

Conference Agenda

8th Nordic Wood Biorefinery Conference

Date: Monday, 22/Oct/2018

8:00am - 4:00pm

Side event: Visit to St1 Cellunolix® plant in Kajaani

Date: Tuesday, 23/Oct/2018

8:00am - 6:00pm Registration

8:30am - 8:45am Opening: Opening of the conference
Antti Vasara , CEO, VTT Technical Research Centre of Finland Ltd
Eemeli Hytönen , VTT Technical Research Centre of Finland Ltd

8:45am - 9:15am Keynote

FORESTS: dealing with desire and greed in a transforming environment

Berend John Wiersum

Sappi Europe, Belgium

9:15am - 10:05am Panel discussion: NWBC 2018 sponsors

Session chair: **Jussi Manninen**, VTT Technical Research Centre of Finland Ltd

Panelists:

Patrick Pitkänen, St1

Mikael Hannus, Stora Enso

Niklas von Weymarn, Metsä Spring

Martin Wimby, Valmet

10:05am - 10:30am Coffee & poster viewing

10:30am - 11:30am Policies

Global megatrends – impacts on the forest sector in Finland

Matleena Kniivilä

Natural Resources Institute Finland (Luke), Finland

Wealth from bio economy - national economy perspective on integrated bio- and low carbon technologies

Antti Arasto, Tiina Koljonen

VTT Technical Research Centre of Finland, Finland

Policy schemes can ensure economic viability of forest-based biofuel production in the Nordic countries

Eirik Ogner Jåstad, Per Kristian Rørstad, Torjus Folsland Bolkesjø

Norwegian University of Life Sciences, Norway

11:30am - 12:20pm Lunch and Poster viewing

12:20pm - 2:10pm Concepts 1: Industrial developments

Zambezi Biorefinery: “Pure” glucose and lignin from 2nd generation feedstocks

Annelie Jongerius, Ed de Jong, Jan Kees van der Waal, Gerard van Klink

Avantium, Netherlands, The

Ultra-low cost ionic liquids for waste wood biorefining

Florence Josefine Virginia Gschwend^{1,2}, Jason Patrick Hallett^{1,2}, Agnieszka Brandt-Talbot^{1,2}

¹Chrysalix Technologies, United Kingdom; ²Imperial College London

Butanol production from volatile lignocellulosic feedstocks. Development of an optimized bioprocess

Florian Gattermayr¹, Viktoria Leitner¹, Christoph Herwig²

¹Kompetenzzentrum Holz GmbH Linz, Austria; ²Vienna University of Technology - Institute of Chemical Engineering, Austria

Crude Tall Oil-based Renewable Diesel as Sustainable Biofuel Component

Ville Tapani Vauhkonen, Sari Anneli Mannonen

UPM, Finland

Biorefining at Borregaard: Recent developments

Oskar Bengtsson

Borregaard, Norway

Revisiting Biorefinery Strategies: The Case of Large-Scale Production of Drop-In Biofuels

Frederic Clerc¹, Virginie Chambost¹, Paul Stuart^{1,2}

¹EnVertis Consulting, Canada; ²Polytechnique Montreal

2:20pm - 2:40pm **Coffee & poster viewing**

2:40pm - 5:00pm **Concepts 2: New concepts and applications from wood based raw materials**

Replace fossil gas in industrial burners with renewable biogas

Thomas Bräck¹, Fredrik Weiland², Esbjörn Pettersson², Henry Hedman², Alexey Sepman²

¹Meva Energy, Sweden; ²RISE ETC

Turning bio-sludge into bio-carbon through zero-energy hydrothermal carbonization

Peter Axegård

C-Green, Sweden

Designing from Scratch – Challenges of Dialogue between Material Research and End Products when Application Areas are in Architecture

Heidi Turunen

Aalto University, Finland

FROM WOOD TO FOOD: ADDRESSING THE PROTEIN GAP IN ANIMAL FEED AND HUMAN FOOD WITH LIGNOCELLULOSIC BIOMASS

Amelie Drouault

Arbiom, France

Water post-hydrolysis of hardwood kraft pulp to produce viscose-grade pulp and xylan

Marc Borrega

VTT Technical Research Centre of Finland Ltd., Finland

The Bioeconomy Research Programme 2018–2020

Fredrik Aldaeus

RISE, Sweden

Evaluation of Alternative Routes for production of Bio-oil from Forest Residues and Kraft Lignin

Marie Anhedén¹, Ida Kulander¹, Karin Pettersson¹, Johan Wallinder¹, Lennart Vamling², Carl Johan Hjerpe³, Malin Fugelsang³, Åsa Håkansson⁴

¹RISE Bioeconomy, Sweden; ²Chalmers University of Technology; ³F Industri AB; ⁴Preem AB

6:00pm - 9:00pm **Welcome Reception at Bioruukki Pilot Center**

Busses to Bioruukki leave from Grand Marina at 17.15.

Date: Wednesday, 24/Oct/2018

8:00am - 6:00pm Registration

8:30am - 9:00am Keynote

It's time to de-fossilise our economy

Bernard de Galembert

CEPI - Confederation of European Paper Industries, Belgium

9:00am - 10:00am Panel discussion: NWBC 2018 Keynote speakers

Session chair: **John Kettle**, Natural Resources Institute Finland (Luke)

Panelists:

Bernard de Galembert, CEPI - Confederation of European Paper Industries

James Clark, University of York

Duncan Mayes, Stora Enso

Michael Rushton, Fibria

Alex Berg, Universidad de Concepción

10:00am - 10:30am Coffee & poster viewing

10:30am - 12:10pm Side streams: Processing of bark and wood to value-added products

Purification scheme for the production of phenolic compounds from subcritical water extracts of chestnut wood

Nicolas Beauvils^{1,2}, Luc Rigal¹, Gérard Vilarem¹, Laure Candy¹, Pierre-Yves Pontalier¹

¹Laboratoire de Chimie Agro-industrielle, LCA, Université de Toulouse, INRA, Toulouse, France; ²Fibre Excellence Saint Gaudens SAS, Rue du Président Saragat BP 149, 31803 Saint Gaudens cedex

Polyphenols from softwood bark in adhesive applications

Sami Alakurtti, Tarja Tamminen, Kristiina Kruus, Christiane Laine

VTT, Finland

A novel process for biomass extraction: The basis for a pine bark biorefinery

Alex Berg

Universidad de Concepción, Chile

Bark-Based Biorefinery for Production of Biocomposites

Hongbo Li¹, François Bru¹, Minh Tan Ton-That¹, Adrien Faye¹, Marzouk Benali², Jawad Jeaidi², Olumoye Ajao²

¹National Research Council of Canada, Canada; ²Natural Resources Canada, CanmetENERGY, Canada

Bio4Products: Unlocking the potential of biomass for a new range of bio-based products

Hans Heeres

BTG Biomass Technology Group, Netherlands, The

12:10pm - 1:10pm Lunch and Poster viewing

1:10pm - 2:50pm Lignin 1: Processing & tailoring properties

LigniOx lignins – High performance concrete plasticizers and versatile dispersants

Anna Katariina Kalliola, Tapio Vehmas, Tiina Liitiä, Tarja Tamminen

VTT Technical Research Centre of Finland Ltd, Finland

Aqueous solvent fractionation of kraft lignin - technoeconomical perspective

Juha Leppävuori, Tiina Liitiä, Tarja Tamminen, Lauri Pehu-Lehtonen, Anna-Stiina Jääskeläinen

VTT, Finland

Enzymatic Modification of Lignin from a Hydrothermal Biorefinery Concept and Use Thereof in Polymer Compounds

Xihua Hu, Irina Smirnova

Laccase pretreatment to decrease lignin-induced fouling in the membrane filtration of birch hot-water extracts

Tiina Virtanen¹, Jussi Lahti¹, Anna Kalliola², Tarja Tamminen², Mika Mänttari¹, Mari Kallioinen¹

¹Lappeenranta University of Technology, School of Engineering Science, Competence Area of Separation and Purification Technology, P.O. Box 20, FI-53851, Lappeenranta, Finland; ²VTT Technical Research Centre of Finland Ltd, P.O. Box 1000, FI-02044 VTT, Espoo, Finland

Cyclic organic carbonates as reagents for the functionalization of lignins and hemicelluloses

Isabell Kühnel¹, Youssef Akil¹, Dominic Lorenz¹, Bodo Saake¹, Youssef Akil¹, Ralph Lehnen²

¹University of Hamburg, Department of Wood Science; ²Thünen Institute of Wood Research, Germany

2:50pm - 3:20pm Coffee & poster viewing

3:20pm - 5:00pm Lignin 2: Applications

Designing kraft lignin based dispersants for clay suspensions

Mohan Kalyan Konduri, Dr. Pedram Fatehi

FPInnovations, Canada

Lignin as novel renewable binder in pigment-based paper coating formulations

Gibson S. Nyanhongo¹, Karina A Stadler¹, Verena Braunschmid¹, Hedda Weber³, Wolfgang Bauer⁴, Antonino Biundo¹, Doris Ribitsch^{1,2}, Georg Guebitz^{1,2}

¹University of Natural Resources and Life Sciences, BOKU, Vienna, Austria; ²Austrian Centre for Industrial Biotechnology (ACIB), Konrad Lorenz Straße 22, 3430 Tulln, Austria; ³Sappi Papier Holding GmbH, Brucker Strasse 21, 8101 Gratkorn, Austria; ⁴Graz University of Technology, Institute of Paper and Fibre Technology, Inffeldgasse 23, Graz, Austria

DES-lignin as a biobased hydrophilicity promoter in polyethersulphone (PES) membranes

Ikenna Anugwom¹, Mohammadamin Esmaeili², Mika Mänttari², Mari Kallioinen¹

¹LUT Re-Source Research Platform, Lappeenranta University, Finland; ²School of Engineering Science, Competence Area of Separation and Purification Technology, Lappeenranta University

Recent achievements in the valorization of technical lignins

Mikhail Balakshin^{1,2}, Ewellyn A. Capanema³, Zeen Huang⁴, Irina Sulaeva², Orlando Rojas¹, Martin Feng⁴, Thomas Rosenau², Antje Potthast²

¹Aalto University, Finland; ²BOKU, Austria; ³RISE, Sweden; ⁴FP Innovations, Canada

Lignin based Carbon fibres in batteries, supercapacitors and composites

Sverker Danielsson

RISE Bioeconomy, Sweden

7:00pm - 10:00pm Conference Dinner

Date: Thursday, 25/Oct/2018

8:00am - 4:00pm Registration

8:30am - 9:00am Keynote

Woody biomass as a sustainable feedstock for biobased chemicals

James Clark

University of York, United Kingdom

9:00am - 9:30am Coffee & poster viewing

9:30am - 11:10am Processing 1: Piloting & equipment design

Pilot scale pretreatment of lignocellulosic biomass: design considerations vs operational challenges

Raimo Van der Linden, Peter Flippo, Anton Happel, Rob Verlinden

Bioprocess Pilot Facility (BPF), Netherlands, The

Production of nanofibrillated cellulose reinforced nanopaper using pilot scale Experimental Paper Machine (XPM)

Zoheb Karim^{1,2}, Anna Svedberg¹, Lars Wågberg², Daniel Söderberg², Lars Berglund²

¹MoRe Research Örnsköldsvik AB, SE-891 22 Örnsköldsvik, Sweden; ²Wallenberg Wood Science Center, KTH, SE-100 44 Stockholm, Sweden

Increase accessibility for enzymatic hydrolysis of Norway spruce by organosolv pre-treatment in a novel reactor

Mihaela Tanase-Opedal, Øyvind Eriksen, Kai Toven

RISE PFI, Norway

Degradation of cellulose by hydrogen chloride gas under elevated pressure in a custom-built reactor

Eero Kontturi¹, Aaro Knuts², Eric Enqvist², Timo Pääkkönen¹

¹Aalto University, Finland; ²SciTech Services, Finland

On-site production of tailored cellulases to cut costs in biorefining

Simo Ellilä

VTT Technical Research Centre of Finland Ltd

11:10am - 12:10pm Lunch and Poster viewing

12:10pm - 1:30pm Processing 2: Fundamentals

Impregnation of wood chips for acidic processes and the influence of wood chips length

Jessica Gard Timmerfors¹, David Blomberg², Torbjörn Sjölund³, Leif J. Jönsson¹

¹Umeå University, SE-901 87 Umeå, Sweden; ²RISE Processum AB, SE-891 22 Örnsköldsvik, Sweden; ³MoRe Research, SE-891 22 Örnsköldsvik, Sweden

Lignin carbohydrate complexes studies on sulfite dissolving pulps

Raghu Anant Deshpande^{1,2}, Gunnar Henriksson², Martin Lawoko², Lars Sundvall¹, Hans Grundberg¹

¹MoRe Research Örnsköldsvik AB, Sweden; ²Wallenberg Wood Science Center, School of Chemical Science and Engineering, Royal Institute of Technology, KTH, Sweden

Solubility and Compatibility of Various Lignins in Solvents and Polymers: Experimental and Computer-Based Evaluation

Olumoye Ajao¹, Jawad Jaaidi¹, Marzouk Benali¹, Yacine Boumghar²

¹Natural Resources Canada, CanmetENERGY, Canada; ²Centre d'études des procédés chimiques du Québec, Canada

Digging in the structure and functionality of lignocellulosic raw material – from academic knowledge towards industrial applications

Jerk Rönnöls, Anna Jacobs, Fredrik Aldaeus
RISE Bioeconomy, Sweden

1:30pm - 2:00pm **Coffee & poster viewing**

2:00pm - 3:20pm **Processing 3: Separation, purification and recovery**

Recovery of high-added value functional monomeric lignin derivatives from lignin oil: a comparison of separation technologies

Kelly Servaes^{1,2}, Pieter Vandezande^{1,2}, Korneel Van Aelst³, Laura Trullemans³, Stef Koelewijn³, Joost Van Aelst³, Karolien Vanbroekhoven^{1,2}, Anita Buekenhoudt^{1,2}, Bert Sels³

¹Flemish Institute for Technological Research - VITO, Separation & Conversion Technology, Mol, Belgium; ²Biorizon, Green Chemistry Campus, Plasticslaan 1 - Port 1, Bergen-op-Zoom, The Netherlands; ³KU Leuven, Center for Surface Chemistry and Catalysis, Celestijnenlaan 200F, Heverlee, Belgium

HYDROXY CARBOXYLIC ACIDS FROM SPENT ALKALINE PULPING LIQUORS

Jari Petri Kalevi Heinonen, Tuomo Olavi Sainio
Lappeenranta University of Technology, Finland

A-Recovery+ - the next generation of chemical recovery cycle

Lauri Ilmari Pehu-Lehtonen, Pauliina Charlotta Sjögård
Andritz Oy, Finland

Possibilities of membrane filtration processes in recycling of Deep Eutectic Solvents (DES)

Mari Kallioinen¹, Ikenna Anugwom¹, Jussi Lahti¹, Mika Mänttari²

¹Lappeenranta University of Technology, LUT-Resource Research Platform, Finland; ²Lappeenranta University of Technology, School of Engineering Science, Finland

3:20pm - 3:30pm **Closing the conference and announcing the next NWBC**