2010 TAPPI International Conference on Nanotechnology for the Forest Product Industry

Tentative Technical Program

Monday, 27 September 2010		
08:00-08:45	**1 Conference Opening and Introduction by Co-Chairs**	
09:00-10:30	**2 - Nanotech Coatings and New Nano-enabled Functionalities- Plenary**	
	Printed Electrodes on Tailored Paper Enable Electrochemical Functionalization of Paper, *Jouko Peltonen- ÅA* **Thin Film Deposition Techniques - Steps Towards More Sustainable Packages,** *Mika Vähä-Nissi - VTT* **SUNPAP, Scale-up Nano Particles in Modern Papermaking,** *Ulla Forsström- VTT* **Amorphous and Crystalline Ultra Thin Films of Cellulose and Applications with Quartz Crystal Microgravimetry, Surface Plasmon Resonance and Other Surface Sensitive Techniques,** *Orlando J. Rojas - North Carolina State University*	
10:30-11:00	**Break**	
11:00 - 12:00	**3- Nanotech Coatings and New Nano-Enabled Functionalities- Part 2**	**4- Wood Products & Nanotechnology**
	Inkjet Printing of Functional Nanoparticles on Paper, *Ramin R. Farnood - University of Toronto* **Tactical Perception: Finger Friction, Surface Roughness and Perceived Coarseness of Printing Papers,** *Mark W. Rutland - KTH* **Ultra-Thin Coatings of Paper by Tailor-Made Nanoparticles,** *Tiina Nypelö - Aalto University* **Reduction of the Linting and Dusting Tendency of Newsprint by Using Nanocellulose Coatings,** *Mikael Ankerfors- Innventia AB*	**Influence of Nano Coatings on the Hygroscopic Properties of the Wood,** *Selamawit M. Fufa - Norwegian University of Science and Technology* **Advanced Wood Products with Nanoengineered Surfaces,** *Saila Jämsä and Anne- Christine Ritschkoff- VTT* **Using High Resolution Solution-State NMR Spectroscopy to Characterize Nanoscale Wood Cell Wall Polymer Modifications,** *Daniel J. Yelle - University of Wisconsin-Madison* **Potential of Wood Fibres and Nanoparticles in Light-Weight Foams,** *Anne Savolainen – VTT*
12:30-14:00	**Lunch- Keynote: "Potential of Cellulose Nanofiber-Based Materials, Prof Hiro Yano, Kyoto University, Japan**	
14:00-15:30	**5- Organized Structures & Interactions -Part 1: Materials and Interactions**	**6- Characterization Techniques- Part 1**
	Adhesion and Nanotribology of Biofibres, *Mark W. Rutland – KTH* **Cellulose Nanocrystals: Novel Templates for the Synthesis of Nanostructures,** *Robert Moon- Purdue University* **Heterogeneous Modification of Cellulose Nanocrystals and Surface Assemblies,** *Ilari Filpponen- Aalto and NC State University* **Nanofibrillar Cellulose - in Vitro Study of Cytotoxic and Genotoxic Properties,** *Marja Pitkänen- VTT*	**Cellulose Nanocrystal Size Distribution Determination by Transient Electric Birefringence,** *John Simonsen-Oregon State University* **Anisotropic Elasticity of Crystalline Cellulose: Atomistic Modeling and Experiments,** *Ashlie Martini- Purdue University* **Crystallinities of Nanocrystalline and Nanofibrillated Celluloses by FT- Raman Spectroscopy,** *Umesh Agarwal-Forest Products Laboratory*

	Stability of Cellulose Nanocrystal Suspensions in Electrolyte and Polymer Solutions, *Yaman Boluk- University of Alberta*	**Influence of Fibrillation Degree & Surface Grafting of Micro-Fibrillated Cellulose on Their Rheological Behavior in Aqueous Suspension,** *Julien Bras- LGP2 Laboratory of Pulp and Paper Science* **Microstructural Characterization of Cellulose Nanostructures Extracted from Different Sources** *Sandra K. Tadokoro, Aji P. Mathew, Kristiina Oksman, Luleå University of Technology*
15:30-16:00	**Break**	
16:00-17:30	**7- Organized Structures. Part 2: Thin Films and Interfacial Assemblies**	**8- Characterization Techniques- Part 2**
	Ultra Thin Films of Oriented Cellulose Nanocrystals by Electric Field-Assisted Convective Assembly, *L. Csoka-University of West Hungary* **Unusual Morphology in Ultrathin Cellulose Derivative Blend Films,** *Laura Nyfors-Aalto University* **Structure of Nanofibrillated Cellulose Monolayers at the Oil/Water Interface,** *Xhanari Ka- Norwegian University of Science and Technology (NTNU)* **Hydrophobisation of Pulp Fiber with Multilayering of Saponified Rosin and PAH,** Hye Jung Youn- *Seoul National University*	**Inerfacial Micromechanics of Tunicate and Cotton Whisker Polymer Nanocomposites Using Raman Spectroscopy,** *Dr. Stephen Eichhorn-University of Manchester* **Influence of fibrillation method on the character of nanofibrillated cellulose (NFC),** *Tiina Pöhler-VTT* **Characterization of Nanofibrillated Cellulose Samples Using X-ray scattering, Microtomography, Scanning and Transmission Electron Microscopy,** *Kirsi Leppänen-University of Helsinki* **Obtaining High-Aspect-Ratio Nanocelluloses from Softwood Flour,** *Guan Gong-Luleå University of Technology*
17:30-19:00	**9- Poster Session and Table Top Exhibit, and Product Demos**	
Tuesday, 28 September 2010		
08:00-08:45	**10- Keynote Address: "Theory, Modeling, and Simulation on Multiple Scales for Nanotechnology Applications"** *Andriy Kovalenko - Senior Research Officer, Group Leader – Theory and Modeling, NRC-NINT and Adjunct Professor, Department of Mechanical Engineering, University of Alberta*	
09:00 - 10:30	**11- Nanocelullosics & Nanocomposites - Plenary**	
	Nanoscale Cellulose Fibrils – Potential for Further Extension of the Mechanical Property Range in Fibrous Networks, *Lars Berglund- KTH* **TEMPO-Oxidized Cellulose Nanofibers Prepared from Chemical Wood Pulps,** *Akira Isogai-University of Tokyo* **Cellulose Nanofiber-Reinforced Unsaturated Polyester as a Potential Substitute for Glass Fiber-Reinforced Plastics,** *Antonio Nakagaito- Kyoto University* **Applications of Nanofibrillated Cellulose in Polymer Composites,** *T. Zimmermann- Empa*	
10:30-11:00	**Break**	
11:00 - 12:30	**1** **2 Computer Modeling - Multiscale Modeling**	**13 Nanocelullosics & Nanocomposites -Part**

	Methods for Cellulose Structure and Aggregation	**2**
	Coarse-grained material properties for fiber-based materials from computer simulations, *Mikko Alava - Aalto University* **Multiscale Modeling of the Solvation Structure and Thermodynamics of Chemically Modified Nanocrystalline Cellulose,** *Stanislav R. Stoyanov- University of Alberta,* **Computational Perspective to Cellulose Nanofibrils Through Atomistic Simulations,** *Iplo Vattulainen- TUT* **Smoothed Dissipative Particle Dynamics Model for Predicting Self-Assembled Nano-Cellulose Fibre Structures,** *David Vidal - FP Innovations* **Cellulose Crystal Structure and Forcefields,** *Malin Bergenstråhle- Wallenberg Wood Science Center, Royal Institute of Technology, Stockholm, Sweden*	**Films Impact of micro/nanofibrillated cellulose preparation on the reinforcement properties of paper and composites** *Sandra Tapin-Lingua, Domaine Universitaire* **Surface modification of bacterial cellulose nanofibrils: Why do cellulose nanofibrils behave differently when modifying freeze-dried or never-dried bacterial cellulose?,** *Koon Yang, Imperial College London* **Single Step Functionalisation of Cellulose to Produce All-Cellulose Nanocomposites,** *Alexander Bismarck- Imperial College London* **Nanowhiskers Reinforced All-Cellulose Composite Gels,** *Lingyun Chen- University of Alberta* **The Effect of Nano-Fibrillated Cellulose on the Mechanical Properties of Polymer Films,** *Mike Bilodeau- University of Maine*
12:30-14:00	**Lunch**	
14:00-15:30	**14 Computer Modeling of Cellulose Properties and Applications**	**16a Panel NCC vs MFC**
	Multi-Scale Modeling Environment for Nanocellulose Applications, *Erkki Hellen- VTT* **Multi-scale Modeling of Biomass and Its Degradation,** *S. Gnanakaran- Los Alamos National Labs* **Molecular Modeling of Ionic Liquids Aimed for the Dissolution of Cellulose,** *Emppu Salonen- Department of Physics, University of Helsinki and Kai Nordlund-Department of Applied Physics, Aalto University* **New Simulation Approach to Mechanical Properties of Nanocellulose Aerogels,** *Jukka Ketoja- VTT* **How to flocculate rapidly with polyelectrolytes,** *Jan Forsman- Luleå University of Technology*	
15:30-16:00	**Break**	
16:00-17:30	**16b Nanocelullosics & Nanocomposites - Part 3**	**15 Nanotech Coatings and New Nano-Enabled Functionalities**
	Carrot Nanofibers vs. Wood Pulp Nanofibers: Morphological and Mechanical Properties, *Gilberto Siqueira- Luleå University of Technology* **Fibre Spinning Nanocomposites Based on Low-Cost Racemic Polylactide/Bacterial**	**NanoCoating Close to the Market,** *Moritz Eulenburg- Coatema Coating Machinery GmbH* **Using Thin-Crystal Engineered Kaolins to Enhance Mechanical Properties of Coatings,** *John Husband – Imerys* **Nano-Particle Products from New Mineral**

	Cellulose Nano-Whiskers, *Alexander Bismark- Imperial College London* **A New Nanocomposites Approach for Strong Attachment of Polymer Matrices to Cellulose Nanopaper,** *Marielle Henriksson- KTH*	**Resources in Europe,** *John Kettle, Juha Sarlin, Ali Harlin, Sebastian Teir, and Lea Räsänen - VTT* **Rheological Behavior of Different Bio-based Nanoparticles Suspensions,** *Julien Bras- Laboratory of Pulp and Paper Science*
17:30-19:00	**17 Poster Session, Table Top Exhibit and Product Demos**	
19:o0-21:30	**Dinner Cruise**	
Wednesday, 29 September 2010		
08:00-08:45	**18- Keynote Address: Bio Based Nano Particle and Greener Printing Industry,** *Hadi Mahabadi- Vice President and Center Manager Xerox Research Centre of Canada*	
09:00-10:30	**19- Nanocelullosics & Nanocomposites - Part 4**	**20- Market Opportunities for Forest Based Nanomaterials**
	Cellulose Nanocrystals as Reinforcement of Poly (Vinyl Alcohol) Nanocomposites, *Maria S. Peresin- North Carolina State University* **Microfibrillated Cellulose Reinforced Semi-Crystalline Polylactic Acid Composites: Thermal and Mechanical Properties,** *Lisman Suryanegara- Kyoto University* **Properties of Bionanocomposites Made from Poly(lactide) Latexes and Microfibrillated Cellulose,** *Karolina Larsson- Innventia AB* **Novel Approach for Fabricating Optically Transparent Composites from Crab Shell,** *Hiroyuki Yano- Kyoto University*	**The Road Ahead for Forest-Based Nanomaterials,** *Petri Vasara- Poyry* **Printed Biofuel Cells,** *Maria Smolander – VTT* **Cellulose Nanofiber Based Composites for Use as Ligament or Tendon Substitute,** *Aji P Matthew- Luleå University of Technology* **The Potential of Cellulose Nanofibrils for Stabilizing Commercial Paints,** *Syverud Ka- PFI*
10:30-11:00	**Break**	
11:00-12:00	**21 - Consumer Perception/Regulation & Nanotechnology - Plenary**	
	TBA, *Steffi Friedrichs- Nanotechnology Industry Association* **TBA,** *Antje Grobe- Risk Dialogue Foundation* **Three R's of Nano-Enabled Biomaterials and Bioproducts: Risk, Reward and Regulatory Issues***, Lori Sheremeta- National Institute for Nanotechnology*	
12:00-13:30	**Lunch**	
13:30-15:00	**22- Interfacial Micromechanics**	**23- EU and NA Public Funding**
	Adhesive Forces at Nanocrystalline Cellulose Surfaces, *Roya R. Lahiji- University of Alberta* **Development of a Carrier System for Cellulose Nanofibrils (CN) in Polymer Composites,** *Alper Kiziltas- University of Maine* **Advanced AFM-based techniques for characterizing composite interphases,** *Siqun Wang- University of Tennessee* **Polysaccharide Interactions with Nanocellulose as a Platform for Biomimetic**	**Public Funding from EU to Nanotechnology Related Research in Europe,** *Jyrki Suominen- European Commission, DG Research, Industrial Technologies Directorate* **Nanotech Finland from Vision to Commercialisation,** *Markku Lämsä- Tekes – the Finnish Funding Agency for Technology and Innovation* **A Canadian Perspective on Nanotechnology Funding with a Focus on Forestry Related Program,** *Nils Peterson- National Institute for*

	Modifications, *Paula Eronen- Aalto University*	*Nanotechnology National Research Council* **Federally-Funded Nanotechnology Research in the United States,** Chris Risbrudt- USDA Forest Service Forest Products Laboratory
15:00-15:30	**Break**	
15:30-17:00	**24- Nanocellulosics & the Biorefinery**	**25- Nanomaterials and Barriers**
	Aspects of Raw Materials and Processing Conditions on the Production and Utilization of Microfibrillated Cellulose, *Kelley L. Spence- NCSU* **Hydrogels Based on the Cellulose Nanofibers Isolated from Plant Sources,** *Kentaro Abe- Kyoto University* **Novel Fractionation Techniques: Fractionation of MFC Suspensions in a Viscoplastic Fluid,** *A. Madani - University of British Columbia* **Novel Biorefinery: A Residue from Wood Bioethanol Production Converted into Cellulose Nanocrystals,** *Kristiina Oksman- Luleå University of Technology* **Integrated Production of Nano-Cellulose with Ethanol from Woody Biomass,** *Junyong Zhu- USDA Forest Products Laboratory*	**Semi Industrial Application of MFC Barrier Coating, A Complete Rheological and Technological Study,** *Marco Iotti- Norwegian University of Science and Technology (NTNU)* **Surface Modification of Microfibrillated Cellulose Films by Gas-Phase Esterification: Improvement of Barrier Properties,** *Galina Rodionova- Norwegian University of Science and Technology (NTNU)* **Composites Out of Nanofibrillated Cellulose and Clay for Barrier Applications in Packaging Materials,** *Thi Thu Thao- Empa* **Nanoparticle Deposition on Packaging Materials by the Liquid Flame Spray,** *Hannu Teisalaa- TUT*