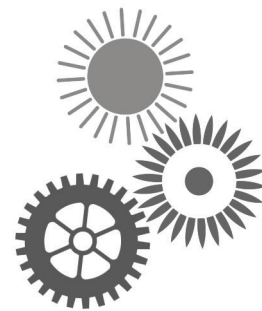


RRRB 2023  
RENEWABLE RESOURCES & BIOREFINERIES



19<sup>th</sup> International Conference on  
**Renewable Resources  
and Biorefineries**

Green gold - Forests for the future

31 May – 2 June 2023

Riga, Latvia



## Committees

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## Welcome to RRB 2023, 31 May-2 June, Riga, Latvia

Our series of RRB conferences - started in 2005 at the Faculty of Bioscience Engineering at Ghent University, Belgium – already gave an impetus to the emerging applications of biotechnology and green chemistry in the bulk and fine chemical industry, in green energy supply and encouraged the use of renewable resources in industry and in society. All these actions could activate the circular economy concept, result in a cleaner environment and help to alleviate climate change. This switch from a fossil-based economy towards one based on renewable resources has now become even more imminent! Such sustainable developments are crucial for our wellbeing, that of the next generations and in general that of Planet Earth. Realizing these concepts is a challenge for human society, with innovative science and technology being essential to provide solutions. Also policy and economics are important drivers to reach these goals.

This 19<sup>th</sup> edition is a specialist forum for anyone interested in green chemistry, industrial biotechnology, renewable resources, circular economy, and biorefineries delivering bio-chemicals and bio-materials. It aims at stimulating the transition from the fossil-based to the bio-based economy, with the goal to propose, discuss and implement biobased solutions for climate change. The subtitle of the Riga edition is '**Green gold - Forests for the future!**' Our yearly RRB conference - alternating between Belgium and another European country - has now evolved into one of the main conferences within Europe focussing on this challenging area of research and applications.

From 31 May through 2 June 2023, Riga will host the **19<sup>th</sup> edition of the International Conference on Renewable Resources and Biorefineries (RRB 2023)**. The conference programme is organized in 3 parallel sessions and includes 2 keynote lectures, 10 invited lectures and 71 high quality oral presentations by international experts and PhD students, covering both scientific, technical and policy aspects of the bio-based economy.

We hope that this specialist forum for renewable resources, green chemistry, industrial biotechnology, and biorefineries will increasingly stimulate the transition from a fossil-based to a bio-based economy.

The sessions deal with these topics:

- Biobased chemicals and biodegradable materials
- Biocatalysis & novel fermentation processes
- Bioenergy & future mobility
- BIOEAST session
- Biorefining
- Catalysis for renewables and kinetics
- CO<sub>2</sub> capture and utilisation
- Food and agricultural wastes
- Horizon 2020/Horizon Europe
- Polysaccharides
- Sustainability analysis
- Wood and forestry

Information on the preceding conferences can be found at <https://rrbconference.com/programme-previous-editions/>

We wish you an instructive Conference and a pleasant stay in Riga!

### The RRB 2023 Organizing Committee

Dr. Uģis Cābulis  
 Dr. Anda Fridrihsone  
 Prof. Christian Stevens  
 Prof. Wim Soetaert  
 Ir. Philippe Tavernier  
 Em. Prof. Erick Vandamme  
 Mrs. Ans Van Nieuwenhuysse  
 Dr. Dominique Delmeire





## Introduction to the Programme

This three-day international conference consists of 2 keynote lectures, 10 invited lectures and 71 oral presentations. Furthermore 2 poster tours are scheduled, one on Wednesday and one on Thursday.

The conference takes place at the **National Library of Latvia (NLL)**. The floor plans of the venue are available on page 2.

The Opening and Closing Sessions and the keynote lectures will take place in Ziedonis Hall on level 1, which is the ground floor.

The invited lectures and oral presentations are held in three conference rooms: Telpa A/B, Telpa C and Telpa D. These are located next to each other on floor -1.

Posters will be on display in the Foyer on floor -1. The authors of the posters are requested to be present at their posters during the poster tours.

The abstract book contains the abstracts of the invited lectures, the oral presentations and the posters. A poster list per topic is also included.

The Organizing Committee does not take responsibility for factual or typographical errors found in the abstracts.

## Poster and PhD Short Communication Awards

During the Conference, the poster jury will select the 3 best posters. The **3 Best Poster Awards** will be presented during the Conference Dinner on Thursday 1 June. The 3 winners will receive a book offered by Wiley. In addition, the winner of the 1<sup>st</sup> prize will also receive the **RRB Poster Award**.

Additionally, the **FEMS Best Poster Award** for the best poster in the field of microbiology will also be presented during the Conference Dinner on Thursday 1 June.

There will also be awards this year for the **3 Best PhD Talks**: the winners of these Awards will be announced during the Closing Session on Friday 2 June. They will receive a book voucher offered by the **Royal Society of Chemistry**.



## Photo Contest: The 11th Golden Crop Award

We have the pleasure to announce that there will be a Scientific Photo Contest at RRB 2023 again: the **11<sup>th</sup> GOLDEN CROP AWARD**.

Indeed, with the goal to associate Art with Science, 4A7, DO IT! organizes a photo contest for researchers and PhD students with an oral communication or a poster at RRB 2023.

All photos will be on display during the Conference. Participants are invited to cast their vote for the Best Photo of 2023, by using the ballot paper they will find in their conference bag.

The winning photo will be presented with the **11<sup>th</sup> GOLDEN CROP AWARD**, an Extreme Sports Cam INTEMPO and local specialties.

### Additional Prize Draw

Furthermore, all participants casting a vote for the **11<sup>th</sup> Golden Crop Award** are offered the opportunity to deposit their business card in a special box: one lucky winner will receive a local specialty.

**The winners will be announced during the Closing Session on Friday 2 June.**



## Wednesday, 31 May 2023

08.30 – 09.15	Registration	Foyer, Level 1 (ground floor)
09.15 – 09.45	<b>Official Opening of RRB 2023</b> Chris Stevens, Ghent University, BE and Uģis Cābulis, Latvian State Institute of Wood Chemistry, LV	Ziedonis Hall, Level 1 (ground floor)
	<b>Welcome to Latvia</b> Dmitrijs Stepanovs, Director of Department of Higher Education, Science and Innovations of Ministry of Education and Science of Latvia	
	<b>Welcome to Riga</b> Mārtiņš Staķis, Chairman of the Riga City Council	
	<b>Opening Plenary Session</b> <b>Chairs:</b> Chris Stevens, Ghent University, BE and Wim Soetaert Ghent University, BE	
09.45 – 10.30	<b>Keynote Lecture 1</b> <b>How hotspot identification can guide biomass conversion research</b> Philip G. Jessop Canada Research Chair in Green Chemistry, Queen's University and Chair of the Editorial Board, Green Chemistry, RSC	
10.30 – 11.15	<b>Keynote Lecture 2</b> <b>Bridging science and policy to strengthen the EU Bioeconomy</b> Adrian Leip, Head of Sector RTD Bioeconomy and Pieter Nachtergaele, EU Biodiversity Youth Ambassador for Belgium	
11.15 – 11.30	<b>Graduate School in Biotechnology for Biobased Economy in Toulouse, France: Interdisciplinary challenges in education and research</b> Carole Molina Jouve, Toulouse Biotechnology Institute, France	
11.30 – 13.15	Lunch	Restaurant, Level 1 (ground floor)

## Wednesday, 31 May 2023

13.15 - 14.45 Parallel sessions

Telpe A/B - Session 1A	Telpe C - Session 1B	Telpe D - Session 1C
<p><b>Biobased chemicals and biodegradable materials I</b> Chair: Uģis Cābulis, Latvian State Institute of Wood Chemistry, LV</p> <p>13.15 – 13.45 <b>Invited talk: CMF: A disruptive innovation in the biorefinery</b> Mark Mascal, UC Davis, USA</p> <p>13.45 – 14.05 <b>Properties and applications of chitosan and chitin from insect investigated for commodities plastic degradation by a circular economy approach</b> Patrizia Cinelli, University of Pisa, IT</p> <p>14.05 – 14.25 <b>Natural flame retardants for textiles based on phytic acid</b> Klaus Opwis, Deutsches Textilforschungszentrum Nord-West gGmbH, DE</p> <p>14.25 – 14.45 <b>Development of photo-crosslinkable poly(aspartic acid) derivatives: Towards a sustainable alternative for poly(acrylic acid)</b> Lauren De Grave, Ghent University, BE</p>	<p><b>Bioenergy &amp; future mobility I</b> Chair: Juan Serna, University of Valladolid, ES</p> <p>13.15 – 13.45 <b>Enhanced biodiesel synthesis by supported sodium aluminate catalysts</b> Giovanni Pampararo, Université catholique de Louvain, BE</p> <p>13.45 – 14.05 <b>Upscaling of activated carbon unit for advanced energy storage systems</b> Pablo J. Arauzo, University of Hohenheim, DE</p> <p>14.05 – 14.25 <b>How sustainable is offshore wind energy? Application of a developed sustainability framework including local and global (socio-environmental) impacts</b> Sue Ellen Taelman, Ghent University, BE</p> <p>14.25 – 14.45 <b>Simultaneous saccharification and fermentation for efficient conversion of lignocellulose and production of fungal lipid-based biofuels and added-value chemicals</b> Cristian Bolaño Losada, NMBU, NO</p>	<p><b>Biocatalysis &amp; novel fermentation processes I</b> Chair: Wim Soetaert, Ghent University, BE</p> <p>13.15 – 13.45 <b>Invited talk: Roles of precision fermentation in the future of foods</b> Jess Nguyen, TurtleTree, USA</p> <p>13.45 – 14.05 <b>Lactic acid production from cellulosic side stream of the lyocell process via separated enzymatic fed-batch saccharification and fermentation with <i>Enterococcus mundtii</i></b> Sebastian España Orozco, WOOD Kplus – Kompetenz-zentrum Holz GmbH, AT</p> <p>14.05 – 14.25 <b>Short-chain organic acids from lignocellulosic biomass: First step in polyhydroxyalkanoates production by MMC</b> Paulo Lemos, Universidade NOVA de Lisboa, PT</p> <p>14.25 – 14.45 <b>Batch and fed-batch process development for the fast-growing <i>Vibrio natriegens</i></b> Eva Forsten, RWTH Aachen University, DE</p>

14.45 – 16.15 Coffee Break, Exhibition and Poster Tour 1

Foyer, Level -1

16.15 – 17.15 Parallel sessions

Telpe A/B - Session 2A	Telpe C - Session 2B	Telpe D - Session 2C
<p><b>Biobased chemicals and biodegradable materials II</b> Chair: Philippe Evon, University of Toulouse, FR</p> <p>16.15 – 16.35 <b>Invited talk: Nature-derived alternatives to petrol based chemicals in paper making &amp; personal care</b> Piet Bogaert, Cargill, BE</p> <p>16.35 – 16.55 <b>Natural dicarboxylic acids – Versatile bio-based feedstock for polymer materials</b> Hynek Beneš, Czech Academy of Sciences, CZ</p> <p>16.55 – 17.15 <b>Up-cycling of synthetic plastic wastes into valuable storage compounds from <i>Rhodococcus</i> strain isolated from plastic contaminated sites</b> Ana Teresa Rebocho, NOVA University Lisbon, PT</p>	<p><b>Bioenergy &amp; future mobility II</b> Chair: Francesco Romagnoli, Riga Technical University, LV</p> <p>16.15 – 16.35 <b>Flying the future: Advances in sustainable aviation fuels at the Joint BioEnergy Institute (JBEI)</b> Blake A. Simmons, DOE Joint BioEnergy Institute, US</p> <p>16.35 – 16.55 <b>Spatial and temporal distribution of lignocellulosic biomass for marine &amp; aviation biofuel production</b> Stender Kwakernaak, Delft University of Technology, NL</p> <p>16.55 – 17.15 <b>Biofuels production from syngas fermentation for aviation and maritime use (BioSFerA): Recent advances from lab scale activities</b> Kostis Atsonios, Chemical Process &amp; Energy Resources Institute, Athens, GR</p>	<p><b>Biocatalysis &amp; novel fermentation processes II</b> Chair: Luisa Serafim, University of Aveiro, PT</p> <p>16.15 – 16.35 <b>Woodboreenzyme discovery for lignocellulose decomposition</b> Katrin Besser, University of York, UK</p> <p>16.35 – 16.55 <b>Glycerol conversion with the yeast <i>Yarrowia lipolytica</i> growing as a biofilm</b> Akarawit Jenjitwanich, University of Natural Resources and Life Sciences, AT</p> <p>16.55 – 17.15 <b>Effective lipase catalyzed synthesis of lauryl esters of carbohydrate polyols in reactive natural deep eutectic solvents</b> Alina Ramona Buzatu, Polytechnic University Timisoara, RO</p>

17.30 – 19.30 Guided visit of the city (see page 125)

19.30

Welcome Reception at the Railway Museum (see page 125)

## Thursday, 1 June 2023

09.00 - 10.30 Parallel sessions

Telpe A/B - Session 3A	Telpe C - Session 3B	Telpe D - Session 3C
<p><b>Biorefining I</b> Chair: Chris Stevens, Ghent University, BE</p> <p>09.00 – 09.30 <b>Invited talk: Biorefinery of leafy green biomasses – Proteins for food ingredients</b> Trine Dalsgaard, Aarhus University, DK</p> <p>09.30 – 09.50 <b>Enhancing the lactic acid production from pasta wastes by using enzymes obtained by solid-state fermentation</b> Cristina Marzo-Gago, University of Cádiz, ES</p> <p>09.50 – 10.10 <b>Biorefinery of various agricultural biomass to produce hydroxymethylfurfural</b> Katarzyna Świątek, University of Hohenheim, DE</p> <p>10.10 – 10.30 <b>Production of itaconic acid using <i>Ustilago maydis</i> based on municipal green waste</b> Marianne Volkmar, RPTU Kaiserslautern-Landau, DE</p>	<p><b>Wood and forestry</b> Chair: Jānis Rīžikovs, Latvian State Institute of Wood Chemistry, LV</p> <p>09.00 – 09.30 <b>Invited talk: Valorisation strategies for industrial bark</b> Marc Borrega, VTT, FI</p> <p>09.30 – 09.50 <b>Different strategies for bioconversion of eucalyptus bark into cellulosic ethanol: SHF vs SSF</b> Ana Xavier, University of Aveiro, PT</p> <p>09.50 – 10.10 <b>Birch biomass transformation in Latvijas Finieris</b> Artūrs Raimonds Feldmanis, Latvijas Finieris, LV</p> <p>10.10 – 10.30 <b>Understanding the impact of steam pre-treatment severity on cellulose ultrastructure, recalcitrance, and hydrolyzability of Norway spruce</b> Fabio Caputo, Chalmers University of Technology, SE</p>	<p><b>Catalysis for renewables and kinetics I</b> Chair: Joris Thybaut, Ghent University, BE</p> <p>09.00 – 09.30 <b>Invited talk: The role of heterogeneous catalysis in future biorefineries</b> David Kubicka, University of Chemistry and Technology Prague, CZ</p> <p>09.30 – 09.50 <b>Catalytic hydrotreatment of Alcell lignin using non precious mono- and bimetallic Ni(Mo) catalysts supported on mesoporous alumina</b> Hero J. Heeres, University of Groningen, NL</p> <p>09.50 – 10.10 <b>Electrocatalytic kraft lignin conversion dissolved in industrial black liquor</b> Elisabeth Oehl, Johannes Gutenberg-University Mainz, DE</p> <p>10.10 – 10.30 <b>Enhancing the performance of palladium based nanoparticle catalysts in the mild reductive depolymerization of soda lignin through addition of a secondary metal and tuning of the preparation strategy</b> Tibo De Saegher, Ghent University, BE</p>

10.30 – 11.15 Coffee Break and Exhibition

11.15 - 12.45 Parallel sessions

Foyer, Level -1

Telpe A/B - Session 4A	Telpe C - Session 4B	Telpe D - Session 4C
<p><b>Biobased chemicals and biodegradable materials III</b> Chair: Patrizia Cinelli, University of Pisa, IT</p> <p>11.15 – 11.45 <b>Chemical solutions for agri-food waste upcycling</b> Nicoletta Ravasio, CNR SCITEC, IT</p> <p>11.45 – 12.05 <b>The primary sector biobased: Biopesticides and biostimulants</b> Jarinda Viaene, Ghent University, BE</p> <p>12.05 – 12.25 <b>From discarded carrots to 100 % bio-based films: Purified hemicellulose-pectin combined with lignin-cellulose nanofibers</b> Marta Ramos-Andrés, University of Valladolid, ES</p> <p>12.25 – 12.45 <b>How intermediate analysis inspires selectivity control for the catalytic reductive amination of carbohydrates towards ethylene polyamines</b> Benjamin Vermeeren, KU Leuven, BE</p>	<p><b>Food and agricultural sidestreams I</b> Chair: Sandra Muižniece-Brasava, Latvia University of Agriculture, LV</p> <p>11.15 – 11.45 <b>Invited talk: Biorefinery of fruit and vegetable processing by-products and waste: Problems and prospects</b> Petras Rimantas Venskutonis, Kaunas University of Technology, LT</p> <p>11.45 – 12.05 <b>Water-in-oil emulsions as curcumin and olive extract carriers towards the development of eco-friendly solutions for antibacterial photodynamic inactivation of <i>S. Aureus</i></b> Pedro Jorge Louro Crugeira, Instituto Politécnico de Bragança, PT</p> <p>12.05 – 12.25 <b>CIRCLE project: An improved orange peel waste management option for a closed loop biorefinery</b> Jacopo Paini, Institute of Chemical Sciences and Technologies "Giulio Natta", IT</p> <p>12.25 – 12.45 <b>Protein extraction from <i>Tetraselmis Suecica</i> by high pressure homogenizer: Kinetic study and process modelling</b> Hussein Rida, Université de Toulouse, FR</p>	<p><b>Catalysis for renewables and kinetics II</b> Chair: Joris Thybaut, Ghent University, BE</p> <p>11.15 – 11.45 <b>Aqueous phase reforming of birch and pine hemicellulose hydrolysates – From model compounds to real feeds</b> Henrik Grénman, Åbo Akademi University, FI</p> <p>11.45 – 12.05 <b>Impact of the impregnation method of oxophilic La or Ce promoted NiCu-Al<sub>2</sub>O<sub>3</sub> on the low-temperature hydrodeoxygenation of anisole</b> Tom Vandevyvere, Ghent University, BE</p> <p>12.05 – 12.25 <b>Metal oxides Ru-supported nanoparticles as efficient catalyst for hydrodeoxygenation of lignin model compounds</b> Zoel Hormigón, Instituto de Tecnología Química, ES</p> <p>12.25 – 12.45 <b>Efficient hydrogenation of furfural to tetrahydrofurfuryl alcohol over Ni<sub>2</sub>Zr<sub>2</sub>Al<sub>2</sub>-R600 catalyst</b> Zheng Li, Sichuan University, CN</p>

12.45 – 13.45 Lunch

13.45 – 15.00 Coffee Break, Exhibition and Poster Tour 2

Restaurant, Level 1 (ground floor)

Foyer, Level -1



Telpe A/B - Session 5A	Telpe C - Session 5B	Telpe D - Session 5C
<b>Horizon 2020/Horizon Europe</b> Chair: David Kubička, University of Chemistry and Technology Prague, CZ 15.00 – 15.30 <b>Catalytic solvolysis of enzymatic hydrolysis lignin (EHL) into chemicals and fuels</b> Yongdan Li, Aalto University, FI	<b>Polysaccharides</b> Chair: Pedro Fardim, KU Leuven, BE 15.00 – 15.30 <b>Invited talk: Xylans from plant cell walls to future materials and food</b> Majja Tenkanen, University of Helsinki, FI	<b>Sustainability analysis</b> Chair: Francesco Romagnoli, Riga Technical University, LV 15.00 – 15.30 <b>Invited talk: The role of sustainability and circularity as decision criteria in the biorefinery approach</b> Maria Teresa Moreira Vilar, Universidad de Santiago de Compostela, ES
15.30 – 15.50 <b>Desalination of industrial crude glycerol from waste-based biodiesel plants using electroanalysis for the production of sustainable aviation fuel</b> Taha Attarbach, Argent Energy Ltd., UK	15.30 – 15.50 <b>Exploring the potential of cyanobacteria to produce extracellular polymeric substances</b> Christine Steffen, University of Nottingham, UK	15.30 – 15.50 <b>Pitfalls in the sustainability assessment of bio-based products for a defossilised economy</b> Heiko Keller, Institute for Energy and Environmental Research, DE
15.50 – 16.10 <b>F-CUBED hydrothermal treatment of wet residue streams: Opportunities for energy, circularity and GHG reduction</b> Douwe S. Zijlstra, TNO, NL	15.50 – 16.10 <b>Water: Friend or foe? Toward sustainable pathways to plain water-soluble chitosan</b> Casper Van Poucke, Ghent University, BE	15.50 – 16.10 <b>Environmental impact of ethanol production from steel off-gas and biomass gasification via syngas fermentation - A gate-to-gate life cycle assessment for hot spot identification</b> Haneef Shijaz, Delft University of Technology, NL
16.10 - 16.30 <b>Eco-design of bio-based solvents using reverse engineering for the substitution of hexane in vegetable oil extraction</b> Mohamad Nehmeh, Université de Toulouse, FR	16.10 - 16.30 <b>Production and characterization of novel mixed-mode beads for protein adsorption and purification</b> Pedro Fardim, KU Leuven, BE	16.10 - 16.30 <b>Bio-based components for marine fuels: Life cycle environmental impacts and biomass potentials</b> Nils Rettenmaier, Institute for Energy and Environmental Research gGmbH, DE

**Ziedonis Hall, Level 1 (ground floor)**

16.30 – 17.30 Biobased Market pitches and BISC-E competition (see page 17)

17.30 – 19.00 Biobased Market at the Railway Museum (see page 17)

20.15 RRB Conference Dinner at Hotel Pullman (see page 125)

**Ziedonis Hall, Level 1 (ground floor)**16.30 **Introduction of the BISC-E competition and the Biobased Market presentations**  
Uģis Cābulis, Latvian State Institute of Wood Chemistry, LV

16.33 BISC-E team 1: Cup for Life

16.43 BISC-E team 2: KurbadsEco

16.53 Spirulina Nord

16.56 Fat Cat leaves

17.00 Baltic Floc

17.03 Koffeco

17.06 Fluffy

17.09 **Award Ceremony BISC-E competition**  
Chris Stevens, Head of the BISC-E jury*After the presentations we propose to walk in group to the Railway Museum which is located across the street.*17.30 **Biobased Market and Networking Drink at the Railway Museum****Exhibitors at the Biobased Market:**

Algae Tree  
 Baltic Floc  
 Cup for Life - BISC-E  
 Fat Cat leaves  
 KurbadsECO - BISC-E  
 Polylabs  
 Spirulina Nord  
 ZS Doktus

## Friday, 2 June 2023

09.00 – 10.30 Parallel sessions

Telpe A/B - Session 6A	Telpe C - Session 6B	Telpe D - Session 6C
<p><b>Biorefining II</b> Chair: Ana Xavier, University of Aveiro, PT</p> <p>09.00 – 09.30 <b>The existence of inorganic elements in biomass, their impacts on biomass conversion and possible utilization</b> Changwei Hu, Sichuan University, CN</p> <p>09.30 – 09.50 <b>Biotechnological recycling and upcycling of blended textile waste</b> Sophia Mihalyi, University of Natural Resources and Life Sciences, AU</p> <p>09.50 – 10.10 <b>Hydrolysis and fermentation of birch wood (<i>Betula pendula</i>) pyrolysis-based sugars</b> Kristine Meile, Latvian State Institute of Wood Chemistry, LV</p> <p>10.10 – 10.30 <b>Perennial ryegrass: A suitable lignocellulosic biomass for the development of a biorefinery platform</b> Ludovica Varriale, RPTU Kaiserslautern-Landau, DE</p>	<p><b>BioEAST session</b> Chair: Béla Pukánszky, Budapest University of Technology and Economics, HU</p> <p>09.00 – 09.30 <b>The BIOEAST Strategic Plan: Challenges and opportunities in the transition to a circular and sustainable bioeconomy in Central and Eastern Europe</b> Balázs Imre, Budapest University of Technology and Economics, Budapest, Hungary</p> <p>09.30 – 09.50 <b>Two stage fermentation process for enhanced medium chain carboxylic acids (MCCAs) production from organic fraction of municipal solid waste (OFMSW)</b> Roman Zagrodnik, Adam Mickiewicz University, Faculty of Chemistry, PL</p> <p>09.50 – 10.10 <b>Synthesis of oxidised lignin to prepare recyclable biobased epoxy resins with covalent adaptable network</b> Giorgio Tofani, National Institute of Chemistry, Ljubljana, SI</p> <p>10.10 – 10.30 <b>Rapeseed oil as feedstock for the development of polymeric materials via Michael addition reaction</b> Mikelis Kirpluks, Latvian State Institute of Wood Chemistry, Riga, LV</p>	<p><b>CO<sub>2</sub> capture and utilisation</b> Chair: Wim Soetaert, Ghent University, BE</p> <p>09.00 – 09.30 <b>Invited talk: Towards the circular use of carbon: from steel mill waste gas to low-carbon ethanol by gas fermentation</b> Kristof Verbeeck, ArcelorMittal, BE</p> <p>09.30 – 09.50 <b>CO<sub>2</sub> reduction potential of the biochemical production of long-chain dicarboxylic acids from used cooking oil</b> Iris Cornet, University of Antwerp, BE</p> <p>09.50 – 10.10 <b>Investigations of an equilibrium reactor for the dynamic methanol synthesis from CO<sub>2</sub>-containing flue gases</b> Johannes Michael Voß, Fraunhofer UMSICHT, DE</p> <p>10.10 – 10.30 <b>Ionic liquid-catalyzed CO<sub>2</sub>-epoxy reaction - A sustainable route to bio-based thermosets</b> Marwa Rebei, Institute of Macromolecular Chemistry CAS, CZ</p>

10.30 - 11.00 Coffee Break and Exhibition

Foyer, Level -1

11.00 - 12.30 Parallel sessions

Telpe A/B - Session 7A	Telpe C - Session 7B	Telpe D - Session 7C
<p><b>Biobased chemicals &amp; biodegradable materials IV</b> Chair: Balázs Imre, Budapest University of Technology and Economics, HU</p> <p>11.00 – 11.30 <b>Potential of birch outer bark suberin fatty acids for replacement of synthetic polymer constituents</b> Janis Rizikovs, Latvian State Institute of Wood Chemistry, LV</p> <p>11.30 – 11.50 <b>Cellulose as substrate for active surfaces: Theory and applications</b> Mohamed Naceur Belgacem, Université Grenoble Alpes, FR</p> <p>11.50 – 12.10 <b>Reuse of beer spent grain for biopolymers and high value chemicals</b> Valentina Beghetto, University Ca' Foscari Venice, IT</p> <p>12.10 – 12.30 <b>Synthesis of thermoplastic cellulose ester derivatives in novel ionic liquid</b> Nutan Savale, Tallinn University of Technology, EE</p>	<p><b>Food &amp; agricultural sidestreams II</b> Chair: Petras Rimantas Venskutonis, Kaunas University of Technology, LT</p> <p>11.00 – 11.30 <b>Spent frying oil as substrate to produce short-chain organic acids</b> Luísa Serafim, University of Aveiro, PT</p> <p>11.30 – 11.50 <b>Alternative feedstocks for the itaconic acid production with <i>Ustilago cynodontis</i></b> Paul-Joachim Niehoff, RWTH Aachen University, DE</p> <p>11.50 – 12.10 <b>Post-fermentation corn oil as a source of bioactive compounds: Phyosterols separation</b> Valentína Kafková, Association Energy 21, SK</p> <p>12.10 – 12.30 <b>Online monitoring of the oil accumulation in <i>Ustilago maydis</i> using in vivo fluorescence staining</b> Paul Richter, RWTH Aachen University, DE</p>	<p><b>Biocatalysis &amp; novel fermentation processes III</b> Chair: Erick Vandamme, Ghent University, BE</p> <p>11.00 – 11.30 <b>Enhanced xylonic acid production from xylose by <i>Paraburkholderia sacchari</i></b> Maria Teresa Cesário, University of Lisbon, PT</p> <p>11.30 – 11.50 <b>Bioprocess integration for the revalorisation of cassava waste into biopolymers</b> Alfred Fernández-Castané, Aston University, UK</p> <p>11.50 – 12.10 <b>Elucidating enzymes selectivity and thermo-stability in short-esters and polyesters synthesis</b> Filippo Fabbri, Austrian Centre of Industrial Biotechnology, Biomaterial and Enzyme Technology Group, AT</p> <p>12.10 – 12.30 <b>A BetterPlastic production: From grape waste to mcl-PHA</b> Bruno Serafim, NOVA University Lisbon, PT</p>

12.30 – 12.40 **Presentation of the 11<sup>th</sup> Golden Crop Award**

Chris Stevens, Ghent University, BE

12.40 – 12.50 **Presentation of the Awards for the best PhD talks**

Chris Stevens, Ghent University, BE

12.50 – 13.00 **Closing Remarks and Presentation of RRB 2024**

Philippe Tavernier, 3PT Consult, BE

13.00 – 14.00 Farewell Lunch

Ziedonis Hall, Level 1 (ground floor)





**Biobased chemicals and biodegradable materials**

- P1 VIVID: Valorization of oils/fats from primary sludge from wastewater treatment plants**  
J. Geuens, [Carolien Vermeiren](#), M. Bartels (BE)
- P2 DemoVasa: Valorization of EPS from sludge by use as curing compound for concrete or additive in adhesives**  
J. Geuens, [Carolien Vermeiren](#), M. Bartels (BE)
- P3 Soda lean black liquor as a renewable source of low molecular weight bio-aromatic**  
[Lucas De Cock](#), I. Stals, J. Lauwaert, J. De Clercq (BE)
- P4 Screening of essential oils as antimicrobial components of sustainable biocide solutions for the leather industry**  
[Marcella Golini Pires](#), P.J.L. Crugeira, H.H.S. Almeida, J.A.S. Amaral, M.J. Ferreira, V. Pinto, M.F. Filipe Barreiro (PT)
- P5 Functionalized cellulose nanocrystals as inter-active filler in bio-based rigid polyurethane foams**  
[Federica Recupido](#), G.C. Lama, D. Fontana, J. Liu, S. Silvano, L. Boggioni, M. Lavorgna, L. Verdolotti (IT & CN)
- P6 New instrumental method development for birch outer bark based suberinic acid characterisation**  
[Daniela Godina](#), A.R. Feldmanis, R. Makars, A. Paze, J. Rizikovs (LV)
- P7 Birch sawdust reinforced recycled polypropylene/polylactic acid composite with the biolubricant for designing eco-friendly packaging**  
Galia Shulga, J. Rizhikovs, B. Neiberte, [Anrijs Verovkins](#), T. Betkers, R. Makars, J. Jaunslavietis (LV)
- P8 Mild halogen-free bleaching of shellac using electrochemically generated oxidants**  
[Tomas Horsten](#), S.R. Waldvogel (DE)
- P9 Tailored biobased resins from acrylated vegetable oils for application in wood coatings**  
[Sabine Briede](#), S.Gaidukovs (LV)
- P10 By-product of the wood pulp industry - tall oil - Utilisation for acrylate synthesis**  
[Ralfs Pomilovskis](#), A. Mierina, M. Kirpluks (LV)
- P11 Enzymatic synthesis of tyrosol fructoside by transfructosylation of tyrosol: Effect of cosolvents**  
[Milan Polakovič](#), K. Karkeszová, M. Antošová (SK)
- P12 Lamination of bio-based films with sprayed-on cellulose for sustainable packaging**  
[Martins Nabels-Sneiders](#), A. Barkane, L. Grase, S. Gaidukovs (LV)
- P13 Valorisation of cassava waste into polyhydroxyalkanoates: Integration of biomass pre-treatment and biological conversion**  
C. Hierro-Iglesias, A. Chimphango, P. Thornley, [Alfred Fernández-Castané](#) (UK & ZA)
- P14 Evaluation of medium chain carboxylic acids (MCCAs) production from Organic Fraction Of Municipal Solid Waste (OFMSW) in an open culture fermentation**  
[Anna Duber](#), R. Zagrodnik, N. Gutowska, F. Brodowski, M. Lezyk, M. Szczygielka, P. Oleskiewicz-Popiel (PL)
- P15 Characterization of biologically active molecules extracted from microalgae by biosustainable processes**  
[Elia Lio](#), G. Aldini, F. Secundo (IT)
- P16 Aromatic polymethacrylates from lignin-based starting material**  
[Rauno Sedrik](#), O. Bonjour, N. R. D. de Souza, P. Jannasch, L. Vares (EE, SE & NO)
- P17 The ecotoxicity of bio-based polymers in an aqueous environment**  
[Alina Ismagilova](#), M. Palà, G. Lligadas, V. Kisand, L. Vares (EE & ES)



- P18 Rigid polyurethane foams from suberinic acid-based polyols**  
[Aiga Ivdre](#), A. Abolins, N. Volkovs, L. Vevere, J. Rizikovs (LV)
- P19 Evaluation of carboxylic acid-modified tannic acid as coupling agent on performance of recycled polyolefin composite**  
[Madara Žiganova](#), A. Ābele, Z. Iesalniece, I. Bočkovs, J. Zicāns, R. Merijs-Meri (LV)
- P20 Chemically pretreated and densified juniper wood as potential material for osteosynthesis bone implants**  
[Velta Fridrihsone](#), L. Andze, M. Andzs, I. Filipova, M. Skute, J. Zoldners, V. Neļjodovs, M. Kapickis, R. Tupciauskas (LV)
- P21 The impact of hydrothermal-acid infusion pretreatment on the pyrolytic behaviors of high-ash biomass**  
W. Wang, [Changwei Hu](#) (CN)
- P22 Twin-screw extrusion of *Sargassum spp.* to produce biomaterials using compression-cooking technology**  
[Jérôme Bauta](#), C. Raynaud, G. Vaca-Medina, V. Simon, A. Rouilly, V. Vandebossche (FR)
- P23 Thermally crosslinked cellulose bioplastics derived from hemp with tunable properties and reversible reaction**  
[Sergejs Beluns](#), S.Gaidukovs, O. Platnieks (LV)
- P24 Bio based sound absorber panels produced using 3D printing**  
[S. Pinho](#), R. Nogueira, I. Cardoso, R. Ribeiro, P. Pinto, V. Freitas, N. Gama, A. Ferreira (PT)
- P25 Evaluation of characteristics of synthesised suberinic acid-based bio-polyols and their suitability for rigid polyurethane foam development**  
[Arnis Abolins](#), N. Volkovs, A. Ivdre, J. Rizikovs, A. Paze, R. Makars, D. Godina (LV)
- P26 New sulfur acid free kraft lignin separation technology and the power of co-operation**  
[Jere Koskinen](#), E. Enqvist, V. Tarvo, J.-M. Karpale (FI)
- P27 Suberin fatty acid characterisation depending on birch outer bark suberin depolymerisation conditions**  
[Raimonds Makars](#), J. Rizikovs, D. Godina, A. Paze (LV)
- P28 Mg-modified layered rare-earth hydroxide promoting the hydrothermal conversion of glucose to lactic acid via microwave assisted heating**  
[Wenyu Zhang](#), [Jianmei Li](#), [Changwei Hu](#) (CN)
- P29 Bio based sound absorber panels produced using 3D printing**  
[S. Pinto](#), R. Nogueira, I. Cardoso, R. Ribeiro, P. Pinto, V. Freitas, N. Gama, A. Ferreira (PT)
- P30 Characterization of extracellular polymeric substances (EPS) produced by *Pseudomonas chlororaphis* and its potential application in metal removal**  
[Konstantina Kourmentza](#), C. Steffen, H. Gomes (UK)
- P31 Biorefinery of Asian wild mushrooms Reishi (*Ganoderma lucidum*) and Shiitake (*Lentinus edodes*) and Amerindian wildpalm Maripa Fatu (*Attalea maripa*) for use as active ingredients in cosmetic formulations**  
[Thierry Talou](#), I. Saunier, E. Benebe, M. Margelidon, J. Adam, D. Nicolas (FR)
- P32 3D-print pomander: Development of 3D-printed pomander using mix of biosourced PLA plastic and odorous sprayed wood powders as innovative scents diffusers for perfume industry**  
L. Martin, A. Miral, S. Grivot, [Thierry Talou](#) (FR)
- P33 Advancing sustainable chemistry: Developing biomolecule-based polymer polyols**  
[Bruno Godinho](#), N. Gama, P. Madureira, Gustavo Marques, A. Ferreira (PT)
- P34 Poly(lactic acid) reinforced with synthetic polymer fibers: Interactions, structure and properties**  
[Milán Ferdinánd](#), E. Pregi, B. Imre, B. Pukánszky (HU)
- P35 Structure and properties of three component PLA/PBAT/lignin blends**  
[Emese Pregi](#), I. Romsics, M. L. Ferdinánd, B. Imre, B. Pukánszky (HU)



- P36 Local waste oil complete valorisation into sophorolipid and yeast biomass using yeast *Starmerella bombicola***  
Ieva Berzina, L.K. Lukasa, J. Liepins (LV)

### Biocatalysis and novel fermentation processes

- P37 Optimizing lignin pyrolysis product distribution via  $\gamma$ -valerolactone solvolysis: A comparative study of catalytic and non-catalytic processes**  
Tamara Menares Tapia, S. Ghysels, F. Ronsse, L.E. Arteaga Pérez (BE)
- P38 Development of microbial consortia for functionalizing post-consumer polyethylene via thermal-biological process**  
Passanun Lomwongsopon, C. Varrone (DK)
- P39 Semi-continuous fermentation with *Parageobacillus thermoglucosidasius* DSM 6285 for H<sub>2</sub> production**  
Magda Ardila, A. Neumann, H. Aliyu (DE)
- P40 Co-fermenting pyrolysis aqueous condensate and pyrolysis syngas by anaerobic microbial communities enables L-malate production via secondary fermentative stage**  
Alberto Robazza, C. Kubisch, F.C.F. Baleeiro, K. Ochsenreither, A. Neumann (DE)
- P41 Graduate School in Biotechnology for Bio based Economy in Toulouse, France: Interdisciplinary challenges in education and research**  
Carole Molina Jouve, L. Arata, S. Alfenore, S. Beaufort, S. Heux, C. Maranges, I. Meynial Salles, L. Montastruc (FR)
- P42 Viscose wastes valorisation through production of optically pure lactic acid by *Pediococcus acidilactici* ZP26**  
Joana Campos, E. Ruuth, M.S. Sebastián, J. Bao, O. Wallberg (SE & CN)
- P43 A comparison of bacterial, yeast and fungal strains application for citric acid production from lignocellulosic sugars**  
Dovilė Daunoraitė, L. Vares, I. Matijošytė (LT & EE)
- P44 Commercial and in-house identified enzymes as potential solution for mixed-fiber textile recycling**  
Katharina Steiner, V. Leitner, D. Ribitsch, G.M. Guebitz (AT)
- P45 Optimization of oxidative enzymes immobilization on hybrid magnetic nanoparticles modified with biopolymers**  
E.S. Lande, T.P.A. Vu, S.F. Soares, A.P.M. Tavares, A.L. Daniel-da-Silva, Ana M.R.B. Xavier (PT)
- P46 Upcycling of plastic waste by an engineered microorganism into a novel chemical building block**  
Stijn Bovijn, T. Delmulle, W. Soetaert (BE)
- P47 Woodborer enzyme discovery for lignocellulose decomposition**  
Katrín Besser, J. Sanchez Alponenti Millar, R. Hallam, J. Cartwright, A. Dowle, E. Nay, T. Kirkbride, N. Bruce (UK)
- P48 Biorefinery-beneficial recombinant enzyme production from crude glycerol**  
Martin Rebroš, V. Krasňan, D. Gyuranová, M. Kočenda, M. Legíň, Z. Hegyi, T. Petrovičová (SK)
- P49 Investigation of novel lignocellulosic feedstock pre-treatment and fractionation method**  
M. Paulauskaitė, Justinas Babinskas, I. Matijošytė (LT)
- P50 Genome-centric analysis of metagenomes and metatranscriptomes reveals metabolic functions in lactate-based and ethanol-based chain elongation microbiomes**  
Mateusz Łężyk, F. Brodowski, N. Gutowska, A. Duber, P. Oleskiewicz-Popiel (PL)
- P51 Selection of polyhydroxyalkanoate(PHA)-producing mixed methanotrophic cultures**  
Mateusz Łężyk, N. Gutowska, P. Oleskiewicz-Popiel, A. Gęsicka (PL)



### Bioenergy & future mobility

- P52 Adjustment of ultrasound pre-treatment of petrochemical sludge for enhanced methane production**  
Turgut T. Onay, B. Demirel, E.S. Uyal, A.Z. Yavaş, B. Ülger, S. Vardar (TR)
- P53 Thermochemical activation (NaOH, KOH and H<sub>3</sub>PO<sub>4</sub>) to obtain nanoporous carbon**  
Galina Dobele, A. Volperts, A. Plavniece, A. Zurins, L. Tamasauskaite-Tamasiunaite, E. Norkus, Y.C. Lin, Y.-W. Chen (LV, LT & TW)
- P54 Manganese and nitrogen codoped activated carbons**  
Ance Plavniece, G. Dobele, A. Volperts, A. Zhurinsh, D. Upskuvieni, A. Balciunaite, V. Jasulaitiene, G. Niaura, M. Talaikis, L. Tamasauskaite-Tamasiunaite, E. Norkus, L.C. Colmenares-Rausseo (LV, LT & NO)
- P55 Screening of solvents for perovskite solar cells by using reverse engineering approach**  
L.E. Ramirez Cardenas, S. Thiebaud-Roux, V. Gerbaud, T. Heiser, Ivonne Rodriguez-Donis (FR)
- P56 Climate change mitigation potential of trees in shelter belts of drainage ditches in cropland and grassland**  
Kristaps Makovskis, L. Gerra-Inohosa, S. Kalēja, R. Normunds Melniks, G. Petaja, T. Arturs Stals, A. Zusevica, D. Zute, A. Lazdins, D. Lazdiņa (LV)
- P57 Upscaling of activated carbon unit for advanced energy storage systems**  
Pablo J. Arauzo, K. Sangam, D. Wüst, A. Kruse (DE)



**Biorefining**

- P58 Lactic acid production with high selectivity and titer from cheese whey permeate in non-sterile conditions**  
Brecht Delmoitié, M. Sakarika, K. Rabaey, H. De Wever, A. Regueira (BE & ES)
- P59 Growth potential of selected strains of yeast *Yarrowia lipolytica* cultivated on crude glycerol-based media in order to produce polyols under low and high pH and temperature conditions**  
Eleni-Stavroula Vastaroucha, S. Michou, S. Papanikolaou (GR)
- P60 Enhanced lipid production by *Rhodospiridium toruloides* strains growing on crude glycerol in batch and fed-batch cultures**  
Savvoulia Michou, V. Anastasopoulos, E.S. Vastaroucha, S. Papanikolaou (GR)
- P61 Integrated biorefinery incorporating the production of siloxane**  
Shanshan Feng, J. Fan, Q. Sun, W. Zheng, C. Hu, J.H. Clark (CN & UK)
- P62 Enhancement of the properties of technical lignins by fungal and bacterial laccases**  
Sebastian A. Mayr, R. Subagia, R. Weiß, N. Schwaiger, J. Leitner, J. Kovač, D. Ribitsch, G.S. Nyanhongo, G.M. Guebitz (AT & SI)
- P63 Development of a biorefinery in order to valorize local red seaweed in Estonia**  
Tanel Ilmjärv (EE)
- P64 Efficient conversion of agricultural and forest residues into bioethanol: Bioflexpor as flexible technology towards sugar-based biorefineries**  
Susana Marques, S.M. Paixão, L. Alves, M. Gomes, A. Eusébio, T. Lopes, L. Coelho, E. Diebold, F. Gírio (PT)
- P65 Novel application of torrefaction as an alternative pretreatment for lignocellulose-based rhamnolipid production**  
Anjana Hari, T.R.K.C. Doddapaneni, T. Kikas (EE)
- P66 Birch wood pretreatment technology impact on pyrolysis products**  
Aivars Zhurīnsh, A. Plavniece, G. Dobele, K. Meile, V. Jurkjane, D. Djackovs (LV)
- P67 Effect of torrefaction condensate on growth, biochemical composition and EPS production of the microalgae *Porphyridium marinum***  
Salini Chandrasekharan Nair, R.G. Bai, T.R.K.C. Doddapaneni, T. Kikas (EE)
- P68 The CapUp project – Scaling up the carboxylate platform in Germany**  
Flávio C.F. Baleeiro, M. Braune, H. Sträuber (DE)
- P69 Application of nanofiltration and reverse osmosis as downstream concentration for the implementation of a two-stage bioconversion process from syngas to triacylglycerides**  
Marta Pacheco, S. Marques, B. Ribeiro, P. Moura (PT)
- P70 Showcasing the biorefinery potential of Latvian municipal sewage sludge**  
Rūta Zariņa, L. Mežule (LV)
- P71 Novel bio-refining method for obtaining, furfural, acetic and nanofibrillated lignocellulosic material from oat husks**  
M. Puke, Daniela Godina, P. Brazdausks, I. Filipova (LV)
- P72 Hydrogen production by thermochemical conversion treatment and its purification using membrane technology**  
Samy Yousef (LT)

**Catalysis for renewables and kinetics**

- P73 Improved softwood saccharification using secreted CAZymes by *Thermothielavioides terrestris* grown on mildly steam-treated spruce**  
Fabio Caputo, E. Nikolavitis, C. Dias, R. Siaperas, L. Olsson (SE & GR)
- P74 Efficient hydrogenation of methyl laurate to alkanes by Ni-ZrO<sub>2</sub> catalysts modified by different surfactants**  
Huiru Yang, L.Y. Zhou, C.W Hu (CN)
- P75 Effects of the support and Cu as second metal on the performance of Pd catalysts in the mild reductive depolymerisation of soda lignin**  
Boyana Atanasova, T. De Saegher, J. Vercammen, A. Verberckmoes, J. De Clercq, J. Lauwaert (BE)
- P76 An improved keratin azure assay of keratinase activity**  
E. Birch, Rhona Cowan, G. Nisbe, C. Onyeiwu, C. Campbell, I. Archer, D. Campopiano, UK

**CO<sub>2</sub> capture and utilization**

- P77 Bioconversion of CO<sub>2</sub> from biogas to biomethane in pilot-scale trickled bed reactor**  
Dana Pokorna, Z. Varga, D. Andreides, O. Vesely, P. Benes, J. Zabranska (CZ)
- P78 Flue gas treated microalgae *Chlorella vulgaris*: Biochemical evaluations and development of fish feed supplement**  
Renu Geetha Bai, S. Chandrasekharan Nair, L. Joller-Vahter, T. Kikas (EE)
- P79 A novel bench-scale photobioreactor for continuous cultivation of microalgae**  
Tiago Pereira Silva, J. Tavares, S.M. Paixão, L. Alves (PT)

**Food and agricultural sidestreams**

- P80 Prospection of new biocide solutions based on olive leaf extracts and essential oils for the leather industry**  
Pedro Jorge Louro Crugeira, M.G. Pires, H.H.S. Almeida, J.A.S. Amaral, M.J. Ferreira, V. Pinto, M.F. Barreiro (PT)
- P81 Passion fruit (*Passiflora edulis*) by-products: Chemical characterization of peel extracts, UV and antimicrobial tests**  
René Herrera, F. Poohphajai, K. Meile, J. Labidi (ES, SI & LV)
- P82 Exploration of celery waste extracts as source of bioactive compounds for non-food applications**  
Pierfrancesco Motti, L. Bastiaens, D. Geelen, S. Mangelinckx (BE)
- P83 Modern instrumental methods as alternative for honey floral origins and authenticity evaluation**  
Krišs Dāvids Labsvārds, M. Bērtiņš, I. Pērkons, L. Buša, A. Vīksna (LV)
- P84 Supercritical fluid extraction of *Matricaria recutita* white ray florets for valorization of herbal waste by-products**  
Ilva Nakurte, M. Berga, L. Pastare, L. Kienkas, M. Senkovs, M. Boroduskis, A. Ramata-Stunda (LV)
- P85 Biorefinery of juice processing industry wastes to obtain functional ingredients**  
Linards Klavins (LV)





- P86 Electrochemical upgrading of industrial bio liquids – Status update of the H2020 project EBIO**  
Elisabeth Oehl, R. Tschentscher, T. Ashraf, N. Schupp, B. Mei, T. Grassl, G. Mul, R. Venderbosch, S. Waldvogel (DE, NO & NL)
- P87 Low-temperature solvolysis of enzymatic hydrolysis lignin**  
Yushuai Sang, Y. Li (FI)
- P88 Depolymerization of Enzymatic Hydrolysis Lignin (EHL) into hydrocarbon fuels**  
Hanzhang Gong, Y. Sang, Y. Li (FI)
- P89 Properties of Enzymatic Hydrolysis Lignin (EHL) slurry in organic solvents**  
Xiang Li, Y. Zhang, Y. Sang, Y. Li (FI)
- P90 Electrocatalytic hydrogenation and hydrodeoxygenation of lignin-derived guaiacol using nickel nanoparticles supported on electrochemical etching Ti<sub>2</sub>CTx (MXenes)**  
Jiaqi Wang, Y. Li (FI)
- P91 Platform for Fischer Tropsch fuel production from waste biomass with inherent negative emissions**  
Christopher de Leeuwe, S.H. Mun, P.A. Argyris, V. Spallina (UK)
- P92 Lipid production by the oleaginous yeast *Cutaneotrichosporon oleaginosus* using the organic fraction of municipal solid waste as feedstock**  
Eva Mie Lang Spedtsberg, L. Nielsen, T. Chaturvedi, J.L. Sørensen, M.H. Thomsen (DK)
- P93 RuralBioUp – Empowering EU Rural Regions to scale-Up and adopt small-scale Bio-based solutions: The transition towards a sustainable, regenerative, inclusive and just circular bioeconomy**  
Kristaps Makovskis, M. Daugaviete, K. Dūmiņš, A. Lazdiņš, I. Līcīte, T. Artūrs Štāls, D. Lazdiņa (LV)

#### Marine bio-economy

- P94 Towards the improvement of photosynthetic pigment purification processes in a biorefinery approach**  
Ilias Semmourj, L.M. de Souza Mesquita (BE & PT)
- P95 Cellulose extraction from the Baltic Sea macroalgae**  
Ineta Liepiņa-Leimane, I. Putna-Nīmane, A. Ikauniece (LV)
- P96 Is the Baltic Sea region ready for the marine algae bioeconomy?**  
Anda Ikauniece, I. Bārda (LV)
- P97 Biorefinery of seaweeds *Ulva rigida* and *Gelidium corneum* for upgrade of protein and carbohydrate fractions**  
Maria Teresa Cesário, T. Leandro, M. Teles, F. Pedro, M. Bondar, S. Bellini, M.M.R. da Fonseca (PT)

#### Polysaccharides

- P98 Exopolysaccharide production by the marine bacterium *Alteromonas macleodii* Mo169 using fruit pulp waste as sole carbon source**  
P. Concórdio-Reis, Bruno Serafim, J.R. Pereira, X. Moppert, J. Guézennec, M.A.M. Reis, F. Freitas (PT & FR)
- P99 Compatibility of ammonium persulfate oxidized nanocellulose with electrospun polymers for filtration materials**  
Velta Fridrihsone, D. Kimmer, L. Lovecká, M. Kovářová, I. Filipova, L. Andze, M. Skute, J. Zoldners, R. Nunes (LV & CZ)

#### Sustainability analysis

- P100 Life cycle assessment of sheep and goat manure management scenarios in Greece: Composting versus anaerobic digestion**  
Vasiliki P. Aravani, D. Zagklis, Wen Wang, C. Zafiri, M. Kornaros, V.G. Papadakis (GR & CN)
- P101 Sustainable metabolic engineering of microbial strains**  
Kristaps Berzins, R. Muiznieks, E. Dace, E. Stalidzans (LV)
- P102 LCA analysis for assessing environmental sustainability of new biobased chemicals by valorizing citrus waste within the context of circular economy**  
Giusi Midolo, G. Cutuli, M. Vitale, F. Valenti, F. Secundo, G. Ottolina, J. Painsi (IT)
- P103 Bioeconomy in Lombardy: The Regional Cluster LGCA**  
Sergio Riva, D. Bosco, S. Lepore, I. Re (IT)
- P104 Ex-ante life cycle assessment of emerging bio-based chemicals from wood sugars**  
Nariê Rinke Dias de Souza, I. Matijošytė, D. Daunoraitė, L. Vares, F. Cherubini (NO, LT & EE)
- P105 Research on the use of binder filtrate salts (KNO<sub>3</sub>) solution in tree fertilizers**  
Dagnija Lazdiņa, K. Dumins, A. Zusevica, S. Zigure, J. Rižikovs (LV)
- P106 Bio-jet fuel from microalgae: A preliminary life cycle assessment of the Move2LowC biorefinery and comparison with current literature**  
R.M. Pires, Tiago Pereira Silva, C. Matos, L. Costa, P. Costa, T.F. Lopes, F. Gírio, C. Silva (PT)
- P107 Demonstration of the benefits of thermal insulation from renewable materials for the building industry**  
Peteris Cabulis, U. Cabulis, M. Kirpluks, A. Bansal, M. Sanchez Hernandez, L. Gryshchuk (LV, ES & DE)

#### Wood and forestry

- P108 Valorization of forest residue, a step towards cleaner air**  
Mariam Zouari, J.G. Pečnik, S. Esakkimuthu, M. Schwarzkopf (SI)
- P109 A multifunctional lignin-based biosourced resin for wood protection**  
Elsa Durel, E. Robles, F. Charrier-El Bouhtoury (FR)
- P110 Inhibition of lactic acid bacterium *Pediococcus acidilactici* ZP26 by pretreated softwood solids**  
Joana Campos, H. Almqvist, J. Bao, O. Wallberg, G. Lidén (SE & CN)
- P111 Effect of wood ash and sewage sludge on elemental content and growth of hybrid alder trees in Latvia**  
Maris Bertins, M. Kristaps, L. Busa, L. Dagnija, L. Andis, K. Maris, V. Arturs (LV)
- P112 Polyurethane-wood composites (PU-WC) as a method of wood waste management**  
Adam Olszewski, P. Kosmela, Ł. Piszczyk (PL)

