

The Fibril Angle

The Newsletter of the Cellulose and Renewable Materials
Division

Fall 2021 Edition

Letter from the Chair



Scott Rennecker

Greetings from dry and relatively hot Vancouver, BC! It is a surprise to type this statement, however, the reality of a changing climate is upon us and in the news, daily. As such, the research, education, and business our members perform related to renewable materials is a topic that connects into today's headlines and helps us justify the importance of the work we do in this field. Thank you for your contributions in trying to save the planet!

As a Division, we want to highlight benefits and build a stronger network of engaged members, so we can have an even greater impact through our work. Recently, a short survey (4mins) was created by our volunteers Lucian Lucia (Councilor), Michael Bortner (Treasurer), and Noppadon "Tik"

Sathitsuksanoh (Membership Chair) to learn how we can better serve our 2000+ members. We are currently reviewing the feedback but two items jump out, (1) people don't like surveys, as we had a low response rate, and (2) networking and knowledge of breakthroughs in the field are repeated in the open responses of the survey. We are still looking for additional feedback, so please feel free to contact me. We plan to use this information to develop more ways to serve you, so please invest your time.

Finally, thank you for your support and participation in CELL activities during this pandemic. Our Division has programming at the upcoming hybrid Fall meeting including the New Horizons: Early Career Researchers in Renewable Materials. Please consider registering. As well, we have completed our open call for symposia for the Spring national meeting in 2022. Please look for a call for abstracts in the very near future. Plan now, as this Spring meeting will be special with a number of volunteers hard at work planning for activities that have been long delayed, including the 100th year celebration of our Division. For more information about CELL please visit our informative website <https://acscell.org> with information about our history of the division, upcoming award dates, and latest announcements.

Letter from the Chair-Elect

Hello everyone! I am both honored and humbled to have been elected by you as the next Chair-Elect and future Chair of the division. Thanks to all the great work of my predecessors and all the other CELL division officials, our division is in great shape in terms of membership, international reach, and active participation. After more than a year of heavily restricted travel and completely online meetings, we are slowly seeing some light at the end of the tunnel. Some meetings are already taking place in a hybrid format, so hope is there that with increasing vaccination and resistance rates, we move back to the days of unfettered academic exchange and vibrant lively CELL division meetings and activities.

Of course, to keep our division as welcoming and active as it has been, I will need the help of all of you as participants, organizers, and officials. Together we can make sure that our division remains a breeding ground for new ideas, new and stronger collaborations, and open scientific exchange, and that it remains a home for scientists of every rank, age, nationality, gender, heritage,... So please consider taking up an active role and stand for election or apply for a nominated position. Or, if you have an idea for a half day, full day, or multi-day symposium, or another event that could strengthen the division and benefit our members, don't hesitate to get in contact with the Program Chair, or any other officer. We need you and together, anything is possible.



Wim Thielemans

2021 Anselme Payen Award

The 2021 Anselme Payen Award winner is Dr Yoshiharu Nishiyama, senior scientist at the Centre de Recherche sur les Macromolécules Végétales (CERMAV) of French National Center for Scientific Research (CNRS) and Université Grenoble Alpes. He received his PhD in 2000 from the University of Tokyo, Japan, under supervision of professor T. Okano and S. Kuga, and under supervision of Dr. H. Chanzy during his 15 months stay at CERMAV. After graduation, he served the University of Tokyo at the department of biomaterial sciences as assistant professor until 2004. He then moved to France and joined CERMAV, as junior scientist and promoted to senior scientist in 2018. Dr Nishiyama will be presented with the award during 2022 ACS Spring National Meeting in San Diego, CA following a symposium in his honour.



Dr. Nishiyama is a physical chemist, looking at many aspects of cellulose, mainly in the solid state. His main lines of research can be defined as the following:

- The use of scattering (X-rays, electrons and neutrons) and spectroscopy (NMR, infrared) methods to get insights on the structure of cellulose and other crystalline polysaccharides (amylose, chitin, chitosan, etc.);
- The study of the properties of cellulose suspensions;
- The modeling of the physical properties of cellulose.

His seminal thesis work on the crystal structure of the cellulose allomorphs stands as a major progress for the understanding of the ultrastructural details of the cellulose crystals. The atomic coordinates in cellulose crystals deduced from his work are universally used today by all those active in the field. So far, he has supervised more than a dozen of PhD students and several Post Docs and visiting scientists. He has authored and co-authored more than 100 scientific publications and been named as a co-inventor in 4 patents. Dr Nishiyama is an editorial board of "Cellulose" and "Scientific Reports". He is also member of scientific and technical advisory panel of the Forestry beamline at the MAX-IV, the Swedish synchrotron in Lund.

Congratulations to him!

2020 KINGFA Young Investigator Award



The 2020 KINGFA Young Investigator Award winner is Dr Gustav Nyström, from Empa – Swiss Federal Laboratories for Materials Science and Technology. Dr. Nyström has made significant contributions mainly within the field of nanocellulose but also within the field of amyloid fibril self-assembly and amyloid based functional materials.

His work on the single particle structure of nanocellulose has revealed new structural information about the cellulose nanofibrils, including how these particles twist in a right-handed fashion and how they break as a result of mechanical or chemical action. Dr. Nyström's work on the assembly of nanocellulose into liquid crystal and gels has resulted in new fundamental knowledge on how the chirality of the single fibril translates to the chirality of the liquid crystal phase and how, based on the interactions between fibrils, kinetically trapped solid phases of nanocellulose can be characterized as colloidal glasses or gels.

He has also successfully demonstrated the use of nanocellulose in diverse applications, including energy storage and nanocellulose foams. Dr Nyström's research focus also include amyloid fibrils. Most notably, he discovered cholesteric phase in amyloids as well as improved our understanding of how local confinement of amyloid fibrils in small droplets control the resulting liquid crystalline phases in this system.

As the recipient of this award, Dr. Nyström will receive \$1,500 and a plaque. His talk in this Fall meeting is titled "Bottom-up assembly of nanocellulose materials".

Congratulations to Dr Nyström!

2021 Graduate Student Award

This year, we have an amazing pool of candidates for the CELL Division Graduate Student Awards. The panel narrowed down to the top two candidates but were unable to decide who should get the 1st place as both of them were equally good. Therefore, the Division has decided to award, for the first time, joint 1st place to Kazuho Daicho from the University of Tokyo and Werner Schlemmer from Graz University of Technology.



Kazuho's talk is titled "Studies on the crystallinity of cellulose nanofibers" and Werner's talk is titled "Lignin based active materials for redox-flow batteries" in this Fall meeting.

Meeting-at-a-glance: Symposia of CELL Division at the 2021 ACS Fall National Meeting & Exposition

This year's Fall ACS National Meeting will be a hybrid meeting held between August 22nd - 26th, 2021 and the CELL Division will be running two symposia, with 53 oral and poster presentations scheduled during this meeting. The full schedule of the symposia organised by CELL Division can be found on the ACS Fall National Meeting & Exposition website.

There are three types of sessions for the meeting. **In-Person (Broadcast)** - These rooms are capable of live-streaming in and out of the technical session. All of the CELL in-person symposia at this meeting are this type of room. Full two way, live interaction. All registrants for the meeting have access to these rooms. **In-Person (only)** - These rooms are for in-person participants only. However, allowance is made for pre-recorded talks to be presented. There is no interaction between in-person and virtual attendees. CELL does not have any of these rooms. **Virtual** - Live stream presentations, away interaction. All participants have access to this content. Sessions are two hours with a half-hour sanitization break in between. Masks are to be worn at all times while in ACS venues.

- **New Horizon Symposia: Early Career Researchers in Renewable Materials - Thursday August 26th, 2021**

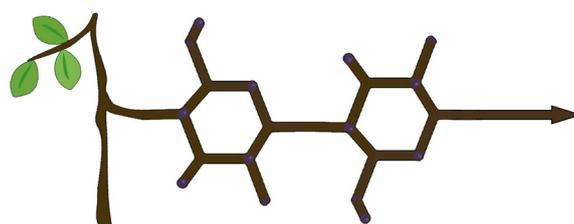
This symposium is organised to honour the KINGFA and graduate student award winners. There are two sessions arranged for this symposium - one hybrid and one virtual. These sessions are from 08:00 - 10:00 and from 10:30 - 12:15 EDT. In-person and virtual meeting participants will have full access to these sessions.

- **Advances in Renewable Materials - Sunday to Wednesday August 22nd - 25th, 2021**

There are 8 sessions organised in this symposium. In-person and virtual meeting participants will have full access to these sessions.

- **In-person only and virtual poster session - Sunday August 22nd, 2021**

This poster session run in parallel on Sunday from 19:00 - 21:00 (EDT). Only those present in Atlanta will be able to participate in the in-person poster session. All attendees will be able to attend the virtual poster session.



CELL



The Anselme Payen Award, which includes a bronze medal and an honorarium of \$3,000, is given by the CELL Division of the ACS to honor and encourage

outstanding professional contributions to the science and chemical technology of cellulose and its allied products.

KINGFA Young Investigator Award

Sponsored by Kingfa Scientific and Technology Co.,

the KINGFA Young Investigator Award recognizes outstanding contributions by young investigators to the science and chemical technology of cellulose and renewable materials. This is an annual award administered by the ACS CELL Division Awards Chair. The winner of the Award shall receive an invitation to give a presentation in recognition of the recipient at the ACS Annual meeting, \$1,500 cash, a plaque, up to \$500 in travel expenses and a complimentary Division Awards Banquet ticket.

2021 CELL Division Officials

Chair: Scott Rennecker

Chair-Elect: Wim Thielemans

Immediate Past Chair: Gordon Selling

Secretary: Tatiana Budtova

Treasurer: Michael Bortner

Councilors: Sheila Murphy, Lucian Lucia & Kevin Edgar

Alternate Councilors: Orlando Rojas, Maren Roman & Nicole Labbe

Members-at-Large: Feng Jiang, Casey Elkins & Silvia Vignollini

Program Chair: Glenn Larkin

Vice Program Chair: Falk Liebner

Awards Chair: Alexander Bismarck

Membership Chair: Tik Sathitsuksanoh

Events Chair: Maria Auad

Publicity Chair: Koon-Yang Lee

What does CELL Division provide its Members?

- An avenue to present your research and network with possible collaborators. CELL organizes and sponsors programming at ACS National Meetings and Exposition, including special symposia, award symposia, and poster sessions. On occasion, we participate in joint symposia with other divisions, including recent and popular joint symposia with CARB, POLY, PMSE. Please continue to submit abstracts for ACS CELL programming!
- Organize and sponsor symposia at international meetings dedicated to cellulose and renewable materials, such as the International Cellulose Conference (ICC) in Japan, International Carbohydrate Symposia, EPNOE (European Polysaccharide Network of Excellence), etc.;
- Support other ACS symposia relevant to cellulose chemistry and glycosciences, including the ACS Division of Professional Relations, ACS Undergraduate Chemistry Students, ACS Regional Meetings, etc.;
- Provide opportunities for early career researchers, and undergraduate chemists, for example, travel awards and poster awards;
- Organize and support award programs, including the Anselme Payen Award, the KINGFA award, the Division Fellow Award, Graduate Student Award, Poster Awards, Student Travel Award.