

# International Conference on Nanotechnology for Renewable Materials

12–16 June 2023 Westin Bayshore, Vancouver BC



## INVITATION TO PRESENT

Abstracts are currently being accepted for the **2023 TAPPI Nanotechnology Conference**. TAPPI's Nano event continues to grow in attendance and quality of presentations. Please consider submitting an abstract for an oral and poster presentation to this premier event addressing the latest technical developments and applications of renewable nanomaterials. While primarily focused on cellulose nanomaterials, submissions regarding other nano bio-based materials are highly encouraged.

### **Special Topics for 2023**

The organizers of this year's conference are requesting abstract submissions in three additional focus areas:

**Dispersion of CNMs in Polymer Matrices or Elastomers** – This topic focuses on utilizing water-based chemistry, reactive drying or other methods for hydrophobicity to achieve the dispersion of CNMs in polymer matrices or elastomers.

**Development of Barrier Properties** - This topic is focused on industrial applications and product development of oxygen, water, water vapor, oil and grease barriers with the goal to achieve faster measurement of these properties.

**Development of CNM Use in Targeted Applications** – This topic is focused on the development of cellulose nanomaterial in Paper & Packaging, Medical, Cosmetic, Construction, Textile & Nonwovens, Automotive, Resource Extraction, Paints & Coatings, and Filters

### **TECHNICAL PRESENTATIONS ON NEW RESEARCH FINDINGS**

*Topics where novel research and new findings are presented are preferred while literature reviews are not encouraged.*

*Please see the detailed list of suggested topics on the following:*

#### **Nanomaterial Production**

##### **Production of CNMs**

- Production of CNMs (CNFs, CNCs, TEMPO-CNF, CF, etc.) and their lignin-containing versions such as LCNFs and LCNCs from various raw materials and through different techniques
- Efficient pretreatment methods to improve process throughput and productivity (different pretreatment methods e.g. enzymatic, chemical, thermal, hydrothermal, etc)

##### **Structure-processing-property relationships & CNM Quality Assessment**

- Structure-processing-property relationships in various CNMs
- Stability of CNMs

##### **Energy and Cost Reduction Methods**

- Methods to reduce energy demand and cost of CNM production

##### **Dewatering and Drying**

- Drying CNMs (freeze drying, spray drying, supercritical drying, microwave drying, etc. ) and dewatering (press, filtration, ultrasound, contact dewatering, etc.)

##### **Process Optimization and Scale Up**

- Optimization of process parameters
- Scale up of CNMs production

## Nanomaterial Characterization

### Fundamental Properties of Microscale and Nanoscale Cellulose Materials

- Measurement of intrinsic properties, such as surface chemistry, optical, thermal, mechanical, and other properties
- Key properties for comparison and benchmarking

### Metrology for Production of Microscale and Nanoscale Cellulose Materials

- New metrology method
- Commercial measurements needs (online, quantitative, property control)

### Matching Properties to Applications

- materials specifications, spec sheets, regulations and new standard characterization methods
- Evaluation of existing methods for usefulness and practicality

## Applications and Product Development: CNF & MFC

The following list of application areas is intended to provide examples only. Any applications for CNF & MFC not listed here should also be submitted to this section.

### Polymer Composites

- Design and manufacture of reinforced matrices, micro- and nano-structural characterization, measurement of mechanical, physical and chemical behaviors, and the performance of composites in service
  - Thermoplastic composites, such as polyolefins, polystyrene, and polyesters
  - Thermoset composites, such as epoxies and polyurethanes
  - Water-based polymer composites including polyvinyl alcohol and polyethylene oxide
  - Sustainable and degradable polymer composites, such as poly(lactic acid) and polycaprolactone

### Other Composites

- Inorganic matrices such as cement/concrete, sol-gels, metal-organic frameworks, etc.
- Other bio-based or hybrid matrices (alginates, starch, etc.)

### Papers

- High CNF/MFC-content papers
- CNF/MFC as additives in papers/board

### Foams

- Rigid foams for insulation, sound dampening, etc.
- Soft/flexible foams for cushioning, impact resistance, etc.
- Composite foams, hybrid formulations, etc.

### Scaffolds

- Catalyst supports
- Cell/tissue cultures

### Freestanding Films and Membranes

- Transparent/translucent films
- Barrier properties (oxygen, water vapor, grease resistance, etc.)
- Ion-exchange, battery separators
- Printed electronics
- Filtration (air and water)

### Coatings

- Barrier properties
- Substrate for printed electronics

### Adhesives and Binders

- CNF/MFC as binder for organic/inorganic particles/fibers
- CNF/MFC as additives in adhesives
  - Adhesion mechanisms

### Other Products

- Emerging applications and new developments

## Applications and Product Development: CNC, Lignin, and Other Renewable Nanomaterials

The following list of application areas is intended to provide examples only. Any applications for CNC, Lignin and Other renewable Nanomaterials not listed here should also be submitted.

### Cellulose Nanocrystals, Products & Applications

- CNCs, as mechanical fillers/reinforcement of (nano)composites for diverse applications
- Advanced functional CNC-based products and their potential applications
- From wet foams, Pickering emulsions to solid porous materials

### Valorization of Lignin into Advanced Functional and Sustainable Materials

- Colloidal lignin particles (or Lignin Nanoparticles) products & applications
- Technical lignins products & applications
- Native/Residual lignins potential and opportunities in products development & applications

### Product Development & Applications of Other Renewable Nanomaterials

- Chitin & Chitosan nanomaterials
- Wood/Plant-based nanomaterials, from hemicelluloses, tannin to ashes
- Other renewable nanoparticles-based products and applications

## EH&S, Product Stewardship, Standards Development & Regulations

### Risk Assessment and safety

- Product and consumer safety
- Occupational safety
- Risk management
- Methods development

### Product Stewardship

- Sustainability assessment
- Safer-by-design
- Environmental management strategies
- Life cycle analysis

### Standards Development

- Newly published standards, or standards in development
- Standards development needs and challenges

### Regulations

- Regulatory developments relevant to authorization and commercialization

## NEW TECHNOLOGY SHOWCASE

*Share your company's latest technologies and advances in the industry*

Demonstrate your new products and services to attendees with an eight-minute presentation during the technical program. This technology must have been developed within the last year. Exhibitors who participate in the New Technology Showcase will have the first opportunity to present. Non-exhibitors who submit abstracts for this session will be conditionally accepted but won't be confirmed until after the exhibitor deadline of **12 May 2023**. After this date, non-exhibiting participants may present on new technology if space is available and will be selected at the discretion of the committee. Presentation will be reviewed for anti-trust, uniqueness and quality. This is a rare opportunity to showcase your company's new innovations and to speak directly to interested consumers. Abstracts are due **08 January 2023** and will remain conditionally accepted until **12 May 2023**.

## STUDENT POSTER SESSION AND COMPETITION

### *A Competition for Students and Young Professionals*

Are you a student, graduate student or young professional who has recently joined the renewable nanotechnology industry? Have you successfully conducted research, implemented a project or have an idea for a project that sustainably drives our industry forward? The student poster session is your opportunity to display your research work in poster format. The session is an ideal setting for conference attendees to view your work in an informal and conversational setting. Posters are judged by conference attendees and the top-ranking posters are eligible for prizes. All accepted posters will be evaluated at the conference by a team of judges. The poster winners will be recognized at the conference, and the top poster presenters awarded a prize.

[Click here](#) to see past winners. Abstracts are due **08 January 2023**.

### CONFERENCE CO CHAIRS

- Prof. Johan Foster, University of British Columbia, Canada
- Lars Axrup, Stora Enso, Sweden

### ABSTRACT SUBMITTALS

Submissions are due by **8 January 2023**. Submissions must be received by the stated deadline to be considered for acceptance. Due to the large number of submissions received, the organizers cannot guarantee that the submission will be accepted.

All submissions will be peer reviewed by the conference Co-Chairs and Nano Division Research Subcommittees for acceptance. Submit title and 300-word or shorter abstracts via TAPPI's [Speaker Management System](#).

### IMPORTANT DATES

**08 January 2023 – Abstracts Due**

**27 February 2023 – Acceptance Letters Sent to Authors**

**14 April 2023 – Speaker Registration Deadline**

**05 May 2023 – Presentation Drafts Due to Session Chairs**

**02 June 2023 – Final Presentations Due to TAPPI**

### REGISTRATION INFORMATION

Speakers must register by **14 April 2023** to confirm inclusion in the technical program. If speakers are not registered by this date, their presentation will be pulled from the program. A reduced conference rate is available for speakers.

Visit the [conference website](#) for more information. To learn more about the NanoDivision [click here](#).

### Questions?

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