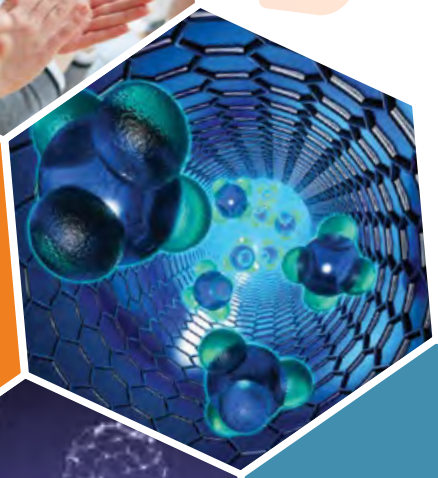

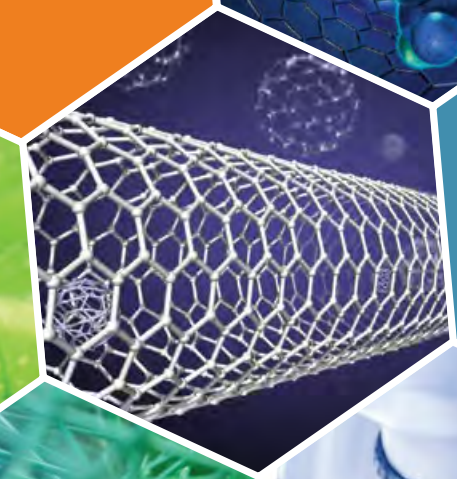

CONFERENCE GUIDE

2016 International Conference on Nanotechnology for Renewable Materials

13 – 16 June 2016

World Trade Center, Grenoble, France

DISCOVER

the latest applications and technical advances!

NETWORK

with researchers, scientists and industry professionals!

EXPERIENCE

an exciting "NEW" program developed by your peers!

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Georgia Tech Renewable Bioproducts Institute

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TAPPI NANO DIVISION

Join TAPPI's International Nanotechnology Division.

Become a member of a dynamic community and **help grow** our global network of experts, resources and technical information.

TAPPI

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WWW.TAPPINANO.ORG

Contents

Dear Colleagues,

Welcome to TAPPI's 2016 International Conference on Nanotechnology for Renewable Materials! We would like to thank you for joining us in Grenoble for the next three days to learn about the latest breakthroughs and applications of nanomaterials from sustainable sources.

We would also like to thank this year's conference Theme Leaders who diligently worked to develop the excellent technical program and to TAPPI for their organization of the entire conference.

This year's program highlights over 110 technical presentations on production, characterization, applications and functionalization of renewable nanomaterials. We are pleased to announce that this year's conference includes additional content in a three track program throughout the event. New this year, is our first Application Roundtable Discussion and Product Sample Showcase. The conference includes three keynote presentations, a conference dinner at La Bastille, a Poster Session featuring 40 posters and the annual Student Poster Competition sponsored by Georgia Tech/RBI. Indeed, there is much to see and learn about during your time at the conference, and we very much hope you take advantage of the networking opportunities during breaks, the poster session and receptions.

The co-chairs welcome your comments on the evolution of this conference, as we endeavor to keep atop the rapidly advancing field of nanotechnology and renewable materials.

We hope you have a rewarding and enjoyable stay in Grenoble and find the technical program useful and compelling.

2016 Conference Co-Chairs:

Alain Dufresne
Grenoble Institute of Technology, France

Julien Bras
Grenoble Institute of Technology, France

Johan Foster
Virginia Polytechnic Institute and State University (Virginia Tech), USA

2016 Conference Co-chairs

Alain Dufresne
Grenoble Institute of Technology (France)
Chairman

Julien Bras
Grenoble Institute of Technology (France),
Co-Chairman

Johan Foster
Virginia Polytechnic Institute and State University (Virginia Tech)
Co-Chairman

Theme Leaders

Lars Axrup, Stora Enso
Stephanie Beck, FPInnovations
Isabelle Capron, French National Institute for Agricultural Research
Marco Giacinti, University of Bologna
Jeff Gilman, NIST
Wadood Hamad, FPInnovations
Liangbing Hu, University of Maryland
Akira Isogai, University Tokyo
Math Jennekens, Sappi Europe
Heli Kangas, VTT
Shaul Lapidot, Melodea Ltd.
Ning Lin, Grenoble Institute of Technology
Tom Lindstrom, Innventia
Corrine Lipscomb, 3M
World Nieh, US Forest Service
Kristiina Oksman, Lulea University
Orlando Rojas, Aalto University
Jo Anne Shatkin, Vireo Advisors
Anna Suurnäkki, VTT

Conference Highlights

Experience Informative Workshops!

Fundamentals of Cellulose
Monday, 13 June • 8:00 – 12:00
Guest speaker, Yoshiharu Nishiyama, CERMAV, Grenoble, will present this workshop which will cover the chronological evolution on understanding of cellulose structure, with experimental technics and evidences and include discussions around the following key words; molecular interactions: polar, dispersion, hydrophobic, osmotic pressure; physical properties: modulus, elastic tensor, thermal expansion tensor, heat capacity, heat conduction; crystallinity, orientation, and mesoscopic structures (SAXS, specific surface, aggregation); and biological diversity, evolution, and fiber anatomy.

Leveraging International Public-Private Partnerships to Address Technical Barriers for Large Scale Production of Wood-derived Cellulose Nanomaterials
8:00-12:00 • Part I: A Global Overview of Activities (open to all workshops participants)
13:00-14:00 • Part II: Interactive Discussions for Future Collaborations (invitation only)
Nano 2016's "Leveraging International Public-Private Partnership to Address Technical Barriers for Large Scale Production of Wood-derived Cellulose Nanomaterials" Workshop will address the issues and processes required to advance the commercial production and use of cellulosic nanomaterial and how public-private partnerships can help develop pre-competitive or, in some instances, competitive underlying science, enabling technology, and other information to support this advancement. Examples of areas for public-private cooperation and collaboration include: materials characterization; generation and vetting of environment, health and safety information; understanding fundamental water-cellulosic nanomaterial interactions; understanding fundamental cellulosic nanomaterials dispersion mechanisms into matrices of other materials; life cycle assessment; etc. The workshop will also focus on Best Practices for developing and maintaining successful partnerships or collaborations among public and private sectors as well as industry, university and government sectors.

Experience an Exclusive Tour!
Monday, 13 June • 13:00 – 17:30
(Bus departs at 13:00) (Space is limited to 80 participants)
All participants will visit both Tec21 and Institute Carnot PolyNat

Tec 21
The Tec 21 research community is a group of 7 research laboratories/centers located in Grenoble (France), specialising in mechanical and process engineering. The team is made up of 250 permanent scientists including 80 technical staff members. This provides a great range of scientific expertise in many disciplines from fluid and solid mechanics to process engineering, including areas like soft matter physics and biomechanics.Tec 21 has been involved in diverse applications, collaborating with industry and public authorities, such as environmental engineering, process engineering, civil engineering, health, space and aeronautics, energy production and saving, and biorefinery.

Institut Carnot PolyNat
Five Grenoble research centers are involved in institute Carnot PolyNat, dedicated to the eco-production of high-added-value functional biosourced materials. PolyNat obtained the Carnot Label of Excellence at the end of April 2011 for the period 2011-2015. The PolyNat institute focuses on the elaboration and the production of use of high-added value, functional materials, either hybrid" (partly issued from fossil and natural resources), or totally "biosourced", by taking advantage of the self-assembly of elementary bricks constituting the plant material (glycopolymers, nanocrystals, cellulose fibres), at micro and nano scale.

Young Professionals Mixer
Hosted by the Young Professionals Division
Monday, 13 June • 18:30 - 19:30
Join the YP's for some fun and laid back networking with the industry's future leaders. Mixer will be held at Hotel Europole.

Poster Session and Student Poster Competition
Sponsored by Georgia Tech/Renewable Bioproducts Institute
Tuesday, 14 June • 17:30 – 19:00
Delegates will be able to visit the Poster Session as judges evaluate student posters for cash prizes.

***NEW* Application Roundtable**
Wednesday, 15 June • 16:00 – 16:30
Application experts will answer questions from attendees on applications and application issues for different cellulose and other nanomaterials. Don't miss this NEW 30-minute roundtable panel.

***NEW* Product Sample Showcase**
Wednesday, 15 June 2016 • 16:30 – 17:30
Delegates have the opportunity to visit with academics, researchers, and industry professionals who have brought samples of their materials to share.

Mentoring Program
Student and young professional development is very important to this year's conference co-chairs as well as TAPPI's Nanotechnology Division. Nano's Mentoring Program is designed to help young professionals make the most of their conference experience. Experts will be paired with young professionals to mentor them during the conference. This will include tips on making the most of the networking events, connecting with other researchers around the globe, and visiting the tabletop exhibitors.

You can get more involved with the Nano community by being part of a Nano Division Committee.

Research Committee Meeting
Wednesday, 15 June • 12:30 – 13:00

Producers Committee Meeting (members only)
Friday, 17 June • 8:00 – 12:00

Tuesday, 14 June 2016

8:00 a.m. – 9:00 a.m.
Keynote • Bernard de Galembert
Innovation and Bioeconomy, Director, CEPI

Keynote: "The paper industry and the bioeconomy: shifting towards the post-petroleum economy."

Mr. de Galembert will address "bioeconomy" and its future role in the economy in regards to climate change, crisis recovery, de-industrialization and decreasing competitiveness of the Northern hemisphere developed economies

Mr. de Galembert is the Innovation and Bioeconomy Director at CEPI. Within that position, he overlooks issues related to bio-based products, research and innovation policies, resource availability, access to markets, access to finances for new businesses and new products. With the support of the Forest-based Sector Technology Platform, of which he is member of the Board, he is also exploring funding opportunities for research and innovation in the pulp and paper industry.

In parallel, he is actively involved in the global forest and paper organisation ICFPA (International Council of Forest and Paper Associations) and advising the FAO within the Advisory Committee for Sustainable Forest

Poster Session and Student Poster Competition

Sponsored by Georgia Tech/Renewable Bioproducts Institute

Tuesday, 14 June - 17:30 - 19:00

Georgia Tech Renewable Bioproducts Institute

Visit over 40 presentations which focus on additional applications, characterization and functionalization of cellulose and other renewable nanomaterials. Winners are announced at the conference and cash prizes and certificates are awarded to the first and second place winners.

"Four Funerals and a Wedding: The Story of FiberLean Technologies"
Paris Kyriacopoulos, CEO, FiberLean Technologies
12:30 – 14:00

FiberLean Technologies
Innovative by nature

Wednesday, 15 June 2016

8:00 a.m. – 9:00 a.m.
Keynote • Christoph Weder
Executive Director and Professor, Polymer Chemistry and Materials Adolphe Merkle Institute

Keynote: "Functional materials made with cellulose nanocrystals."

Mr. Weder will address cellulose nanocrystals (CNCs) and how they not only are attracting growing interest as low-cost filler that can be used to reinforce polymers but also how these nanoparticles permit the design of advanced materials that offer new functions.

Christoph Weder is a professor for Polymer Chemistry and Materials at the Adolphe Merkle Institute of the University of Fribourg (Switzerland) and also serves as the Director of this new center for fundamental and applied research on soft nanomaterials. Chris is also an Adjunct Professor at Case Western Reserve University (Cleveland, USA) and a Visiting Professor at Chulalongkorn University (Bangkok, Thailand).

***NEW* Application Roundtable**
Wednesday, 15 June • 16:00 – 16:30
Application experts will answer questions from attendees on applications and application issues for different cellulose and other nanomaterials. Don't miss this NEW 30-minute roundtable panel.

***NEW* Product Sample Showcase**
Wednesday, 15 June 2016 • 16:30 – 17:30
Delegates have the opportunity to visit with academics, researchers, and industry professionals who have brought samples of their materials to share.

Reception and Conference Dinner

Wednesday, 15 June 2016 • 18:30 – 21:30
(bus leaves at 18:00)

Be part of this gala event and enjoy an evening with your colleagues, both new and old. Held at La Bastille and located in the heart of the Bastille, the panoramic restaurant offers a fantastic view overlooking Grenoble and its surroundings. Dinner cost is $100/person.

Schedule
- 18:00 - Bus leaves
- 18:30 - 19:30 - Reception
- 19:30 - 21:30 - Dinner

Thursday, 16 June 2016

8:00 a.m. – 9:00 a.m.
Keynote • Maria Doa
Director, Chemical Control Division, United States Environmental Protection Agency

Keynote: "Regulation of Nanoscale Chemical Substances in the United States"

Dr. Doa will review the comprehensive regulatory approach being pursued by the US EPA under the Toxic Substances Control Act to ensure that nanoscale forms of chemical substances are manufactured and used in a manner that protects against unreasonable risks to human health and the environment.

Maria J. Doa, Ph.D. is the Director of the United States Environmental Protection Agency's Chemical Control Division in the Office of Chemical Safety and Pollution Prevention. She leads activities for the assessment and management of a wide range of industrial chemicals and nanoscale materials under the Toxic Substances Control Act. She is the United States lead for the Organization for Economic Cooperation and Development Working Party on Manufactured Nanomaterials. Previously, she led EPA programs to reduce risk to lead, PCBs, mercury and asbestos. She also led EPA's Toxics Release Inventory Program – a key community right-to-know program about toxic chemicals.

Schedule at a Glance

<table>
<tr><th>Time</th><th>Monday
13 June 2016</th><th>Tuesday
13 June 2016</th><th>Wednesday
13 June 2016</th><th>Thursday
13 June 2016</th><th>Committee Meetings</th></tr>
<tr><td>7:30-8:00</td><td></td><td colspan="3">Nano Speaker Café</td><td colspan="3">Nano Speaker Café</td><td colspan="3">Nano Speaker Café</td><td rowspan="15">**Research Committee Meeting (lunch provided) Wednesday, 15 June - 12:30-14:00

*2016 Conference Wrap Up Meeting Thursday, 16 June 17:30-18:30

**Producers Committee Meeting (by invitation only) Friday, 17 June 2016 - 9:00-12:00 Grenoble</td></tr>
<tr><td>8:00-9:00</td><td rowspan="4">Cellulose Fundamentals Workshop (8:00-12:00)

Technical Barriers Workshop (8:00-12:00)</td><td colspan="3">Opening Keynote
Bernard de Galembert</td><td colspan="3">Keynote Presentation
Chris Weder</td><td colspan="3">Keynote Presentation
Maria Doa</td></tr>
<tr><td>9:00-10:30</td><td>Session</td><td>Session</td><td>Session</td><td>Session</td><td>Session</td><td>Session</td><td>Session</td><td>Session</td><td>Session</td></tr>
<tr><td>10:30-11:00</td><td colspan="3">Break</td><td colspan="3">Break</td><td colspan="3">Break</td></tr>
<tr><td>11:00-12:30</td><td>Session</td><td>Session</td><td>Session</td><td>Session</td><td>Session</td><td>Session</td><td>Session</td><td>Session</td><td>Session</td></tr>
<tr><td>12:30-14:00</td><td></td><td colspan="3">Sponsor Presentation
FiberLean® Technologies</td><td colspan="3">Lunch (on your own)</td><td colspan="3">Lunch (on your own)</td></tr>
<tr><td>14:00-15:30</td><td rowspan="3">Tour
(1:00-5:00)</td><td>Session</td><td>Session</td><td>Session</td><td>Session</td><td>Session</td><td>Session</td><td>Session</td><td>Session</td><td>Session</td></tr>
<tr><td>15:30-16:00</td><td colspan="3">Break</td><td colspan="3" rowspan="2">Roundtable and Product Sample Showcase

16:00-16:30
Roundtable Q & A

16:30-17:30
Product Sample Showcase</td><td colspan="3">Break</td></tr>
<tr><td>16:00-17:30</td><td>Session</td><td>Session</td><td>Session</td><td>Session</td><td>Session</td><td>Session</td></tr>
<tr><td>17:30-18:30</td><td>Welcome Reception</td><td colspan="3" rowspan="2">Reception, Poster Session and Student Poster Competition
17:30-19:00</td><td colspan="3" rowspan="2"></td></tr>
<tr><td>18:30-19:30</td><td>Young Professionals Mixer</td><td colspan="3">Conference Dinner
18:00-21:30</td></tr>
</table>

*invitation only
**members only

Session Format

Conference sessions with oral presentations all follow the same schedule.
Sessions are 90 minutes, with each presentation allotted 22 minutes:

For example:
9:00: Session Opens 9:02: Paper #1 9:24: Paper #2 9:46: Paper #3 10:08: Paper #4 10:30: Session concludes

Technical Program

Subject to change. For the most up-to-date program information, visit www.tappi.org/16nano.

Monday, 13 June 2016

8:00 -12:00	**Workshop:** Fundamentals of Cellulose **Room: Cervin**	**Workshop:** Leveraging International Public-Private Partnerships to Address Technical Barriers for Large Scale Production of Wood-derived Cellulose Nanomaterials Part I: A Global Overview of Activities (open to all workshop participants). **Room: Makalu**
12:00	**LUNCH** *(on your own)*	
13:00 -17:30	**Facility Tour** – Tec21 and Institut Carnot PolyNat	Part II: Session A: Interactive Discussions for Future Collaborations • **13:00-14:00** (invitation only)
17:30-18:30	**Welcome Reception**	
18:30-19:30	**Young Professionals Mixer**	

Tuesday, 14 June 2016

7:00 - 8:00	**Nano Speaker Café** (Tuesday speakers only)		
8:00 - 9:00	**Session I: Welcoming Remarks and Opening Keynote • Room: Auditorium** 8:00-8:15 • Welcoming Remarks 8:15-9:00 • **Opening Keynote: Bernard de Galembert,** Innovation and Bioeconomy Director, CEPI ***The Paper Industry and the Bioeconomy: Shifting Towards the Post-Petroleum Economy***		
9:00-10:30	**Session 2: Markets for CNF and CNC—Room: Auditorium • Session Chair:** *Kim Nelson, American Process Inc.*	**Session 3: Device Substrate and Printing Technology—Room: Kilimandjaro • Session Chair:** *Liangbing Hu, University of Maryland*	**Session 4: Nanocellulose Self Assembly—Room: Mt. Blanc Session Chair:** *Isabelle Capron, INRA*
	Quantitative Analysis of Market Data and Trends for Cellulose Nanomaterials, *Michael Bilodeau, University of Maine* Nanocellulose: Technology, Applications and Markets - *Jack Miller, Market-Intell LLC* Competitive position of nanocellulose in the material landscape - *Juulia Kuhlman, Poyry* Technoeconomic analysis of commercial-scale CNC production - *Carl Houtman, USDA Forest Products Laboratory*	Tunable architecture and properties of hybrid organic/inorganic cellulose nanocrystals/gibbsite nanoplatelets multilayered films *Bruno Jean, CERMAV* Prominent solvent resistance of TEMPO-treated nanofibrillated cellulose film for flexible electronics - *Zhiqiang Fang, South China University of Technology* Roll-to-Roll Nanoimprinting of CNF Film - *Tapio Mäkelä, VTT Technical Research Centre of Finland* Ultrasonic Spray Coating as a versatile technique for the large area deposition of functional nanoparticles - *Jeroen Drijkoningen, Hasselt University*	Polarized light microscopy of cellulose nano-crystal suspensions and films – *Derek Gray, McGill University* Cooperative Ordering and Kinetics of Cellulose Nanocrystal Alignment in a Magnetic Field – *Emily Cranston, McMaster University* Systematic investigation of the liquid crystalline phase behaviour of cellulose nanocrystals – *Christina Schütz, Ku Leuven, Campus Kortrijk* Interaction of Cellulose Nanocrystals with Charged and Uncharged Surfactants – *Heera Marway, McMaster University*
10:30 - 11:00	**COFFEE BREAK IN THE EXHIBIT HALL**		
11:00-12:30	**Session 5: Manufacturing of CNF from Non-wood Sources—Room: Auditorium Session Chair:** *Michel Petit-Conil, Centre Technique Du Papier*	**Session 6: Conductive Inks—Room: Kilimandjaro • Session Chair:** *Zhiqiang Fang, South China University of Technology*	**Session 7: Mulitphase Systems and Surface Interaction—Room: Mt. Blanc Session Chair:** *Heli Kangas, VTT*
	Facile Production of Cellulose Nanofibrils from Corn Stalk by a Conventional High Speed Blender - *Sami Boufi, University of Sfax* Betulium Nanocellulose - Natural fibrils for volume industries - *Antti Laukkanen, Betulium* Systematic production of high quality and low cost cellulose nanofibres and their potential applications - *Nasim Amiralian, University of Queensland* Extracting cellulose nanofiber from bagasse using a high speed blender - *Maryam Rahimi, Kord Sofla*	Emulsion-polymerized flexible semi-conducting CNCs-PANI-DBSA nanocomposite films - *Wadood Hamad, FPInnovations* Screen printing of cellulose nanofibrils-silver nanowires ink for transparent conductive electrodes - *Fanny Hoeng, Poly-Ink* The intersection of natural fungal proteins, bioderived products and semiconducting polymers: a sustainable path to advanced organic electronics - *Cornelia Rosu, Georgia Institute of Technology* Cellulose Nanocrystal Composites for Transparent Conductive Films - *Michael Bortner, Virginia Tech*	Cellulose nanocrystals to stabilize versatile O/W and W/W Pickering emulsions – *Isabelle Capron, INRA* Nanocellulose-water interactions: a necessary evil? – *Orlando Rojas, Aalto University* Using nanofibrillated cellulose to understand cellulose-water interactions – *Iina Solala, Chalmers University of Technology* Nanocellulose and self-assembled functional materials - *You-Lo Hsieh, University of California, Davis*

Technical Program
(Tuesday, 14 June, continued)

12:30 - 14:00	**CONFERENCE LUNCH — SPONSOR PRESENTATION: FIBERLEAN® TECHNOLOGIES**		
14:00-15:30	**Session 8: Manufacturing of CNF from Wood Pulp—Room: Auditorium • Session Chair:** *Warren Batchelor, Monash University*	**Session 9: Energy Storage—Room: Kilimandjaro • Session Chair:** *Liangbing Hu, University of Maryland*	**Session 10: Nanocellulose Structure and Interactions—Room: Mt. Blanc Session Chair:** *Orlando Rojas, Aalto University*
	TEMPO oxidation of Bauer McNett thermomechanical pulp fractions for nanocellulose fibers production - *David Myja, University of Quebec, Trois Rivers* Thermomechanical pulp - a possible raw material for production of individualised microfibrils? - *Fredrik Brodin, Paper and Fibre Research Institute* Interaction of hemicelluloses and cellulose and their influence on the cellulose microfibrillation process - *Lea Falcoz-Vigne, Centre Technique du Papier), Grenoble* Pure single cellulose nanofibers of amphiphilic properties with hydrophobic surfaces created by aqueous counter collision - *Tetsuo Kondo, Kyushu University*	Nanocellulose-based Paper Lithium-Ion Batteries - *Sang-Yoon Lee, Ulsan National Institute of Science and Technology (UNIST)* Hybrid nanoporous pigment - cellulose nanomaterial composites for printed energy storage applications - *Katariina Torvinen, VTT Technical Research Centre of Finland* Flexible nanocellulosic films with ammonia-functionalized graphene oxide for green energy storage devices - *Vanja Kokol, University of Maribor* Free-standing elecrospun carbon network from lignin as a conductive electrode for high-performance supercapacitors - *Mariko Ago, Tokushima Bunri University*	The role of residual lignin on nanofibrillate cellulose and materials made thereof – *Maria Soledad Peresin, VTT Technical Research Centre of Finland* Physico-chemical investigation of Cellulose Nanomaterials using NMR relaxation – *David Fairhurst, XiGo Nanotools Inc.* Multi-scale simulation of bending deformation behaviour of cellulose nanocrystal - *Yu Ogawa, CNRS, CERMAV* Formation of novel bionanomaterials via self-assembly of protein corona on colloidal lignin particles - *Timo Leskinen, Aalto University*
15:30 - 16:00	**COFFEE BREAK IN THE EXHIBIT HALL**		
16:00-17:30	**Session 11: How to Produce CNC—Room: Auditorium • Session Chair:** *Stephanie Beck, FPInnovations*	**Session 12: Others—Room: Kilimandjaro Session Chair:** *Junyong Zhu, USDA Forest Products Laboratory*	**Session 13: Nanocellulose in Aerogels and Responsive Systems—Room: Mt. Blanc Session Chair:** *Emily Cranston, McMaster University*
	Melodea's industrial NCC production and products development - *Shaul Lapidot, Hebrew University* Two CNC Process Improvements to Dramatically Reduce Acid Usage and CNC Purification Costs - *James Lockhart, Noram Engineering and Construction* Production of Cellulose Nanocrystals Directly from Wood - *Umesh Agarwal, USDA Forest Products Laboratory* Suitability of Commercial Enzymes for Integrated Production of Cellulose Nanocrystals and Industrial Sugars - *Valdeir Arantes, University of São Paulo*	Applications of TEMPO-oxidized cellulose nanofibrils to optical and oxygen-barrier films and ULPA-grade air-filters - *Akira Isogai, University of Tokyo* New Interphase Characterization Methods for Cellulose Nanomaterials - *Jeff Gilman, NIST* Controlled Assemblies of Multifunctional Electrospun Cellulose Nanofibers - *Wei Zhang, Polymer Research Institute, Sichuan University*	Surface modification of TEMPO-oxidized cellulose nanofibrils by amine-terminated polyethylene glycol for thermal stability improvement – *Nathalie Lavoine, Grenoble Institute of Technology* Polymer-decorated Cellulose Nanocrystals: Properties and Multiresponsive Character – *Bruno Jean, CERMAV* Novel Multifunctional Nano Pigments for Papermaking and Coating - *Charles Klass, Pacific Nano Products Inc.* Cellulose-cellulose bonding in CNC aerogels – *John Simonsen, Oregon State University*
17:30-19:00	**Poster Session and Student Poster Competition**		

Wednesday, 15 June 2016

7:00 - 8:00	**Nano Speaker Café** (Wednesday speakers only)		
8:00 - 9:00	**Session 14: Keynote Presentation • Room: Auditorium** 8:00-8:15 • TAPPI's Nanotechnology Division 8:15-9:00 Keynote: **Christoph Weder**, Executive Director and Professor, Adolphe Merkle Institute ***Functional Materials Made with Cellulose Nanocrystals***		
9:00-10:30	**Session 15: Surface Modification of CNC/CNF for Applications - Part I—Room: Auditorium Session Chair:** *Seda Cantekin, Sappi*	**Session 16: Nanocellulose for Improved Paper and Board Properties—Room: Kilimandjaro Session Chair:** *Tom Lindstrom, Innventia*	**Session 17: Polymer Composite Processing I—Room: Mt. Blanc • Session Chair:** *Kristiina Oksman, Luleå University of Technology*
	New commercial process for production of mineral/ microfibrillated cellulose composite materials exhibits great flexibility - *David Skuse, Imerys* Cellulose Filaments: Discovery by FPInnovations of a Novel Strengthening Agent - *Xujun Hua, FPInnovations*	Calcium Carbonate Pigment Hydrocolloid Hybrid enabling Bonding with Micro Nanofibrillated Cellulose - *Roger Bollström, Omya International* HeFCel in board in middle ply - *Jani Lehmonen, VTT Technical Research Centre of Finland*	Mixing and Reinforcement of Cellulose *Nanocrystal Based Nanocomposites - Johan Foster, Virginia Tech* Dry-jet spinning of cellulose nanofiber (CNF) filaments on a non-adhering surface - *Hannes Orelma, VTT Technical Research Centre of Finland*

Technical Program
(Wednesday, 15 June, continued)

9:00-10:30 *(continued)*	**Session 15: Surface Modification of CNC/CNF for Applications - Part I—Room: Auditorium** **Session Chair:** *Seda Cantekin, Sappi*	**Session 16: Nanocellulose for Improved Paper and Board Properties—Room: Kilimandjaro** **Session Chair:** *Tom Lindstrom, Innventia*	**Session 17: Polymer Composite Processing I—Room: Mt. Blanc • Session Chair:** *Kristiina Oksman, Luleå University of Technology*
	Produce Cellulose Nanofibril Thin Film Using a Pilot Scale Slot Die Coater - *Roland Gong, University of Wisconsin – Stevens Point*	The Application of CNF to Improve Fine Paper Performance - *David Cowles, GL&V USA Inc.* Chemical-free pulping with GreenBox+® nanocellulose for lightweight packaging – *Kim Nelson, American Process Inc.*	Polyethylene Cellulose Nanofibrils Nanocomposites - *Alessandra de Almeida Lucas, Federal University of São Carlos* High Volume Composite Opportunities for Big Area Additive Bio-Manufacturing - *Soydan Ozcan, Oak Ridge National Laboratory*
10:30 - 11:00	**COFFEE BREAK IN THE EXHIBIT HALL**		
11:00-12:30	**Session 18: Surface Modification of CNC/CNF for Applications - Part II—Room: Auditorium** **Session Chair:** *Kristin Syverud, Paper and Fibre Research Institute*	**Session 19: Barrier Films Lars Axrup, StoraEnso—Room: Kilimandjaro** **Session Chair:** *Lars Axrup, StoraEnso*	**Session 20: Polymer Composites Processing II—Room: Mt. Blanc** **Session Chair:** *Michael Bortner, Virginia Tech*
	Cellulose Filament (CF) Dispersion and Drying - *Yuxia Ben, FPInnovations* Ozone, an efficient chemical for microfibrills separation by homogenization - *Valerie Meyer, Centre Technique du Papier* Effect of Cellulosic Feedstock Furnish quality on the CNC production yields - *Christophe Danumah, Alberta Innovates* Functional Materials from Cellulose Nanofibers - *Tanja Zimmerman, Swiss Federal Laboratories for Materials Science and Technology (EMPA)*	Improving multilayer packaging performance with nanocellulose barrier layer - *Jari Vartiainen, VTT Technical Research Centre of Finland* Dispersion of layered silicates in composites of poly(vinyl alcohol) and microfibrillated cellulose for water vapour barrier improvement - *Sebastien Raynaud, Centre Technique du Papier (CTP)* Effect of Humidity on the Permeability of Alcohols in Hydroxylpropal Xylan Films - *Yaman Boluk, University of Alberta* Water diffusion in Nanofibrillated Cellulose experiments and modeling - *Marco Biacinti Baschetti, Università di Bologna*	Cellulose Nanocrystal reinforced oxidized natural rubber - *Marcos Mariano, University of Grenoble Alpes* Cleaner and Scalable Processing of Cellulose Nanocrystal Reinforced Thermoplastic Polyurethane Nanocomposites - *Pratheep Kumar Annamalai, University of Queensland* Melt extrusion of adsorbed Cellulose nanocrystals with polyethylene: A Small angle x-ray Scattering Characterization (SAXS) - *Malladi Nagalakshmaiah, Grenoble Institute of Technology* Surface modification of cellulose nanocrystals with diazonium salts and their application in nanocomposites - *Rongbing Du, National Institute for Nanotechnology*
12:30 - 14:00	**LUNCH** *(on your own)*	12:30-13:00 • **Research Committee Meeting** (committee members only) • **Room: Makalu** 12:30-14:00 • **Workshop:** Leveraging International Public-Private Partnerships to Address Technical Barriers for Large Scale Production of Wood-derived Cellulose Nanomaterials Part II: Session B: Interactive Discussions for Future Collaborations (invitation only) • **Room: Kilimandjaro**	
14:00-15:30	**Session 21: Industrial Applications—Session Chair:** *Michael Bortner, Virginia Tech* **Auditorium**	**Session 22: Barrier Coatings—Room: Kilimandjaro • Session Chair:** *Yaman Boluk, University of Alberta*	**Session 23: Aerogels & Porous Materials—Room: Mt. Blanc • Session Chair:** *John Simonsen, Oregon State University*
	Cellulose filaments (CF) reinforced light-weight composites - *Balazs Tolnai, Kruger Inc.* Cellulose Nanocrystals: An approach towards lightweight composites for automotive applications - *Kyriaki Kalaitzidou,* Georgia Institute of Technology Utilization of cellulose nanocrystals as additives for the improvement of thermal and photostability of aerospace coatings - *Jeremie Brand, CNRS DR-15 AQUITAINE* Studies on PAN/CNC and PAN/lignin nanocomposites - *Satish Kumar, Georgia Institute of Technology*	Roll-to-roll processed nanocellulose coatings for barriers applications - *Vinay Kumar, Abo Akademi University* On the use of electrospinning to develop active nanofiber based renewable barrier coatings of interest in food packaging and food contact surfaces - *Jose Maria Lagaron, Instituto De Agroquimica Y Tecnologia De Alimentos* Cellulose Nanocrystals as new bio based coating for improving fiber-based surface structures properties - *Erwan Gicquel, University Grenoble Alpes* Improved Properties for Packaging Materials by Nanoscale Surface Modification and ALD Barrier Coating - *Johanna Lahti, Tampere University of Technology*	Cellulose nanofibre aerogel filter for oil/water separation and recovery - *Warren Batchelor, Monash University* Anisotropic cellulose nanocrystal hydrogel composites for promoting directed cell growth - *Kevin De France, McMaster University* Fabrication of silica aerogels within nanocellulosic scaffolds with improved mechanical properties and optimized processes - *Siqun Wang, University of Tennessee* Infiltration and dimensional scaling of picoliter inkjet drops on nano - and microporous materials - isotropic porous glass and anisotropic paper - *Agne Swerin, SP Technical Research Institute of Sweden*
15:30 - 16:00	**COFFEE BREAK IN THE EXHIBIT HALL**		
16:00 - 17:30	**Session 24: Application Roundtable and Product Sample Showcase • Room: Auditorium** **16:00-16:30 - Roundtable and Q&A** **16:30-17:30 - Product Sample Showcase**		
18:30 - 21:30	**Reception and Conference Dinner at the restaurant, La Bastille, (Bus departs at 18:00)**		

Technical Program

Thursday, 16 June 2016

7:00 - 8:00	**Nano Speaker Café** (Thursday speakers only)		
8:00 - 9:00	**Session 25: Keynote Presentation • Room: Auditorium** **Session Chair:** Jo Anne Shatkin, Vireo Advisors, LLC 8:00-9:00 • **Maria Doa,** Director, Chemical Control Division, EPA ***Regulation of Nanoscale Chemical Substances in the United States***		
9:00-10:30	**Session 26: New Technology Development for CNF/CNC—Room: Auditorium** **Session Chair:** *Math Jennekens, Sappi*	**Session 27: Safety & Risk Assessment of Cellulosic Nanomaterials—Room: Kilimandjaro** **Session Chair:** *Jo Anne Shatkin, Vireo Advisors, LLC*	**Session 28: 3D & Functional Composites—Room: Mt. Blanc • Session Chair:** *Wadood Hamad, FPInnovations*
	Low Cost Drying Method to Obtain Redispersable Nanocellulose Powders - *Kim Nelson, American Process Inc.* Looking beyond the glass round bottom flask: The path to commercial scale for cellulose nano-crystals (CNC) - *Alan Rudie, USDA Forest Products Laboratory* Complete nanofibrillation of cellulose prepared by phosphoric acid esterification - *Go Banzashi, Oji Holding Corp.*	Risk assessment of polymer composites containing cellulose nanofibrils (CNF) – *Heli Kangas, VTT Technical Research Centre of Finland* Progress toward Understanding Worker Exposure and Risk for Cellulose Nanomaterials – *Charles Geraci, National Institute for Occupational Safety and Health* Development of a method for measuring nanocellulose in aerosols for workplace health and safety – *Thomas Peters, University of Iowa* Establishing the safety of cellulose nanomaterials across the product life cycle - where are we? – *Jo Anne Shatkin, Vireo Advisors, LLC*	3D printing of cellulose nanocrystals and composite materials - *Gilberto Siqueira, Swiss Federal Laboratories for Materials Science and Technology (EMPA)* The potential of cellulose nanofibrils produced by TEMPO mediated oxidation and carboxymethylation in tissue engineering – *Kristin Syverud, Paper and Fibre Research Institute* Nanocellulose as platforms for heterogeneous bio/catalysts and design of novel materials - *Kai Zhang, University of GÂttingen* Functional nanocomposite materials based on nanocellulose and metallic nanoparticles (Cu and Pt): Study of the conductive and catalytic properties - *Carmen Freire, University of Aveiro*
1030 - 11:00	**COFFEE BREAK IN THE EXHIBIT HALL**		
11:00-12:30	**Session 29: Functionalisation of Nanocellulose for Films and Composites—Room: Kilimandjaro** **Session Chair:** *Gilles Sèbe, LCPO*	**Session 30: Rheology in Nanocellulose Characterization—Room: Mt. Blanc** **Session Chair:** *Orlando Rojas, Aalto University*	**Session 31: Medical Applications—Room: Auditorium • Session Chair:** *Carmen Freire, University of Aveiro*
	New challenges and opportunities in using nanocelulose for the development of advanced packaging materials - *Miriam Gallur, ITENE* Elastomers reinforced by covalently bound nanocellulose - *Matthieu Fumagalli, University of Lyon* Cellulose nanofibrils aqueous modification with different alkoxysilanes: influence of amino presence on surface mechanisms and properties - *Charlène Reverdy, Grenoble INP/Pagora* Recyclable nanoclay-cellulose nanofibre composites with excellent barrier properties - *Uthpala Garusinghe, BioResource Processing Research Institute of Australia*	Rapid enzymatic modification of nano-fibrillated cellulose for improved rheological properties – *Keith Gourlay, University of British Columbia* Structure and rheological behavior of nano-crystal cellulose dispersions, probed by local birefringence and in-situ Rheo-SAXS – *Frédéric Pignon, Universite Grenoble Alpes, CNRS* Rheology of guar gels cross-linked with cellulose nanocrystals – *Wadood Hamad, FPInnovations*	A study of the effect of hydration on the mechanical properties of alginate-cellulose nanocrystal composites - *Megan Smyth, Grenoble INP Pagora – LGP2* Nanocellulose-based scaffolds with tunable structures to support 3D cell culture - *Chunlin Xu, Abo Akademi University* Characterization of Stimulus Responsive Cellulose Nanofibril-Based Hydrogels for Drug-Release System - *Byung-Dae Park, Kyungpook National University* Nanocellulose enhances the gelling properties of alginates - *Ellinor Heggset, Paper and Fibre Research Institute*
12:30 - 14:00	**LUNCH** *(on your own)*		

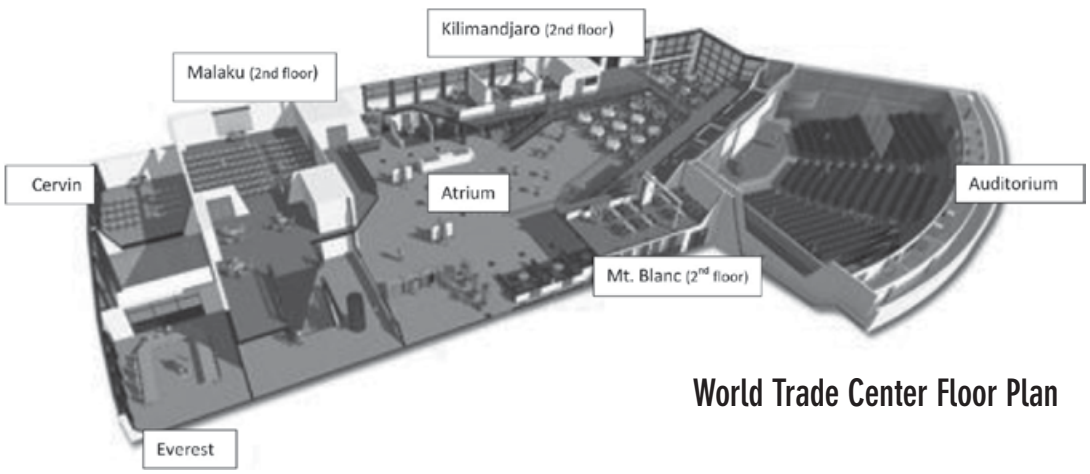
14:00-15:30	**Session 32: Polysaccharide-based Packaging Films—Room: Kilimandjaro** **Session Chair:** *David Guerin, Centre Technique Du Papier*	**Session 33: Metrology—Room: Auditorium** **Session Chair:** *Jeff Gilman, NIST*	**Session 34: Papermaking and Coating: Structuring and Rheology—Room: Mt. Blanc** **Session Chair:** *Tony Lyons, Imerys*	**Session 35: Standards Session—Room: Mt. Blanc** **Session Chair:** *World Nieh, US Forest Service*
	Enhancing food security with nanocellulose - *John Simonsen, Oregon State University* Water barrier properties of peach puree/hydroxypropyl methylcellulose films as affected by the addition of cellulose fibers submitted to high pressure microfluidization - *Caio Otoni, Embrapa Instrumentacao*	Challenges of cellulose nanocrystal (CNC) metrology – *Zygmunt Jakubek, National Research Council Canada* Surface Characterization of Natural Fibers by Inverse Gas Chromatography – *Damaino Cattaeno, Surface Measurement Systems*	Rheological investigation of pigmented micro and nano-fibrillated cellulose (MNFC) suspensions: influence of co-processing pigment particles and carboxymethyl cellulose – *Michel Schenker, Omya International* How nanocellulose modifies the rheological behavior of slurries in coating colors? – *Celine Martin, Grenoble Institute of Technology*	Updates from ISO, CSA Speakers to be announced

Technical Program
(Thursday, 16 June, continued)

14:00-15:30 *(continued)*	**Session 32: Polysaccharide-based Packaging Films— Room: Kilimandjaro Session Chair:** *David Guerin, Centre Technique Du Papier*	**Session 33: Metrology— Room: Auditorium Session Chair:** *Jeff Gilman, NIST*	**Session 34: Papermaking and Coating: Structuring and Rheology— Room: Mt. Blanc Session Chair:** *Tony Lyons, Imerys*	**Session 35: Standards Session— Room: Mt. Blanc Session Chair:** *World Nieh, US Forest Service*
	Cellulose Nanofibril Addition to Paper for Improvement of Barrier Properties - *Kendra Fein, Western Michigan University* Advancing Cellulosic Technologies from Molecular Perspectives – *Howard Wang, University of Maryland*	Characterization dielectric properties and moisture uptake of cellulose nanocrystals using noncontact microwave cavity – *Jan Obrzut, National Institute of Standard and Technology* Cellulose Nanocrystals: Benchmarking and Characterization – *Michael Reid, McMaster University*	Micro-structure of coating color influenced by carboxymethyl cellulose and cellulose nanofibrils and its effect on drying and structure of coating layer – *Hak Lae Lee, Seoul National University* Colloidal interactions between hydrophobic nanoparticles and starch – *Frida Iselau,Chalmers University of Technology*	Updates from ISO, CSA Speakers to be announced
15:30 - 16:00	**COFFEE BREAK IN THE EXHIBIT HALL**			
16:00-17:30	**Session 36: How to Modify Surface Chemistry of CNF—Room: Kilimandjaro Session Chair:** *Laurent Heux, CERMAV*	**Session 37: Functionalization for Nonpolar Matrices—Room: Auditorium • Session Chair:** *Marie-Pierre Laborie, University of Freiburg*	**Session 38: Rheology for Applications Other Than Papermaking—Room: Mt. Blanc • Session Chair:** *Frédéric Pignon, Laboratoire Rhéologie et Procédés*	
	Effect of Acid Hydrolysis Temperature on Cellulose Nanocrystal Surface Characteristics - *Jean Bouchard, FPInnovations* Functional and Thermally Stable Cellulose Nanomaterials with Tailored Morphologies: Green and Economical Production - *Junyong Zhu, USDA Forest Products Laboratory* Phosphorylated nanofibrillated cellulose: production and properties, *Ali Naderi, Innventia* Effect of Combined Sulfuric and Hydrochloric Acid Hydrolysis on the Morphology and Properties of Bacterial Cellulose Nanocrystals - *Morsyleide Rosa, Embrapa Agroindústria Tropical*	Single pot hydrophobization of CNCs from water and its potential for polymer nanocomposites - *Jeffrey Youngblood, Purdue University* Renewable supports for renewable catalysis: functionalization of cellulose nanocrystals as chemocatalysts in chemical upgrading reactions - *Nathan Ellebracht, Georgia Institute of Technology* Grafting low molecular weight polyethylene with maleic anhydride end groups onto cellulose nanocrystal surfaces via esterification for the preparation of polyethylene composites - *Yaman Boluk, University of Alberta* Extruded Cellulose Nanocrystal - Polymer Composites Using a Novel, Tunable Surface Modification Technique - *Douglas Fox, American University*	Evaluation of Cellulose Nanocrystals as a New Additive for Enhanced Oil Recovery – *Silje Nedland Molnes, University of Stavanger* Bentonite Water-Based Fluids Modified by Cellulose Nanoparticles: Rheology and Fluid Loss – *Qinglin Wu, Louisiana State University* Characterization of hydrodynamic conditions and structural organization in the deposit created during crossflow ultrafiltration membrane process assisted by ultrasound: application to biorefinery - *Candice Rey, University of Grenoble* Manufacturing MFC films by a papermaking process: kinetic study of filtration - effect of operating conditions - *Maxine Teil, Grenoble Institute of Technology*	
17:30 - 18:00	**CONFERENCE CONCLUDES** **Post Conference Wrap-up with 2016 Conference Co-chairs, 2016 Theme Leaders, Nano Division Officers**			

Friday, 17 June 2016

8:00 - 12:00	**TAPPI Nano Division Producers Committee Meeting** (committee members only)



World Trade Center Floor Plan

Posters on Display at the Poster Session

Tuesday, 14 June 17:30 – 19:00

1. Characterization of the stability and phase behavior of nanocellulose dispersions intended for improving oil recovery
Reidun Cecilie Aadland, Norwegian University of Science and Technology (NTNU)

2. Rheological Properties of Cellulose Nanofibril Dispersions Containing Salts
Ragnhild Aaen, Norwegian University of Science and Technology (NTNU)

3. Tannic Acid - A Transformative Additive when Combined with Cellulose Nanocrystals: From Hydrophobic Nanoparticles to Redispersible Dried Oil Powders
Emily Cranston, McMaster University

4. In situ magnetic alignment of cellulose nanocrystals in injectable hydrogel composites
Kevin De France, McMaster University

5. High stress structuration of long fibril micro nanofibrillated (MNFC) suspension compared with low stress de-mixing of short fibril MNFC in the presence of filler: mechanisms for gel dewatering
Katarina Dimic-Misic, Aalto University

6. Bagasse xylan nanocomposite films with high barrier properties and enhanced mechanical properties
Seyed Rahman Djafari Petroudy, Shahid Beheshti University

7. Multifunctional Ultra-Lightweight Cellulosic Aerogels by Freeze-Drying Self-Assembly of Modified Cellulose Nanocrystals
Abraham Eldho, Hebrew University

8. Cellulose Nanocrystals as new bio-based support in thermo-responsive hydrogels for bio-compatible smart applications
Erwan Gicquel, Univ. Grenoble Alpes

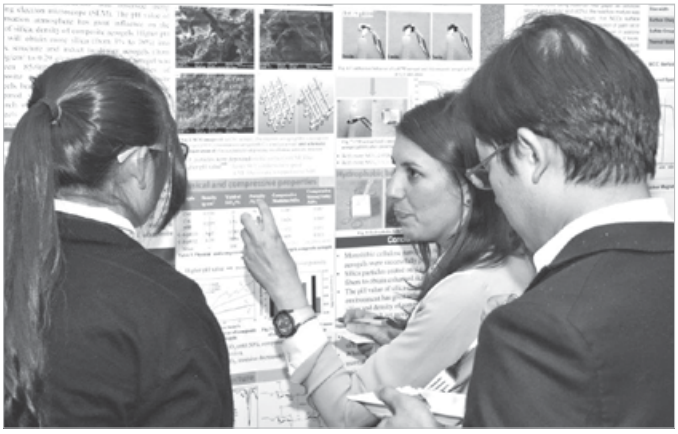
9. Cellulose Nanofibril and Soy Protein Reinforcement in Phenol Formaldehyde Wood Adhesive
William Hand, Auburn University

10. Surfactant modified nanocelluloses for enhanced oil recovery
Trygve Jakobsen, Norwegian University of Science and Technology (NTNU).

11. Starch biocomposite film reinforced by multiscale rice husk fiber: morphology and dynamic mechanical properties
Hanieh Kargarzadeh, University National Malaysia (UKM)

12. Characterization of Bacterial Cellulose Nanocrystals by acid treatments and neutralization
Dilhun Keriman, Izmir Institute of Technology

13. Colloid-polyelectrolyte complexes for mechanical reinforcement of natural cellulose fibers - application to art restoration
Krzysztof Kolman, Chalmers University of Technology



14. MP-SPR measurement method in nanocellulose research
Johana Kuncová-Kallio, Bionavis Ltd.

15. Novel equipment to simulate hot air heat sealability of fibre-based packaging materials
Johanna Lahti, Tampere University of Technology

16. Physiochemical, optical and mechanical properties of poly (lactic acid) nanocomposites filled with toluene diisocyanate grafted cellulose nanocrystals
Sun-Young Lee, UNIST (Ulsan National Institute of Science and Technology)

17. A quick and simple method to prepare functionalized cellulose nanocrystals with high yield
Dongfang Li, KTH Royal Institute of Technology

18. Effects of manufacturing conditions on properties of cellulose nanocrystals obtained from dry pulp by acid hydrolysis
Kuan-Hsuan Lin, National Taiwan University

19. Functional materials based on cellulose nanofibril aerogels
Canhui Lu, Sichuan University

20. Crystallization effect of different cellulose nanocrystals in PBAT nanocomposites
Marcos Mariano, University Grenoble Alpes

21. Morphology of Cellulose Nanocrystals II recrystallized from sulfuric acid
Marcos Mariano, University Grenoble Alpes

22. Nanometric characterization of pulps from sugarcane lignocellulose
Marcelo Miranda de Oliveira, Universidade de São Paulo

23. Adsorption Process of Xloglucan onto Model Cellulose Surfaces
Celine Moreau, National Institute for Agricultural Research (INRA)

24. Canvas restoration for conservation of paintings using cellulose nanofibril/carboxymethyl cellulose-based systems
Oleksandr Nechyporchuk, Chalmers University of Technology

Posters on Display at the Poster Session *(continued)*

Tuesday, 14 June 17:30 – 19:00

25. Cyclodextrin Functionalization of Cellulose Nanocrystals using different Carboxylic Acids for Prolonged Release of Carvacrol
Daniele Oliveira de Castro, Grenoble INP Pagora

26. Lignocellulosic raw material as effective template for inorganic nanoparticles for antimicrobial applications
Gloria Oporto, West Virginia University

27. Effects of Cellulose Nanofibril Premixing Strategies for Paper Making
Vegar Ottesen, Norwegian University of Science and Technology

28. Surface chemical modification of cellulose nanocrystals via "click" reaction with fluorescent molecules
Fabiano Pereira, Federal University of Minas Gerais

29. Synthesis of the Biodegradable P(CL-b-LLA) Copolymer and Its Functionalization with 2,4-TDI
Fabiano Pereira, Federal University of Minas Gerais

30. Cellulose Nanocrystal Interactions Probed by Thin Film Swelling
Michael Reid, McMaster University

31. Hsp90-Targeted Nano Anticancer Therapy
Ankit Rochani, Tokyo University

32. Osteogenic potential of simvastatin loaded gelatin-nanofibrillar cellulose - tricalcium phosphate hydrogel scaffold in critical-sized rat calvarial defect
Chun Sangjin, National Institute of Forest Science(NIFoS)

33. Adhesion measurement in nanocellulose composite with AFM
Cécile Sillard, Grenoble-INP LPG2

34. Cellulose Nanofibrils as Binders: Applications and Adhesion Mechanisms
Mehdi Tajvidi, University of Maine

35. Thermal degradation kinetics of cellulose nanomaterials and their composites with polyvinyl alcohol (PVA)
Mehdi Tajvidi, University of Maine

36. How pulp compositions affect the processability of MFC production?
Sandra Tapin-Lingua, French technical Institute of Wood Sector

37. Study the possibilities of using silver nanoparticles in packaging paper
Dimitrina Todorova, University of Chemical Technology and Metallurgy

38. Swelling and Applications of Water-Swollen PVA/Nanocellulose Composites
Jonathan Torstensen, Norwegian University of Science and Technology

39. Lytic polysaccharide monooxygenase (LPMO) enzymes as a tool for fractionating cellulose fibers
Ana Villares, National Institute for Agricultural Research (INRA)

40. Potential application of CNF-containing porous sheet to air filtration
Hye Jung Youn, Seoul National University

41. Flexible and highly conductive cellulose nanofibers/ exfoliate graphite nanoplatelets hybrid paper
Xiaofang Zhang, Polymer Research Institute of Sichuan University, China

42. Grafting Polyethylenimine onto Cellulose Nanofibers for Interfacial Enhancement in Their Epoxy Nanocomposites
Jiangqi Zhao, Sichuan University

43. Extraction of Hydrophobic Nanocrystals from Coconut Fiber
Diego Nascimento, Universidade Federal do Ceará

44. Easily dispersible wet powder from cellulose nanofiber prepared by phosphoric acid esterification
Yusuke Matsubara, Oji Holdings Corporation

45. Fibrillation Extents and Rheological Behaviors of Nanofibrillated NaOH-Pretreated Aspen Wood
Marcia Branciforti, University of São Paulo

46. Bionanocomposite films from banana peel pectin and cellulose nanocrystals
Henriette Azeredo, Brazilian Agricultural Research Corporation (Embrapa)

47. Nano-fibrillated cellulose surface modification to produce strong and lightweight alveolar materials: two different pathways.
Lorenzo Zolin, Univ. Grenoble Alpes

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International Nanotechnology Division Awards

The Nanotechnology Division is pleased to announce the recipient of the following awards:

This year's awards will be presented on Tuesday, 14 June 2016, during the opening session.

International Nanotechnology Division Award and FiberLean® Technologies Prize

Alain Dufresne, Professor • Grenoble Institute of Technology

Alain Dufresne received his PhD in 1991 from the Department of Electronics at the National Institute of Applied Science in Toulouse (France). He was then Postdoctoral Research Associate at Polytechnique Montreal (Canada), and Temporary Lecturer and Research Assistant at the National Institute of Applied Science in Lyon (France). He was appointed Associate Professor in 1993, and then Professor in 2001, at Joseph Fourier University in Grenoble (France). He is now and since 2003 Professor at Grenoble Institute of Technology. He has been visiting Professor at the Federal University of Rio de Janeiro (Brazil), at Universiti Kebangsaan Malaysia (Malaysia), and at the Brazilian Agricultural Research Corporation (Embrapa) in Fortaleza (Brazil). His main research interests concern the processing and characterization of polymer nanocomposites reinforced with nanoparticles extracted from renewable resources. He has published over 230 peer-reviewed papers related to these topics. He and his students have given many conference presentations and he has been invited numerous times as a speaker in conferences, universities and research centers worldwide.

International Nanotechnology Division's Leadership and Service Award

Theodore H. Wegner, Assistant Director • USDA Forest Service, Forest Products Laboratory

Ted Wegner is Assistant Director at the USDA Forest Service–Forest Products Laboratory in Madison, Wisconsin where he has line-management responsibilities to identify and carryout innovative R&D in the areas of wood, fiber, and composites research. He has been a leader in helping define and implement the Forest Service research agenda on forest biomass to bioenergy conversion. He serves as the Forest Service lead for three public-private partnerships the "Consortium for Advanced Wood-to-Energy Systems"; "P3Nano", and the "Biorenewables Deployment Consortium"–a network of organizations interested in influencing the course of the emerging wood to bioenergy and biomaterials economy in the United States. He has been a leader in developing the vision, agenda, and priorities for nanotechnology within the forest products industry sector. He co-chaired the first US workshop on Nanotechnology for the Forest Products Industry and is co-editor/author of "Nanotechnology for the Forest Products Industry: Vision and Technology Roadmap". He was co-chair and/or organizer of the 2006 - 2011 TAPPI International Conferences on Nanotechnology for the Forest Products Industry. Wegner has coauthored a number of papers on the role and vision for nanotechnology in the forest products industry and serves as a Forest Service representative on the U.S. National Nanotechnology Initiative. He also serves as a federal representative on the U.S. Forest Products Industry's Agenda 2020 Technology Alliance and participated in the development of a number of forest products industry technology roadmaps. He served on the Secretary's Forestry Research Advisory Committee of the USDA. He was elected a Fellow of the International Academy of Wood Science and of the Technical Association of the Pulp and Paper Industry (TAPPI). He was the recipient of the 2011 Andrew Chase Award from the American Institute of Chemical Engineers and was inducted into the Paper Industry International Hall of Fame in 2013. Wegner holds Chemical Engineering degrees from the University of Wisconsin (Bachelor of Science) and the University of Illinois (Master of Science and PhD). Prior to joining the Forest Service, he worked for E. I. DuPont.

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NCF
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Nanocellulose is an "All-Japan" based forum that promotes information sharing, exchange of views, and R&D collaboration among related parties—between basic R&D entities and commercial entities who take part in the deployment of nanocellulose including materials, processing, and manufacturing apparatuses, and between the supply side such as paper manufacturing and chemical product companies and the demand side such as home information appliances, automobiles, and cosmetics. For this reason, the consortium has been instituted to foster collaboration among the associated organizations and to promote the introduction of nanocellulose.

Supporter of the Leveraging International Public-Private Partnerships to Address Technical Barriers for Large Scale Production of Wood-derived Cellulose Nanomaterials Workshop.

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Bobst North America Inc.
BTG Americas Inc.
Buckman
Cargill Inc.
CEL Chemical & Supplies
Chemstone Inc.
Chemtreat Inc.
Coldwater Group Inc.
Copar Corporation
Corrugated Gear & Services Inc.
Crane & Company Inc.
Domtar Paper Co. LLC
DuBois Chemicals
DuPont Soy Polymers
EAM-MOSCA Corporation
EMBA Machinery AB
Enzymatic Deinking Tech.
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Esko Pacific Sales Ltd.
Essco Inc.
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Fibria Celulose SA
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FM Global
Fosber America Inc.
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Georgia-Pacific LLC
Grain Processing Corporation
Graphic Packaging
The Haire Group
Hansol Paper
HP
IMERYS
Ingredion Incorporated
International Paper
J.S. Corrugating Machinery Co. Ltd.
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Kamin LLC
Kapstone Paper and Packaging Corp.
KBR
Kemira
Keyes Fibre Corp.
Kiwiplan
KSH Solutions Inc.
Leo Paper Bags Manufacturing Limited
LyondellBasell
MarquipWardUnited
Maxcess (Webex, Fife, Tidland, MAGPOWR)
Mica Corporation
Michelman
Mid-Atlantic Packaging
Miller Mechanical Services Inc.
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Mitsubishi Heavy Industries America
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Oji-Paper Co LTD
OMYA Inc.
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Probiotic Solutions
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Samuel Strapping Systems
Sauer System
SCA Americas Inc.
SCG Packaging Public Company Limited
Scion (New Zealand Forest Research Institute Ltd.)
Shanghai Srpack Machinery Co. Ltd.
Siemens Industry Inc.
Signode
SKF USA Inc.
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TABER Industries
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Thiele Kaolin Company
Thwing-Albert Instrument Company
Tien Chin Yu Machinery Mfg. Co. Ltd.
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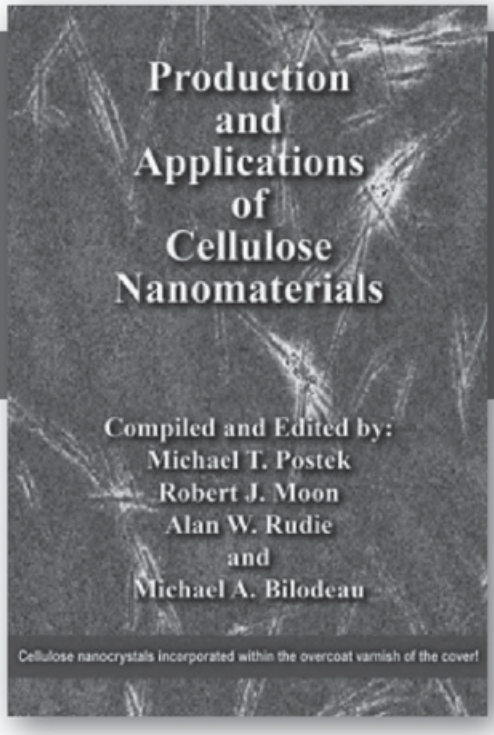

Production and Applications of Cellulose Nanomaterials

By: Michael T. Postek, Robert J. Moon, Alan W. Rudie, Michael A. Bilodeau

Cellulose nano-crystals and cellulose nano-fibrils have been known for 20-50 years, but recent research suggesting very high strength properties and other unique physical properties have generated extensive interest in these materials. The book is a collection of two-to-three page summaries on both recently completed and on-going research as well as identifying a who's-who of research and leads on successful applications.

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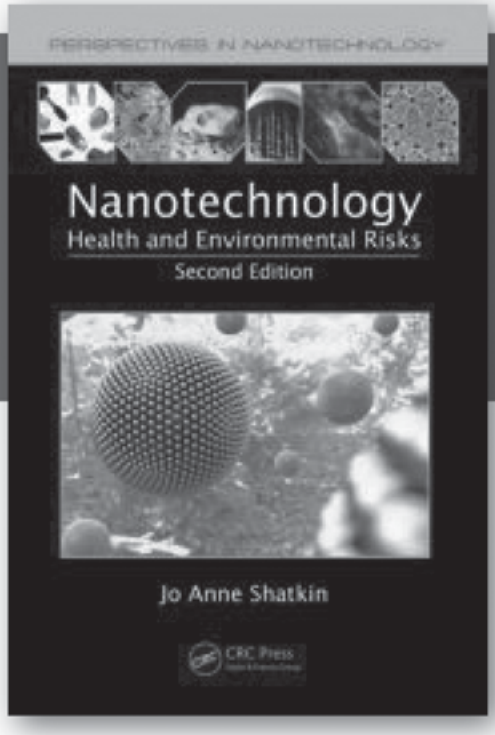

Nanotechnology Health and Environmental Risks, Second Edition

By: Jo Anne Shatkin

Examining the state of nanotechnology science, this book discusses what is known and what still needs to be understood about nanotechnology risk. It looks at the uses of nanotechnology for energy, industry, medicine, technology, and consumer applications and explains how to determine whether there is risk—even when there is little reliable evidence—and how to manage it. Written in easy-to-understand language, without sacrificing complexity or scientific accuracy, this book offers a wide-angle view of nanotechnology and risk. Supplying cutting-edge approaches and insight, it explains what types of risks could exist and what you can do to address them.

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General Information

ADA Assistance
Attendees with special needs are encouraged to contact the staff at the TAPPI Registration Desk so TAPPI can make your participation more enjoyable and meaningful.

Badges
It is important that the official badge supplied at the time of registration be worn at all times. This practice is a courtesy to your fellow registrants. It also indicates that you have completed registration and may participate in the events scheduled. Admission to technical sessions and workshops will be by badge only.

Hosted Events not sponsored by TAPPI
All company hosted events (customer meetings, social events, etc.) that are not officially a part of TAPPI's program may not conduct group functions which compete with scheduled TAPPI activities, such as technical sessions, committee meetings, receptions, award ceremonies, group meals and trade fairs or exhibits. If you are planning to host a group event, please check with the TAPPI Account Manager to avoid conflict.

TAPPI's Policy Regarding Equipment at Non-Exhibit Events
TAPPI prohibits the unauthorized physical display or demonstration of equipment in sessions, workshops, or committee meetings held during TAPPI seminars, short courses, conferences, or other meetings unless approved by the TAPPI Account Manager. This prohibition does not preclude the graphic non-commercial depiction of equipment via slides, pictures, or video tape. This prohibition is intended to preclude commercialism and to minimize attendee exposure to potentially dangerous equipment and to avoid conflicts with contractual and governmental requirements regarding the use of meeting facilities. All inquiries should be directed through the TAPPI Account Manager on-site.

Lost and Found
Articles which are found should be brought to the Registration Area. Please note the room in which the article was found for the purpose of tracing it to the appropriate owner.

Membership and Publication Information
TAPPI membership dues, membership applications (TAPPI and committee), and requests for TAPPI publications may be obtained at the registration.

Nonmembers of TAPPI
If you apply for membership in TAPPI while at this meeting, you will be able to register at the member rate. Take advantage of this opportunity to join TAPPI and save money.

Photographic Consent
Photographs may be taken during this meeting for TAPPI to use for publicity purposes. A registrant's presence at the meeting constitutes consent for TAPPI to use the photographs in which he or she may appear.

Registration is Open Monday, June 13 through Thursday, June 16

Ribbons
Association, technical division, and committee officers are requested to pick up their ribbons at the registration desk. Session chairmen and speaker ribbons will also be available at the registration desk.

Tax Deduction for Educational Expenses
U. S. Treasury regulation paragraph 1.162.5 permits an income tax deduction for educational expenses (registration fees and cost of travel, meals, and lodging) undertaken to: (1) maintain or improve skills required in one's employment or other trade or business, or (2) meet express requirements of an employer or a law imposed as condition to retention of employment, job status, or rate of compensation. Under the Tax Reform Act of 1993, however, non-reimbursed employment-related educational expenses are deductible only to the extent that they exceed 2% of adjusted gross income. In addition, the new tax law limits the deduction for otherwise allowable business meals and business entertainment to 50% of cost.

Use of Personal Video Recording Equipment at Technical Sessions
The use of personal recording equipment to record technical sessions at TAPPI conferences is strictly prohibited. Only TAPPI's official designee is authorized to video tape sessions. Should a company and/or individual seek to violate this prohibition, that company and individual will be barred from giving technical presentations at TAPPI sponsored events for a period of two years, that period starting from the date of infraction. TAPPI staff is authorized to have equipment in violation of this policy immediately removed upon detection and shipped to the owner's principle location at the owner's expense. Inquiries on this policy should be directed to the TAPPI Meetings Department, c/o TAPPI headquarters.

Safety Information

Fire Survival

When you reach your hotel room, ask yourself: Can I close my eyes, hold my breath, and go directly to the nearest fire exit WITHOUT LOOKING in 15 seconds?

You may have to do just that:

- Under emergency conditions
- In smoke
- In darkness
- At 3:00 a.m.

Because panic is the main problem in unfamiliar surroundings, you should prepare for emergencies when you travel. The following information is provided to help you prepare for a hotel fire emergency. Remember that by-products of fire (gases, smoke, etc.) kill more people than fire itself.

Survival Plans

- Familiarize yourself with your new surroundings by checking the emergency exit and escape routes.
- Ensure that doors are unlocked and exit routes are free of obstructions.
- Study the room you are staying in (do the windows open, what is the distance to the ground, etc.).
- Avoid elevators in emergency situations.
- Count the number of doors and walls between your room and the emergency exits. Smoke could obscure lighted signs.

Before and After Leaving the Room

- When an alarm sounds, slowly feel the surrounding walls and doors with the back of your hand. If the door is warm, stay as low as possible (to avoid smoke) and open it slowly. If the door and walls are not warm, proceed toward the emergency exit using the most direct route. If the smoke is too heavy, remain in room.
- Take the key with you. You might find it safer to return to your room.
- If the smoke thickens as you go down the escape stairs, go up one flight and cross over to an alternate staircase.
- If access to the alternate staircase is blocked, proceed to your room and wait for assistance.
- Avoid breaking windows. Broken windows can allow fire and smoke into the room. If a window must be broken or opened, dangle a bed sheet from the window as a signal to firemen. Don't jump if the fall is more than two stories.

If You Cannot Leave the Room

- Place towels and bedclothes around the door areas. Keep them soaked with water.
- Fill the bathtub and use it as a reservoir for wetting down the entire room. Placing yourself in a filled tub will not offer protection.
- Hold a wet towel around your face to filter smoke.
- Dial the hotel emergency number (0) to tell rescue personnel where you are.

General Safety Tips

To make your conference experience a safe and enjoyable one, please keep the following safety tips in mind. While you are out of the hotel, please know that, like in all cities, awareness and caution are certain to help ensure your safety. A common crime is pick pocketing, with women's purses being the prime target. Some simple precautions you can take are:

- Never carry all of your valuables in the same place. Keep them secured in a safe deposit box.
- Never walk alone at night, especially to off property locations; there really is safety in numbers!
- Do not leave purses, briefcases or other personal property unattended in public locations. Use hotel services such as a coat check or luggage storage.
- Remove your name badge while out of the hotel. They identify you as an out-of-towner and easy target for crime.
- Women: carry your purse with the strap over your shoulder and across your chest, keeping it closed or latched with the bag portion in front of you. For added protection in crowds, you can rest your hand on top. Be particularly watchful of distractions in revolving doors, elevators or in the public.
- Men: Wrap a heavy rubber band around your wallet to prevent it from being easily slipped out of your pocket or carry it in your front pants pocket.
- If you find that you have become a victim, report the crime to the police.
- Report any suspicious persons or behavior in the hotel or convention center to the registration desk or any TAPPI staff.

About TAPPI

TAPPI is the leading association for the worldwide pulp, paper, packaging, and converting industries and co-publisher of Paper360°. Through information exchange, trusted content, and networking opportunities, TAPPI helps members elevate their performance by providing solutions that lead to better, faster, and more cost effective ways of doing business.

TAPPI's Mission

…is to engage the people and resources of our Association in providing sound solutions to the workplace problems and opportunities that challenge our current and future members.

TAPPI's Vision

… is to make a significant positive difference in the professional lives of our members.

Antitrust Policy Statement

TAPPI is a professional and scientific association organized to further the application of science, engineering, and technology in the pulp and paper, packaging and converting, and allied industries. Its aim is to promote research and education, and to arrange for the collection, dissemination and interchange of technical concepts and information in fields of interest to its members. TAPPI is not intended to, and may not, play any role in the competitive decisions of its members or their employers, or in any way restrict competition among companies.

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These special publications from TAPPI are available to the 2016 TAPPI International Conference on Nanotechnology attendees, most at a "conference only" discount. You can purchase these books when registering and pick them up when you arrive at the conference.

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TAPPI

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JOIN TAPPI AND BECOME A MEMBER OF TAPPI'S INTERNATIONAL NANOTECHNOLOGY DIVISION, ESTABLISHED IN 2011 TO COLLECTIVELY ADVANCE THE RESPONSIBLE AND SUSTAINABLE PRODUCTION AND USE OF RENEWABLE NANOMATERIALS.

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Connect with technical professionals and researchers around the globe by participating on technical committees, planning the annual conference, or working on Division projects to raise awareness of renewable nanomaterials.

Gain recognition for your expertise

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- Develop and edit special volumes around topics of interest
- Plan symposiums at the annual conference

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