in other, as yet undescribed, applications. The organizers of this symposium request abstracts describing the state of the art, the fundamentals and technical challenges of the realization of such technologies using ionic liquids, or related solvent systems, such as electrolyte solutions and deep eutectic solvents (DESS).
Advanced Chemistry of "Non-Traditional" Polysaccharides

Organizers: Martin Gericke, martin.gericke@uni-jena.de; Thomas Heinze, thomas.heinze@uni-jena.de; Christian Lenges, christian.p.lenges@dupont.com

Polysaccharides (PS) such as cellulose, starch, and chitin are well established in academia and industry in the context of chemical derivatization and material development. The symposium, however, is dedicated to “non-traditional” PS, such as hemicelluloses, seaweed polysaccharides, and novel biotechnologically engineered PS, that receive increasing interest in PS research because of their unique structural features, unexpected properties, or abundance. Recent scientific advances in the following areas will be presented:

1) Synthesis of novel engineered PS by enzymatic / chemical polymerization or biotechnological procedures.
2) Chemical modification of “non-traditional” PS; this includes PS from topic 1 and PS with unique chemical behavior in comparison to “traditional” PS such as cellulose, starch, and chitin.
3) Innovative applications of PS and PS derivatives outlined in topic 1 and/or topic 2.

Fluorescence techniques applied to lignocellulose characterization

Organizers: Gabriel Paës, gabriel.paes@inra.fr; Brigitte Chabbert, brigitte.chabbert@inra.fr; Simon Hawkins, Simon.Hawkins@univ-lille1.fr; Lloyd Donaldson, Lloyd.Donaldson@scionresearch.com; Andras Gorzsas, andras.gorzsas@umu.se; Fabienne Guillon, fabienne.guillon@inra.fr; Sacha Escamez, sacha.escamez@umu.se

The proposed symposium is dedicated to spectral and microscopy fluorescence techniques applied to lignocellulose characterization in planta or in materials. Indeed, many recent technical and method developments have led to a widened capacity of fluorescence instruments, with the so-called F-techniques, in labs and in synchrotron facilities. Fluorescence is highly versatile since it can be used to: follow cell wall biosynthesis by incorporation of fluorescent precursors (click-chemistry); evaluate interactions between lignocellulose polymers (autofluorescence and Fluorescence Lifetime Imaging) or between lignocellulose and proteins such as enzymes (Fluorescence Resonance Energy Transfer); measure the nano-porosity of lignocellulose materials (Fluorescence Recovery After Photobleaching); as well as 3D and 4D imaging of lignocellulose materials.

We thus believe that such a symposium can be of interest to scientists working on lignocellulose polymer organization, interactions and transformation for various applications.

Additive Manufacturing of Biobased and Renewable Materials

Organizers: Gilberto Siquiera, Gilberto.Siquiera@empa.ch; Michael Bortner, mbortner@vt.edu

This symposium focuses on additive manufacturing of biobased and renewable materials. All additive manufacturing techniques are welcome, as long as they involve implementation of biobased and renewable materials. Presentations that focus on cellulose-based materials or other polysaccharides and their composites are particularly encouraged. However, presentations focused on other renewable or biobased materials are welcome.
Wood based polymers - From Functional Structures to Applications

Organizers: Tiina Nypelö, Tiina.nypelö@chalmers.se; Stefan Spirk, stefan.spirk@tugraz.at; Justin Zoppe, justin.zoppe@unifr.ch; Monika Ek, monikaek@kth.se; Ilari Filpponen, ilari.filpponen@auburn.edu

This symposium focuses on additive manufacturing of biobased and renewable materials. All additive manufacturing techniques are welcome, as long as they involve implementation of biobased and renewable materials. Presentations that focus on cellulose-based materials or other polysaccharides and their composites are particularly encouraged. However, presentations focused on other renewable or biobased materials are welcome.

Failed brilliance in Nanocellulose Science and Technology (Invited lectures only)

Organizers: Eero Kontturi, eero.kontturi@aalto.fi; Koon-Yang Lee, koonyang.lee@imperial.ac.uk; Alexander Bismarck, alexander.bismarck@invie.ac.at

Although the concept was known earlier, nanocellulose started to cause a stir in the research community only around ten years ago. The stakes were high: nanocellulose as an inexhaustible and cheap raw material was to provide renewable substitutes to plastics and totally new templates for electronics among many other potential applications. Significant advances have been made within the past decade but - as is the case with all new research fields - many approaches have hit a dead end. This symposium is dedicated to the ideas and approaches that did not work with nanocellulose. It is open to both young academics and senior researchers. All areas of nanocellulose research are considered, from preparation, characterization and modification to end use applications. The aim of this symposium is to generate caution on falling into obvious traps and repeating the same mistakes all over again.

Advances in Renewable Materials

Organizers: Sheila Murphy, murphysheilam@gmail.com; Gordon Selling, Gordon.Selling@ARS.USDA.GOV

The "Advances in Renewable Materials" symposium targets new and interesting developments in the processing, analysis or use of renewable materials. Advances in protein chemistry, glycosciences, polysaccharide chemistry, biomass and/or algae processing, fiber and/or wood processing are sought.

Understanding cellulose crystallinity and non-crystalline aggregated states of cellulose

Organizers: Umesh P. Agarwal, uagarwal@fs.fed.us; Tomas Larsson, tomas.larsson@ri.se; Al French, Al.French@ars.usda.gov; Seong Kim, shkim@engr.psu.edu

Accurate measurement of cellulose crystallinity is an important topic given its role in the fields of plant science, biofuels, and cellulose nanomaterials. Cellulose, nature’s polymer, aggregates in various supramolecular forms including the crystalline form. Although, currently, there are numerous techniques (XRD, IR, NMR, Raman spectroscopy, and others) to measure cellulose crystallinity, in many situations, what is measured is impacted by various factors. For instance, presence of non-crystalline cellulose, other sample components (if present), moisture, and nature of the technique. Additionally, aggregated states of cellulose that are not crystalline do exist in
materials and need to be better defined. The focus of the Symposium would be to bring together researchers in the field for discussions/deliberations with the intent of making further progress in these areas.

**Bio-based materials for energy conversion and storage applications**

*Organizers:* Shudipto Konika Dishari, sdishari2@unl.edu; Feng Jiang, feng.jiang@ubc.ca; Joseph Stanzione, stanzione@rowan.edu

Nature-inspired and biodegraded molecules have attracted huge attention in the last two decades in developing low cost, environment friendly but efficient materials that can be beneficial for renewable energy applications. The aim of this symposium is to bring those exciting developments of biobased (cellulose, lignin and others) materials for energy conversion and storage applications to broader scientific audiences. In addition, we would like to bring the experts in characterization of large biomolecules which will help to gain technical knowledge on how to handle the challenges of elucidating the molecular structure and understanding observed physiochemical changes in such large, complex biomolecules in functional materials.

**Bioactive Delivery: Frontiers in Biomaterials**

*Organizers:* Ali Ayoub, info@ayoubsciences.org; Julie Goddard, goddard@cornell.edu; Lucian Lucia, lucian.lucia@gmail.com

Great advancements in biomaterials synthesis in the past few decades have led to a new generation of polymers with complex architectures, compositions and well defined molecular weights. All of these characteristics greatly enrich polymer diversity and enable a range of functions in biological activity. The primary focus of this symposium is to find balance between the principles and the practices to offer attractive opportunities for developing new systems/technologies with unique properties including biomedicine, nanoparticles, packaging and healthier foods. Attention to the intriguing science of reactive systems mechanisms and advanced characterization to ultimately achieve commercial success will be considered.

**Hemp processing: from weed to values**

*Organizers:* Noppadon Sathitsuksanoh, nsathitsuksanoh@louisville.edu; Scott Rennekar, scott.renneckar@ubc.ca

Hemp (Cannabis sativa L.) is known for its long and durable soft fibers. Its bark (or bast) is a good source of fibers for paper and textile industries. Due to its worldwide controversy and legality, it has not been extensively studied. In recent years, there has been an increasing interest and demand for hemp cultivation. One major reason is because hemp is one of a few plants whose components can be used for high-valued applications including cosmetics (seed oil), medicine (CBD-rich oil), food (leaves and seeds), and textiles (bast and/or hurds). This symposium will focus on biology and chemistry of hemp/industrial hemp including the genetic modification of hemp via synthetic biology, the development of hemp conversion processes, and the separation of hemp components and resulting products.
Bio-based gels and porous materials

Organizers: Falk Liebner, falk.liebner@boku.ac.at; Tatiana Budtova, tatiana.budtova@mines-paristech.fr

Gels are intriguing materials which have - virtually unnoticed by most people - become a “sine qua non” in our everyday life. Hydrogels, which are commonly associated with jelly, gummi bears, pudding, contact lenses or “super-slurping” polymers in disposable diapers, and organogels – porous materials hosting organic liquids in their continuous void system – are of comparable importance as both types of gels feed a wide range of applications, such as in the food industry, medicine and cosmetics. Biobased gels are of particular importance because they are biocompatible and biodegradable.

Less well-known is that both hydrogels and organogels can be converted into highly open-porous, ultra lightweight cryogels and aerogels, which are valuable materials, such as for surface protection, adsorption, filtration, catalysis, thermal and acoustic insulation, tissue engineering, paints, shock adsorption or slow release matrices. Provided that these porous solids are composed of an organic matrix, they can be furthermore converted to carbon aerogels, which are promising candidates for a variety of electrochemical applications.

This symposium invites all material scientists dealing with biopolymers to present their most recent findings about hydrogels, organogels and open-porous solids derived thereof, and intends to serve as a platform for networking in this vivid field of research.

Interplay of cellulose and other biopolymers in biological and designed materials systems

Organizers Maren Roman, maren.roman@vt.edu; Francisco Vilaplana, franvila@kth.se; Daniel J. Cosgrove, DCosgrove@psu.edu

In plant cell walls, cellulose microfibrils are intricately interwoven with other biopolymers. For example, in primary walls, cellulose microfibrils are known to bind both xyloligucan and pectin molecules, whereas in secondary walls, interactions with xylans and mannan-based hemicelluloses have been observed, which in turn may be coupled covalently to lignin. The effects or functions of these interactions are not fully understood. Some interactions are thought to control microfibril aggregation whereas others might function as mechanical crosslinks. Recent discoveries in plant biology, advanced glycoanalytics, and molecular simulations and visualization also suggest potential involvement of other plant biopolymers and potential functions in the organization of cellulose microfibrils and even the superfibrillar wood structure. From a technical point of view, interactions between cellulose and other biopolymers also play important roles in the design of cellulose-based materials, for example for food, paper, and optical applications. This symposium invites experimental and computational studies elucidating molecular interactions between cellulose nanomaterials/microfibrils and other biopolymers and their effects on the structure and properties of biological and designed materials systems.

General Posters and Sci-Mix

Organizer: Wim Thielemans, wim.thielemans@kuleuven.be

Posters are invited in all aspects covered by the division. A selection of outstanding contributions will also be invited to participate in the Sci-Mix event.