



## **TECHNICAL PROGRAM**

As of 3/7/18 - Subject to change – please check the conference website for updates.

Monday 11 June 2018		
9:00-10:30	Forest Products Laboratory Tour #1	
9:00 – 12:00	Practical Safety Strategies for Bio/Nano Technology Commercialization Workshop	
12:00-1:30	Student Committee Lunch	
1:00 - 4:00	CNM Characterization Workshop – Primary Characterization	
2:00-3:30	Forest Products Laboratory Tour #2	
4:00-5:30	Session 1: OPENING SESSION AND KEYNOTE Keynote Speaker: Alper Kiziltas, Ph.D. Ford Motor Company Welcome & Nano Division Overview	
5:30-7:00	Welcome Reception 5:30-7:00	
6:30-7:30	Young Professionals Mixer 6:30-7:30	

	Tuesday 12 June 2018			
	Session 2: Particle Size Measurement	Session 3: Lignin Specialties	Session 4: Responsive & Functional Materials I	
	Proof-of-Concept of Gel Fractionation of Bleached Eucalyptus Kraft MFC - <i>Braz</i> <i>Demuner, Fibria Cellulose</i>	Bio-nanomaterials Development: Linking R&D Activities and Industrialization Of Lignin Micro - and Nanoparticles - Camilla Abbati de Assis, North Carolina State University	Cellulose Nanomaterial in High Performance Water-based Drilling Fluids - Qinglin Wu, Louisiana State University	
8:30- 10:00	Determining Nanocellulose Particle Size — A Comparative Study - Valdeir Arantes, Lorena School of Engineering, University of São Paulo	Exploring the Interactions That Drive the Assembly of Cellulose Nanofibers Produced from Australian Spinifex Arid Grass - Katarzyna Kemp, University of Queensland, Australian Institute for Bioengineering and Nanotechnology	Encapsulation of Phase Change Materials in Cellulose Nanocrystals-Reinforced Poly(urea-urethane) Microcapsules and Their Incorporation in Asphalt for Snow and Ice Melting - Carlos Martinez, Purdue University	
	Characterization Of Concentrated Aqueous CNC Suspensions By Static Multiple Light Scattering: Equivalent Particle Size And Suspension Stability – Zygmunt Jakubek, National Research Council of Canada	Valorizing Lignin through Lignin nanoparticles Fabrication and Application - Dong Tian, Sichuan Agricultural University	Sensing Water Diffusion and its Effects in CNC-epoxy Composites Using Aquafluor - Sindhu Seethamraju, National Institute of Standards and Technology	
	Metrology Challenges for Characterization of Cellulose Nanocrystals – <i>Linda</i> <i>Johnston, National Research</i> <i>Council Canada</i>	Anisotropic Cellulose Nanofibers/Lignin Foams For Thermal Insulation - <i>Nathalie</i> Lavoine , Stockholm University	Unusual Approaches to Ccellulose Nanocrystal Modification: Allomorph Transition and End-to-end Connections - Eero Kontturi, Aalto University	
10:00- 10:30		Break		
40.53	Session 5: Photonics and Optical Applications	Session 6: Industrial Applications	Session 7: Foams & Gels	
10:30- 12:00	Circularly Polarized Light Detection on Transistors using Cellulose Photonic Dielectrics - Luis Pereira, CENIMAT/I3N and CEMOP/UNINOVA	Towards Enhanced Durability And Sustainable Construction Through Tuned Cellulose Nanofibres - <i>Vivek</i>	Towards Nano-enabled Bio- Based Solutions by Foam Technologies - Katariina Torvinen, VTT Technical Research Centre of Finland Ltd.	

		Bindiganavile, Univeristy of Alberts	
	Thermoresponsive Liquid Crystal Templating of Semiconducting Polymers using Cellulose Nanocrystals - Bailey Risteen, Georgia Institute of Technology	Cellulose Filament Reinforced Cement Board - Xiaolin Cai, FPInnovations	Ultralight Weight Kapok Fiber Derived Aerogels for Oil Spill Cleaning - Indu Chauhan, Indian Institute of Technology Delhi
	UV-blocking Hybrid Nanocellulose Films Containing Ceria and Silica Nanoparticles - Tiffany Abitbol, RISE Research Institutes of Sweden	The Potential of TEMPO- Oxidized Cellulose Nanofibrils as a Rheology Modifier in Food Systems - Ragnhild Aaen, NTNU	Control of Porous Structure of Cellulose Aerogel Made from Nanofibrillated Cellulose – Chen Gong, China National Pulp and Paper Research Institute
	Electrophoretic Deposition of CNC-Containing Photonic and Semi-Conductive Films - Wadood Hamad, FPInnovations	Hygiene Product Application Utilizing Cellulose Based Absorbent Material Made By Tempo Oxidation - Jani Lehmonen, VTT Technical Research Centre of Finland Ltd	Plasticized Nanocellulose Gel for Biomedical and Food Packaging Applications - Suraj Sharma, University of Georgia
12:00 - 2:00	Session 8: Keynote Presentation and Lunch Keynote Speaker:		
2.00		neynote speaker.	
2.00	Session 9: Industrial Production 1	Session 10: Novel Properties of Nanocellulose-based Films and Membranes	Session 11: Tissue Engineering and Implants
2.00		Session 10: Novel Properties of Nanocellulose-based Films	
2:00-3:30	Production 1  Control of Membrane Processes During the Production of Cellulose Nanomaterials – Emily	Session 10: Novel Properties of Nanocellulose-based Films and Membranes Industry Adopted Production of Nanocellulosic Material Optimized for Increased Strength of Packaging and Printing Paper - Per Engstrand,	3D Printing Of Nanocellulose Scaffolds With Tailored Mechanical Strength Towards Medical Applications - <i>Xiaoju</i>

	Cost Effective Production of CNC at InnoTech Alberta - Christophe Danumah, InnoTech Alberta Inc.	Study of Structure Dependence Of Barrier Properties In Nanofibrilated Cellulose Films for Intelligent Food Packaging Applications - Vadim Kislitsin, University of Alberta	New Production Strategies for Tissue Scaffolds Containing Cellulose Nanocrystals and Their Fate in Vivo – <i>Emily</i> <i>Cranston, McMaster University</i>	
3:30-4:00		Break		
	Session 12: End User Panel	Session 13: Tissue Engineerin Delivery	ng, Implants and Drug	
		Shape-memory 3D Printable Hyd Properties - Gilberto Siqueira, Ap Empa	_	
4:00-5:30	Cellulose-Based Lateral Flow Devices for Low-Cost F Blood Coagulation Monitoring - Andrew Steckl, Univ Cincinnati			
		Facile Preparation of Lignin Nan Aqueous Solution and Excellent Liheng Chen, Jinan University	-	
		Vitamin B Complex Encapsulated Model Study On Adsorption and Diego Sánchez, Pontificia Bolival	Controlled Delivery System -	
5:30-7:30	Session 15: Po	Session 15: Poster Session and Student Poster Competition		
		Wednesday 13 June 2018		
	Session 16: Automotive & Other Manufacturing Processing	Session 17: Processing and Applications of Nanocellulose-based Coatings	Session 18: Responsive & Functional Materials II	
8:30- 10:00	Role of Nanocellulose in Glass Fiber-Epoxy Interphase - Joyanta Goswami, Georgia Institute of Technology	Chitin and Cellulose Spray Coated Nanomaterials for Sustainable Barrier Applications - Chinmay Satam, Georgia Institute of Technology	Mechanical Behavior of Polymer Conjugated Cellulose Nanocrystal Films - Sinan Keten, Northwestern University	
	High performance nanocellulose – polyamides composites - <i>Fabiola Vilaseca,</i> <i>University of Girona</i>	Roll-to-roll Fabrication of Transparent Cellulose Nanocrystal Coatings on a Flexible Substrate with	Development of Cellulose Fibre Yarns For Hormone Capture From Aqueous Matrices - Hannes Orelma,	

		Controlled Anisotropy Reaz Howdhury, Purdue University	VTT Technical Research Centre of Finland
	Toward the Applications of CNFs Materials for Automotive Parts - Hiroyuki Yano, Kyoto University	Coatability of CNC Suspensions in a High-throughput Continuous Process - Rajesh Koppolu, Åbo Akademi University	Solving the Problem of Making Nanocomposites of Hydrophilic and Hydrophobic Polymers by Gas Switchable CNC - Farhad Farnia, Universite de Sherbrooke
	Towards CNC-Enabled Lightweighting of Automotive Components - Craig Clemons, USDA Forest Products Laboratory	Comparison of Coating Methods for the Application of Cellulose Nanofibrils (CNF) as Coating on Paperboard - Doug Bousfield, University of Maine	Novel Tunable Amphiphilic to Hydrophobic Nanocelluloses Via a Multi-Functional Reagent - You-Lo Hsieh, University of California, Davis
10:00- 10:30		Break	
	Session 19: Self- and Directed Assembly of Nanocellulose	Session 20: Melt & Dry Processing I	Session 21: Foams & Aerogels I
	Confinement Driven Organization of CNF and CNC - Gustav Nyström, ETH Zurich	Cellulose Nanocrystal — Thermoplastic Composites via Melt-Blending — Douglas Fox, American University	Fabrication and Functionalization of Advanced Nanomaterials with 3D- Network Structure from Cellulose and Whole Biomass using LiBr Molten Salt Hydrate System - Yang Liao, UW Madison
10:30- 12:00	Optimizing the Structure and Mechanical Properties of Chiral-Nematic Cellulose Scaffolds for Tough Bioinspired Polymer Composites - Bharath Natarajan, National Institute of Standards and Technology	Dual approach to Driving Crystallinity-Based Performance In Polylactic Acid Materials: Cellulose Nanomaterials Delivered By Polyethylene Glycol - Caitlyn Clarkson, Purdue University	Ultralight, Highly Thermal Insulating and Fire Resistant Aerogel by Encapsulating Cellulose Nanofiber with Twodimensional MoS <sub>2</sub> - Hongli Zhu, Northeastern University
	Nanocellulose Biofabrication: A Versatile Toolbox for Self- assembled Functional 3D Structures - Orlando Rojas, Aalto University	Embedding Cellulose Nanocrystals (CNCs) into Polymer Particles for Enhanced Processing - Priya Venkatraman, Virginia Tech	Characteristics of TEMPO- oxidized cellulose nanofiber/water dispersions and their applications - Yohsuke Goi, DKS Co. Ltd., the University of Tokyo
	Engineering the Self-assembly of Cellulose Nanocrystals on Complex Topography to Obtain Advanced Hybrid Materials - Blaise Tardy, Aalto University	Improving Compatibility and Compounding of Cellulose Nanocrystals in Polymer Composites – Ronald Sabo, USDA Forest Service, Forest Products Laboratory	Cellulose Nanofibrils Aerogel: Development and Application In Water Treatment - Feng Jiang, The Department of Wood Science, Faculty of Forestry, The University of British Columbia

12:00 - 2:00	Session 22 - Lunch with Presentation by Conference Gold Sponsor				
	Session 23: Nanocellulose- Based Composites	Session 24: Flexible Electronics	Session 25: Nanocellulose For Enhancing Paper		
	Controlling cellulose nanocrystal location within latex systems by tuning interfacial compatibility - Elina Niinivaara, McMaster University	Cellulose Nanocrystals (CNC) Derived Mo <sub>2</sub> C@Sulfur-doped Carbon Aerogels for Hydrogen Evolution - Yun Lu, Research Institute of Wood Industry, Chinese Academy of Forestry	The Benefits of Using MFC (Microfibillated Cellulose) in Coated Papers - David Cowles, GL&V USA Inc.		
2:00-3:30	Processing Effects on Response of Mechanically Adaptive Cellulose Nanocrystal Polymer Composites - <i>Michael</i> <i>Bortner, Virginia Tech</i>	Room Temperature Fabrication of High- Performance Nanopaper Thin- Film Transistors with Stacked IGZO/Al <sub>2</sub> O <sub>3</sub> Bilayer Semiconductors - Zhiqiang Fang, South China University of Technology	Enhancing Coating Holdout with Cellulosic MicroFibrils - Donna Johnson, University of Maine Process Development Center		
2:00-3:30	Singly Dispersed Gold Nanoshell-Bearing Cellulose Nanocrystals with Tailorable Plasmon Resonance - Nikolay Semenikhin, Georgia Institute of Technology	Launderable Conductive Fabrics with Nanocellulose Coating - Yunsang Kim, Mississippi State University	Life Cycle Assessment Of Packaging Containing Microfibrillated Cellulose From Spruce - Ellen Soldal, Ostfold Research		
	Surface Modifications of Nanocellulose for Assembly of a Stable Organogel Support for Drug Crystallization - Manali Banerjee, Georgia Institute of Technology	AlGaN/GaN HEMT Based RF Power Amplifier on CNF Substrate for Environment- Friendly Flexible Electronics - Huilong Zang, University of Wisconsin-Madison	Nanocellulose Functionalization Using Silsesquioxane Particles Sol Gel Formation In Aqueous Conditions and Their Application for Superhydrophobic Coated Paper - Julien BRAS, Univ. grenoble Alpes, Grenoble INP, LGP2		
3:30-4:00		Break			
4:00-5:30	Session 26: Processing and Properties of Nanocellulose-based Films for Packaging Applications Functional Nanofibril	Session 27: 3D Printing & Coatings  3D Printed Poly(Lactic- Acid)/	Session 28: Characterization Methods Investigating the Influence of		
	Membranes and Strong Wet- Spun CNF Fibers - Yulin Deng, Georgia Institute of Technology	Grafted Cellulose Nanofiber Composites with Enhanced Mechanical Properties – Ju Dong, Louisiana State University	Fibril Size on Microfibrillated Cellulose (MFC) Suspension Morphology Under Flow: A Rheological Approach - <i>Michel</i>		

	All-cellulosic Packaging From Cellulose Nanofibrils And Fatty Acid Esters - Jari Vartiainen, VTT Technical Research Centre of Finland Ltd.  Hybrid Nanopaper of Cellulose Nanofibrils and PET Microfibers with High Tear Resistance – Emil Gustafsson,	Towards 3D printing of ABS -cellulose nanocrystal composite materials – Matthew Hartings, American University  Improved Wood Coatings via CNC Addition - Jeffrey Youngblood, Purdue University	Schenker, FiberLean Technologies Ltd.  Comparison of supramolecular structures of CNCs of different origins - Umesh Agarwal, USDA FS Forest Products Laboratory  Chemically Labeling of Cellulose For Quantitative Tracking - Jeremiah Woodcock, NIST
	Université Grenoble Alpes, LGP2  Structure-property Relationships In Physical, Mechanical, and Barrier Properties of Hybrid Cellulose Nanofibril/Bentonite Films For Packaging Applications - Mehdi Tajvidi, School of Forest Resources, University of Maine	Nanocellulose-modified Oil- Based Wood Coatings - Stefan Veigel, BOKU — University of Natural Resources and Life Sciences Vienna	Rheological Characterization and Testing Standards for Nanocellulose Materials - Jianshan Liao, School of Chemical and Biomolecular Engineering, Renewable Bioproducts Institute, Georgia Institute of Technology
6:30- 10:00		Conference Dinner 6:30-10:00	

	Thursday 14 June 2018				
	Session 29: Safety in Applications	Session 30: Thermal Properties	Session 31: Emulsions & Colloids		
8:30- 10:00	What Do We Know About the Safety of Cellulose Nanomaterials: Environmental Health and Safety Roadmap, knowledgebase and uncertainties - Jo Anne Shatkin, Vireo Advisors, LLC	Mass Production of Few-layer Boron Nitride/Nanofibrillated Cellulose Hybrid Membranes With High Thermal Conductivity Through One- step Exfoliation and Dispersion - Qingye Li, Polymer Research Institute of Sichuan University	Medium and High Internal Phase Oil-in-Water Pickering Emulsions Stabilized by Cellulose Filaments - Chuanwei Miao, FPInnovations		
	Toxicological Evaluation of Nanocellulose in Experimental Models of Occupational Respiratory Exposure - Jenny Roberts, NIOSH	Modification of Cellulose Nanocrystals (CNC) for Fire Retardant Applications - TriDung(TD) Ngo, InnoTech Alberta	Surprising Adhesive Property Modifications Using Cellulose Nanocrystals - Marc Dube, University of Ottawa		

	Comprehensive Physicochemical Characterization of Novel	Processing and Performance of Clay-Nanocellulose Hybrids- Lars Berglund, KTH Royal Inst	Tuned Multifunctional Cellulose Nanocrystal Acid- Base Cooperative
	Cellulose Materials: Challenges and Opportunities for Environmental Health - Christie Sayes, Baylor University	of Technology	Organocatalysts For Upgrading Biomass-Derived Platform Molecules - Nathan Ellebracht, Georgia Institute of Technology
	An Update on the Science of Demonstrating the Safety of Cellulose Nanomaterials for Food Related Uses - James Ede, Vireo Advisors, LLC	Retardation Effects of Cellulose Nanocrystals (CNCs) in Portland Cement Pastes - Francisco Montes, Purdue University	Rapid Stability Analyses of Microfibrillated Cellulose - Christelle Tisserand, Formulaction
10:00- 10:30		Break	
	Session 32: Industrial Production II	Session 33: Solvent Based Processing	Session 34: Foams & Aerogels II
	Mineral/microfibrillated Cellulose Composite Materials: High Performance Products, High Solids Product Forms and Applications - David Skuse, FiberLean Technologies Limited	Counterion Design Of TEMPO- Nanocellulose Used as Filler to Improve Properties of Hydrogenated Acrylonitrile- Butadiene Matrix - Akira Isogai, The University of Tokyo	Open
10:30- 12:00	Scaling up the CNC Production: Optimizing Cellulose Degradation with Gaseous HCl - Timo Pääkkönen, Aalto University	Effect of Cellulose Nanofibril Addition On Gel Spinning of Continuous Polyacrylonitrile Fiber, and Their Corresponding Properties - Jeffrey Luo, Georgia Institute of Technology	Nanocellulose aerogels and air filters - Junji Nemoto, Hokuetsu Kishu Paper
	Improved Biochemical Co- Production of Nanocellulose and Biofuel Precursors with Bacterial Cellulases - Peter Ciesielski, NREL	Acrylic-CNC Composites Formed by CNC Functionalization with Acryloyl Isocyanate and In Situ Copolymerization- Carson Meredith, Georgia Institute of Technology	Reinforcing Effect of Poly- Furfurylalcohol On Freeze- Dried Microfibrillated Cellulose Foams - Eva-Marieke Lems, BOKU-University of Natural Resources and Life Sciences
	Using Solid Organic Acids for Sustainable, Economic, and Tailored Production of Cellulose Nanomaterials - J. Y. Zhu, USDA Forest Products Lab	Nanocellulose in Formable, Strong and Lightweight Structures For Interior Construction - Vesa Kunnari, VTT Technical Research Centre of Finland Ltd.	Tailoring the Interactions Between Aminosilane and Cellulose Nanofibrils for the Processing and Drying of Hybrid Siliceous Foams - Korneliya Gordeyeva, Stockholm University
12:00- 2:00	Session	35: Keynote Presentation and Keynote Speaker:	d Lunch

	Session 36: Melt & Dry Processing II	Manu	sion 37: LCA facturing, Life Product Safety		8: Films and on Properties	Session 39: Student Session Career Roundtable
	Cellulose Nanocomposites: Vacuum Infusion of Cellulose Nanofiber Preforms with Bio-Based Epoxy - Kristiina Oksman, University of Oulu	Products: Environm Benefits u Assessme	illated Cellulose in Calculation of ental Costs and using Life Cycle ant - Ingunn Saur Ostfold Research	Measurement And Cholesto	ive, Noncontact nt Of Dielectric eric Properties - Jan Obrzut,	
	Binderless Cellulose Filament-Based Product Made by Compression Molding - Natalie Pagé, FPInnovations	Ecotoxico The Final Effluent o Fernando	Microfibrillated Cellulose Ecotoxicological Effects To The Final Treated Industrial Effluent of A Pulp Mill - Fernando Aquinoga Mello, Fibria Celulose S.A.		Measurement of se Films - <i>Karl</i> , <i>RISE</i>	
2:00-3:30	Cellulose Nanofibrils- Bonded Particleboards: Production, Property Evaluation and Dewatering Process Assessment - Ezatollah Amini, University of Maine	Products According Commissi Heli Kang	Nanomaterials in - Risk Assessment g to European on's Guideline - as, VTT Technical Centre of Finland	Modified Cel Nanocrystal Routes for In Performance Suspensions Temperature Vanderfleet, University	Production acreased e of Aqueous at High es - <i>Oriana</i>	
	Enhancement of the Physical And Mechanical Properties of Mycelium- Bonded Composite Panels by Cellulose Nanofibrils - Wenjing Sun, University of Maine	Overview of NIOSH Field Studies for the Assessment and Control of Nanocellulose Materials - Kevin Dunn, NIOSH		Department	s: Dried rticle and in Aqueous ussef Esparza, of Civil and tal Engineering	
3:30-4:00			Brea	k		
4:00-5:3	() <u> </u>	Session 41: Cession 40: Energy Storage Characterization and Session 42: Applications Quantification of Cellulose Mate Nanomaterials				

Structure and Eectrochemical Performance of Cellulose Nanocrystal Derived Carbon Anodes for Lithium and Sodium Batteries - Kyungho Kim, Purdue University	Meeting Global Regulatory Requirements: Overview of Nanomaterial Safety Testing - Kimberly Ong, Vireo Advisors	Fabrication and Characterization of All- Cellulose Composite Membrane for Simultaneous Oil/Water Separation and Water Purification - Chenghong Ao, State Key Laboratory of Polymer Materials Engineering, Polymer Research Institute at Sichuan University
Heavy Metal-Free Tannin from Bark for Sustainable Energy Storage – Hongu Zhu, Northeastern University	Investigation into Low Level Quantification Techniques for Cellulose Nanocrystals (CNC) in Aqueous Media – Brian O'Connor, FPInnovations	Scalable Processes for Nanocellulose Based Water Purification Membranes - <i>Aji</i> <i>Mathew, Stockholm University</i>
Nanocrystalline Cellulose Based Electroactive Polymer - Maobing Tu, University of Cincinnati,	The Effect of Pretreatment on Key Properties of Cellulose Nanofibers from Hybrid Aspen - Simon Jonasson, Luleå University of Technology	Effect of Surface Hydrophobicity to Antibacterial Activity Of Nanocellulose-Based Material with Quaternary Group - Shiyu Fu, South China University of Technology
Flexible Supercapacitors from Nanocellulose - Wei Zhang, State Key Laboratory of Polymer Materials Engineering, Polymer Research Institute at Sichuan University	Cellulose Nanocrystals from Flax Shives: Accessibility of the Hydroxyl Groups, Crystallite Shapes and Three-Dimensional Arrangement - Benoit Duchemin, Normandie Univ/CNRS	Preparation of Polypropylene Nanocomposites with Amphiphilic Janus ACC- Nanocellulose Created by Aqueous Counter Collision - Tetsuo Kondo, Kyushu University

	Friday 15 June 2018
9:00 -12:00	Producers Committee Meeting (Invitation Only)