

INVITATION TO PRESENT

Conference Theme: Advancing Technology and Innovation Through Renewable Materials

Abstracts are currently being accepted for the **2027 TAPPI International Conference on Advanced Renewable Materials (TAPPI ARM).** TAPPI ARM continues to grow in attendance and quality of presentations. Please consider submitting an abstract for an oral or poster presentation to this premier event addressing the latest technical developments and applications of advanced renewable materials of different sizes, structures and performance. While primarily focused on fibrillated and crystalline cellulosic materials, submissions regarding diverse renewable materials are highly encouraged.

Special Topics for 2027

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

Advanced Cellulosic Materials: Application Methods, Product Forms, and Market Barriers – There is an increased interest in next-generation approaches to move from promising lab-scale material and performance to practical, scalable solution for packaging, coatings, composites, and other applications. A better understanding of scale-up methods and processes, technical challenges, and opportunities is needed. This session will highlight advances in surface applications, packaging, AI-assisted production improvements, storage, preservation, de-watering, drying, agglomeration control, and on-site production.

Advanced Renewable Materials in single-use packaging – One of the most promising applications for advanced renewable materials is in single-use packaging. This session will examine the use of ARM in single-use packaging, with a special emphasis on molded and (thermo)formed substrates and products, paper-based flexible packaging base papers, and barrier coating solutions.

Advanced Renewable Materials from alternative feed sources – Although most advanced cellulosic materials today are produced from wood-based sources, they can be manufactured using other cellulosic feedstocks as well. These feedstocks can also be used for the production of other renewable materials, such as lignin. This session will highlight the production, characterization, properties and application of ARM from alternative, non-wood fibers and feedstocks, such as bio-waste, bacteria, algae, animal, and recycled/upcycled materials.

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:

Advanced Renewable Materials Production

Production Methods of Advanced Cellulosic Materials (ACMs)

- Pre-treatment of biomass (e.g., enzymatic, chemical, thermal, hydrothermal, etc.)
- Bulk production of ACMs (MFCs, CNFs, CNCs, anionic-CNFs, cationic-CNF, etc.) and their lignin-containing versions (LCNFs and LCNCs)
- In-situ modifications
- Structure-processing-properties relationships of ACMs
- Post-production treatment, including chemical modifications

Optimization strategies of manufacturing/production process of ACMs

- Methods to reduce energy demand
- Process Optimization strategies (e.g., Automated process control, AI-driven systems, process-structure-property focus)
- Scale-up of ACMs production

Dewatering, Drying, and Storage of ACMs

- Drying methods of ACMs (e.g., freeze drying, spray drying, supercritical drying, microwave drying, etc.)
- Dewatering processes & strategies (e.g., press, filtration, ultrasound, contact dewatering, etc.)
- Stability of ACMs

Production and Properties of Other Renewable Advanced Materials

- Lignin and derivatives
- Protein amyloids and fibrils
- Chitin and chitosan fibrils and crystals
- Alginates and Xylans
- Biochar

Advances on Characterization of Advanced Renewable Materials

Fundamental Properties at the Microscale and Nanoscale

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

Metrology for Characterization at the Microscale and Nanoscale

- New metrologies
- Commercial measurement & benchmarking needs (in-line, quantitative, property control)

Matching Properties to Applications

- Materials specifications, regulations, and new standard characterization methods
- Evaluation of existing methods for usefulness and practicality

Advanced Computing Analysis Tools

- Automated image analysis
- Modeling and simulation of ACMs structure & properties
- Development of materials informatics platform (e.g., AI, integrated computing-experimental research, etc.)

Applications and Product Development: Fibrillated Advanced Cellulosic Materials

Composites

- Design and manufacture of reinforced matrices, micro- and nano-structural characterization, measurement of mechanical, physical and chemical behaviors, and the performance and durability 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 bio-based and/ or biodegradable polymer composites, such as poly(lactic acid) and polycaprolactone
- Inorganic matrices such as cement/concrete, sol-gels, metal-organic frameworks, etc.
- Other bio-based or hybrid matrices (alginates, starch, etc.)

Fiber-based Products

- ACMs in paper- and paperboard substrates (from additives to main components, high content)
- Bulk additives and coating solutions for molded cellulose products (e.g., high CNF/MFC-content pulps, dewatering,

effects on density/bulk, 3D coatings technology, wet vs dry molded).

Porous materials, from foams to aerogels to scaffolds

- Rigid foams for insulation, sound dampening, packaging, etc.
- Soft/flexible foams/aerogels/xerogels for cushioning, impact resistance, packaging, etc.
- Composite foams, hybrid formulations, etc.
- Catalyst support
- Cell/tissue cultures

Films, Membranes, & Coatings

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

Adhesives and Binders

- CNFs/MFCs as binders for organic/inorganic particles/fibers
- CNFs/MFCs as additives in adhesives
- Adhesion mechanisms

Other Products, Emerging Applications, and New Developments

Applications and Product Development: CNCs, Lignin, and Other Renewable Materials

The following list of application areas is intended to provide examples only. Any applications for CNCs, lignin and other advanced renewable materials not listed here should also be submitted.

Product Development & Applications of Cellulose Nanocrystals

- CNCs, as mechanical fillers/reinforcing agents of (nano)composites for diverse applications
- Advanced functional CNC-based products and their potential applications
- From wet foams, Pickering emulsions to solid porous materials
- Photoactive and functional films and membranes
- Any other functional material and applications for CNCs, lignin and other nano bio-based materials

Lignin in Advanced Functional and Sustainable Materials

- Colloidal lignin particles (or lignin nanoparticles) products & applications
- Technical-grade lignins products & applications
- Native/residual lignins potential and opportunities in products development & applications

Product Development & Applications of Other Renewable Materials

- Chitin & chitosan nanomaterials
- Alginates and Xylans
- Biochar
- Protein amyloids and fibrils
- Wood/plant-based nanomaterials, from hemicelluloses and tannins to ashes
- Bacterial cellulose
- Other renewable nanoparticles-based products and applications

EH&S, Product Stewardship, Standards & Regulations

Risk Assessment, Regulations, and Safety

- Product and consumer safety
- Occupational safety
- Risk management
- Methods development
- Regulatory developments relevant to authorization and commercialization
- Impacts of regulation on commercialization
- Commercial strategies for regulatory acceptance of renewable advanced biomaterial products

Product Stewardship

- Sustainability assessment
- Safer-by-design
- Environmental management strategies
- Life cycle assessment (LCA)
- Techno-economic analysis (TCE)
- Biodegradability, recycling, and compostability strategies

Standards Development

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

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 **29 May 2027**. 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. Presentations 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 on 1**5 January 2027** and will remain conditionally accepted until **22 May 2027**.

STUDENT POSTER SESSION AND COMPETITION

A Competition for Students and Young Professionals

Are you an undergraduate student, graduate student or young professional who has recently joined an advanced renewable 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. Abstracts are due on **15 February 2027**.

ABSTRACT SUBMITTALS

Submissions are due by **15 January 2027**. 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

15 January 2027 – Abstracts Due
29 March 2027 – Acceptance Letters Sent to Authors
01 May 2027 – Speaker Registration Deadline
01 May 2027 – Presentation Drafts Due to Session Chairs
01 June 2027 – Final Presentations Due to TAPPI

REGISTRATION INFORMATION

Speakers must register by **01 May 2027** 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.

More details will be available on the conference website in the coming weeks.

Questions?

Technical Program & Submission Issues: Robert Davis, rdavis@tappi.org,