5-8 June 2023

Conference **Programme PDF**

EUBCE
31st European Biomass Conference & Exhibition

IN PERSON
from
Bologna
Italy

www.eubce.com

SUPPORTERS

COORDINATION OF THE TECHNICAL PROGRAMME
European Commission
Joint Research Centre

SUPPORT OF THE INDUSTRY TRACK
CBE JU | Circular Bio-based Europe Joint Undertaking

in collaboration with:

Regional Partners

Institutional Industry Cooperation

Organiser

Supporting Organisations

Supporting Associations

Cooperating Events

Media Partners

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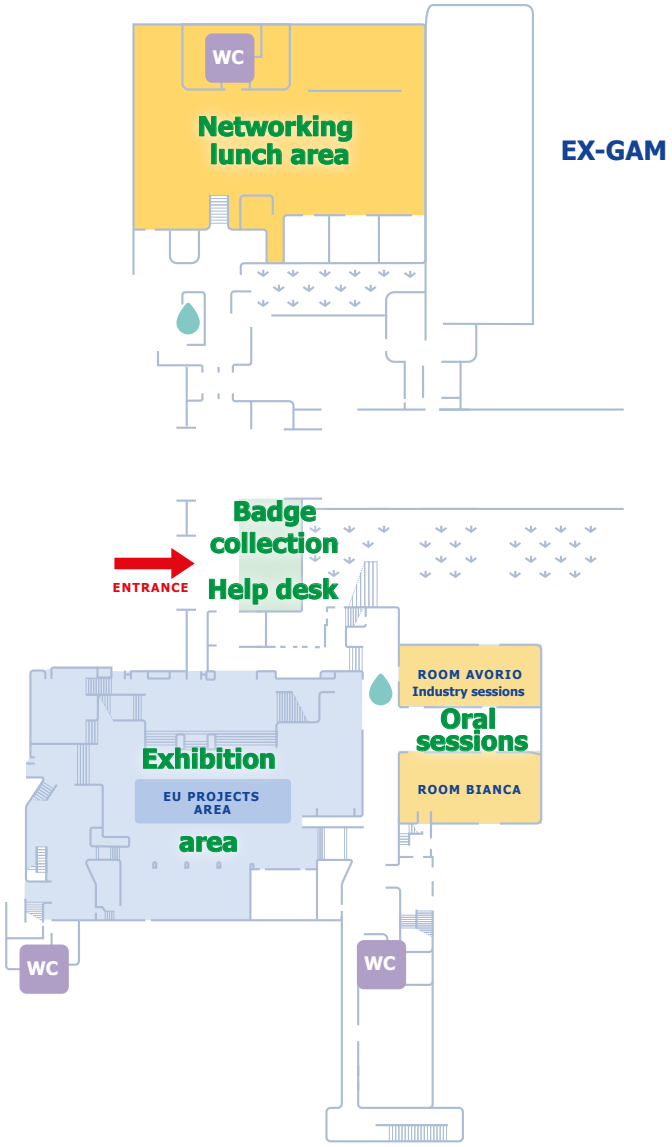
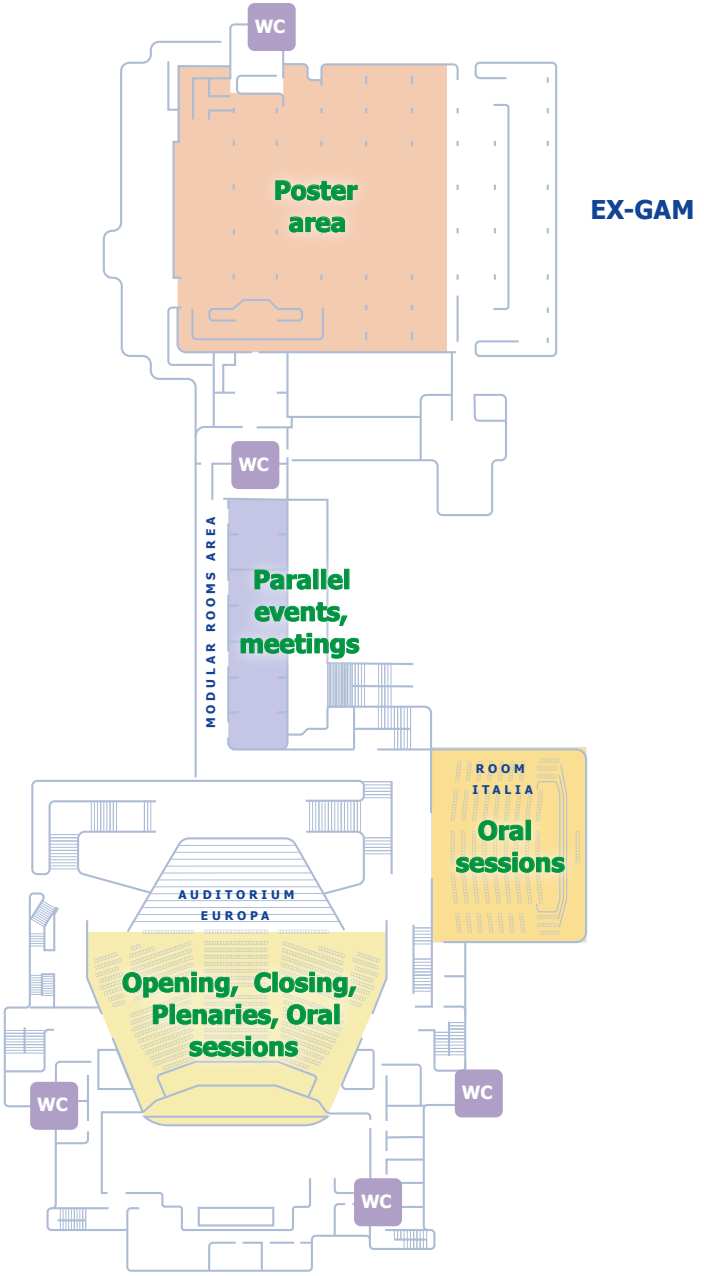
Ground floor



First floor



MONDAY 5th JUNE

Auditorium Europa

09:00 – 12:45

No conference pass required

Opening Plenary Session
Is Carbon the Enemy?
What would the EU do without it?

Awards
Opening Addressess

Moderated Panel Debate

Lunch break

Auditorium Europa

13:45 – 14:45

Plenary session AP.1
Sustainable biomass resources with improved soils

Break

	Auditorium Europa	Room Italia	Room Bianca	Room Avorio	Poster Area	Poster Area
15:00 – 16:00	**1AO.1** Spatial analysis for sustainable biomass resources	**4AO.2** Piloting of novel gasification-to-power pathways and supporting research	**6AO.3** Biomass pre-treatment processes	**IAO.1** Low ILUC Biofuels	**2AV.1** Socio-economic and public acceptance in the bioeconomy and bioenergy	**5AV.2** Oil-based and renewable hydrocarbon biofuels from a variety of starting feedstocks and using an array of conversion processes, bio-alcohols from sugar, starch and lignocellulosic biomass
Break						
16:15 – 17:15	**1AO.4** Spatial analysis and mapping for sustainable biomass resources	**4AO.5** Recent developments in dual FB-gasification and fuel characteristics	**6AO.6** Production of high added-value biobased compounds	**IAO.2** European climate and energy legislation: Tower of Babel or a strategic approach? The view of the industry	**2AV.3** Environmental impacts of biomass and biofuels	**1AV.4** Broadening the knowledge on Crops for Bioenergy, Biofuels and Bioproducts Feedstock Production (I)
Break						
17:30 – 18:30	**1AO.7** Biomass resources and potentials	**4AO.8** Recent developments in gasification for synthesis gas production	**6AO.9** Processes for biofuels and biobased chemicals	**IAO.3** Beyond Annex IX	**2AV.5** GHG performance of biomass value-chains	**6AV.6** Biomass conversion to bio-based products and chemicals (I)

SIDE EVENTS

Parallel events

14:30-16:30 | Room Modular 1
CBE JU: Advancing Competitive Circular Bio-Based Industries in Europe

15:00-17:00 | Room Modular 2
Responsible Sourcing and Biofuel Supply Chains

16:15-18:20 | Room Modular 3
Biomass-based Technologies and Practices for Carbon Dioxide Removal

Prizes and Awards

10:00-10:40 | Auditorium Europa
Giuliano Grassi Prize: Excellence in Biomass Industrial Deployment

10:00-10:40 | Auditorium Europa
The Linneborn Prize recipient for outstanding contributions to biomass

TUESDAY 6th JUNE

	Auditorium Europa	Room Italia	Room Bianca	Room Avorio	Poster Area	Poster Area
09:00	**1BO.1** Innovative strategies to produce dedicated biomass for bioenergy, biofuels and bio-based products	**5BO.2** Oil-based and renewable hydrocarbon biofuels	**3BO.3** Integrated Biorefineries	**IBO.1** Profiling the carbon footprint of biomass systems and fibers	**4BV.1** Recent developments in dual FB-gasification and fuel characteristics	**6BV.2** Biomass conversion to bio-based products and chemicals (II)
10:00	Break					
10:15	**Auditorium Europa**					
	Plenary session BP.1 Socio-economic aspects in circular economy					
11:30	Break					
11:45	**Auditorium Europa**	**Room Italia**	**Room Bianca**	**Room Avorio**	**Poster Area**	**Poster Area**
	5BO.4 Applied Pyrolysis and Product Utilisation	**6BO.5** Production of biobased chemicals	**3BO.6** Biorefining concepts	**IBO.2** Exploiting lignocellulosic biomasses to develop innovative and more sustainable high-added value biobased products and materials	**1BV.3** Broadening the knowledge on Crops for Bioenergy, Biofuels and Bioproducts Feedstock Production (II)	**5BV.4** Synthetic fuels from biomass and hydrogen (I)
12:45	Lunch break					
13:45	**Auditorium Europa**					
	Plenary session BP.2 Bioenergy and biobased products					
14:45	Break					
15:00	**Auditorium Europa**	**Room Italia**	**Room Bianca**	**Room Avorio**	**Poster Area**	**Poster Area**
	1BO.7 Improving energy crops cultivation in contaminated land - selected case studies	**6BO.8** New products from biomass	**3BO.9** Biogas and Power to Gas	**IBO.3** Fit for 2030? Challenges and Opportunities under a renewed EU regulatory framework in securing the needed investments to boost advanced biofuels - views from the industry	**4BV.5** Gasification-to-power research and development progress	**5BV.6** Synthetic fuels from biomass and hydrogen (II)
16:00	Break					
16:15	**1BO.10** Lessons learned from the cultivation of energy crops in contaminated land	**6BO.11** Nutrient cycles	**3BO.12** Biomass Contribution to Regional Energy Transition	**IBO.4** Renewable gases and derivatives in a circular bioeconomy	**2BV.7** Biomass strategies and policies	**5BV.8** Fundamental Pyrolysis and Laboratory Investigation
17:15	Break					
17:30	**1BO.13** Algae and aquatic biomass: reactors and remediation	**5BO.14** Valorisation of renewable and recycled carbon through the use of hydrogen	**3BO.15** Acceleration of implementation by valorisation of bioresources	**IBO.5** Low carbon fuels for Aviation and Shipping	**2BV.9** Resource efficiency in bioeconomy	**5BV.10** Pyrolysis Product Upgrade and Pyrolysis Application
18:30						

SIDE EVENTS

Parallel events

09:00-11:00 | Room Modular 2
Bioenergy Solutions for Decarbonization of Energy Intensive Industries

11:30-18:00 | Room Modular 3
Bioenergy and Renewable Fuels Projects for the Revamping of the SET Plan

14:00-18:00 | Room Modular 1
Focus nazionale bioeconomia e bioenergie: stato dell'arte, traiettorie, barriere e strumenti di implementazione

16:15-18:30 | Room Modular 2
High Efficiency and Low Emissions CHP Technologies from Biogenic Residues

WEDNESDAY 7th JUNE

	Auditorium Europa	Room Italia	Room Bianca	Room Avorio	Poster Area	Poster Area
09:00	**1CO.1** Supply of biomass and biomass by-products and residues from agriculture and forestry	**2CO.2** Sustainable monitoring of bioenergy and the bioeconomy	**4CO.3** Novel methods for emission reduction and ash utilisation	**ICO.1** Thermochemical conversion of biomass: Status and R&D needs	**5CV.1** Advancement in hydrothermal processing of wet biomass (I)	**1CV.2** Energy carriers and fuels production from biowaste
10:00	Break					
10:15	**Auditorium Europa**					
	Plenary session CP.1 Biomass conversion to bioenergy					
11:30	Break					
	Auditorium Europa	**Room Italia**	**Room Bianca**	**Room Avorio**	**Poster Area**	**Poster Area**
11:45	**1CO.4** Biomethane and biofertilizer produced from treated biowaste	**2CO.5** Socio-economic assessment and public acceptance in bioeconomy and bioenergy	**6CO.6** Co-production of biofuels and biochemicals	**ICO.2** Biofuels in Africa	**4CV.3** New approaches regarding combustion technology, emission reduction and new fuels	**3CV.4** Biogas, Regional Energy Transition and Renewable Heat
12:45	Lunch break					
13:45	**Auditorium Europa**					
	Plenary session CP.2 Bumpy Road Ahead: Preparing for the Updated Renewable Energy Directive					
14:45	Break					
	Auditorium Europa	**Room Italia**	**Room Bianca**	**Room Avorio**	**Poster Area**	**Poster Area**
15:00	**5CO.7** Valorisation of Pyrolysis Products	**2CO.8** Resource efficiency in bioeconomy	**4CO.9** Innovative combustion concepts and novel modelling approaches	**ICO.3** Setting up the scene for the biomethane market in Europe	**4CV.5** Biogas research and innovation (I)	**3CV.6** Biorefineries and their concepts
16:00	Break					
16:15	**5CO.10** Fundamental Pyrolysis	**2CO.11** Environmental and biodiversity impacts of bioenergy	**4CO.12** Suitability of various feedstock as solid biofuels	**ICO.4** Biomass in Africa	**6CV.7** Biorefinery platforms for bio-based chemicals and polymers	**3CV.8** Technologies and assessment of the valorisation of bioresources
17:15	Break					
17:30	**5CO.13** Synthetically produced fuels from biomass	**2CO.14** Environmental impact of bioenergy	**4CO.15** Development of pre-treatments, especially torrefaction, via process combination, pilot scale experiments and kinetic modelling	**ICO.5** SAF development in Africa - The case of Ethiopia	**6CV.9** Co-production of biofuels and biochemicals	**4CV.10** Biogas research and innovation (II)
18:30						
19:30	Conference dinner					

SIDE EVENTS

Parallel events

09:00-13:00 | Room Modular 2
Delivering on REPowerEU: Bringing Research and Industry Closer to Accelerate Innovation and Uptake of Biomethane

09:30-13:00 | Room Modular 1
Agrivoltaico e contesti territoriali: idee a confronto
Evento in lingua italiana

15:00-18:20 | Room Modular 1
Sustainability Certification of Bio-Based Products

15:30-17:00 | Room Modular 2
La filiera Bosco-Legno-Energia
Evento in lingua italiana

THURSDAY 8th JUNE

	Auditorium Europa	Room Italia	Room Bianca	Room Avorio	Poster Area	Poster Area
09:00	**4DO.1** Biogas Developments and innovative solutions	**2DO.2** European biomass production to support the EU bioeconomy	**5DO.3** Hydrogen produced from biomass	**IDO.1** The development of the bio-economy and the establishment of a stable and reliable supply chain for fuels, materials and chemical in China	**1DV.1** Agro-industrial feedstocks and side streams	**5DV.2** Advancement in hydrothermal processing of wet biomass (II)
10:00	Break					
10:15	**Auditorium Europa**					
	Plenary session DP.1 Biomass conversion to intermediate bioenergy carriers and sustainable biofuels					
11:30	Break					
11:45	**Auditorium Europa**	**Room Italia**	**Room Bianca**	**Room Avorio**	**Poster Area**	**Poster Area**
	4DO.4 Innovative Biogas applications	**2DO.5** Supporting biomass for transport fuels, chemicals and industry in the EU	**5DO.6** Fundamentals and applications of HTL	**IDO.2** Indian Bioeconomy initiatives - Supply chain challenges - opportunities for mainstreaming sustainable fuel, chemical and material and Indo-EU cooperation	**1DV.3** Microalgae, macroalgae, and aquatic systems: production to end use	**1DV.4** Biomass resources and potential (I)
12:45	Lunch break					
13:45	**Auditorium Europa**	**Room Italia**	**Room Bianca**	**Room Avorio**	**Poster Area**	**Poster Area**
	4DO.7 Biogas innovations and research	**2DO.8** LCA-based consideration for determine the carbon sink potential of bio-based value-chains	**5DO.9** Supercritical water gasification	**IDO.3** Thermochemical Biomass Conversion for Energy Applications	**1DV.5** Biomass resources and potential (II)	**4DV.6** Densification, torrefaction and other innovative pretreatments: experimental studies at different scales and numerical modelling
14:45	Break					
15:00	**Auditorium Europa**					
	Closing Introduction to the Closing Session Highlights of the Conference Industry Track Ceremony of Students Awards Ceremony of Poster Awards Farewell					
16:00						

SIDE EVENTS

Parallel events

09:00-12:00 | Room Modular 3
Harnessing CO_2 for Sustainable CCUS Value Chains: the CooCE Concept

09:30-12:20 | Room Modular 2
Valorization of By-Products from Vegetable Oil Refining in Sustainable Bio-based Products

11:45-13:45 | Room Modular 1
Upscaling the Production of Low ILUC Risk Biomass Feedstock for the Bioeconomy

Prizes and Awards

Ceremony of Students Awards

Ceremony of Poster Awards

GENERAL CONFERENCE CHAIR

Isabella De Bari

Head of ENEA Laboratory for the processes and technologies for biorefineries and green chemistry

What role can biomass play in the technologies mix to decarbonize the future?

"The biomass community started more than twenty years ago, beginning with just an imagination of where biomass might play a role in decarbonizing the energy system and its impact on the economy. Since then many technologies have been developed, some of which have been demonstrated at relevant scale and some even reaching commercial scale TRLs.

After the Paris Agreement in 2015, global attention has become focused on decarbonization as a key element to fight climate change, and also, to a smaller extent, in identifying sources of renewable and circular carbon. As part of the implementation plan, novel technologies have emerged including CO_2 capture and the development of a global clean-hydrogen system.

Game-changing technologies are expected to play an important role in accelerating the achievement of the Paris goals and the pathway to net zero. Which will require system transition and complementarity technologies to enable the use of biomass and sustainable carbon sources.

Although decarbonization seems like the most effective solution in the battle against climate change, sustainable carbon sources are needed for the chemistry industry, as carbon is the main building block for many common chemicals. Therefore, the chemical industry is advancing research into sustainable carbon sources, including feedstocks and, depending on the applications, novel materials with increased biodegradability and biocompostability, that for example could assist in soil carbon restoration.

Biorefinery is a term used for many years to describe different types of biobased industries. The future implementation of this concept will imply the exploitation of local sources of sustainable biomass feedstocks to produce a wide spectrum of biobased products along with the use of CO_2 and/or recycled carbon.

To move biobased industries forward, the buildup of local scenarios in a global framework is required in order to promote integration of more renewable sources at a local level, which undoubtedly is a key element in stimulating local opportunities. An exchange of ideas is required to define the role of biomass in the move towards a decarbonized and sustainable circular bioeconomy, and also conversations are essential in identifying the appropriate recent and future aspects that will assist in influencing and attracting public, private, and novel investments.

With this scope in mind, your knowledge is essential to understand the current state of research and to share your vision in drawing the future and identifying not only the opportunities, but also the gaps and the barriers in full market implementation.

This conference creates the perfect environment to debate and discuss these topics, with the overall ambition of paving the way to future innovative successes. Sharing knowledge and vision in this multidisciplinary context is the only way towards a successful and effective economy transition. It will be an honor to meet you in person and share your presence at this year's conference in Bologna."

TECHNICAL PROGRAMME CHAIR

Nicolae Scarlat

European Commission, JRC, Directorate for Energy, Transport and Climate

"The implementation of the transition towards a low carbon economy requires measures transforming the energy and transport system. Renewable energies are critical for achieving the climate goals, complemented by a rapid phasing out of fossil fuels. In addition to the climate challenges, we are facing now challenges related to high energy prices and the high risk of supply shortages across the EU. This revealed the need to accelerate the green transition and to ensure a cleaner, more secure and resilient energy system. The EC has put forward the REPowerEU plan to phase out Europe's dependency on Russian fossil fuels imports and fast forward energy transition through measures targeting diversification of energy supplies, accelerated roll-out of renewable energy and energy savings.

Several biomass technologies can play an important role in the decarbonisation of the economy, as part of a circular economy. Biomass offers now several solutions in the energy transition, through a range of technologies to produce energy, sustainable fuels and biobased materials and chemicals. Bioenergy provides flexible and secure low carbon power generation, enabling high shares of variable renewable energies in the electricity grid, such as wind or solar. Bioenergy and carbon capture and storage can play a key role, on short term, in balancing the greenhouse gas emissions for the sectors of the economy that will inevitably remain carbon dependent, as an available industrial-scale solution for achieving negative emissions. Renewable fuels are major elements of the near future and ready solutions for sectors that are hard to decarbonise, in particular the aviation and maritime transport, relying on local sustainable biomass resources and short supply chains.

The REPowerEU plan identifies biomethane as key to diversify the EU gas supplies, to reduce imports of natural gas from Russia and decarbonise the gas sector, putting biomethane on top of renewable energy priorities.

I invite you to join the EUBCE 2023 to present and discuss your latest scientific achievements and developments of industrial biomass applications on these areas, in scientific and industry sessions, in plenary, oral and poster sessions and in several side events. As usual, scientific work will receive recognition during EUBCE 2023, through the Linneborn Prize for outstanding contributions to the development of energy from biomass, Student Awards to young scientists or Poster Awards rewarding exceptional visual presentations. During EUBCE, the European Biomass Industry Association gives its annual prize to companies for their effort in supporting biomass development at commercial and industrial level. The Giuliano Grassi Excellence in Biomass Industrial Deployment Prize, established in 2022, will honour scientific, technical or managerial accomplishments in the market deployment of biomass industrial processes. It is especially timely that this major event will be held physically in this challenging time, and I look forward to meeting you all in person in Bologna in June 2023, but also online."

09.00 - 10.00 **Plenary Session: Is Carbon the enemy? What would the EU do without it?**
AUDITORIUM EUROPA

CHAIRPERSONS:
David CHIARAMONTI
Politecnico di Torino, ITALY

Michael CARUS
nova-Institut GmbH, GERMANY

Speakers:

M. Carus
nova-Institut GmbH, Germany

A. Faaij
Director of Science, ECN part of TNO, The Netherlands

M.M. Morese
FAO, Italy

C. Schillaci
European Commission, Joint Research Centre, Italy

A.M. Bravo-Angel
International Flavors & Fragrances, Belgium

10.00 - 10.40 **Awards**
AUDITORIUM EUROPA

The Linneborn Prize recipient for outstanding contributions to biomass

Giuliano Grassi Prize: Excellence in Biomass Industrial Deployment

10.40 - 11.20 **Opening Addresses**
AUDITORIUM EUROPA

CHAIRPERSON:
Isabella DE BARI
ENEA, ITALY

Speakers:

K. Simson
Commissioner for Energy of the European Commission, Belgium

S. Saastamoinen
JRC Deputy Director General, Belgium

V. Puzzolo
Circular Biobased Europe Joint Undertaking, Belgium

MONDAY 05 JUNE 2023

MON

11:20 - 12:45 **Moderated Panel Debate: Biomass: Headwinds and Opportunities around the Globe**

CHAIRPERSON:
Paolo FRANKL
International Energy Agency, FRANCE

Speakers:

J. Spaeth
Energy Efficiency and Renewable Energy U.S. Department of Energy, Usa

M. Janhunen
UPM - The Biofore Company, Director Public Affairs, Finland

S. Kasture
Ministry of Science & Technology, Government of India, India

G. Gregori
Novamont SPA, Italy

Eni, Italy

Break **12.45 - 13.45**

PLENARY SESSION AP.1

13.45 - 14.45 **Sustainable biomass resources with improved soils**
AUDITORIUM EUROPA

This plenary session addresses looks in detail at sites in Europe where potential low-ILUC biomass production can be achieved, and also the growing concern of soil quality in many areas and where carefully selected biomass conversion process can be harnessed to meet the growing challenges.

CHAIRPERSONS:
Andrea MONTI
University of Bologna, ITALY

Efthymia ALEXOPOULOU
CRES - Center for Renewable Energy Sources and Saving, GREECE

AP.1.1
Berien ELBERSEN
Wageningen Environmental Research, Earth Informatics Dpt., THE NETHERLANDS
Co-authors: I. Staritsky, S. Verzandvoort, M. Eupen, van, R. Rietra, P. Romkens, Wageningen Environmental Research (WENR), The Netherlands; E. G. Papazoglou, Agricultural University Athens, Greece; N. Oustriere, Junia, Lille, France; G. Talluri, Re-cord Consortium, Scarperia e San Piero, Italy; M Wójcik, Uniwersytet Marii Curie-Sklodowskiej, Lublin, Poland; E. Alexopoulou, CRES, Athens, Greece
Keynote presentation
MAPPING CONTAMINATED SITES IN EUROPE FOR LOW ILUC BIOMASS PRODUCTION

Status of 1 June 2023

AP.1.2
David CHIARAMONTI
Politecnico di Torino, DENERG Dpt., ITALY
Co-authors: A Salimbeni, M Di Bianca, AM Rizzo, RE-CORD, Scarperia e San Piero (Florence), Italy
WASTE TREATMENT: THE AD/SLOW PYROLYSIS INTEGRATED ROUTE FOR BIOMETHANE, AMMONIUM SULPHATE AND BIOCHAR TO STORE&USE CARBON IN EU MED SOILS

14.30 - 16.30 **CBE JU: advancing competitive circular bio-based industries in Europe**
ROOM MODULAR 1

The Circular Bio-based Europe Joint Undertaking invites you to an information event on the first day of the EUBCE 2023 conference.

During this 2 hour-long session, CBE JU representatives will highlight the joint undertaking's funding priorities and answer your questions about the 2023 call for project proposals. Participants will be able to receive follow-up information at the CBE JU stand throughout the EUBCE (5-8 June).

Break **14.45 - 15.00**

ORAL SESSION 1AO.1

15.00 - 16.00 **Spatial analysis for sustainable biomass resources**
AUDITORIUM EUROPA

This session explores different approaches to evaluating the spatial extent of sustainable biomass resources for energy and biochar at different scales and in different locations.

CHAIRPERSONS:
Anna DUDEN
Utrecht University, THE NETHERLANDS

Zoe HARRIS
University of Surrey, UNITED KINGDOM

1AO.1.1
Susann GÜNTHER
DBFZ, Bioenergy Systems Dpt., GERMANY
Co-authors: S. Semella, T. Karras, D. Thrän, DBFZ, Leipzig, Germany
TEMPORAL AND SPATIAL MAPPING OF THE THEORETICAL BIOMASS POTENTIAL OF 11 RESIDUES ACROSS EUROPE

1AO.1.2
Luis Saúl ESTEBAN PASCUAL
CIEMAT-CEDER, Renewable Energy Dpt., SPAIN
Co-authors: P. Pérez, C. Martín, M. Sanz, M.P. Ciria, L.S. Esteban, CEDER-CIEMAT, Lubia, Spain
A NEW MAPPING APPROACH FOR THE IDENTIFICATION OF MARGINAL AGRICULTURAL LANDS BASED ON BIOPHYSICAL FACTORS IN THE FRAMEWORK OF THE BEONNAT PROJECT

1AO.1.3
Raphael HECK
Karlsruhe Institute of Technology, Institute for Industrial Production, GERMANY
Co-authors: A. Rudi, F. Schultmann, Karlsruhe Institute of Technology, Karlsruhe, Germany
AN ASSESSMENT OF BIOMASS POTENTIALS FOR DECENTRAL BIOREFINERIES IN GERMANY BASED ON A GEOINFORMATION SYSTEM MODEL

1AO.1.4
Francesco CHERUBINI
Norwegian University of Science and Technology, Energy and Process Engineering Dpt., NORWAY
BIOENERGY POTENTIALS AND CLIMATE BENEFITS FROM SECOND GENERATION CROPS WITHOUT IMPACTING FOOD SECURITY OR NATURE CONSERVATION: HOW, WHERE AND WHEN?

ORAL SESSION 4AO.2

15.00 - 16.00 **Piloting of novel gasification-to-power pathways and supporting research**
ROOM ITALIA

The session covers both the piloting of complete gasification-based biomass feedstock - to - power pathways (dual fluidized-bed gasification, SOFC and torrefaction, entrained-flow gasification, gas engine) and supporting research concerning two major aspects, viz. tar/soot formation and hot gas filtration.

CHAIRPERSONS:
Francesco PATUZZI
Free University of Bolzano, ITALY

Joakim LUNDGREN
Lulea University of Technology, SWEDEN

4AO.2.1
Enrico BOCCI
Università degli Studi Guglielmo Marconi, DSI, ITALY
Co-authors: A. Di Carlo, A.A. Papa, A. Tacconi, A. Vitale, M. Ragnoli, P.U. Foscolo, University of L'Aquila, Italy; L. Del Zotto, eCampus University, Novedrate, Italy; V. Corradetti, N. Rovelli, Enereco SpA, Fano, Italy; B. Aydin, Walter Tosto SpA, Chieti, Italy
STEAM BIOMASS GASIFICATION COUPLED WITH HOT GAS CLEANING AND CONDITIONING AT PILOT SCALE: RESULTS OF THE BLAZE PROJECT

4AO.2.2
Andreas EWALD
TU München, Chair of Energy Systems, GERMANY
Co-authors: S. Fendt, H. Spliethoff, TU München, Munich, Germany; R. Völkl, Völkl Motorentechnik GmbH, Tirschenreuth, Germany
PYROGAS - DEMONSTRATION OF A DECENTRALIZED DISPOSAL CONCEPT FOR SEWAGE SLUDGE BY TORREFACTION AND SUBSEQUENT ENTRAINED FLOW GASIFICATION FOR GAS ENGINE USE

4AO.2.3
Thomas BRUNNER
BIOS Bioenergiesysteme, AUSTRIA
Co-authors: M. Blank, K. Supancic, I. Obernberger, BIOS Bioenergiesysteme, Graz, Austria; P. Petermeier, Aarhus University, Department of Engineering, Aarhus, Denmark
TAR AND SOOT MODELLING OF PRODUCER GAS FROM BIOMASS UPDRAFT GASIFIERS

4AO.2.4
Mateusz SZUL
Instytut Technologii Paliw i Energii, Circular Economy Dpt., POLAND
Co-authors: J. Zuwala, T. Iluk, Instytut Technologii Paliw i Energii, Zabrze, Poland
STEP-BY-STEP RESEARCH AND DEVELOPMENT FOR ATTAINING A MATURE AND RELIABLE HOT SYNGAS FILTRATION TECHNOLOGY

ORAL SESSION 6AO.3

15.00 - 16.00 **Biomass pre-treatment processes**
ROOM BIANCA

This oral session focusses on pretreatment methods mainly for lignocellulosic biomass feedstocks prior to their conversion in biorefinery processes located around the world.

CHAIRPERSONS:
Sari RAUTIAINEN
VTT Technical Research Centre of Finland, FINLAND

Andreas KIESEL
University of Hohenheim, GERMANY

6AO.3.1
Zhanying ZHANG
Queensland University of Technology, Centre for Agriculture and the Bioeconomy, AUSTRALIA
MULTI-PRODUCT BIOREFINERIES BASED ON ALCOHOL PRETREATMENT OF LIGNOCELLULOSE - A REVIEW OF QUT'S TECHNOLOGIES

6AO.3.2
Hans HEERES
BTG Biomass Technology Group, RTD Dpt., THE NETHERLANDS
Co-authors: E.J. Leijenhorst, B. Van de Beld, BTG Biomass Technology Group, Enschede, The Netherlands
NEWWAVE: BUILDING A SUSTAINABLE & CIRCULAR ECONOMY THROUGH INNOVATIVE, BIOBASED MANUFACTURING LINES

6AO.3.3
Diogo Manuel AMARAL SANTOS COSTA
German Aerospace Center, Aerogel and Aerogel Composites, Institute of Material Research, GERMANY
Co-authors: D. Costa, B. Milow, German Aerospace Center (DLR), Cologne, Germany; S. Schick, G. Seide, University of Maastricht, Geleen, The Netherlands
SYNTHESIS OF CELLULOSE AEROGEL FIBERS FROM AGRICULTURAL RESIDUES AND CONSIDERATIONS ON ITS CONTINUOUS PRODUCTION

6AO.3.4
Eric Charles PETERSON
Institut National de la Recherche Scientifique, CANADA
Co-authors: E.C. Petersoon, Institut National de la Recherche Scientifique (INRS), Quebec City, Canada; C Hermansen, A Yong, A Thong, M Teo, Singapore Institute for Food and Biotechnology Innovation, Singapore, Singapore; C Toledo, Singapore Institute for Food and Biotechnology InnovationInstitut National de la Recherche Scientifi, Singapore, Singapore
LIGNOCELLULOSIC BIOCONVERSION TO MICROBIAL PROTEIN VIA CELLULOLYTIC CONSORTIA

ORAL SESSION IAO.1

15.00 - 16.00 **Low ILUC Biofuels**
ROOM AVORIO

Delivering biofuels from feedstocks that can avoid causing indirect land use change (ILUC) emissions has been identified as a priority in EU biofuel policy to 2030. One way to achieve this is through the development of systems of low ILUC-risk certification, setting rules to allow certification of projects that can deliver additional biomass without impacting existing markets. Low ILUC-risk production approaches include restoring low quality land, improving crop productivity, and implementing novel agricultural approaches like intercropping. In this panel, informed by work on the 'BIKE' Horizon 2020 project, we will discuss the rules that are being developed to certify these projects, and the prospect for low ILUC-risk projects to contribute in a significant way to the EU feedstock mix.

CHAIRPERSONS:
Chris MALINS
Cerulogy, UNITED KINGDOM

Kyriakos MANIATIS
Former European Commission, DG Energy, EUBCE Industry Coordinator, BELGIUM

Speakers:

P. Hawighorst
ISCC System, Germany

G. Toop
Guidehouse, Associate Director Bio-energy, United Kingdom

C. Baldino
The International Council on Clean Transportation, Fuels, Germany

O. Koski
UPM, Finland

P. Corvo
Paolo Corvo, Biofuels, Italy

VISUAL PRESENTATIONS 2AV.1

15.00 - 16.00 **Socio-economic and public acceptance in the bioeconomy and bioenergy**
POSTER AREA

This poster session presents case studies and examples on social acceptance, involvement of stakeholders and sustainability assessment and includes examples of utilisation of GIS systems, certification schemes, bioenergy and nutrition links, integrated farming systems and techno- economic and environmental assessments.

CHAIRPERSON:
Rocio DIAZ-CHAVEZ
Imperial College London, UNITED KINGDOM

2AV.1.1
Simone BERGONZOLI
Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria, CREA-IT, ITALY
Co-authors: L. Pari, L. Cozzolino, W. Stefanoni, S. Lazar, R. Venanzi, CREA- Council for Agricultural Research and Economics, Monterotondo RM, Italy; R. Picchio, D. Tocci, Tuscia University, Department of Sciences and Technology for Agriculture, Forest, Environment and En, Viterbo, Italy; F. Latterini, Institute of Dendrology, Polish Academy of Sciences, Parkowa 5, Kornik, Poland
STATISTICAL VALIDATION OF GIS-AHP SYSTEMS FOR FOREST HARVESTING PLANNING

2AV.1.4
Alexandre MONTEIRO SOUZA
Swedish University of Agricultural Sciences, Energy and Technology Dpt., SWEDEN
Co-authors: A. Sourza, J. Pechsiri, C. Sundberg, N. Ericsson, Swedish University of Agricultural Sciences, Uppsala, Sweden; P. Shigwedha, Namibia University of Science and Technology (NUST), Windhoek, Namibia
STAKEHOLDER ENGAGEMENT FOR SOCIAL LIFE CYCLE ASSESSMENT OFF CLEAN SOLID BIOFUEL FROM ENCROACHED BUSH IN SOUTHERN AFRICA

2AV.1.7
Daniela HIGGIN AMARAL
University of São Paulo, Institute of Energy and Environment, BRAZIL
Co-authors: S. Neiva, D. Amaral, L. Lazaro, C. Bermann, Universidade de São Paulo, Brazil
FROM LPG TO FIREWOOD PROGRESS OR SETBACK IN THE ENERGY TRANSITION IN BRAZIL

2AV.1.8
Mirjam ROEDER
Aston University, Energy and Bioproducts Research Institute, UNITED KINGDOM
Co-authors: D. Taylor, K. Chong, Aston University, Birmingham, United Kingdom
GLOBAL BIOENERGY STORIES

2AV.1.12
Karen MASCARENHAS
RCGI - Research Centre for Greenhouse Gas Innovation, Human Resources & Institutional Communication, BRAZIL
Co-authors: S Coelho, IEE - Institute of Energy and Environment, São Paulo, Brazil; G Turquetti, RCGI - Research Centre for Greenhouse Gas Innovation, São Paulo, Brazil
THE BIOENERGY ALTERNATIVE FOR A SUSTAINABLE ENERGY TRANSITION IN BRAZIL: THE SOCIAL PERCEPTION PERSPECTIVE

2AV.1.14
Aneta MAGDZIARZ
AGH University of Science and Technology, POLAND
Co-authors: M. Strojny, P. Gladysz, AGH University of Science and Technology, Krakow, Poland
TECHNO-ECONOMIC ASSESSMENT OF BIOMASS POWER PLANT WITH CARBON CAPTURE AND STORAGE

2AV.1.16
Beike SUMFLETH
DBFZ Deutsches Biomasseforschungszentrum gemeinnützige, Bioenergy Systems Dpt., GERMANY
Co-authors: S. Majer, D. Thrän, DBFZ Deutsches Biomasseforschungszentrum gemeinnützige, Leipzig, Germany
KNOWLEDGE BASED DECISION MAKING TOOL FOR THE ASSESSMENT OF TRADE-OFFS IN LOW ILUC RISK CERTIFICATION

2AV.1.22
Israel HERRERA
CIEMAT, SPAIN
Co-authors: A. R Gamarra, C Lago, Y Lechon, CIEMAT, Madrid, Spain; M Sanchez, ICIFOR.INIA, Madrid, Spain
INTEGRATED USE OF CORK OAK FORESTS: CLIMATE CHANGE MITIGATION, PRODUCT DIVERSIFICATION AND SOCIO-ECONOMIC BENEFITS

2AV.1.23
Paula BARBOSA
Empresa de Pesquisa Energética, Biofuels and Oil Derivatives, BRAZIL
Co-authors: R. Araujo, R. Henriques, A. Costa, Empresa de Pesquisa Energética, Rio de Janeiro, Brazil
TAX POLICY ROLE AND ETHANOL CONSUMPTION VIA INPUT-OUTPUT MATRIX IN MATO GROSSO STATE AND BRAZIL - A COMPARISON - ABRIDGED ARTICLE

VISUAL PRESENTATIONS 5AV.2

15.00 - 16.00 **Oil-based and renewable hydrocarbon biofuels from a variety of starting feedstocks and using an array of conversion processes, bio-alcohols from sugar, starch and lignocellulosic biomass**
POSTER AREA

This poster session covers a range of processes for the production of oil-based and renewable hydrocarbon biofuels from a range of biobased feedstocks and includes detailed assessment of already published data to enhance the efficiency of future biofuel production projects.

CHAIRPERSONS:
Dimitrios SIDIRAS
University of Piraeus, GREECE

David BAXTER
Former European Commission, Joint Research Centre, EU

5AV.2.1
Hirofumi NOGE
Graduate school of Education, JAPAN
Co-authors: C. Nakano, Advance Science Research Center, Okayama University, Okayama, Japan; H.A. Kadir, College of Engineering, Universiti Teknologi MARA, Johor, Malaysia; W.J. Yahya, Advanced Vehicle System, Malaysia-Japan International Institute of Technology, Kuala Lumpur, Malaysia; Y. Ueno, Egg & Chicken Research Center, NBL Co., Ltd., Kyoto, Japan
OPTIMIZATION OF RECOVERY AND QUALITY OF SECOND GENERATION BIO DIESEL FUEL PRODUCED FROM PALM ACID OIL BY COMPOSITE BASE METAL CATALYSTS SUPPORTED ON PARTICULATE SILICA GEL

5AV.2.3
Adhikari SUSHIL
Auburn University, USA
Co-authors: P. Roy, H Jahromi, T. Rahman, S. Adhikari, Auburn University, Auburn, Usa
HYDROTREATMENT OF PYROLYSIS BIO-OIL AND POULTRY FAT BLENDS FOR THE PRODUCTION OF TRANSPORTATION FUELS

5AV.2.6
Ailís OSHEA
Trinity College Dublin, IRELAND
Co-authors: A. O'Shea, C. McNamara, P. Rao, A. Ure, M. Reza Ghaani, S. Dooley, Trinity College Dublin, Dublin, Ireland
ACID CATALYSED ALCOHOLYSIS OF LIGNOCELLULOSIC BIOMASS TO ADVANCED BIOFUELS

5AV.2.8
Maria GOULA
Laboratory of Alternative Fuels and Environmental Catalysis, University of Western Macedonia, Chemical Engineering Dpt., GREECE
Co-authors: A.I. Tsiotsias, N.D. Charisiou, Laboratory of Alternative Fuels and Environmental Catalysis, University of Western Macedonia, Kozani, Greece; V. Sebastian, Universidad de Zaragoza, Spain; S. Alkhoori, K. Polychronopoulou, Khalifa University of Science and Technology, Abu Dhabi, United Arab Emirates
GREEN DIESEL PRODUCTION VIA PALM OIL SELECTIVE DEOXYGENATION OVER NI/CEO2-ZRO2 AND NI/Y2O3-ZRO2 CATALYSTS

5AV.2.9
Michel LENOEL
P+I, Consulting - Energy, FRANCE
GREENALYZE, AN INNOVATIVE, PATENTED SIMULATION TOOL FOR BIO-REFINERY INTEGRATED TECHNO-ECONOMIC AND ENVIRONMENTAL IMPACT ASSESSMENT.

5AV.2.11
Iver Bergh HVIDSTEN
Norwegian University of Life Sciences, Faculty of Sciences and Technology, NORWAY
Co-author: J. M. Marchetti, Norwegian University of Life Science, Aas, Norway
USING DATA MINING TO COLLECT, SUMMARISE, AND INVESTIGATE OPTIMAL ROUTES OF BIODIESEL PRODUCTION.

5AV.2.14
Putty EKADEWI
Nantes Université, FRANCE
Co-authors: G. Cogne, O. Gonçalves, H. Marec, D. Drouin, J. Pruvost, Nantes Université, Oniris, CNRS, GEPEA, UMR 6144, Saint-Nazaire, France; B. Legeret, V. Epting, D. Sorigué, F. Beisson, G. Peltier, Aix-Marseille University, CEA, CNRS, Institute of Biosciences and Biotechnologies, BIAM Cadarache, Saint-Paul-lez-Durance, France
MICROBIAL HYDROCARBON PRODUCTION BY FATTY ACID PHOTODECARBOXYLASE PHOTOENZYME IN PHOTOBIOREACTORS

5AV.2.15
Iver Bergh HVIDSTEN
Norwegian University of Life Sciences, Faculty of Sciences and Technology, NORWAY
Co-author: J.M. Marchetti, Norwegian University of Life Science, Aas, Norway
STORAGE INVESTIGATION OF BIODIESEL PRODUCED FORM WASTE FISH OIL USING GLYCEROL ENRICHED CALCIUM OXIDE AS A HETEROGENEOUS CATALYST.

5AV.2.17
Claudia STECKELBERG
UNICAMP, Bioprocesses Dpt., BRAZIL
USE OF NATIVE YEAST STRAIN (SACCHAROMYCES CEREVISAE) AS INOCULUM IN BIOETHANOL FERMENTATION

MONDAY 05 JUNE 2023

MON

5AV.2.18
Ana Isabel SUSMOZAS
CIEMAT, Energy Dpt., SPAIN
Co-authors: P. Manzanares, M.J. Negro, R. Iglesias, I. Ballesteros, CIEMAT, Madrid, Spain
EFFICIENT SUGARS RECOVERY FROM CYTISUS SCOPARIUS FOR BIOENERGY AND BIOPRODUCTS PRODUCTION: OPTIMIZATION OF STEAM EXPLOSION FRACTIONATION STEP

5AV.2.19
Magali Camila VIVAS-CUELLAR
Universidad Nacional de Ingenieria, Lima Dpt., PERU
Co-authors: E.A. Collado Dominguez, R. Ortiz Guzmán, Universidad Nacional de Ingenieria, Rimac, Peru; A.D. Arias Durand, Universidad Nacional Agraria La Molina, Lima, Peru; O.G. Marin Flores, Washington State University, Pulman, Peru
OXALIS TUBEROSA CARBOHYDRATE FOR OBTAIN SECOND GENERATION BIOETHANOL

5AV.2.20
Eva BALAGUER MOYA
Technical University of Denmark, DTU Bioengineering Dpt., DENMARK
Co-authors: S.I. Mussatto, G. Dragone, Technical University of Denmark, Copenhagen, Denmark
DEVELOPMENT OF A SUSTAINABLE BIOMASS FRACTIONATION FOR INTEGRATION INTO BIOREFINERIES

5AV.2.21
David MARTIN ALONSO
CSIC, SPAIN
Co-authors: J. Iglesias, M. Montaña, F.A. Vázquez, Universidad Rey Juan Carlos, MOSTOLES, Spain; F. Vila, D.M. Alonso, Institute of Catalysis and Petrochemistry - CSIC, Madrid, Spain
PURIFICATION OF HEMICELLULOSE HYDROLYSATES FROM GVL-ORGANOSOLV WOOD FRACTIONING: EFFICIENT PROCESS BASED ON LIQUID-LIQUID EXTRACTION

5AV.2.22
Hannes LATINE
KU Leuven, Centre for Sustainable Catalysis and Engineering, BELGIUM
INTEGRATING CARBOHYDRATE-BASED NAPHTHA SYNTHESIS IN LIGNOCELLULOSE REFINING

5AV.2.23
Thomas NICOLAÏ
KU Leuven, BELGIUM
Co-authors: H. Latine, B. Sels, KU Leuven, Heverlee, Belgium
VALORIZATION OF LIGNIN-FIRST CARBOHYDRATES THROUGH BIOCHEMICAL CONVERSION TOWARDS ETHANOL

5AV.2.24
Il-Ho CHOI
Korea Institute of Energy Research, SOUTH KOREA
Co-author: K.R. Hwang, Korea Institute of Energy Research, Daejeon, South Korea
PRODUCTION OF HIGH QUALITY BIO-JET FUEL THROUGH THE LOW TEMPERATURE ISOMERIZATION OF N-ALKANES USING LA-MODIFIED PT/ZEOLITE CATALYSTS

Status of 1 June 2023

15.00 - 17.00 **Responsible sourcing and Biofuel Supply Chains**
ROOM MODULAR 2

Bioenergy production and use can make a valuable contribution to the sustainable development agenda. With careful management, various forms of bioenergy can help countries meet growing energy demand while concomitantly realizing carbon emissions reductions, climate change mitigation and adaptation efforts and improve livelihoods.

However, an increasing demand and supply of biofuels can raise the risk of environmental and social impacts, and exacerbate structural development challenges in many countries, as is the case of increased production of many different globally traded commodities.

Break **16.00 - 16.15**

ORAL SESSION 1AO.4

16.15 - 17.15 **Spatial analysis and mapping for sustainable biomass resources**
AUDITORIUM EUROPA

This oral session covers a range of methods developed to assess the biomass resource potentials, including biochar production for carbon storage, biomethane expansion and a case study on the mapping of bioenergy potentials from rice paddy fields.

CHAIRPERSONS:
Eleni G. PAPAZOGLOU
Agricultural University of Athens, GREECE

Andrea PARENTI
University of Bologna, ITALY

1AO.4.1
Nicolai David JABLONOWSKI
Forschungszentrum Jülich, IBG-2: Plant Sciences, GERMANY
Co-authors: M. Von Cossel, K. Heinzel, G. Patino Lordello, A. Aron Winkler, M. Virginia Lauria, University of Hohenheim 340b, Stuttgart, Germany
PERENNIAL WILD PLANTS - SUSTAINABLE CO-SUBSTRATES FOR PELLET COMBUSTION

1AO.4.2
Giovanni FERRARI
Università degli Studi di Padova, Territorio e Sistemi Agro-Forestali - TESAF Dpt., ITALY
Co-author: A. Pezzuolo, Università degli Studi di Padova, Legnaro, Italy
SPATIAL ANALYSIS FOR BIOGAS UPGRADING PLANTS: AN OPPORTUNITY FOR BIOMETHANE DEVELOPMENT

1AO.4.3
Zhan SHI
University of Padova, Territorio e Sistemi Agro-Forestali Dpt., ITALY
Co-authors: G. Ferrari, Dpt. of Land, Environment, Agriculture and Forestry, University of Padova, Italy; P. Ai, Huazhong Agricultural University, College of Engineering, Wuhan, P.R. China; A. Pezzuolo, Dpt. of Land, Environment, Agriculture and Forestry, University of Padova;, Italy
MAPPING PADDY RICE FOR BIOENERGY POTENTIAL COMBINING MULTI-TEMPORAL VEGETATION INDICES: A CASE STUDY

1AO.4.4
Md Mashum BILLAL
University of Alberta, Mechanical Engineering Dpt., CANADA
Co-authors: A. Dwivedi, A. Kumar, University of Alberta, Edmonton, Canada
THE DEVELOPMENT OF A NEW GIS-BASED OPTIMIZATION MODEL FOR MULTI-FEEDSTOCK AND MULTI-PRODUCT BIOMASS SUPPLY CHAIN

ORAL SESSION 4AO.5

16.15 - 17.15 **Recent developments in dual FB-gasification and fuel characteristics**
ROOM ITALIA

This session focusses on the advances in dual-fluidized bed gasification and chemical looping gasification as well as the insight in the use of new feedstocks in gasification for synthesis gas production.

CHAIRPERSONS:
Frederik RONSSE
Ghent University, BELGIUM

Sebastian SANCHEZ VILLASCLARAS
University of Jaén, SPAIN

4AO.5.1
Marco BUFFI
European Commission Joint Research Centre, Institute for Energy - Renewable Energy Unit, ITALY
Co-authors: O. Hurtig, N. Scarlat, European Commission Joint Research Centre, Ispra, Italy
ENVIRONMENTAL ASSESSMENT OF AN INTEGRATED BIOMASS TO ADVANCED BIOFUELS VALUE CHAINS INCLUDING BIOCHAR AS CARBON CAPTURE AND STORAGE SOLUTION - PART II: GASIFICATION

4AO.5.2
Nikolaos DETSIOS
CERTH, GREECE
Co-authors: K. Atsonios, P. Grammelis, CERTH, Athens, Greece; P. Dieringer, J. Ströhle, TUDA, Darmstadt, Germany; V. Nikkanen, VTT, Espoo, Finland; N.G. Orfanoudakis, UOA, Athens, Greece
A COMPARATIVE ANALYSIS AND ASSESSMENT OF DUAL FLUIDIZED BED AND CHEMICAL LOOPING GASIFICATION: DESIGN CONSIDERATIONS FOR COMMERCIAL USE AND APPLICABILITY IN BTL SCHEMES

4AO.5.3
Daniel HOCHSTÖGER
BEST - Bioenergy and Sustainable Technologies, AUSTRIA
Co-authors: T. Karel, Bioenergy and Sustainable Technologies GmbHBioenergy and Sustainable Technologies GmbH, TU Wien, Vienna, Austria; M. Binder, H. Hofbauer, M. Kuba, Bioenergy and Sustainable Technologies GmbH, TU Wien, Vienna, Austria; K. Fürsatz, Bioenergy and Sustainable Technologies GmbH, TU Wien, Umea University (Sweden), Vienna, Austria
EXPERIENCES FROM COMMISSIONING AND FIRST OPERATION OF A DEMONSTRATION-SCALE DFB GASIFICATION PLANT

4AO.5.4
Miriam HUBER
BEST - Bioenergy and Sustainable Technologies, AUSTRIA
Co-authors: T. Karel, A. Egger, D. Hochstöger, M. Binder, H. Hofbauer, M. Kuba, BEST - Bionenergy and Sustainable Technologies, Graz, Austria; D. Kadlez, TU Wien, Wien, Austria; T. Pröll, BOKU Wien, Wien, Austria
SYNGAS FROM PLASTIC REJECTS: EVALUATION OF GAS IMPURITIES FROM DUAL FLUIDIZED BED STEAM GASIFICATION AND AN INTEGRATED GAS CONDITIONING UNIT

ORAL SESSION 6AO.6

16.15 - 17.15 **Production of high added-value biobased compounds**
ROOM BIANCA

The production of various biobased compounds is addressed in this oral session using examples including VFA from cheese whey, xylitol from different fermentation processes, hydrothermal carbonisation and pyrolysis comparison for Na-ion battery electrodes, and the comparison of single-culture and co-culture systems.

CHAIRPERSONS:
Hans HEERES
BTG Biomass Technology Group, THE NETHERLANDS

David MARTIN ALONSO
CSIC, SPAIN

6AO.6.1
Eric ROVIRA CAL
CEIT, SPAIN
Co-authors: L. Besga, T. Fernández-Arévalo, E. Aymerich, CEIT, Donostia - San Sebastián, Spain
EUBCE Student Awardee Presentation
SCALE-UP AND OPERATIONAL PARAMETERS ASSESSMENT OF SELECTIVE VFA PRODUCTION FROM CHEESE WHEY

6AO.6.2
Julen ORDEÑANA MANSO
Danmarks Tekniske Universitet, DENMARK
Co-authors: M. Sen, C. K. Yamakawa, S. I. Mussatto, C.E. Cabrera Camacho, Danmarks Tekniske Universitet (DTU), Kongens Lyngby, Denmark; L. S. Huber, V. R. Baccaglini, Ingredion Brasil Ing. Ind., Mogi Guacu, Brazil
TOWARDS A SUSTAINABLE PRODUCTION OF XYLITOL: SEPARATE HYDROLYSIS AND FERMENTATION (SHF) AND SIMULTANEOUS SACCHARIFICATION AND FERMENTATION (SSF)

6AO.6.3
Julie MICHEL
CEA, FRANCE
Co-authors: C Dupont, IHE Delft, Delft, The Netherlands; L Simonin, CEA, Grenoble Cedex 9, France
HTC OR PYROLYSIS AS PRETREATMENT IN HARD CARBON SYNTHESIS FOR NEGATIVE ELECTRODE IN NA-ION BATTERY: COMPARISON OF THE TWO PROCESSES

6AO.6.4
Erlinda RAMA
DTU-Technical University of Denmark, Bioengineering Dpt., DENMARK
Co-authors: J. C. López-Linares, M. Coca, M. T. García-Cubero, University of Valladolid, Valladolid, Spain; G. Dragone, C. K. Yamakawa, S. I. Mussatto, DTU-Technical University of Denmark, Kongens Lyngby, Denmark
PRODUCTION OF 2,3-BUTANEDIOL (2,3-BDO) AND ACETOIN FROM PAENIBACILLUS POLYMYXA IN SINGLE-CULTURE AND IN CO-CULTURE SYSTEMS

ORAL SESSION IAO.2

16.15 - 17.15 **European climate and energy legislation: Tower of Babel or a strategic approach? The view of the industry: Confusing Legislation**
ROOM AVORIO

CHAIRPERSONS:
Guillaume BOISSONNET
Commissariat à l'Energie Atomique et aux Energies Alternatives, FRANCE

Kyriakos MANIATIS
Former European Commission, DG Energy, EUBCE Industry Coordinator, BELGIUM

Speakers:

D. Reinemann
Bioenergy Europe, Belgium

P. Klintbom
RISE, Sweden

R. Venendaal
BTG Biomass Technology Group BV, The Netherlands

A. Alvarez Alberdi
EWABA, Belgium

VISUAL PRESENTATIONS 2AV.3

16.15 - 17.15 **Environmental impacts of biomass and biofuels**
POSTER AREA

A number of environmental impacts of biomass utilisation and biofuels production are addressed in this poster session, many using LCA, and including examples on olive tree pruning, SAF production, vinasse utilisation, bio-oils from organic waste, green fuels for maritime use and management of water tables.

CHAIRPERSON:
Mirjam ROEDER
Aston University, UNITED KINGDOM

2AV.3.1
Vasiliki P. ARAVANI
Elke, University of Patras, GREECE
Co-authors: D. Zagklis, M. Kornaros, V.G. Papadakis, University of Patras, Patra, Greece; C. Zafiri, Green Technologies Ltd, Patra, Greece; W. Wang, Biomass Energy and Environmental Engineering Research Center, Beijing, P.R. China
LIFE CYCLE ASSESSMENT OF OLIVE TREE PRUNING MANAGEMENT SCENARIOS IN GREECE: GASIFICATION VERSUS OPEN FIELD BURNING

2AV.3.2
Suani COELHO
Julio Romano Meneghini - Processo, BRAZIL
Co-authors: V. Pecora Garcilasso, T. Lopes, USP, São Paulo, Brazil
LIFE CYCLE ASSESSMENT (LCA) OF VINASSE UTILIZATION IN BRAZILIAN SUGAR-ENERGY SECTOR

2AV.3.3
Henrique BAENINGER PESCARINI
LNBR/CNPEM - Brazilian Biorenewables National Laboratory, Sustainability Dpt., BRAZIL
Co-authors: H.B. Pescarini, G. P. Nogueira, M.F. Chagas, G. P. Petrielli, D. S. Henzler, T. A. D. Hernandes, LNBR/CNPEM - Brazilian Biorenewables National Laboratory, Campinas, Brazil; H.R. Guimarães, Program of Bioenergy/UNICAMP - Campinas State University, Campinas, Brazil
LOGISTICAL ENHANCEMENT OF CARBON EMISSIONS MITIGATION FROM THE SUSTAINABLE AVIATION FUEL PRODUCTION CHAIN: A STUDY CASE FOR GOIÁS, BRAZIL

2AV.3.5
Elena MAESTRI
University of Parma, Chemistry, Life Sciences and Environmental Sustainability Dpt., ITALY
Co-authors: N. Marmiroli, Consorzio Interuniversitario Nazionale per le Scienze Ambientali, Parma, Italy; P. Pesaresi, University of Milano, Milano, Italy; S. Shilev, Agricultural University Plovdiv, Plovdiv, Bulgaria; V. Povilaitis, R. Zydelis, Lithuanian Research Centre for Agriculture and Forestry, Kedainiu, Lithuania; M. Guarino Amato, Consiglio per la Ricerca in Agricoltura e l'Analisi dell'Economia Agraria (CREA), Monterotondo, Italy; V. Terzi, Consiglio per la Ricerca in Agricoltura e l'Analisi dell'Economia Agraria (CREA), Fiorenzuola d'Arda (PC), Italy; S. Tomasiello, E. Loit, University of Tartu, Tartu, Estonia; R. Millán, T. Schmid, Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas (CIEMAT), Madrid, Spain; A. Garcia, NEIKER BRTA, Derio, Spain; W. Szulc, B. Rutkowska, Warsaw University of Life Sciences, Warsaw, Poland; M. Avci, Nigde Ömer Halisdemir University, Merkez Yerleske/Nigde, Turkey; M. Caldara, Dept Chemistry, Life Sciences and Environmental Sustainability, University of Parma, Parma, Italy; M. Marmiroli, Dept Chemistry, Life Sciences and Environmental Sustainability, University of ParmaConsorzio Interun, Parma, Italy
IMPROVING CIRCULARITY IN AGROECOSYSTEMS - THE CONNECTFARMS RESEARCH PROJECT

2AV.3.6
Thayse HERNANDES
LNBR - Brazilian Biorenewables National Laboratory, Sustainability Division, BRAZIL
Co-authors: G. P Petrielli, G. P Nogueira, D. S Henzler, M. F Chagas, CNPEM, Campinas, Brazil
LAND USE CHANGE IMPACTS ASSOCIATED TO SUGARCANE ETHANOL PRODUCTION IN BRAZIL

2AV.3.7
Monica CARNEVALE
CREA-IT, ITALY
Co-authors: A. Palma, B. Vincenti, E. Paris, M. Salerno, F. Gallucci, CREA-IT, Monterotondo, Italy; A. Colantoni, L. Bianchini, UNITUS-DAFNE, Viterbo, Italy
ENVIRONMENTAL SUSTAINABILITY AND IMPACTS ASSESSMENT OF A PYRO-GASIFICATION CASE STUDY

2AV.3.8
Jose-Luis GALVEZ-MARTOS
IMDEA Energy, SPAIN
Co-authors: S. Abelleira, P.L. Cruz, D. Iribarren, J.-L. Galvez Martos, IMDEA Energy, Móstoles, Spain
MODELLING AND ENVIRONMENTAL EVALUATION OF MICROBIAL OIL PRODUCTION FROM ORGANIC WASTE

2AV.3.9
Megan ROUX
Technical University of Denmark, Resource and Environmental Engineering Dpt., DENMARK
Co-authors: T. F. Astrup, C. Lodato, Technical University of Denmark, Kongens Lyngby, Denmark
REVIEW OF LIFE CYCLE ASSESSMENTS OF GREEN FUELS AND BIOFUELS FOR MARITIME TRANSPORT

2AV.3.10
Senem OZGEN
LEAP scarl (Laboratorio Energia e Ambiente Piacenza), Emission&Air Quality Division, ITALY
POTENTIAL PRIMARY AIR EMISSIONS REDUCTION THROUGH TURNOVER OF OBSOLETE BIOMASS APPLIANCES AND THE ROLE OF THE INCENTIVES

2AV.3.11
Tomasz SIMLA
Silesian University of Technology, Department of Thermal Technology, POLAND
Co-authors: K. Petela, A. Szlek, W Stanek, A. Korus, Silesian University of Technology, Gliwice, Poland
PHY2CLIMATE: LIFE CYCLE ASSESSMENT OF PHYTOREMEDIATION AND BIOFUEL PRODUCTION

2AV.3.12
Austra ZUSEVICA
Latvian State Forest Research Institute Silava, LATVIA
Co-authors: A. Butlers, A. Lazdins, Latvian State Forest Research Institute, Salaspils, Latvia
MODELING WATER TABLE LEVEL EFFECT ON GREENHOUSE GAS EMISSIONS AND BIOMASS

2AV.3.13
Viktorija VENDINA
Latvian State Forest Research Institute "Silava", LATVIA
Co-authors: S. Celma, A. Zusevica, D. Lazdina, Latvian State Forest Research Institute, Salaspils, Latvia; S. Neimane, Faculty of Biological and Environmental Sciences, Helsinki, Finland
BIOMASS ACCUMULATION OF NATURALLY REGENERATED VEGETATION FOLLOWING WOOD ASH APPLICATION ON ACIDIC ORGANIC SOIL

2AV.3.14
Loukia CHRYSIKOU
CERTH Centre for Research and Technology Hellas, Chemical Process and Energy Resources Institute, GREECE
Co-authors: S. Bezergianni, V. Dagonikou, D. Liakos, CERTH Centre for Research and Technology Hellas, Thessaloniki, Greece
MICROALGAL BIOREFINERY APPROACH TOWARDS RENEWABLE FUELS: A SUSTAINABILITY ASSESSMENT

2AV.3.17
Valentina MAZZURCO MIRITANA
ENEA, Biotechnological Processes for Energy & Industry Laboratory (PBE), Department of Energy Technolo-gie, ITALY
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COMPARISON OF THE EFFECTS OF VETERINARY ANTIBIOTICS ON ANAEROBIC DIGESTION ON THE BASIS OF CATTLE MANURE DISPOSAL

VISUAL PRESENTATIONS 1AV.4

16.15 - 17.15 **Broadening the knowledge on Crops for Bioenergy, Biofuels and Bioproducts Feedstock Production (I) POSTER AREA**

This poster session aims to provide a broad view of methods for increasing the knowledge on systems for feedstock production for bioenergy, biofuels and bioproducts: this includes fertilisation, irrigation and soil treatments.

CHAIRPERSONS:
Ana Luisa FERNANDO
Universidade Nova de Lisboa, PORTUGAL

Ralf PECENKA
Leibniz Institute for Agricultural Engineering and Bioeconomy, GERMANY

1AV.4.2
Raquel RAMOS
CIEMAT, Energy. Dpt., SPAIN
Co-authors: L.S. Esteban, R. Bados, C.S. Ciria, J. Perez, CIEMAT, Lubia, Spain
BIOVALOR PROJECT: FOREST AND AGRICULTURAL SUSTAINABLE MANAGEMENT TO OBTAIN HIGH ADDED VALUE BIOPRODUCTS AGAINST THE DEMOGRAPHIC CHALLENGE

1AV.4.3
Federica ZANETTI
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Co-authors: A. Parenti, E. Facciolla, M. Vittuari, S. Berzuini, E. Pagani, V. Guerrieri, A. Monti, Università degli Studi di Bologna, Italy
CARINATA AND CAMELINA BOOSTING THE SUSTAINABLE DIVERSIFICATION IN AGRICULTURAL PRODUCTION SYSTEMS. THE CARINA PROJECT

1AV.4.4
Rostislav BLUME
Institute of Food Biotechnology and Genomics of Natl Academy of Sciences of Ukraine, UKRAINE
Co-authors: D.B. Rakhmetov, S.O. Rakhmetova, M.M. Gryshko National Botanical Garden of Natl. Acad. Sci. of Ukraine, Kyiv, Ukraine; V.Y. Hotsuliak, A.I. Yemets, Y.B. Blume, Institute of Food Biotechnology and Genomics of Natl Academy of Sciences of Ukraine, Kyiv, Ukraine
INTRODUCTION AND PERFORMANCE OF EMERGING BIOFUEL CROP BRASSICA CARINATA IN UKRAINE

1AV.4.6
Sebastiano Andrea CORINZIA
Università degli Studi di Catania, Di3A Dpt., ITALY
Co-authors: E. Crapio, C. Scepi, A. Iurato, S. Longo, S.L. Cosentino, G. Testa, Università degli Studi di Catania, Italy
BIOMASS YIELD AND MORPHOLOGY OF GIANT REED CLONES OBTAINED FROM MUTAGENESIS

1AV.4.7
Sebastiano Andrea CORINZIA
Università degli Studi di Catania, Di3A Dpt., ITALY
Co-authors: E. Crapio, A. Iurato, P. Caruso, A. Scandurra, G. Testa, S.L. Cosentino, Università degli Studi di Catania, Italy
RESPONSE OF PERENNIAL GRASSES UNDER DIFFERENT SOIL WATER AVAILABILITY

1AV.4.8
Nadia PALMIERI
CREA Research Centre for Engineering and Agro-Food Processing, ITALY
Co-authors: A. Assirelli, E. Santangelo, CREA - Research Center for Engineering & Agro-Food Processing, Monterotondo, Italy; F. Ciavarella, C. Manganiello, G. De Santis, M. Rinaldi, CREA - Research Center for Cereal and Industrial Crop, Foggia FG, Italy
QUINOA ASSESSMENT IN ITALIAN AREA: BIOMASS AND SEED PRODUCTION, TECHNICAL EFFICIENCY OF THE MACHINES, ENVIRONMENTAL AND ECONOMIC ASPECTS

1AV.4.9
Alberto ASSIRELLI
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Co-authors: F. Esposito, CREA - Research Center for Engineering & Agro-Food Processing, Monterotondo - RM, Italy; R. Martelli, V. Rondelli, UNIBO-Department of Agricultural and Food Sciences (DISTAL), Bologna-Bo, Italy; M. Sannino, R. Piscopo, V. Topa, S. Faugno, UNINA-Department of Agricultural Sciences, Portici - Na, Italy; S. Amaducci, UNICATT-Faculty of Agricultural, Food and Environmental Sciences., Piacenza - Pc, Italy
HARVESTING WITH TRADITIONAL MECHANICAL SYSTEMS OF HEMP GROWN UNDER WATER STRESS CONDITIONS: A TECHNICAL-ECONOMICAL EVALUATION

1AV.4.10
Alberto ASSIRELLI
CREA - Research Center for Engineering & Agro-Food Processing, ITALY
Co-author: L. Manici, CREA - Research Center for Agriculture and Environment, Bologna BO, Italy
BIOMASS FOR COMPOST PRODUCTION IN ORGANIC FARMING: TECHNICAL EFFICIENCY IN ITALIAN AREA FOR SOIL AMENDMENT

1AV.4.11
Zoe HARRIS
University of Surrey, Centre for Environment and Sustainability, UNITED KINGDOM
Co-authors: l. Liu, R.J. Murphy, T. Chen, S. Stangaciu, A. Owens, C. Prates-Clark, L. Sun, University of Surrey, Guildford, United Kingdom; M. Horler, K. Zacharaki, J. Stormonth-Darling, UKUAT, Liverpool, United Kingdom
AEROPONIC BIOENERGY: USING NOVEL SOILLESS CULTIVATION TO ACCELERATE MULTIPLICATION AND R&D OF BIOENERGY CROPS

1AV.4.12
Michael GARGARO
University of Surrey, Centre for Environment and Sustainability, UNITED KINGDOM
Co-authors: A. Hastings, University of Aberdeen, United Kingdom; Z. Harris, University of Surrey, Guildford, United Kingdom
DEVELOPMENT OF A NOVEL MODEL TO ASSESS THE LAND SPARING POTENTIAL OF VERTICAL FARMING FOR BIOENERGY CROPS

1AV.4.13
Walter STEFANONI
CREA-IT, ITALY
Co-authors: L. Pari, S. Bergonzoli, R. Fanigliulo, L. Cozzolino, L. Fornaciari, G. Sperandio, S. Lazar, S. Benigni, D. Pochi, CREA-IT, Monterotondo (RM), Italy
ASSESSING CHIPPER PERFORMANCE IN DIFFERENT TRUNK SIZE OF POPLAR VIA REAL-TIME SENSORS

1AV.4.15
Sylvain MARSAC
ARVALIS, R&D Dpt., FRANCE
Co-author: A. Cosse, ARVALIS Institut du Végétal, Baziege, France
CAMELINA, A NEW OPPORTUNITY FOR FRENCH BIOECONOMY?

16:15 - 18:20 **Biomass-based Technologies and Practices for Carbon Dioxide Removal**
ROOM MODULAR 3

This event aims at bringing together climate and biomass scientists, modelers and experts, to assess and discuss on the realistic potential of biomass-based negative emissions technologies and practices (BECCS, Biochar, SOC Sequestration) and their scalable deployment pathways to contribute to climate neutrality.

The event will provide an overview on the role of biomass-based NETPS in assessment scenarios at EU and global scale, as well as the preliminary results emerging from different modelling works and other activities developed within the NEGEM project, to assess both the potentials and the possible impacts of biomass-based NETPs, in terms of technological parameters, deployment within the planetary boundaries, carbon removal efficiency, interdependencies with the food system, and socio-economic aspects.

Break **17.15 - 17.30**

ORAL SESSION 1AO.7

17.30 - 18.30 **Biomass resources and potentials**
AUDITORIUM EUROPA

This session explores biomass resources derived from a range of crops as well as organic waste for the purpose of reducing environmental impacts by displacing the use of fossil fuels (decarbonisation).

CHAIRPERSONS:
Myrsini CHRISTOU
Center for Renewable Energy Sources and Saving, GREECE

Tapio RANTA
LUT University, FINLAND

1AO.7.1
Sofia FERDINI
University of Hohenheim, GERMANY
Co-authors: M. von Cossel, V. Wulfmeyer, K. Warrach-Sagi, University of Hohenheim, Stuttgart, Germany
CLIMATE-BASED IDENTIFICATION OF SUITABLE MARGINAL CROPPING AREAS FOR GIANT REED AND REED CANARY GRASS UNDER EUROPE'S CHANGING CLIMATE

1AO.7.2
Scott TURN
University of Hawaii, Hawaii Natural Energy Institute, USA
Co-authors: W.Y. Chan, R. Ogoshi, University of Hawaii, Honolulu, Usa
FEEDSTOCKS FOR SUSTAINABLE AVIATION FUEL PRODUCTION: AN ASSESSMENT OF LAND SUITABILITY AND SAF PRODUCTION POTENTIAL IN HAWAII

1AO.7.3
Lois PENNINGTON
University of Manchester, UNITED KINGDOM
Co-authors: A. Welfle, B. Parkes, University of Manchester, United Kingdom; N Scrutton, University of Manchester & C3 Biotech, Manchester, United Kingdom
RUBBISH TO RUNWAY - ASSESSING THE POTENTIAL OF INTERNATIONAL CATERING WASTE AS A FEEDSTOCK FOR THE PRODUCTION OF BIOFUELS AND BIOENERGY

1AO.7.4
David MOSTAZA-COLADO
IMIDRA, Agroenvironmental Research Dpt., SPAIN
Co-authors: I. Montero Muñoz, P.V. Mauri Ablanque, IMIDRA, Alcalá de Henares, Spain; A. Capuano, Camelina Company Spain, Fuente El Saz de Jarama, Spain
CAMELINA SATIVA (L.) CRANTZ, A PROMISING CROP FOR BIOFUEL AND BIOMASS PRODUCTION IN CENTRAL SPAIN

ORAL SESSION 4AO.8

17.30 - 18.300 **Recent developments in gasification for synthesis gas production**
ROOM ITALIA

This session focusses on the advances in gasification as well as the insight in the use of new feedstocks in gasification for synthesis gas production.

CHAIRPERSONS:
Giacomo TALLURI
Renewable Energy Consortium for Research and Development, ITALY

Thomas BRUNNER
BIOS Bioenergiesysteme, AUSTRIA

4AO.8.1
Sanna TUOMI
VTT Technical Research Centre of Finland Ltd, Thermochemical Conversions Dpt., FINLAND
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CO-PRODUCTION OF SYNTHESIS GAS AND BIOCHAR VIA FLUIDISED-BED GASIFICATIONO OF BIOMASS RESIDUES - EFFECT OF GASIFICATION ON BIOCHAR CHARACTERISTICS

4AO.8.2
Jirat MANKASEM
Newcastle University, School of Engineering, UNITED KINGDOM
Co-authors: P. Prasertcharoensuk, Chulalongkorn University, Bangkok, Thailand; A.N. Phan, Newcastle University, Newcastle upon Tyne, United Kingdom
WOOD PELLETS TWO-STAGE GASIFICATION USING CO_2-STEAM TO PRODUCE HYDROGEN-RICH SYNGAS

4AO.8.3
Avishek GOEL
Tampere University, Material Science and Energy Engineering, FINLAND
Co-authors: A. Ismailov, C. He, J. Konttinen, Tampere University, Finland
EVALUATION OF MULTIPLE OXYGEN CARRIERS FOR HIGH-QUALITY SYNGAS PRODUCTION USING BIOMASS CHEMICAL LOOPING GASIFICATION

4AO.8.4
David Antonio BUENTELLO MONTOYA
Tecnologico de Monterrey, MEXICO
Co-authors: M.A. Armenta, SMARTER-Lab Nucleus for Research & Divulgation A.C., Hermosillo, Mexico; V.M. Maytorena-Soria, Universidad de Sonora, Hermosillo, Mexico
CO-GASIFICATION OF ALGAE WITH MICROPLASTICS AS A HANDLING ALTERNATIVE TO PRODUCE HYDROGEN-RICH SYNGAS: A MODELLING STUDY

ORAL SESSION 6AO.9

17.30 - 18.30 **Processes for biofuels and biobased chemicals**
ROOM BIANCA

Biofuels and bio-based chemicals are the topic of presentations in this oral session, including strategies for biofuels gasification and syngas fermentation, lignocellulosic biomass fractionation and upgrading, effects of the H_2/CO ratio on biochemicals production, and drop-in chemicals from lignin-derived compounds.

CHAIRPERSONS:
Janis RIZIKOVS
Latvian State Institute of Wood Chemistry, LATVIA

Oliver HURTIG
European Commission, JRC, ITALY

6AO.9.1
Marcel DOSSOW
Technische Universität München, GERMANY
Co-authors: P. Leuter, H. Spliethoff, S. Fendt, Chair for Energy Systems, Technical University of Munich, Garching b. München, Germany
PROCESS MODELLING OF BIOFUEL PRODUCTION FROM CONTAMINATED BIOMASS THROUGH ENTRAINED FLOW GASIFICATION AND SYNGAS FERMENTATION

6AO.9.2
Irene MARTÍNEZ SALAZAR
Instituto de Catálisis y Petroleoquímica del CSIC, SPAIN
Co-authors: F. Vila, M. López Granados, R. Mariscal, D. Martin Alonso, Instituto de Catálisis y Petroleoquímica del CSIC, Madrid, Spain
LIGNOCELLULOSIC BIOMASS FRACTIONATION AND UPGRADING STRATEGIES USING GAMMA VALEROLACTONE AS SOLVENT TO PRODUCE FUELS AND CHEMICALS

6AO.9.3
Ruby BROUWER
TU Delft, THE NETHERLANDS
Co-authors: H. Shijaz, A.J.J Straathof, J.A Posada, Delft University of Technology, Delft, The Netherlands; F Gallucci, Eindhoven University of Technology, Eindhoven, The Netherlands
EFFECT OF H_2/CO RATIO ON THEORETICAL CARBON YIELD OF (BIO)SYNGAS FERMENTATION TO CHEMICALS: A THERMODYNAMIC AND METABOLIC-BASED APPROACH.

6AO.9.4
Francesco BRANDI
KU Leuven, Center fo Sustainable Catalysis and Engineering, BELGIUM
Co-authors: X Wu, k van aelst, y liao, b sels, KU Leuven, leuven, Belgium
RATIONAL DE-FUNCTIONALIZATION OF LIGNIN-DERIVED COMPOUNDS TOWARD BIO-DERIVED DROP-IN CHEMICALS

ORAL SESSION IAO.3

17.30 - 18.30 **Beyond Annex IX**
ROOM AVORIO

Advanced biofuels have emerged as a pivotal solution not only to decarb the transportation sector, but also for replacing fossil fuels across a range of other industries, including road transport, aviation, maritime, heating and electricity generation. From a what and see mode of the mandated parties to a direct investmen appetite, the big question is where and which feedstock can be used to fulfil the big and always bigger demands. In this session we will address the appetite for the Annex IXA&B feedstock which is in use and estimated but will focus as well on what is required to reach the envisaged bigger volumes and which other feedstocks or policies should be in place to reach the latter objective.

CHAIRPERSONS:
Paolo CORVO
Paolo Corvo, ITALY

Kyriakos MANIATIS
Former European Commission, DG Energy, EUBCE Industry Coordinator, BELGIUM

Speakers:

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E4Tech / ERM, United Kingdom

M. Janhunen
UPM - The Biofore Company, Director Public Affairs, Advanced Biofuels Coalition, Finland

A. Fraser
Adamant BioNRG, Italy

A. Martelli
ENI, Global Head of Biofeedstocks/Biofuels Trading, Supply & Sustainability, Italy

VISUAL PRESENTATIONS 2AV.5

17.30 - 18.30 **GHG performance of biomass value-chains**
POSTER AREA

The poster session addresses the climate impacts of various biomass value-chains, and the related GHG impacts using a range of modelling and life cycle assessment tools applied to biomass systems around the world.

CHAIRPERSON:
Karen MASCARENHAS
RCGI - Research Centre for Greenhouse Gas Innovation, BRAZIL

2AV.5.2
Vedant BALLAL
NTNU, Energy and Process Engineering Dpt., NORWAY
Co-authors: O. Cavalett, F. Cherubini, M.D.B. Watanabe, NTNU, Trondheim, Norway
CLIMATE CHANGE IMPACTS OF E-FUEL PRODUCED THROUGH INTEGRATION OF ELECTROLYSIS AND BIOMASS-TO-LIQUID (BTL) CONVERSION FOR AVIATION IN EUROPE

2AV.5.3
Laura ROMERO PIÑEIRO
University of Seville, Chemical and Environmental Engineering Dpt., SPAIN
Co-authors: M. Alba, S. Moreno, P. Haro, B. Alonso-Fariñas, University of Seville, Spain
DEVELOPMENT OF A MODEL FOR THE DYNAMIC LIFE CYCLE ASSESSMENT OF GREEN HYDROGEN PRODUCTION FROM BIOMASS GASIFICATION

2AV.5.4
Ponnapat WATJANATEPIN
KU Leuven, BELGIUM
Co-authors: H. Zarafshani, K. Van Acker, KU Leuven, Leuven, Belgium; P. Ouagne, Ecole Nationale d'Ingénieurs de Tarbes, Tarbes, France; R. De Luca, EADCO (European Aerospace Design Consultants) GmbH, Munich, Germany; F. Scarpa, University of Bristol, Bristol, United Kingdom; V. Placet, Université Bourgogne Franche-Comté, Besançon, France
ENVIRONMENTAL POTENTIALS FOR NATURAL FIBRE REINFORCEMENTS TO REPLACE THE SYNTHETIC FIBRES: A CASE STUDY OF THE AEROSPACE DASHBOARD PANEL DEMONSTRATOR

2AV.5.5
Fabiano XIMENES
New South Wales Department of Primary Industries, Forest Science Dpt., AUSTRALIA
ASSESSING THE CLIMATE CHANGE MITIGATION POTENTIAL OF THE USE OF BIOMASS TO GENERATE BIOENERGY IN NEW SOUTH WALES, AUSTRALIA

2AV.5.6
Katja OEHMICHEN
DBFZ-German Biomass Research Centre, Bioenergy Systems Dpt., GERMANY
Co-authors: S. Majer, K. Naumann, DBFZ-German Biomass Research Centre, Leipzig, Germany
RENEWABLE METHANE FROM BIOGAS AND HYDROGEN - ENVIRONMENTAL ASSESSMENT FROM A SCIENTIFIC AND REGULATORY PERSPECTIVE

2AV.5.7
Dimitros GIANNOPOULOS
National Technical University of Athens, GREECE
Co-authors: D. Katsourinis, I. Katsifis, M. Founti, National Technical University of Athens, Athens, Greece
LIQUID BIOFUELS FROM SUPERCRITICAL WATER GASIFICATION OF LIGNOCELLULOSIC CROPS AND FISCHER-TROPSCH SYNTHESIS: AN ENERGETIC AND ENVIRONMENTAL ASSESSMENT WITH PROCESS MODELLING AND LCA

2AV.5.8
Xuebin WANG
Xi'An Jiaotong University, P.R. CHINA
EXPERIMENTAL STUDY OF NOX AND GREENHOUSE GAS EMISSIONS IN A 15 MW BIOMASS CIRCULATING FLUIDIZED BED

2AV.5.9
Marcos Djun BARBOSA WATANABE
Norwegian University of Science and Technology, EPT/NTNU, NORWAY
Co-authors: V. Ballal, X. Hu, F. Cherubini, NTNU, Trondheim, Norway
POWER-TO-X AND HYDROGEN-BASED BIOFUELS AS ALTERNATIVES TO DECARBONIZE THE EUROPEAN MARITIME SECTOR UNTIL 2050

2AV.5.11
Simon ASCHER
University of Glasgow, UNITED KINGDOM
Co-authors: S. You, I. Watson, University of Glasgow, United Kingdom
A COMPREHENSIVE AND VERSATILE ENVIRONMENTAL AND TECHNO-ECONOMIC BIOMASS GASIFICATION MODEL ENABLED BY MACHINE LEARNING

2AV.5.12
Johan NILSSON
Swedish University of Agricultural Sciences, Energy and Technology Dpt., SWEDEN
Co-authors: T. Prade, M. Eerfors, Swedish University of Agricultural Sciences, Alnarp, Sweden; P.A Hansson, Swedish University of Agricultural Sciences, Uppsala, Sweden
LOWER LIFE CYCLE CLIMATE IMPACT WHEN HARVESTING INTERMEDIATE CROP FOR BIOGAS

2AV.5.13
Vanessa FERREIRA DE ALMEIDA
IDENER, Industrial Chemical Applications Dpt., SPAIN
Co-authors: C. de la Cruz Perez, L.D. Servian Rivas, M. Tripiana Serrano, A.J. del Real, IDENER, Sevilla, Spain
ARTIFICIAL PHOTOSYNTHESIS TO PRODUCE FUELS AND CHEMICALS - HYBRID SYSTEMS WITH MICROORGANISM FOR IMPROVED LIGHT HARVESTINGA AND CO_2 REDUCTION

2AV.5.14
Ivana AZUAJE VILLASMIL
North Carolina State University, Forest Biomaterials Dpt., USA
Co-authors: N. Forfora, R. Venditti, S. Kelley, R. Gonzalez, NCSU, Raleigh, Usa
ASSESSING RECYCLED FIBERS. HOW TO CORRECTLY ALLOCATE THEIR ENVIRONMENTAL BURDENS?

2AV.5.15
Israel HERRERA, CIEMAT, SPAIN
Co-authors: C. Lago Rodríguez, A.R. Gamarra, Y. Lechón, CIEMAT, Madrid, Spain; M. Sánchez, ICIFOR – INIA- CSIC, Madrid, Spain
SUSTAINABILITY ASSESSMENT OF YOUNG CORK CROP AND VIRGIN CORK PRODUCTION IN SPAIN

2AV.5.16
Naycari FORFORA
North Carolina State University, Forest Biomaterials Dpt., USA
Co-authors: I. Azuaje, R. Venditti, S. Kelley, R. Gonzalez, North Carolina State University, Raleigh, Usa
ASSESSING THE CARBON FOOTPRINT OF BIOMASS PRODUCTION FROM A CARBON PERSPECTIVE, LIFE CYCLE ASSESSMENT, AND SOIL ORGANIC CARBON STORAGE

2AV.5.17
Miika MARTTILA
LUT University, Sustainability Science Dpt., FINLAND
Co-authors: V. Uusitalo, L. Linnanen, LUT University, Lahti, Finland; M. Mikkilä, LUT University, Lappeenranta, Finland
FINANCIAL AND CLIMATE IMPACTS OF AGROLOGICAL SYMBIOSIS IN FINLAND

2AV.5.18
Giorgos KARDARAS
CPERI/CERTH, GREECE
Co-authors: M. Triantafillou, T. Kokkalis, GRINCO S.A., Larisa, Greece; Tz. Kraia, K. Panopoulos, CPERI/CERTH, Thermi, Thessaloniki, Greece
GREEN BIODIESEL FROM HOUSEHOLD USED COOKING OIL - SUSTAINABILITY OF AN INNOVATIVE COLLECTION SYSTEM

2AV.5.20
João Luís NUNES CARVALHO
Brazilian Center for Research in Energy and Material, Brazilian Biorenewable National Laboratory, BRAZIL
Co-authors: J. L.N. Carvalho, L.C. Gonzaga, M.A. Moitinho, J.V. Oliveira, Brazilian Biorenewable National Laboratory (LNBR/CNPEM), Campinas, Brazil
IMPLICATIONS OF THERMAL CONCENTRATION AND ANAEROBIC BIODIGESTION OF SUGARCANE VINASSE ON SOIL NITROUS OXIDE EMISSIONS

2AV.5.21
Fernanda PALMEIRA GABETTO
CNPEM, BRAZIL
Co-authors: L. Carolino Gonzaga, J. Velasco de Castro Oliveira, J. L. Nunes Carvalho, LNBR/CNPEM, Campinas - SP, Brazil; M. A. Santos Isidório, FATEC, Campinas - SP, Brazil; J. Barra Ferreira-Netto, University of Florida, Gainesville - FL, Usa
SUGARCANE STRAW-BASED BIOCHAR INFLUENCE ON NITROUS OXIDE EMISSIONS AND N-RELATED FUNCTIONAL GENES

2AV.5.22
Hans BACHMAIER
Technology & Support Centre in the Centre of Excellence for Renewable Resources, Solid Biofuels Dpt., GERMANY
Co-authors: D. Kuptz, H. Hartmann, Technology & Support Centre in the Centre of Excellence for Renewable Resources, Straubing, Germany
GLOBAL WARMING POTENTIAL OF DIFFERENT BOTTOM ASH REMOVAL PATHWAYS FROM BIOMASS HEATING PLANTS

2AV.5.23
Marilia FOLEGATTI
Brazilian Agriculture Research Corporation, Embrapa Environment Dpt., BRAZIL
Co-authors: D. R. Amaral, R. M. L. Novaes, A. L. M. T Pighinelli, D. F. T. Garofalo, V. G. Maciel, M.I.S. Folegatti-Matsuura, Embrapa Meio Ambiente, Jaguariúna, Brazil; E. D. Dutra, Universidade Federal de Pernambuco, Recife, Brazil
PRELIMINARY ESTIMATE OF THE EFFECT OF CO2 EMISSIONS FROM DIRECT LAND USE CHANGE ON RENOVABIO'S ENERGY-ENVIRONMENTAL PERFORMANCE

VISUAL PRESENTATIONS 6AV.6

17.30 - 18.30 **Biomass conversion to bio-based products and chemicals (I) POSTER AREA**

This is the first of two poster sessions on the topic of bioconversion to bio-based products and chemicals and includes a wide range of examples of products, product characterisations, process optimisations, and potential future developments.

CHAIRPERSON:
Ludovic RAYNAL
IFP Energies nouvelles, FRANCE

6AV.6.1
Davide DI FRANCESCO
ZHAW Life Sciences und Facility Management, SWITZERLAND
Co-authors: C. Margarita, H. Tunon, I. Kumaniaev, C. Jansson Rada, H. Lundberg, KTH, Stockholm, Sweden
MILD AND SELECTIVE ETHERIFICATION OF LIGNIN FROM WHEAT STRAW AND LIGNIN MODEL COMPOUNDS VIA WATER-TOLERANT LEWIS ACID CATALYSIS

6AV.6.4
Baekrock OH
Korea Research Institute of Bioscience and Biotechnology, SOUTH KOREA
Co-authors: J.-H. Ju, S.G. Joen, S.Y. Heo, M.S. Kim, C.H. Kim, Korea Research Institute of Bioscience and Biotechnology, Jeongup jeonbuk, South Korea; K.M. Lee, Kolon Industries, Seoul, South Korea
THE BIOCATALYTIC PRODUCTION OF 3-HYDROXYPROPIONALDEHYDE AND EVALUATION OF ITS STABILITY

6AV.6.6
Daniela GODINA
Latvian State Institute of Wood Chemistry, LATVIA
Co-authors: A. R. Feldmanis, R. Makars, A. Paze, J. Rizikovs, Latvian State Institute of Wood Chemistry, Riga, Latvia
BIRCH BARK BASED SUBERINIC ACID SAMPLE FRACTIONATION AND CHARACTERISATION USING INSTRUMENTAL METHODS

6AV.6.8
Rachel Eve CLARENCE
ACTIVON, SOUTH KOREA
Co-authors: J. Lee, J. Kim, B. Park, ACTIVON, Cheongju-si, South Korea; J. Cho, Korea Institute of Industrial Technology (KITECH), Cheongju-si, South Korea; W. Shin, Korea Institute of Industrial Technology (KITECH), Cheongju-si, South Korea
ANTI-INFLAMMATORY, WHITENING, ANTI-AGING AND ANTI-OXIDATIVE EFFECTS OF PROTOCATECHUIC ACID DERIVATIVES FROM PRODUCED PROTOCATECHUIC ACID BY FERMENTATION

6AV.6.10
Woo-Shik SHIN
KITECH, Green Chemistry and Materials Group, SOUTH KOREA
Co-authors: J. Lee, B. Park, ACTIVON Co., Ltd., Cheonan-si, South Korea; J. Cho, KITECH, Cheonan-si, South Korea
THE STRAIN DEVELOPMENT AND THE OPTIMIZATION OF FERMENTATION PROCESS FOR PROTOCATECHUATE PRODUCTION VIA CORYNEBACTERIUM GLUTAMICUM

6AV.6.11
Woo-Shik SHIN
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Co-author: J. Cho, KITECH, Cheonan-si, South Korea
CHARACTERISTICS OF ITACONIC ACID PRODUCTION BY AN ENGINEERED CORYNEBACTERIUM GLUTAMICUM

6AV.6.12
Eun Jin CHO
Chonnam National University, Bio-energy Research Institute, SOUTH KOREA
Co-authors: H. Y. Kim, H.-J. Bae, Chonnam National University, Gwangju, South Korea
GREEN TEA AND COFFEE FLOWERS: NEW PROMISING SOURCES OF FUNCTIONAL BIO-SUGARS

6AV.6.13
Ha Yeon KIM
Bio-energy Research Center, Chonnam National University', SOUTH KOREA
Co-authors: E. J. Cho, S. H. Jang, H. J. Bae, Bio-energy Research Center, Chonnam National University', Gwangju, South Korea
CHARACTERIZATION OF TEA-LEAVES EXTRACT AND PRODUCTION OF BIO-SUGARS USING ENZYMATIC HYDROLYSIS

6AV.6.14
Ana OROZCO
Instituto de Catalisis y Petroleoquímica, SPAIN
Co-authors: D. Martin Alosno, Instituto de Catalisis y Petroleoquímica, Madrid, Spain; I. Moreno, Universidad Rey Juan Carlos, Madrid, Spain; R. Mariscal, M. Lopez Granados, Instituto de Catalisis y Petroleoquímica, Madrid, Spain
A TECHNICAL, ECONOMIC AND ENVIRONMENTAL STUDY OF THE PRODUCTION OF NYLON 5 FROM BIOMASS

6AV.6.15
Victoria de los Ángeles FRANCÉS-PÉREZ
Instituto de Catálisis y Petroleoquímica ICP-CSIC, SPAIN
Co-authors: A. Orozco-Saumell, F. Vila, D. Martin-Alonso, R. Mariscal, M. Lopez-Granados, Instituto de catálisis y petroleoquímica ICP-CSIC, Madrid, Spain; J. Moreno, J. Iglesias, Universidad Rey Juan Carlos, Madrid, Spain
POLYBUTYLENE MALEATE AND SUCCINATE PRODUCTION FROM BIOMASS: TECHNICAL FEASIBILITY AND POLYMER PROPERTIES

6AV.6.16
Rosa NASCIMENTO
Nova University Lisbon, PORTUGAL
Co-authors: E.H. Papaioannou, School of Engineering, Faculty of Science and Technology, Lancaster University, Lancaster, United Kingdom; T. Brás, Alentejo Biotechnology Center for Agriculture and Agro-food (CEBAL)/ Polytechnic Institute of Beja (, Beja, Portugal; J.G. Crespo, L.A. Neves, LAQV-REQUIMTE, Chemistry Dpt, NOVA School of Science and Technology, Caparica, Portugal
CONVERTING AGRICULTURE AND FOOD INDUSTRY WASTE BIOMASS TO ADDED VALUE CHEMICAL COMPOUNDS AS NANOCELLULOSE

6AV.6.17
Letizia ROSSATO
Politecnico di Milano, ITALY
Co-authors: C. Allegretti, E. Bellinetto, P. D'Arrigo, G. Griffini, E. Ruffini, D. Tessaro, S. Turri, Politecnico di Milano, Milano, Italy; L. Schiavi, A. Strini, ITC-CNR, San Giuliano Milanese, Italy; S. Serra, SCITEC-CNR, Milano, Italy
DEEP EUTECTIC SOLVENTS: A NEW TOOL FOR WASTE BIOMASS FRACTIONATION AND VALORIZATION

6AV.6.20
Symone COSTA DE CASTRO
University of Campinas, Organic Chemistry Dpt., BRAZIL
Co-authors: D. Stanisic, N. Baltazar Soares, L. Tasic, University of Campinas, Campinas, Brazil
A CLEAN AND SUSTAINABLE PROCESS FOR EXTRACTION OF HESPERIDIN, PECTIN, LIGNIN AND CELLULOSE FROM DIFFERENT CITRUS WASTE

6AV.6.23
Cédric FRANTZ, EPFL, Group of Energy Materials, SWITZERLAND
Co-authors: P. Aubin, G. Vanderheyden, H. Pourrahmani, L. Chang, J. Van herle, EPFL, Sion, Switzerland; B. Ayer, R. Dufresne, HES-SO, Sion, Switzerland; M. Siegert, Hexem SA, Le Châble, Switzerland
PRODUCING GAS GRID QUALITY METHANE FROM WASTEWATER BY ELECTROMETHANOGENESIS

6AV.6.26
Matteo FRANCAVILLA
University of Foggia, Agriculture, Food and Environmental Science Dpt., ITALY
Co-authors: F. Contillo, M. Marone, P. Marasco, D. Racca, M. Caroprese, University of Foggia, Foggia, Italy
BIPHASIC GREEN SOLVENTS SYSTEM FOR A FAST "ONE-POT" SIMULTANEOUS EXTRACTION AT ROOM TEMPERATURE OF VALUABLE COMPOUNDS FROM TOMATO BIOWASTE

6AV.6.28
Francisca ARAN AIS
INESCOP - Footwear Technology Center, R+D+i, SPAIN
Co-authors: H. Pérez-Aguilar, M- Lacruz-Asaro, M. Bonilla-Espadas, F. Aran-Ais, INESCOP - Footwear Technology Center, Elda, Spain
PROTEIN RECOVERY FROM TANNERY WASTE FOR VALUABLE INDUSTRIAL APPLICATIONS SUCH AS PLANT BIOSTIMULANTS

6AV.6.29
Kohei OKUDA
Dshisha University, Science and Engineering Dpt., JAPAN
Co-author: T. Mizutani, Dshisha University, Kyotanabe, Japan
HYBRIDIZATION OF CHEMICALLY MODIFIED CELLULOSE AND HYDROXYAPATITE APPLICABLE TO TOUGH BIOMASS MATERIALS BY MIMICKING BONE

6AV.6.30
Mª Angeles FONTECHA-CAMARA
Fundacion Andaltec I+D+i, SPAIN
Co-authors: I. Delgado, Fundacion Andaltec I+D+i, MartosMartos (Jaen) (Jaen), Spain; B. Soriano, M. Cano, J. Orriach, M.D. Ramirez, M. Mañas, Fundacion Andaltec I+D+i, Martos (Jaen), Spain
VALORISATION OF AGRI-FOOD BY-PRODUCTS AND WASTES THROUGH LIGNIN ISOLATION AND DEPOLYMERISATION

6AV.6.31
María MAÑAS VILLAR
ANDALTEC Centro Tecnológico, SPAIN
Co-authors: B. Soriano, I. Delgado, M. Cano, F.J. Orriach, M.D. Ramirez, M. A. Fontecha, Fundación Andaltec I+D+i, Martos_Jaén, Spain
OPTIMIZATION OF PROCESSES FOR OBTAINING BIO-BASED COMPOSITE MATERIALS DERIVED FROM AGRICULTURAL AND FORESTRY BYPRODUCTS

6AV.6.32
Michaela MCFADDEN
University of Strathclyde, UNITED KINGDOM
Co-authors: X. Zhang, A. Fletcher, C. Davidson, University of Strathclyde, Glasgow, United Kingdom; S. Kerr, Sustainable Thinking Scotland, Glasgow, United Kingdom
EVALUATION OF THE EFFECTS OF ACTIVATION AGENT, CHEMICAL LOADING RATE, AND TEMPERATURE ON BIOCHAR'S AQUEOUS PHOSPHATE SORPTION

6AV.6.33
Il-Ho CHOI
Korea Institute of Energy Research, SOUTH KOREA
Co-author: K.-R. Hwang, Korea Institute of Energy Research, Daejeon, South Korea
SELECTIVE PRODUCTION OF BIO-LINEAR ALPHA-OLEFIN VIA CATALYTIC DEHYDRATION OF FATTY ALCOHOL

ORAL SESSION 1BO.1

09.00 - 10.00 **Innovative strategies to produce dedicated biomass for bioenergy, biofuels and bio-based products**
AUDITORIUM EUROPA

Innovative strategies to produce dedicated biomass to bioenergy, biofuels and bio-based products by changes to existing agricultural practices.

CHAIRPERSONS:
Federica ZANETTI
Università degli Studi di Bologna, ITALY

Ralf PECENKA
Leibniz Institute for Agricultural Engineering and Bioeconomy, GERMANY

1BO.1.1
Walter ZEGADA-LIZARAZU
University of Bologna, Agricultural Science Dpt., ITALY
Co-authors: A. Parenti, A. Monti, University of Bologna, Italy
BIOMASS POTENTIAL OF SUNN HEMP GROWN AS DOUBLE CROP FOLLOWING CONVENTIONAL WINTER CEREAL(S) IN A REDUCED SOIL TILLAGE SYSTEM

1BO.1.2
Efthymia ALEXOPOULOU
CRES - Center for Renewable Energy Sources and Saving, Biomass Dpt., GREECE
Co-authors: F. Zanetti, A. Monti, UNIBO, Bologna, Italy; K. Kempapidis, BIOS, Thessalonikiis, Greece; Y. Yambanis, CCE, Madrid, Spain
GROWING CAMELINA AS CASH COVER CROP IN GREECE

1BO.1.3
Andrea PARENTI
University of Bologna, DISTAL Dpt., ITALY
Co-authors: W. Zegada-Lizarazu, A. Monti, University of Bologna, Italy
YIELD, QUALITY AND SOIL ORGANIC CARBON DYNAMICS OF FOOD AND ENERGY CROP ROTATIONS FOR ADVANCED BIOFUELS PRODUCTION

1BO.1.4
Tommaso BARSALI
RE-CORD, ITALY
Co-authors: F. Tozzi, D. Casini, D. Stefanucci, RE-CORD, Scarperia e San Piero (Florence), Italy; A. Jones, C. Schillaci, JRC, Ispra, Italy; D. Chiaramonti, Politecnico di Torino, RE-CORD, Scarperia e San Piero (Florence), Italy
USE OF BIOCHAR AS SOIL AMENDMENT ON CAMELINA SATIVA L. CRANTZ YIELD FOR SUSTAINABLE OIL PRODUCTION

ORAL SESSION 5BO.2

09.00 - 10.00 **Oil-based and renewable hydrocarbon biofuels**
ROOM ITALIA

This session covers advances in technologies for the production of oil-based biofuels and in particular addresses key breakthroughs for the future production of renewable hydrocarbon biofuels and also a look into novel pretreatment, fractionation, and fermentative approaches for the production of alcohols from biomass.

CHAIRPERSONS:
Dimitrios SIDIRAS
University of Piraeus, GREECE

David BAXTER
Former European Commission, Joint Research Centre, EU

5BO.2.1
Balaji SRIDHARAN
University of Groningen, Chemical Engineering Dpt., THE NETHERLANDS
Co-authors: G. Gerritsen, R.H. Venderbosch, Biomass Technology Group B.V., Enschede, The Netherlands; S. Adelung, R.U. Dietrich, German Aerospace Center (DLR), Stuttgart, Germany; E. Wilbers, H.H. van de Bovenkamp, J.G.M. Winkelman, H.J. Heeres, University of Groningen, Groningen, The Netherlands
ABC-SALT: A BREAKTHROUGH TECHNOLOGY FOR THE NEAR COMPLETE CONVERSION OF LIGNIN TO LIQUID HYDROCARBONS

5BO.2.2
Karla DUSSAN ROJAS
TNO - Energy & Materials Transition, Biobased & Circular Technologies, THE NETHERLANDS
Co-authors: M. Peters, A. Kraft, Fraunhofer UMSICHT, Oberhausen, Germany; S.M. Scalzullo, B. Smith, X. Baucherel, Johnson Matthey, Reading, United Kingdom; A. Van Zomeren, J.W. VanHal, TNO Energy Transition, Petten, The Netherlands
CATALYTIC CONDENSATION OF BIOBASED MOLECULES FOR JET FUEL SYNTHESIS

5BO.2.3
Jose-Luis GALVEZ-MARTOS
IMDEA Energy, SPAIN
Co-authors: L. Fernandez, S. Guerra, J. Dufour, IMDEA ENERGY, MOSTOLES, Spain
THE IMPACT OF A NOVEL ROUTE FOR BIODIESEL PRODUCTION USING SUPERCRITICAL CONDITIONS AND HETEROGENEOUS CATALYSIS

5BO.2.4
Aleta DUQUE
CIEMAT, Biofuels Unit, SPAIN
Co-authors: I. Higueras, A. Gonzalez, C. Álvarez, P. Manzanares, CIEMAT, Madrid, Spain
USE OF CHOLINE CHLORIDE BASED DEEP EUTECTIC SOLVENT (DES) IN THE PRETREATMENT OF VINE SHOOT BIOMASS FOR SUGAR PRODUCTION

TUESDAY 06 JUNE 2023

TUE

ORAL SESSION 3BO.3

09.00 - 10.00 **Integrated Biorefineries**
ROOM BIANCA

This session addresses integrated concepts for biorefineries employing a range of technologies to achieve optimal output of products and includes an assessment of global biorefinery development.

CHAIRPERSONS:
Francisco GIRIO
LNEG - Laboratorio Nacional de Energia e Geologia, PORTUGAL

Judit SANDQUIST
SINTEF Energy Research, NORWAY

3BO.3.1
Thayse HERNANDES
LNBR - Brazilian Biorenewables National Laboratory, Sustainability Division, BRAZIL
Co-authors: G.P. Nogueira, G.P. Petrielli, M.F. Chagas, D.S. Henzler, A. Bonomi, Brazilian Biorenewables National Laboratory, Campinas, Brazil
SUSTAINABLE AVIATION FUELS PRODUCTION FROM DEDICATED AND RESIDUAL BIOMASSES IN BRAZIL: BIOREFINERY ROUTES PORTFOLIO CONSTRUCTION AND SUSTAINABILITY ASSESSMENT OF FRAMEWORK INTEGRATION

3BO.3.2
Stefania LUZZI
TNO, Bio-based and Circular Technologies, THE NETHERLANDS
Co-authors: J.W. Dijkstra, K. Dussan, TNO, Petten, The Netherlands; S. Köppen, Ifeu, Heidelberg, Germany
DESIGN AND EVALUATION OF A PROCESS FOR BIO-ADVANCED SAF HYDROCARBONS FROM BIOREFINERY STREAMS VIA FURFURAL AND KETONES

3BO.3.3
Kees KWANT
Netherlands Enterprise Agency, Ministry of Economic Affairs, RVO, THE NETHERLANDS
Co-authors: S. Kasture, DBT, New Delhi, India; B. Annevelink, WUR, Wageningen, The Netherlands
GLOBAL BIOREFINERY DEVELOPMENT AND SUPPORT THROUGH MISSION INNOVATION

3BO.3.4
Giulia ZOPPI
Aarhus University, DENMARK
Co-authors: T. A. Andrade, A. J. Ward, M. Ambye-Jensen, P. Biller, Aarhus university, aarhus, Denmark
BIOREFINERY INTEGRATION: HYDROTHERMAL LIQUEFACTION OF FIBER GRASS RESIDUES

Status of 1 June 2023

ORAL SESSION IBO.1

09.00 - 10.00 **Profiling the carbon footprint of biomass systems and fibers**
ROOM AVORIO

CHAIRPERSONS:
Ronalds GONZALEZ
North Carolina State University, USA

Kyriakos MANIATIS
Former European Commission, DG Energy, EUBCE Industry Coordinator, BELGIUM

Speakers:

R. Gonzalez
North Carolina State University, Department of Forest Biomaterials, Usa

N. Forfora
North Carolina State University, Forest Biomaterials Dpt., Usa

VISUAL PRESENTATIONS 4BV.1

09.00 - 10.00 **Recent developments in dual FB-gasification and fuel characteristics**
POSTER AREA

This session focusses on the advances in dual-fluidized bed gasification and chemical looping gasification as well as the insight in the use of new feedstocks in gasification for synthesis gas production.

CHAIRPERSON:
Frederik RONSSE
Ghent University, BELGIUM

4BV.1.2
Francesco PATUZZI
Free University of Bolzano, Faculty of Engineering, ITALY
Co-authors: S. Piazzi, D. Antolini, L. Menin, M. Baratieri, Free University of Bolzano, Italy
SMALL-SCALE PRODUCER GAS UPGRADING FOR BIO-HYDROGEN PRODUCTION

4BV.1.6
Karthikai Selvan SIVASAMY
Clara Venture Labs, NORWAY
Co-authors: P.A. Asheim, J.E. Pettersen, H. Fjellanger, T. Genet, A. Vik, C.S Ilea, Clara Venture Labs, Bergen, Norway
KINETIC EVALUATION OF PYROLYSIS COMBINED STEAM GASIFICATION OF BIOMASS IN AN IN-HOUSE BUILT CONVENTIONAL TUBE FURNACE

4BV.1.7
Wasif FAROOQ
King Fahd University of Petroleum and Minerals, Chemical Engineering Dpt., SAUDI ARABIA
Co-authors: U. Zahid, N. Mahmoud Alsharif, King Fahd University of Petroleum and Minerals (KFUPM), Dhahran, Saudi Arabia
DESIGN AND SIMULATION OF EXTRACTED AND A NON-EXTRACTED BLEND OF MICROALGAEA AND SPENT COFFEE BIOMASS FOR SYNGAS PRODUCTION

4BV.1.9
Malgorzata SIERADZKA
AGH University of Science and Technology, POLAND
Co-authors: A. Mlonka-Medrala, A. Magdziarz, A. Bloniarz, AGH University of Science and Technology, Kraków, Poland
STUDY THE IMPACT OF CUO AND SRO CATALYSTS ON SYNGAS COMPOSITION IN GASIFICATION OF BIOMASS AND RDF

4BV.1.13
Mayra Alejandra SUAREZ
University of the Basque Country, Chemical Engineering Dpt., SPAIN
Co-authors: M. Cortazar, E. Fernandez, L. Olazar, S. Orozco, J. Alvarez, M. Olazar, G. Lopez, University of the Basque Country, Bilbao, Spain
EFFECT OF METAL ADDITION TO PRIMARY CATALYST IN THE BIOMASS STEAM GASIFICATION IN A FOUNTAIN CONFINED

4BV.1.14
Sebastian BASTEK
TU Munich - Chair of Energy Systems, GERMANY
Co-authors: S. Wilhelm, M. Fahmy, S. Fendt, H. Spliethoff, TU Munich - Chair of Energy Systems, Garching, Germany
OPTIMIZATION OF A HORIZONTAL TUBE PLASMA GASIFICATION TEST RIG FOR BIOMASS CONVERSION THROUGH CFD-SIMULATION

4BV.1.15
Fahim FAYAZ
Tampere University, Materials Science and Environmental Engineering Dpt., FINLAND
OXIDATIVE ETHANOL DRY REFORMING OVER CO/AL2O3 CATALYST FOR SYNGAS PRODUCTION

4BV.1.17
Marlon RITZ
Chair of Energy Systems, Technical University of Munich, GERMANY
Co-authors: M. Dossow, H. Spliethoff, S. Fendt, Chair for Energy Systems, Technical University of Munich, Garching, Germany
INVESTIGATION OF THE RELEASE BEHAVIOR OF HEAVY METALS DURING GASIFICATION OF CONTAMINATED BIOMASS

4BV.1.18
Alexander BARTIK
TU Wien, Institute of Chemical, Environmental and Bioscience Engineering Dpt., AUSTRIA
Co-authors: M. Hammerschmid, F. Benedikt, S. Müller, H. Hofbauer, TU Wien, Vienna, Austria
EXPERIMENTAL INVESTIGATION AND TECHNO-ECONOMIC ANALYSIS OF SYNTHETIC NATURAL GAS PRODUCTION FROM WOODY BIOMASS

4BV.1.20
Manon MATHIEU
IMT Mines Albi, FRANCE
Co-authors: F.J. Escudero-Sanz, S. Salvador, IMT Mines Albi, Albi, France
N_2-FREE SYNGAS PRODUCTION FROM DOWNDRAFT GASIFICATION OF BIOMASS IN FIXED BED REACTOR: A THERMODYNAMIC EQUILIBRIUM APPROACH

4BV.1.21
Stefan JANKOVIC
TU Wien, AUSTRIA
Co-authors: M. Hammerschmid, L. Stanger, A. Bartik, F. Benedikt, S. Müller, TU Wien, Vienna, Austria
IMPLEMENTATION OF A DIGITAL TWIN FOR A PILOT PLANT FOR SYNTHETIC NATURAL GAS PRODUCTION FROM BIOMASS

4BV.1.22
Sebastian SANCHEZ VILLASCLARAS
University of Jaén, Chemical Engineering, Environmental and Materials Dpt., SPAIN
Co-authors: L. Garrido, M. Cueva, University of Jaén, Jaén, Spain
START-UP PROCEDURE FOR A DOWNDRAFT BIOMASS GASIFIER USING OLIVE STONES

VISUAL PRESENTATIONS 6BV.2

09.00 - 10.00 **Biomass conversion to bio-based products and chemicals (II) POSTER AREA**

This is the second of two poster sessions on the topic of bioconversion to bio-based products and chemicals and includes a wide range of examples of products, product characterisations, process optimisations, and potential future developments.

CHAIRPERSONS:
Yukihiko MATSUMURA
Hiroshima University, JAPAN

Tanja BARTH
University of Bergen, NORWAY

6BV.2.1
Maureen OKIBE
University of Surrey, Chemical and Process Engineering Dpt., UNITED KINGDOM
Co-authors: M. Short, F. Cecelja, M. Bussemaker, University of Surrey, Guildford, United Kingdom
CHALLENGES, TRENDS AND OPPORTUNITIES IN SUGARCANE BAGASSE PROCESSING: A REVIEW OF GLOBAL PRACTICES AND EMERGING TECHNOLOGIES

6BV.2.4
M. Dolores LA RUBIA
University of Jaén, Chemical, Environmental and Materials Engineering Dpt., SPAIN
Co-authors: S. Jurado-Contreras, L. Camacho Núñez, University of Jaén, Jaén, Spain; F.J. Navas-Martos, J.A. Rodríguez-Liébana, Andaltec Technological Centre, Jaén, Spain
ACETYLATION OF CELLULOSE ISOLATED FROM BREWER´S SPENT GRAIN. EFFECT OF REACTION TIME

6BV.2.10
M. Dolores LA RUBIA
University of Jaén, Chemical, Environmental and Materials Engineering Dpt., SPAIN
Co-authors: S. Jurado-Contreras, A.J. Moya, S. Mateo, F. Morillas-Gutiérrez, University of Jaén, Spain; J.A. Rodríguez-Liébana, F.J. Navas-Martos, Andaltec Plastic Technological Centre, Jaén, Spain
OPTIMISATION OF THE SYNTHESIS PROCESS OF NANOCELLULOSE FROM OLIVE TREE PRUNING

6BV.2.11
Jun LI
University of Strathclyde, Chemical and Process Engineering Dpt., UNITED KINGDOM
Co-author: A.J. Asuquo, University of Strathclyde, Glasgow, United Kingdom
GREEN HETEROGENEOUS CATALYSTS DERIVED FROM FERMENTED KOLA NUT POD HUSK FOR BIODIESEL PRODUCTION: THE EFFECTS OF PRETREATMENT

6BV.2.12
M. Dolores LA RUBIA
University of Jaén, Chemical, Environmental and Materials Engineering Dpt., SPAIN
Co-authors: S. Jurado-Contreras, E. Robles-Solano, F. Morillas-Gutiérrez, A. Moya, S. Mateo, University of Jaén, Jaén, Spain; J.A. Rodríguez-Liébana, F.J. Navas-Martos, Andaltec Plastic Technological Centre, Jaén, Spain
PREPARATION AND CHARACTERIZATION OF CELLULOSE ACETATE FROM OLIVE TREE PRUNING

6BV.2.13
Suttijit SRIWATCHARAKUL
King Mongkut's Institute of Technology Ladkrabang, Biology Dpt., THAILAND
EVALUATION OF BIOACTIVITIES OF EICHHORNIA CRASSIPES PARTS EXTRACTS

6BV.2.14
Ana Luisa FERNANDO
Universidade Nova de Lisboa, Chemistry Dpt., PORTUGAL
Co-authors: M. Pastore, W. Zegada-Lizarazu, A. Monti, UNIBO, Bologna, Italy; J. Pires, L. Gomes, Universidade Nova de Lisboa - Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa, Caparica, Portugal; V.G.L. Souza, INL, Braga, Portugal
ENHANCING THE VALUE OF LIGNOCELLULOSIC BIOMASSES THROUGH THE PRODUCTION OF BIONANOCOMPOSITES

6BV.2.15
Wipawee DEJTISAKDI
King Mongkut's Institute of Technology Ladkrabang, School of Science, Biology Dpt., THAILAND
INVESTIGATION OF ANTIMICROBIAL CAPACITY AND ANTIOXIDANT EFFICIENCY FROM CHLORELLA SPP. CRUDE EXTRACTS

6BV.2.17
Davi Marconi MIRANDA CARVALHO DA SILVA
INT, DICAP Dpt., BRAZIL
Co-authors: I.S. Miguez, A.S. Silva, INT, Rio de Janeiro, Brazil
EVALUATION OF DILUTE ACID HYDROLYSIS OF SEEDS FROM EUTERPE GENUS PALM TREES TO ENHANCE THE PRODUCTION YIELD OF MANNOSE

6BV.2.22
Tugba SARI
Marmara University, Bioengineering Dpt., TURKEY
Co-authors: D. Akgul, B. Mertoglu, Marmara University, Istanbul, Turkey
BIOENERGY PRODUCTION FROM WASTEWATER: THE CASE STUDY OF HYDRAZINE BIOSYNTHESIS TOLERANCE OF ANAMMOX BACTERIA

6BV.2.23
M. Dolores LA RUBIA
University of Jaén, Chemical, Environmental and Materials Engineering Dpt., SPAIN
Co-authors: S. Jurado-Contreras, A. Moya, S. Sánchez, S. Mateo, University of Jaén, Jaén, Spain; J.P. Ferrer-Rodríguez, M. Cano-Galey, J. Castillo-González, F.J. Navas-Martos, Andaltec Technological Centre, Jaén, Spain; T. Baranowski, I. Wehmeyer, Ford Werke GmbH, Aachen, Germany; P. Metenier, Plasturgia, Nantes, France; F. Peña-Moraga, J. Peña-Moraga, Matricería Peña, Granada, Spain; C. Capiscol, CITOLIVA, Jaén, Spain
FIRST INDUSTRIAL PROTOTYPES MADE OF OLIVE FIBRE-REINFORCED POLYMER. BIOCOMPOSITES IN THE LIFE-COMPOLIVE PROJECT

6BV.2.24
Junghyun JU
Korea Research Institute of Bioscience and Biotechnology, SOUTH KOREA
Co-authors: M.H. Jo, Korea ReKorea Research Institute of Bioscience and Biotechnology, JeoJeongup jeonbukngup jeonbuk, South Korea; S.Y. Heo, M.S. Kim, C.H. Kim, B.R. Oh, Korea Research Institute of Bioscience and Biotechnology, Jeongup jeonbuk, South Korea; N.C. Paul, H. Sang, Chonnam National University, Gwangju, South Korea
PRODUCTION OF HIGHLY PURE R,R-2,3-BUTANEDIOL FOR BIOLOGICAL PLANT GROWTH PROMOTING AGENT USING CARBON FEEDING CONTROL OF PAENIBACILLUS POLYMYXA MDBDO

6BV.2.27
Esperanza MONEDERO
Castilla La-Mancha University, Renewable Energy Research Institute, SPAIN
Co-authors: F.J Garcìa, S. Bravo, Castilla La Mancha University, Ciudad Real, Spain; J.J. Hernandez, Castilla La-Mancha University, Ciudad Real, Spain
EVALUATION OF ASHES FROM NON-WOODY BIOMASS AS SOIL FERTILIZER

6BV.2.28
Marwa TALLAWI
TUM- Chair of carbon composites, School of Engineering and Design, GERMANY
Co-authors: D. Amrein, K. Drechsler, TUM- Chair of carbon composites, Garching, Germany; G. Gemmecker, TUM-Bavarian NMR Center (BNMRZ), Garching, Germany; K.E. Aifantis, Department of Mechanical & Aerospace Engineering, University of Florida, Gainesville, Usa
A NOVEL POLYSACCHARIDE/ZEIN CONJUGATE AS AN ALTERNATIVE GREEN PLASTIC

6BV.2.29
Yang Mo GU
Korea Institute of Ceramic Engineering and Technology, Chemical Engineering Dpt., SOUTH KOREA
Co-author: J.H. Lee, Korea Institute of Ceramic Engineering and Technology, Cheongju, South Korea
PREPARATION AND CHARACTERIZATION OF BIO-BASED SILICA AEROGEL USING RICE HUSK SYNTHESIZED BY AMBIENT PRESSURE DRYING

6BV.2.30
Ghita Firsty VIRGINIA
Korea Institute Ceramic Engineering and Technology, SOUTH KOREA
Co-authors: Y.M. Gu, J.H. Lee, Korea Institute Ceramic Engineering and Thecnology, Cheong-ju, Chungcheongbuk-do, South Korea; S. J. Shin, Chungbuk National University, Cheong-ju, Chungcheongbuk-do, South Korea
IMPACT OF DIFFERENT FIBRILLATION PROCESSES OF CARBOXYMETHYLATION CELLULOSE ON DIFFERENT TYPES OF STEMS KENAF

6BV.2.31
Jiyeon PARK
Korea Institute of ceramic engineering&technology, SOUTH KOREA
Co-authors: Y. M. Gu, Korea Institute of Ceramic Engineering and Technology, Chemical Engineering Department, Hanyang Univ, Cheongju-si, South Korea; J.Y. Chu, Korea Institute of Ceramic Engineering and Technology, Jinju-si, South Korea; B.I. Sang, Chemical Engineering Dpt, Hanyang University, Seoul, South Korea; J.H. Lee, Korea Institute of ceramic engineering&technology, Cheongju-si, South Korea
DEVELOPMENT OF CONTINUOUS EXTRACTION TECHNOLOGY FOR INORGANIC MATERIALS FROM BIOMASS BY-PRODUCTS

6BV.2.32
Aiga IVDRE
Latvian State Institute of Wood Chemistry, Polymer, LATVIA
Co-authors: A. Abolins, L. Vevere, A. Paze, D. Godina, J. Rizikovs, Latvian State Institute of Wood Chemistry, Riga, Latvia; N. Volkovs, R. Makars, PolyLabs Ltd., Riga, Latvia
SYNTHESIS AND CHARACTERIZATION OF BIO-POLYOLS SYNTHESIZED FROM VARIOUS TREATED DEPOLYMERIZED SUBERIN FOR RIGID POLYURETHANE FOAMS

6BV.2.33
Maris LAUBERTS
Latvian State Institute of Wood Chemistry, LATVIA
Co-authors: M. Lauberts, J. Rizikovs, M. Pals, Latvian State Institute of Wood Chemistry, Riga, Latvia
CHEMICAL CHARACTERIZATION AND REACTIVITY STUDIES OF VARIOUS INDUSTRIALLY OBTAINED LIGNINS FOR THEIR POTENTIAL USE IN LIGNIN-PHENOL-FORMALDEHYDE RESIN PRODUCTION

6BV.2.34
Neeta SHARMA
ENEA Research Centre, Sustainable Production and Territorial Systems, Biotechnology and Agro-Industry Division, ITALY
Co-authors: G.P. Leone, M. Iannetta, ENEA Research Centre, Rome, Italy; P. Casella, T. Marino, A. Molino, ENEA Research Centre, Portici, Italy; R. Balducchi, V. Larocca, ENEA Research Centre, Matera, Italy
SUPERCRITICAL CARBON DIOXIDE EXTRACTION OF OMEGA-3 FROM NANNOCHLOROPSIS GADITANA: PROCESS SCALE-UP

09.00 - 10.00 **Bioenergy Solutions for decarbonization of Energy Intensive Industries ROOM MODULAR 2**

The RE4Industry project aims to facilitate for the energy intensive industry (EII) sector in Europe a smooth and more secure transition to the adoption of Renewable Energies (RE) in their production processes and facilities.

This workshop is organized by WIP in the framework of the project RE4Industry (https://re4industry.eu/) supported by the European Commission within Horizon 2020. The workshop will be targeted to public affairs representatives of EII, representatives of bioenergy and other renewable technology providers and policy makers.

Break **10.00 - 10.15**

PLENARY SESSION BP.1

10.15 - 11.30 **Socio-economic aspects in circular economy**

This session covers some of the wider sustainability issues which are relevant to the circular bioeconomy.

CHAIRPERSONS:
Calliope PANOUTSOU
Imperial College London, UNITED KINGDOM

André FAAIJ
Director of Science, ECN part of TNO, THE NETHERLANDS

BP.1.1
Iris VURAL GURSEL
Wageningen Food & Biobased Research, THE NETHERLANDS
Co-authors: B. Elbersen, Wageningen Environmental Research, Wageningen, The Netherlands; K. Meesters, Wageningen Food & Biobased Research, Wageningen, The Netherlands
ARE EXISTING CIRCULAR ECONOMY INDICATORS ADEQUATE TO CAPTURE THE ROLE BIOBASED PRODUCTS CAN PLAY IN THE CIRCULAR ECONOMY?

BP.1.2
Rocio DIAZ-CHAVEZ
Imperial College London, Centre for Environmental Policy, UNITED KINGDOM
Keynote presentation
GENDER AND SOCIAL EQUALITY IN BIOENERGY AND BIOECONOMY

BP.1.3
Iris LEWANDOWSKI
University of Hohenheim, Biobased Resources in the Bioeconomy, GERMANY
Co-authors: M. von Cossel, A. Kiesel, University of Hohenheim, Stuttgart, Germany; M. Wagner, Hochschule Geisenheim University, Geisenheim, Germany; J. Clifton-Brown, Justus Liebig University, Gießen, Germany
FOSTERING THE DELIVERY OF PRIVATE AND PUBLIC GOODS FROM PERENNIAL CROPPING SYSTEMS THROUGH POLICY MEASURES

Break **11.30 - 11.45**

11.30 - 18.00 **Bioenergy and renewable fuels projects for the revamping of the SET Plan**
ROOM MODULAR 3

Pooling research and innovation initiatives, strategic agenda and opportunities for safe, efficient and cost competitive technologies towards 2030 and beyond

Launched in 2007, the SET Plan has become the reference framework for addressing clean energy research and innovation developments in Europe. Against the rapid changes in the policy framework of the last few years a revamp of the SET Plan is under preparation and the renewed strategy will be shaped to enhance synergies both at national and international level.

TUESDAY 06 JUNE 2023

TUE

ORAL SESSION 5BO.4

11.45 - 12.45 **Applied Pyrolysis and Product Utilisation**
AUDITORIUM EUROPA

The session focus on the application of pyrolysis and the application and upgrading of pyrolysis products for practical applications.

CHAIRPERSONS:
Andreas APFELBACHER
Fraunhofer-Institut UMSICHT, GERMANY

Lasse ROSENDAHL
Aalborg University, DENMARK

5BO.4.1
Stelios STEFANIDIS
Centre for Research and Technology Hellas, Chemical Process and Energy Resources Institute, GREECE
Co-authors: T. Sfetsas, C. Mihailof, A. Lappas, Centre for Research and Technology Hellas, Thessaloniki, Greece
BIOCHAR AND ACTIVATED CARBONS FROM THE UTILISATION OF SOLID DIGESTATE WASTE FROM BIOGAS PLANTS

5BO.4.2
Jan GRUNWALD
Fraunhofer UMSICHT, GERMANY
Co-authors: A. Apfelbacher, R. Daschner, A. Hornung, Fraunhofer UMSICHT, Sulzbach-Rosenberg, Germany
HYDROGENATION OF TCR®-OILS - A PATHWAY FROM BIOGENIC RESIDUES TO SUSTAINABLE FUELS

5BO.4.3
Roman TSCHENTSCHER
SINTEF, Process Chemistry and Functional Materials Dpt., NORWAY
Co-authors: L. Degn Hansen, A. Varnai, M. Østensen, V.G.H. Eijsink, Norwegian University of Life Sciences, Ås, Norway; B. Arstad, SINTEF, Oslo, Norway; S. J. Horn, Norwegian University of Life Sciences, Oslo, Norway
PYROLYSIS OF LIGNIN RICH RESIDUES OBTAINED FROM COMBINED IMPREGNATION, STEAM EXPLOSION AND ENZYMATIC SACCHARIFICATION

5BO.4.4
Konrad SIEGFRIED
Deutsches Biomasseforschungszentrum, Bioenergy Systems Dpt., GERMANY
Co-authors: L. Blümel, F. Riedel, D. Moosmann, K.-F. Cyffka, D. Thrän, Deutsches Biomasseforschungszentrum gGmbH, Leipzig, Germany; M. Richters, BTG Bioliquids, Enschede, The Netherlands; P. Reumerman, J. Vos, BTG Biomass Technology Group BV, Enschede, The Netherlands; M. Matisons, Biofuel Region, Umea, Sweden
PLATING THE HOT POTATO - HOW TO MAKE INTERMEDIATE BIOENERGY CARRIERS AN ACCELERATOR TO A CLIMATE NEUTRAL EUROPE

Status of 1 June 2023

ORAL SESSION 6BO.5

11.45 - 12.45 **Production of biobased chemicals**
ROOM ITALIA

This oral session addresses strategies and processes for producing biobased and platform chemicals from plant biomass.

CHAIRPERSONS:
Tanja BARTH
University of Bergen, NORWAY

Ronalds GONZALEZ
North Carolina State University, USA

6BO.5.1
Brigita HOCEVAR
National Institute of Chemistry, Catalysis and Chemical Reaction Engineering Dpt., SLOVENIA REPUBLIC
Co-authors: M. Grilc, M. Hus, A. Prasnikar, B. Likozar, National Institute of Chemistry, Ljubljana, Slovenia Republic
SELECTIVE DEHYDROXYLATION OF BIOBASED POLYOLS TO PLATFORM CHEMICALS

6BO.5.2
Janis RIZIKOVS
Latvian State Institute of Wood Chemistry, Biorefinery Laboratory, LATVIA
Co-authors: A. Paze, D. Godina, R. Makars, A. Abolins, Latvian State Institute of Wood Chemistry, Riga, Latvia
SUBERINIC ACIDS AS ADHESIVE IN WOOD BIO-BASED COMPOSITES AND POLYMER CONSTITUENTS

6BO.5.3
Younho SONG
Chonnam National University, Bio-energy Research Center, SOUTH KOREA
Co-authors: Y. G. Lee, H. J. Bae, Chonnam National University, Gwangju, South Korea
CO-PRODUCTION OF PLATFORM CHEMICALS (SUCCINIC ACID AND LACTIC ACID) AND HIGH VALUE-ADDED PRODUCTS (XYLOOLIGOSACCHARIDE) FROM BAMBOO BIOMASS

6BO.5.4
Camilla LØHRE
University of Bergen, Chemistry Dpt., NORWAY
Co-authors: J.B. Savland, H.M.H. Mayhew, J.L. Molnes, T. Barth, University of Bergen, Norway
EFFICIENT PRODUCTION OF FURFURAL AND 5-HYDROXYMETHYLFURFURAL FROM FRUIT WASTE BIOMASS EMPLOYING A BIPHASIC REACTION SYSTEM

TUESDAY 06 JUNE 2023

TUE

ORAL SESSION 3BO.6

11.45 - 12.45 **Biorefining concepts**
ROOM BIANCA

This oral session includes a number of descriptions of biorefinery concepts comprising technologies selected for their particular strengths and appropriateness for manufacture of targetted products.

CHAIRPERSONS:
James SPAETH
Energy Efficiency and Renewable Energy U.S. Department of Energy, USA

Daniela THRÄN
DBFZ-German Biomass Research Centre, GERMANY

3BO.6.1
Judith BUCHMAIER
AEE - Institute for Sustainable Technologies, AUSTRIA
Co-authors: S. Krampl, B. Muster, AEE - Institute for Sustainable Technologies, Gleisdorf, Austria
CONTINUOUS PROTEIN EXTRACTION IN OSCILLATORY FLOW AS A PART OF BIOREFINING CONCEPT

3BO.6.2
Luís TARELHO
Universidade de Aveiro, Environment and Planning Dpt., PORTUGAL
Co-authors: A.C.M. Vilas Boas, C.C. Marques, J.M.O. Moura, M.C. Santos, M.I.S. Nunes, M.A.A. Matos, Universidade de Aveiro, Portugal
CHARACTERISTICS OF BIO-OIL FROM FRACTIONATED CONDENSATION OF VAPOURS FROM PYROLYSIS OF RESIDUAL FOREST BIOMASS IN A PROTOTYPE OF AUGER REACTOR

3BO.6.3
Kristoffer HERDLEVÆR
University of Bergen, Chemistry Dpt., NORWAY
Co-authors: T. Barth, C. Lohre, University of Bergen, Norway
EFFECTS OF LUMBER QUALITY ON BIOCRUDE OILS PRODUCED BY HYDROTHERMAL LIQUEFACTION

3BO.6.4
Ralf PECENKA
Leibniz Institute for Agricultural Engineering and Bioeconomy, Post Harvest Dpt., GERMANY
Co-authors: C. Lühr, M. Heiermann, C. Fiege, Leibniz Institute for Agricultural Engineering and Bioeconomy, Potsdam, Germany; B. Spanjers, Arge Klimamoor, Jänschwalde, Germany; A. Marten, L. Landgraf, Landesamt für Umwelt, Potsdam, Germany
LOCKING CARBON IN PEATLAND - INNOVATIVE BIOREFINERIES BASED ON BIOMASS FROM PALUDICULTURE

Status of 1 June 2023

ORAL SESSION IBO.2

11.45 - 12.45 **Exploiting lignocellulosic biomasses to develop innovative and more sustainable high-added value biobased products and materials**
ROOM AVORIO

Novel biobased products from ligno-cellulosic biomasses.

CHAIRPERSONS:
Simone MACCAFERRI
Circular Biobased Europe Joint Undertaking, BELGIUM

Kyriakos MANIATIS
Former European Commission, DG Energy, EUBCE Industry Coordinator, BELGIUM

IBO.2.1
Maris BUMANIS
Latvijas Finieris AS, LATVIA
VIOBOND: UPSCALING NEW LIGNIN-PHENOL-FORMALDEHYDE RESIN PRODUCTION WITH WOOD-BASED BIOREFINERY

IBO.2.2
Petri OINONEN
Ecohelix AB, SWEDEN
VEHICLE: VALORISE EXTENSIVE QUANTITIES OF HEMICELLULOSIC AND CELLULOSIC SUGARS FROM LIGNOCELLULOSIC BIOMASS INTO HIGH-VALUE END PRODUCT

IBO.2.3
David MARTIN ALONSO
CSIC, SPAIN
FRACTION: NOVEL LIGNOCELLULOSE FRACTIONATION PROCESS FOR HIGH PURITY LIGNIN, HEMICELLULOSE AND CELLULOSE VALORISATION INTO ADDED VALUE PRODUCTS (RIA)

IBO.2.4
Elie RECEVEUR
CIRCA Group, Process Dpt., FRANCE
RESOLUTE: HIGH PERFORMING AND SAFE SOLVENT DERIVED FROM CELLULOSIC FEEDSTOCKS (FLAG)

VISUAL PRESENTATIONS 1BV.3

11.45 - 12.45 **Broadening the knowledge on Crops for Bioenergy, Biofuels and Bioproducts Feedstock Production (II)**
POSTER AREA

This is the second poster session addressing a broad view of methods for increasing the knowledge on systems for feedstock production for bioenergy, biofuels and bioproducts: this includes in particular land contamination effects, cropping systems and irrigation.

CHAIRPERSON:
Eleni G. PAPAZOGLOU
Agricultural University of Athens, GREECE

1BV.3.1
Efthymia ALEXOPOULOU
CRES - Center for Renewable Energy Sources and Saving, Biomass Dpt., GREECE
Co-author: M. Christou, CRES - Center for Renewable Energy Sources and Saving, Pikermi Attikis, Greece
INNOVATIVE CROPPING SYSTEMS INCLUDING LIGNOCELLULOSIC AND CONVENTIONAL CROPS

1BV.3.2
Efthymia ALEXOPOULOU
CRES - Center for Renewable Energy Sources and Saving, Biomass Dpt., GREECE
Co-authors: K. Iordanoglou, I. Papamichael, G. Tsipas, CRES - Center for Renewable Energy Sources and Saving, Pikermi Attikis, Greece; E.G. Papazoglou, AUA, Athens, Greece
LONG-TERM MISCANTHUS STUDIES; EFFECT OF WATER DEFICIT ON GROWTH AND YIELDS

1BV.3.3
Efthymia ALEXOPOULOU
CRES - Center for Renewable Energy Sources and Saving, Biomass Dpt., GREECE
THE MIDAS PROJECT: UTILIZATION OF MARGINAL LANDS FOR GROWING SUSTAINABLE INDUSTRIAL CROPS AND DEVELOPING INNOVATIVE BIO-BASED PRODUCTS

1BV.3.4
Efthymia ALEXOPOULOU
CRES - Center for Renewable Energy Sources and Saving, Biomass Dpt., GREECE
THE GOLD PROJECT: BRIDGING THE GAP BETWEEN PHYTOREMEDIATION SOLUTIONS ON GROWING ENERGY CROPS ON CONTAMINATED LANDS AND CLEAN BIOFUEL PRODUCTION

1BV.3.5
Eleni G. PAPAZOGLOU
Agricultural University of Athens, Crop Science Dpt., GREECE
Co-author: D. Kotoula, Agricultural University of Athens, Greece
BIOSTIMULANTS AND MYCORRHIZAE FUNGI ASSISTED PHYTOREMEDIATION OF HEMP AND MISCANTHUS

1BV.3.6
Eleni G. PAPAZOGLOU
Agricultural University of Athens, Crop Science Dpt., GREECE
Co-authors: D. Kotoula, Agricultural University of Athens, Athens, Greece; E. Alexopoulou, Center for Renewable Energy and Savings, Athens, Greece
CULTIVATION OF FIBER CROPS ON CONTAMINATED LAND FOR THE PRODUCTION OF BIOPRODUCTS

1BV.3.7
Markus ORTNER
ITS, AUSTRIA
Co-authors: S. Capaccioli, A. Grassi, C. Zavattaro, ETA-Florence Renewable Energies, Florence, Italy; L. Brunbauer, ITS, Vienna, Austria; F. Audino, Leitat, Terrassa, Spain; M. Fermeglia, M. Perisic, Hasselt University, Hasselt, Belgium; T. Zeremski, Institute of Field and Vegetable Crops, Novi Sad, Serbia; K. Petela, Silesian University of Technology, Gliwice, Poland; B. Young, National Institute of Agricultural Technology, Buenos Aires, Argentina; S. Maletic, University of Novi Sad Faculty of Sciences, Novi Sad, Serbia; Z. Kidikas, Biovala, Kaunas, Lithuania; O. Gavrilovic, Public Water Management Company Vode Vojvodine, Novi Sad, Serbia; C. Herrarte Marrón, Litoclean, Madrid, Spain; D. López Cabornero, Exolum, Madrid, Spain; C. Jaggi, PRO UMWELT, Schwerin, Germany; V. Klein, Trägerverein Umwelttechnologie-Cluster Bayern e.V, Bavaria, Germany; M. Eschen, Aurubis, Lünen, Germany; C. Kick, Fraunhofer UMSICHT, Sulzbach-Rosenberg, Germany
PHYTOREMEDIATION OF CONTAMINATED SITES TO PRODUCE FEEDSTOCK FOR SUSTAINABLE BIOFUELS

1BV.3.8
Leandro GOMES
Universidade Nova de Lisboa. Faculdade de Ciências e Tecnologia., PORTUGAL
Co-authors: M. Abias, Universidade Católica de Moçambique, Pemba, Mozambique; J. Moreira, A.L. Fernando, Universidade Nova de Lisboa - Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa, Caparica, Portugal; B. Cumbane, Universidade Zambeze, Tete, Mozambique; J. Costa, ISEC, Lisboa, Portugal
POTENTIAL PRODUCTION OF CRAMBE OIL WHEN CULTIVATED IN SOILS CONTAMINATED WITH HEAVY METALS

1BV.3.10
Austra ZUSEVICA
Latvian State Forest Research Institute Silava, LATVIA
Co-authors: D. Lazdina, K. Makovskis, S. Kaleja, G. Petaja, L. Gerra-Inohosa, T.A. Stals, R.N. Melniks, LSFRI Silava, Salaspils, Latvia
CLIMATE CHANGE MITIGATION POTENTIAL OF TREES IN SHELTER BELTS OF DRAINAGE DITCHES IN CROPLAND AND GRASSLAND

1BV.3.12
Federica ZANETTI
Università degli Studi di Bologna, DISTAL Dpt., ITALY
Co-authors: A. Parenti, E. Facciolla, A. Monti, Università degli Studi di Bologna, Italy; A. Sans, NUSEED, Montpellier, France; R. Bennett, NUSEED, Saskatoon, Canada
THE POTENTIALITIES OF CARINATA AS SUMMER COVER CROP TO PRODUCE LOW-iLUC BIOBASED FEEDSTOCK

VISUAL PRESENTATIONS 5BV.4

11.45 - 12.45 **Synthetic fuels from biomass and hydrogen (I)**
POSTER AREA

This poster session includes a number of presentations focused on synthetic fuels production from biomass, including the use of biochar as a catalyst, SAF from glycerol, catalysis, as well as techno-economic assessment of a methanol pathway.

CHAIRPERSON:
Guillaume BOISSONNET
Commissariat à l'Energie Atomique et aux Energies Alternatives, FRANCE

5BV.4.1
Aristide GIULIANO
ENEA Trisaia, Ingegnere Chimico - Impianti a Biomasse, ITALY
Co-authors: N. Pierro, A. Giocoli, I. De Bari, ENEA Trisaia, Rotondella, Italy
PROCESS DESIGN AND OPTIMIZATION OF A BIOGAS UPGRADING PROCESS TO BIOMETHANE USING GREEN HYDROGEN TO PERFORM A TECHNO-ECONOMIC ANALYSIS

5BV.4.2
Alma CAPA
INCAR-CSIC, SPAIN
Co-authors: M.P. González-Vázquez, F. Rubiera, C. Pevida, M.V. Gil, INCAR-CSIC, Oviedo, Spain; D. Chen, NTNU, Trondheim, Norway
EFFECT OF H_2S ON THE SORPTION ENHANCED STEAM REFORMING (SESR) OF BIOGAS

5BV.4.4
Evert BOYMANS
TNO, Biobased and Circular Technologies Dpt., THE NETHERLANDS
Co-authors: A.J. Grootjes, TNO, Petten, The Netherlands; J. Lefevere, B. Sutens, VITO, Mol, Belgium
PROCESS FOR THE PRODUCTION OF SUSTAINABLE AVIATION FUEL FROM RESIDUAL GLYCEROL

5BV.4.5
Sebastian VOSWINCKEL
PtX Lab Lausitz, GERMANY
Co-authors: S. Beeg, J. Israel, O. Ziegler, S. Schwuchow, A. Demuth, H. Lehmann, PtX Lab Lausitz, Cottbus, Germany
SYNTHETIC FUELS - PROSPECTS AND LIMITATIONS

5BV.4.8
Beethoven NARVÁEZ-ROMO
Fundação de Apoio a Universidade de São Paulo, BRAZIL
Co-authors: D. Perecin, S.T. Coelho, Institute of Energy and Environment, University of São Paulo, São Paulo, Brazil; K.L. Mascarenhas, T. Lopes, J.R. Meneghini, Research Centre for Greenhouse Gas Innovation, University of São Paulo, São Paulo, Brazil
DECENTRALISED ETHANOL REFORMING FOR ON-DEMAND LOW-CARBON HYDROGEN PRODUCTION

5BV.4.10
Charles David DUBE
National Research Council Canada, Energy, Mining and Environment Dpt., CANADA
Co-authors: C D. Dubè, R. Cimpoia, National Research Council Canada, Montréal, Canada
RECYCLED CARBON FUELS OF NON-BIOLOGICAL ORIGIN AS ALTERNATIVE ENERGY/FEEDSTOCK PRODUCTION IN IRON AND STEEL INDUSTRY

5BV.4.11
Zeenat FAROOQ
Luleå University of Technology, Energy Division, SWEDEN
Co-authors: E. Furusjö, Luleå UnivResearch Institutes of Sweden AB (RISE)ersity of Technology, Stockholm, Sweden; S.A. Mesfun, Luleå Research Institutes of Sweden AB (RISE) University of Technology, Stockholm, Sweden; J.H. Cabello, J. Hedlund, E. Wetturlund, Luleå University of Technology, Luleå, Sweden
TECHNO-ECONOMIC ASSESSMENT OF METHANOL-TO-JET PATHWAY

5BV.4.12
José de Jesús MONTOYA ROSALES
Instituto Potosino de Investigación Científica y Tecnológica, MEXICO
Co-authors: A. Ontiveros-Valencia, L.B. Celis, E. Razo-Flores, Instituto Potosino de Investigación Científica y Tecnológica A.C., San Luis Potosí, Mexico; D.A. Esquivel-Hernández, Universidad Autónoma Metropolitana-Cuajimalpa, San Luis Potosí, Mexico; C. Etchebehere, Instituto de Investigaciones Biológicas Clemente Estable, Montevideo, Mexico
MICROBIAL COMMUNITY STRUCTURE AND FUNCTION IN TWO-PHASE PARTITIONING DARK FERMENTATION REACTORS AT HIGH ORGANIC LOADING RATE

Break **12.45 - 13.45**

PLENARY SESSION BP.2

13.45 - 14.45 **Bioenergy and biobased products**
AUDITORIUM EUROPA

This plenary session addresses the implementation of integrated biorefinery concepts and the drivers and barriers for bioenergy technologies implementation.

CHAIRPERSONS:
Maria GEORGIADOU
European Commission, DG RTD, BELGIUM

Franco COTANA
CRB - Biomass Research Centre, ITALY

BP.2.1
Maude LAUZON
Enerkem, Regulatory Affairs and ESG, CANADA
Keynote presentation
ENERKEM'S GASIFICATION TECHNOLOGY FOR A SUSTAINABLE FUTURE

BP.2.2
Kirsikka KIVIRANTA
VTT Technical Research Centre of Finland, FINLAND
Co-authors: E. Mäki, VTT Technical Research Centre of Finland, Espoo, Finland; H. Saastamoinen, VTT Technical Research Centre of Finland, Tampere, Finland
DRIVERS AND BARRIERS FOR IMPLEMENTATION OF BIOENERGY TECHNOLOGIES IN RURAL BIOECONOMIES

14:00 - 18:00 **Focus nazionale bioeconomia e bioenergie: stato dell'arte, traiettorie, barriere e strumenti di implementazione**
ROOM MODULAR 1

L'evento è organizzato come momento di comunicazione e diffusione dello SPOKE 3 Bioenergy and new biofuels for sustainable future del progetto PNRR Misura 4 Partenariato esteso NEST - Network 4 Energy Sustainable Transition che è da poco iniziato e che vede coinvolte le maggiori Università e Enti di Ricerca Nazionali.

L'evento, che prevede la partecipazione degli stakeholder italiani del mondo dell'industria, enti di ricerca, associazioni e cluster tecnologici insieme a rappresentanti del mondo della politica, è strutturato su tre tematiche: Bioenergie/Biocombustibili: lo scenario italiano nel contesto Europeo ed Internazionale; La bioeconomia in Italia: status e prospettive; Strumenti per l'innovazione: il PNRR e oltre

Break **14.45 - 15.00**

ORAL SESSION 1BO.7

15.00 - 16.00 **Improving energy crops cultivation in contaminated land - selected case studies**
AUDITORIUM EUROPA

Dedicated crops represent an important feedstock to decarbonise the energy sector and their cultivation on marginal/contaminated land is suggested as an approach to minimize land use change controversies.

CHAIRPERSONS:
Ana Luisa FERNANDO
Universidade Nova de Lisboa, PORTUGAL

Moritz VON COSSEL
University of Hohenheim, GERMANY

1BO.7.1
Alfreda KASIULIENE
MB Biovala, LITHUANIA
Co-authors: Z. Kidikas, MB BIOVALA, Kaunas, Lithuania; M. Rubezius, MB BIOVALA and VYTAUTAS MAGNUS UNIVERSITY, Kaunas, Lithuania
EXPECTATIONS AND REALITY OF UPSCALED PHYTOREMEDIATION FIELD-TRIALS

1BO.7.2
Michel MENCH
INRAE, UMR BIOGECO INRAE 1202, Ecology of Communities, FRANCE
Co-authors: N. Oustrière, F. Ofori-Agyemang, A. Burges, C. Waterlot, JUNIA, Lille, France
PHYTOMANAGEMENT STRATEGIES FOR A METAL-CONTAMINATED AGRICULTURAL SOIL TO PROVIDE BIOMASS FOR CLEAN BIOFUEL PRODUCTION - PROGRESS FROM POT TRIAL TO FIELD SCALE (EU GOLD PROJECT)

1BO.7.3
Benjamin NUNN
University of Strathclyde, Civil and Environmental Engineering Dpt., UNITED KINGDOM
Co-authors: R. Lord, J. Minto, C. Davidson, N. Manzoor, University of Strathclyde, Glasgow, United Kingdom
CONTAMINATED OR JUST DUSTY? UNDERSTANDING THE NATURE OF CONTAMINANTS FOUND IN BIOMASS GROWN ON HISTORIC MINE SITES TO INFORM PRE-TREATMENT

1BO.7.4
Pietro PERONI
University of Bologna, Agricultural and Food Sciences Dpt., ITALY
Co-authors: W. Zegada-Lizarzu, E Facciolla, A. Monti, DISTAL- University of Bologna, Bologna, Italy
PRELIMINARY ASSESSMENT OF THE USE OF BIOLOGICAL AGENTS TO ENHANCE SORGHUM BICOLOR BIOMASS PRODUCTION AND PHYTOREMEDIATION CAPACITY: GREENHOUSE AND FIELD EXPERIENCES

ORAL SESSION 6BO.8

15.00 - 16.00 **New products from biomass**
ROOM ITALIA

New products are emerging from innovative biorefinery systems and this session looks at examples of new products including renewable films, olive fibre-reinforced polymer, bio-based BTX from glycerol, and some lessons learned from biopolyols production at pilot-scale.

CHAIRPERSONS:
Solange MUSSATTO
Technical University of Denmark, DENMARK

Iris VURAL GURSEL
Wageningen Food & Biobased Research, THE NETHERLANDS

6BO.8.1
Dong Jin SUH
Korea Institute of Science and Technology, Clean Energy Research Center, REPUBLIC OF KOREA
Co-authors: J.-M. Ha, Korea Institute of Science and Technologya Institute of Science and Technology, Seoul, South Korea; J.-W. Choi, Korea Institute of Science and Technology, Seoul, South Korea
PRODUCTION OF RENEWABLE FILMS COMPOSED OF LIGNIN WASTE AND POLY[(R)-3-HYDROXYBUTYRATE]

6BO.8.2
Ronalds GONZALEZ
North Carolina State University, Department of Forest Biomaterials, USA
Co-authors: N. Forfora, I. Azuaje, I. Urdaneta, R. Ortega, North Carolina State University, Raleigh, Usa
SUSTAINABLE AND ALTERNATIVE FIBERS INITIATIVE (SAFI): A GLOBAL INITIATIVE TO FOSTER THE UTILIZATION OF ALTERNATIVE & SUSTAINABLE FIBERS FOR CONSUMER GOODS

6BO.8.3
CONVERSION OF LIGNOCELLULOSIC BIOMASS AND SIDE-STREAM PRODUCTS INTO MICROBIAL OILS
Antonio CAPORUSSO
University of Bari, Aldo Moro, Biosciences, Biotechnology and Environment, ITALY
Co-authors: I. De Bari, R. Albergo, F. Liuzzi, V. Valerio, A. Giuliano, G. Braccio, ENEA Research Centre, Rotondella, Italy

6BO.8.4
Songbo HE
Nanjing Tech University, Joint International Research Laboratory of Circular Carbon, P.R. CHINA
Co-authors: A Heeres, Hanze University of Applied Sciences, Groningen, The Netherlands; N.J. Schenk, BioBTX B.V., Gronijgen, The Netherlands; H.J. Heeres, University of Groningen, Groningen, The Netherlands
CATALYTIC CONVERSION OF GLYCEROL TO BIO-BASED BTX: A CO-FEEDING STRATEGY

TUESDAY 06 JUNE 2023

TUE

ORAL SESSION 3BO.9

15.00 - 16.00 **Biogas and Power to Gas**
ROOM BIANCA

Biogas plants and power-to-gas systems have good opportunities to support the energy system. This session demonstrates some concrete examples and advancements in the area.

CHAIRPERSONS:
Luc PELKMANS
IEA Bioenergy, BELGIUM

Dominik RUTZ
WIP GmbH & Co Planungs, GERMANY

3BO.9.1
Romain BESSEAU
European Commission JRC, ITALY
Co-authors: V. Motola, N. Scarlat, European Commission JRC, Ispra, Italy; A. Giocoli, ENEA, Roma, Italy
POWER-TO-METHANE FROM RENEWABLE ELECTRICITY SURPLUS: A RELEVANT AND SUSTAINABLE CORNERSTONE OF THE FUTURE ENERGY SYSTEM? EXPLORATION OVER AN ITALIAN CASE STUDY

3BO.9.2
Tobias BALDAUF
Technische Hochschule Ingolstadt, GERMANY
Co-authors: K. Bär, W. Zörner, Technische Hochschule Ingolstadt, Germany
DEVELOPING A CONTROL SYSTEM FOR THE INTEGRATION OF BIOGAS PLANTS INTO POWER GRIDS WITH A HIGH SHARE OF VARIABLE POWER GENERATORS

3BO.9.3
Oliver KRÖCHER
PSI - Paul Scherrer Institut, Bioenergy and Catalysis Dpt., SWITZERLAND
Co-authors: A. Gantenbein, S. Biollaz, T. Schildhauer, PSI - Paul Scherrer Institut, Villigen PSI, Switzerland
TECHNO-ECONOMIC ASSESSMENT OF SEASONALLY FLEXIBLE ELECTRICITY STORAGE BY POWER-TO-GAS AND CONVENTIONAL BIOGAS UPGRADING

3BO.9.4
Hangyu YU
EPFL Valais Wallis, SWITZERLAND
Co-authors: L. Wang, North China Electric Power University, Beijing, P.R. China; J. Vanherle, EPFL Valais Wallis, Sion, Switzerland
TECHNO-ECONOMIC EVALUATION OF BIOGAS-FED SOFC POWER SYSTEM INTEGRATED WITH BIOGAS CLEANING UNIT

Status of 1 June 2023

ORAL SESSION IBO.3

15.00 - 16.00 **Fit for 2030? Challenges and Opportunities under a renewed EU regulatory framework in securing the needed investments to boost advanced biofuels - views from the industry**
ROOM AVORIO

Advanced Biofuels have emerged as one key solution to not only reducing transport emissions, but also replacing fossil fuels in many other sectors, from road transport, aviation, maritime or heating sectors. Significant investments have been made in advanced biofuels and several billions are currently being considered for new biorefineries. This session, organized by the Advanced Biofuels Coalition, will address the question about whether the recently revised EU regulatory framework provides sufficient visibility, incentives and signals for future investments and the needed growth of the industry.

CHAIRPERSONS:
Paolo CORVO
Paolo Corvo, Biofuels, ITALY

Kyriakos MANIATIS
Former European Commission, DG Energy, EUBCE Industry Coordinator, BELGIUM

Speakers:

R. Hortsch
Clariant, sunliquid technology and biofuels activities, Germany

H. Koopal
GIDARA-Energy, The Netherlands

S. Haywood
Dimeta, Advocacy & Communications, The Netherlands

R. Venendaal
BTG Biomass Technology Group BV, The Netherlands

VISUAL PRESENTATIONS 4BV.5

15.00 - 16.00 **Gasification-to-power research and development progress**
POSTER AREA

In addition to integral gasification-based systems development, various aspects will be addressed including tar measurement, char application, control aspects, gasifier and system modelling.

CHAIRPERSONS:
Jaap KIEL
TNO, THE NETHERLANDS

Francesco PATUZZI
Free University of Bolzano, ITALY

4BV.5.1
Muhammad Zubair QURESHI
Free University of Bozen-Bolzano, Mechanical Engineering Dpt., ITALY
Co-authors: C. Caligiuri, M. Renzi, V. Benedetti, F. Patuzzi, M. Baratieri, Free University of Bolzano, Bolzano, Italy
WOOD PACKAGING WASTE VALORISATION: DESIGN OF A PRODUCER GAS COMBUSTION TEST-RIG FOR FUNDAMENTAL FLAME STUDIES

4BV.5.2
Muhammad Zubair QURESHI
Free University of Bozen-Bolzano, Mechanical Engineering Dpt., ITALY
Co-authors: C. Caligiuri, M. Baratieri, M. Renzi, Free University of Bolzano, Italy
WOOD PACKAGING WASTE VALORISATION: NUMERICAL INVESTIGATION OF LAMINAR PRODUCER GAS FLAME

4BV.5.3
Marco BARATIERI
Free University of Bolzano, Faculty of Science and Technology, ITALY
Co-authors: V. Benedetti, L. Menin, S. Piazzi, D. Antolini, F. Patuzzi, Free University of Bolzano, Bolzano-Bozen, Italy; M. Kollmer, Burkhardt GmbH, Mühlhausen, Germany
GASIFICATION OF WOOD PACKAGING WASTE: A POLYGENERATIVE APPROACH

4BV.5.4
Keng-Tung WU
National Chung Hsing University, Forestry Dpt., TAIWAN
Co-authors: C. Lai, National Chung Hsing University, Taichung, Taiwan; C. Yu, C. Chen, Dongshih Forest District Office, Taichung, Taiwan; M. Tsai, C. Fu, Luodong Forest District Office, Luodong, Taiwan; H. Lai., Star Unite Enterprise Co., Ltd., Taichung, Taiwan
ESTABLISHING A 25 KWE WOODY BIOMASS GASIFICATION POWER SYSTEM INTEGRATED THE MICROGRID FOR THE CUEIFONG VILLA IN TAIWAN

4BV.5.6
Filippo OTTANI
University of Modena and Reggio Emilia, Dept. of Engineering Enzo Ferrari, ITALY
Co-authors: M. Puglia, S. Pedrazzi, N. Morselli, V. Venturelli, G. Allesina, University of Modena and Reggio Emilia, Modena, Italy
PRELIMINARY STUDY OF A GRAVIMETRIC APPROACH TO THE SOLID PHASE ABSORPTION METHODOLOGY FOR TARS SAMPLING IN BIOMASS GASIFICATION PROCESS

4BV.5.8
Filippo OTTANI
University of Modena and Reggio Emilia, Dept. of Engineering Enzo Ferrari, ITALY
Co-authors: S. Pedrazzi, G. Allesina, N. Morselli, A. Pignagnoli, G. Moscatelli, University of Modena and Reggio Emilia, Modena, Italy
UTILIZATION OF GASIFICATION BIOCHAR FOR THE REDUCTION OF GREENHOUSE GASES AND AMMONIA EMISSIONS IN SWINE SLURRY STORAGES

4BV.5.9
Marco BARATIERI
Free University of Bolzano, Faculty of Science and Technology, ITALY
Co-authors: A. Abdelaal, Y. Andres, A. Villot, C. Gerente, IMT Atlantique, Nantes, France; F. Patuzzi, Free University of Bolzano, Bolzano, Italy
NOVEL GASIFICATION CHAR BASED ADSORBENTS FOR THE REMOVAL OF PHARMACEUTICALS FROM WATER

4BV.5.10
Onu AJAH
African Center of Excellence for Renewable Power and Energy Development, Laboratory of Industrial Electronics, Power Devices and New Energy Systems, NIGERIA
Co-authors: V.O. Ajah, University of Nigeria, Nsukka, Nigeria; E.C. Ejiogu, African Center of Excellence for Sustainable Power and Energy Development University of Nigeria, Nsukka, Nigeria
OPTIMAL TEMPERATURE CONTROL OF GASIFICATION PLANT FOR POWER GENERATION USING SLIDING MODE CONTROL TECHNIQUE

4BV.5.11
Francesco PATUZZI
Free University of Bolzano, Faculty of Engineering, ITALY
Co-authors: R. Borooah, D. Antolini, M. Baratieri, Free University of Bolzano, Bolzano, Italy
MODELING PERFORMANCE OF A PILOT-SCALE GASIFICATION SYSTEM FOR CHP APPLICATIONS USING NEURAL NETWORKS

4BV.5.13
Xinyi WEI
EPFL, Energy, SWITZERLAND
Co-authors: S. Sharma, F. Marechal, J. Van Herle, EPFL, Sion, Switzerland; M. Margni, HES-SO, Sion, Switzerland
ENVIRONMENT ANALYSIS OF FUEL TO POWER ROUTES

4BV.5.14
Beatrice VINCENTI
CREA, CREA-IT, ITALY
Co-authors: P. Palma, M. Salerno, E. Paris, M. Carnevale, F. Gallucci, CREA, Monterotondo, Italy; A. Tonolo, MASAF, Rome, Italy
ASSESSMENT OF CONTAMINATED ARBOREAL AND HERBACEOUS BIOMASS EMISSIONS BY MEANS OF TGA-DSC ANALYSIS

4BV.5.15
Christina ANTONOPOULOU
CERTH/CPERI, GREECE
Co-authors: K. Atsonios, M. Karampinis, P. Gammelis, CERTH/CPERI, Athens, Greece; S. Tuomi, VTT, Helsinki, Finland
TECHNO-ECONOMIC STUDY OF BIO-SNG AND BIOCHAR PRODUCTION BY A CITYREFINERY GASIFICATION PLANT IN CRETE

4BV.5.16
Markus KOPSCH
Forschungszentrum Jülich, IEK-2 Dpt., GERMANY
Co-author: M. Müller, Forschungszentrum Jülich GmbH, Jülich, Germany
AN INVESTIGATION ON THE CHEMICAL HOT GAS CLEANING OF LOW-CONCENTRATION ALKALI, CHLORINE AND SULPHUR SPECIES IN A SORPTION-ENHANCED BIOMASS GASIFICATION PROCESS

4BV.5.17
Arnaud ROUANET
UCLouvain, BELGIUM
Co-author: H. Jeanmart, UCLouvain, Louvain-la-Neuve, Belgium
IMPACT OF STEAM AND OXYGEN INJECTION ON TWO-STAGE DOWNDRAFT WOOD GASIFICATION

VISUAL PRESENTATIONS 5BV.6

15.00 - 16.00 **Synthetic fuels from biomass and hydrogen (II)**
POSTER AREA

This is the second poster session addressing synthetic fuels from biomass and hydrogen and includes presentations on catalysts, methanol production in a pulp mill, SAF production through FT synthesis, hydrotreated products from a biorefinery, polygeneration in a thermochemical system and process modelling.

CHAIRPERSONS:
Oliver HURTIG
European Commission, JRC, ITALY

Francisco GIRIO
LNEG - Laboratorio Nacional de Energia e Geologia, PORTUGAL

5BV.6.5
Laura ALVAREZ ALONSO
Magna Dea SL, Energy & Hydraulics, SPAIN
Co-authors: F. Garcia Carro, S. Solis Gutierrez, A. Matas Escamilla, Magna Dea SL, Oviedo (Asturias), Spain
H_2-RICH SYNTHETIC GAS OBTAINED FROM WASTES TROUGH SCWG AS FUEL IN INTERNAL COMBUSTION ENGINES

5BV.6.7
Loukia CHRYSIKOU
CERTH Centre for Research and Technology Hellas, Chemical Process and Energy Resources Institute, GREECE
Co-authors: S. Bezergianni, V. Dagonikou, G. Meletidis, C. Kekes, V. Vasdekis, Centre for Research & Technology Hellas, Thermi - Thessaloniki, Greece; U. Pfisterer, BP Europa SE, Bochum, Germany
UTILIZATION OF BIO-BASED HYDROTREATED PRODUCTS AS A RELIABLE AND RENEWABLE REFINERY CO-FEED TOWARDS HYBRID FUELS PRODUCTION

5BV.6.8
Hillary Onyebuchi ONYISHI
Fraunhofer Institute for Environmental, Safety, and Energy Technology UMSICHT, Renewable Energy, GERMANY
Co-authors: J. Neidel, R. Daschner, A. Apfelbacher, A. Hornung, Fraunhofer Institute for Environmental, Safety, and Energy Technology UMSICHT, Sulzbach-Rosenberg, Germany
INFLUENCE OF RED MUD AS A CATALYST IN THE THERMO-CATALYTIC REFORMING PROCESS

5BV.6.14
Giovanni Ettore RONCARATI
University of Padova, ITALY
Co-author: F. Conti, University of Padova, Italy
HYDROGEN PRODUCTION FROM BIOMASS

5BV.6.10
Pierre-André MAITRE
CEA, FRANCE
Co-authors: P.-A. Maitre, J. Cren, S. Valin, CEA, Grenoble, France; E. Goudal, E. Philippe, GRDF, Paris, France; J.-P. Faure, Aliapur, Lyon, France
TECHNO-ECONOMIC AND ENVIRONMENTAL SURVEY OF AN INDUSTRIAL GASIFICATION AND METHANATION PLANT FOR THE PRODUCTION OF SYNTHETIC METHANE FROM TYRE CRUMB

5BV.6.15
Jalil SHADBAHR
National Research Council Canada, Energy, Mining and Environment Research Centre, CANADA
Co-authors: C. Peeples, F. Bensebaa, National Research Council Canada, Ottawa, Canada; D. Boffito, E. Pahijia, C. Panaritis, G. Patience, Polytechnique Montréal, Montreal, Canada
TECHNO-ECONOMIC AND LIFE CYCLE ASSESSMENT OF THE CATALYST ROLE ON CO_2 TO RENEWABLE FUELS TECHNOLOGY PLATFORM PERFORMANCE

5BV.6.16
Moritz BÖHME
Danish Technical University, Chemical Engineering Dpt., DENMARK
Co-authors: B. Baser, P.A. Jensen, M. Zingler-Stummann, M. Høj, A.D Jensen, Danish Technical University, Kgs. Lyngby, Denmark
CATALYTIC UPGRADING AND HYDRODEOXYGENATION OF PYROLYSIS VAPOURS FROM PLASTIC AND BIOMASS WASTE TOWARDS RENEWABLE MARINE FUELS

5BV.6.17
Daniele DI MENNO DI BUCCHIANICO
University of Bologna, ITALY
Co-authors: G.E. Scarponi, University of Bologna, Bologna, Italy; J.C. Buvat, S. Leveneur, INSA-Rouen-Normandie, Rouen, France; V. Casson Moreno, University of Pisa, Pisa, Italy
EVALUATING THE ECONOMIC FEASIBILITY OF LIGNOCELLULOSIC BIOMASS VALORIZATION THROUGH GREEN-HYDROGEN: A CASE STUDY IN NORMANDY

5BV.6.18
Joana BERNARDO
CoLAB BIOREF, PORTUGAL
Co-authors: C. Mateos Pedrero, D. Direito, CoLAB BIOREF Collaborative Laboratory for Biorefineries, São Mamede Infesta, Portugal
PROMOTING RENEWABLE METHANE DEPLOYMENT BY THE DEVELOPMENT OF PILOT-SCALE ISOTHERMAL METHANATION REACTORS

Break **16.00 - 16.15**

ORAL SESSION 1BO.10

16.15 - 17.15 **Lessons learned from the cultivation of energy crops in contaminated land**
AUDITORIUM EUROPA

This is the second oral session on dedicated crops that represent an important feedstock to decarbonise the energy sector and their cultivation on marginal/contaminated land is suggested as an approach to minimize land use change controversies.

CHAIRPERSONS:
Luigi PARI
CREA- Council for Agricultural Research and Economics, ITALY

Alfreda KASIULIENE
MB Biovala, LITHUANIA

1BO.10.1
Eleni G. PAPAZOGLOU
Agricultural University of Athens, Crop Science Dpt., GREECE
Co-author: D. Kotoula, Agricultural University of Athens, Greece
HEMP CULTIVATION IN A HEAVILY MULTI-METAL CONTAMINATED FIELD

1BO.10.2
Leandro GOMES
Universidade Nova de Lisboa. Faculdade de Ciências e Tecnologia., PORTUGAL
Co-authors: J. Costa, ISEC, Lisbon, Portugal; M. Martins, Universidade Nova de Lisboa, Caparica, Portugal; J. Moreira, Universidade Nova de LisboaUniversidade Nova de Lisboa, Caparica, Portugal; B. Cumbane, Universidade Zambeze, Tete, Mozambique; M. Abias, Universidade Católica de Moçambique, Pemba, Mozambique; A.L. Fernando, Universidade Nova de LisboaUniversidade Nova de Lisboa - Faculdade de Ciências e Tecnologia da Unive, Caparica, Portugal
LONG TERM TRIALS OF GIANT REED AND SWITCHGRASS IN CONTAMINATED SOILS - TRADE-OFFS BETWEEN PHYTOREMEDIATION AND BIOMASS PRODUCTION

1BO.10.3
Andreas KIESEL
University of Hohenheim, Biobased Resources in the Bioeconomy, GERMANY
Co-authors: J. Clifton-Brown, JLU Giessen, Giessen, Germany; I. Lewandowski, University of Hohenheim, Stuttgart, Germany
MISCANTHUS AS FEEDSTOCK FOR THE EUROPEAN BIOECONOMY - LESSONS LEARNT FROM THE BBI JU DEMONSTRATION PROJECT GRACE

1BO.10.4
Richard LORD
University of Strathclyde, Civil & Environmental Engineering Dpt., UNITED KINGDOM
Co-author: B. Nunn, University of Strathclyde, Glasgow, United Kingdom
GROWING PERENNIAL RHIZOMATOUS GRASSES ON CONTAMINATED LAND FOR PHYTOREMEDIATION: MAXIMISING ENERGY AND ECO-SYSTEM SERVICE PROVISION

ORAL SESSION 6BO.11

16.15 - 17.15 **Nutrient cycles**
ROOM ITALIA

Recycling of nutrients is a vital part of any bioconversion process and in this session examples are presented for phosphorus originating in animal feed, phosphorus upgrading into high-quality fertiliser, as well as bioplastic derived from biogas upgrading and essential oil recovery.

CHAIRPERSONS:
Ludovic RAYNAL
IFP Energies nouvelles, FRANCE

Tiziana PIRELLI
GBEP/Food and Agriculture Organization of the United Nations, ITALY

6BO.11.1
Natalie MAYER
Hamburg University of Technology, GERMANY
Co-author: M. Kaltschmitt, Hamburg University of Technology, Germany
SUSTAINABLE PHOSPHORUS FROM CEREAL-BASED ANIMAL FEED: A NOVEL RECOVERY TECHNOLOGY

6BO.11.2
Laura TORRENT
Paul Scherrer Institute, Energy & Environment Division, SWITZERLAND
Co-authors: Y. Zhang, Paul Scherrer Institute (PSI)&Xi'an Jiaotong University, Shaanxi, P.R. China; A.B. Patil, University of Jyväskylä, Jyväskylä, Finland; A. Testino, Paul Scherrer Institute (PSI), Villigen, Switzerland
AN ENVIRONMENTAL-FRIENDLY PHOSPHORUS RECOVERY PROCESS: FROM AQUEOUS FEEDS TO HIGH-QUALITY FERTILIZER

6BO.11.3
Flavio COLLURA
University of Padua, Biology Dpt., ITALY
Co-authors: A. Santin, A. Bellan, L. Treu, T. Morosinotto, University of Padua, Biology Department, Padua, Italy; R. Serna Gracia, University of Valencia, Department of Chemical Engineering, Valencia, Spain
BIOGAS UPGRADING PAIRED WITH BIOPLASTIC PRODUCTION FROM A NOVEL POLYHYDROXYBUTYRATE ACCUMULATING CYANOBACTERIAL STRAIN SYNECHOCYSTIS SP. B12

6BO.11.4
Luis Saúl ESTEBAN PASCUAL
CIEMAT-CEDER, Renewable Energy Dpt., SPAIN
Co-authors: I. Mediavilla, R. Corredor, L.S. Esteban, CEDER-CIEMAT, Lubia, Spain; L. Barros, T.C.S.P Pires, Centro de Investigação de Montanha (CIMO), Instituto Politécnico de Bragança, Bragança, Portugal
CISTUS LAURIFOLIUS L. ESSENTIAL OIL, A HIGH ADDED VALUE PRODUCT OBTAINED WHILE REDUCING FOREST FIRES RISK

ORAL SESSION 3BO.12

16.15 - 17.15 **Biomass Contribution to Regional Energy Transition**
ROOM BIANCA

This session provides examples of biomass as part of regional energy transitions, for example to move away from fossil based (district) heating to systems based on locally available biomass.

CHAIRPERSONS:
Heinz A. OSSENBRINK
Former Head of Unit of European Commission, Joint Research Centre, ITALY

Romain BESSEAU
European Commission JRC, ITALY

3BO.12.1
Joachim KELZ
AEE - Institute for Sustainable Technologies, Cities and Networks, AUSTRIA
Co-author: I. Leusbrock, AEE - Institute for Sustainable Technologies, Gleisdorf, Austria
THE BM RETROFIT PROJECT - HOLISTIC RETROFITTING CONCEPTS FOR BIOMASS-BASED DISTRICT HEATING NETWORKS

3BO.12.2
Viatcheslav KAFAROV
Industrial University of Santander, Department of Chemical Engineering, COLOMBIA
Co-authors: V. A. Lizcano-González, Industrial University of Santander, Bucaramanga, Colombia; K. Makhamov, Northumbria University, Newcastle-upon-Tyne, United Kingdom
DIVERSIFICATION OF USES OF RESIDUAL BIOMASS FROM PALM OIL INDUSTRY: HYDROGENATED PALM STEARIN AS PCM IN SOLAR ENERGY STORAGE SYSTEM

3BO.12.3
Mika LAIHANEN
Lappeenranta-Lahti University of Technology, LUT School of Energy Systems - Bioenergy, FINLAND
Co-authors: A. Karhunen, J. Föhr, T. Ranta, Lappeenranta-Lahti University of Technology, Lappeenranta, Finland
FUTURE ROLE OF BIOMASS-BASED DISTRICT HEAT PRODUCTION IN THE FINLAND

3BO.12.4
Ingo BALL
WIP GmbH & Co Planungs, Unit Bioenergy & Bioeconomy, GERMANY
Co-authors: D. Rutz, R. Janssen, WIP Renewable Energies, Munich, Germany; H. Tretter, K. Knauss, Austrian Energy Agency, Vienna, Austria; S. Drexlmeier, C. Baumann, H. Unterpertinger, Civic Foundation Energiewende Oberland, Penzberg, Germany; F. Puente, Escan s.l., Madrid, Spain; V. Segon, Regionalna energetska agencija Sjeverozapadne Hrvatske, Zagreb, Croatia; D. Balic, Energy Institute Hrvoje Požar, Zagreb, Croatia; F. Silajdzic, ENOVA, Sarajevo, Bosnia And Herzegovina; A. Nikolaev, Black Sea Energy Research Centre, Sofia, Bulgaria; G. Stegnar, Institut Jožef Stefan, Ljubljana, Slovenia Republic; N. Markovska, SDEWES-Skopje, Skopje, Macedonia; R. Ayuste Cupido, Regional Energy Agency of Castilla y León, León, Spain
TOOLS AND CAMPAIGNS, MARKET SITUATION AND POLICY RECOMMENDATIONS TO FOSTER THE REPLACEMENT OF FOSSIL HEATING SYSTEMS WITH REALLY SUSTAINABLE LOCAL SOLUTIONS IN SOME EUROPEAN REGIONS

ORAL SESSION IBO.4

16.15 - 17.15 **Renewable gases and derivatives in a circular bioeconomy**
ROOM AVORIO

CHAIRPERSONS:
Matthías ÓLAFSSON
Methanol Institute, BELGIUM

Kyriakos MANIATIS
Former European Commission, DG Energy, EUBCE Industry Coordinator, BELGIUM

IBO.4.1
Matthías ÓLAFSSON
Methanol Institute, BELGIUM
INTRODUCTION AND GENERAL CONSIDERATIONS ON CURRENT OPPORTUNITIES AND CHALLENGES TO BIOFUEL INTEGRATION

IBO.4.2
Vincent QUEAU
HAFFNER Energy, Public Affairs, FRANCE
HAFFNER ENERGY, GAME-CHANGING DECARBONIZATION & RENEWABLE GASES SOLUTIONS

IBO.4.3
Karlijn ARTS
OCI, THE NETHERLANDS
BIOMASS WASTE CONVERSION INTO METHANOL AS AN ENERGY VECTOR - METHANOL FROM BIO FEEDSTOCKS UNDER EU LEGISLATION. HOW CAN WE SCALE PRODUCTION AND RAMP UP SUPPLY? FEEDSTOCK LIMITATIONS AND OPPORTUNITIES

IBO.4.4
Nadia ROMDHANE
Green Hydrogen Technology GmbH, Process Engineering, GERMANY
GREEN HYDROGEN TECHNOLOGY "ONE MAN'S TRASH, ANOTHER MAN'S TREASURY"

VISUAL PRESENTATIONS 2BV.7

16.15 - 17.15 **Biomass strategies and policies**
POSTER AREA

The poster presentations will cover a broad range of biomass strategies and policies in Europe and other regions of the world for supporting a transition to greener economies.

CHAIRPERSON:
Martin JUNGINGER
Utrecht University, THE NETHERLANDS

2BV.7.1
Dominik RUTZ
WIP GmbH & Co Planungs, Bioenergy & Bioeconomy Unit, GERMANY
Co-authors: A. Misech, Association of European Renewable Energy Research Centers (EUREC), Brussels, Belgium; O. Birgi, R. Janssen, WIP Renewable Energies, München, Germany
AN URGENT CALL TO IMPLEMENT THE HEAT TRANSITION IN EUROPE - THE ROLE OF TECHNOLOGIES, INNOVATIONS AND POLICIES

2BV.7.3
Silvia PUERTA
E.T.S.Ingeniería, Universidad de Sevilla, SPAIN
Co-authors: K. Guerra, L. Romero-Piñeiro, A. Ronda, B. Alonso-Fariñas, P. Haro, Universidad de Sevilla, Spain
POLICY REVIEW FOR BIOMASS-TO-ENERGY CONVERSION AND ANALYSIS OF THE DEPLOYMENT OF BIO-BASED VALUE CHAINS: A CASE STUDY IN SPAIN

2BV.7.4
Moritz VON COSSEL
University of Hohenheim, Biobased Resources in the Bioeconomy (340b), GERMANY
Co-authors: P. Hilgert, Biobased Resources in the Bioeconomy (340b), Institute of Crop Science, University of Hohenheim, Stu, Stuttgart, Germany; F. Siekmann, S. Dieken, M. Dallendörfer, S. Venghaus, Institute of Energy and Climate Research – Systems Analysis and Technology Evaluation (IEK-STE), For, Jülich, Germany; I. Lewandowski, Biobased Resources in the Bioeconomy (340b), Institute of Crop Science, University of Hohenheim, 705, Stuttgart, Germany
OPPORTUNITIES FOR A SUCCESSFUL, REGIONAL TRANSFORMATION TO A SUSTAINABLE BIOECONOMY - THE CASE OF THE GERMAN COAL-MINING REGION "RHEINISCHE REVIER"

TUESDAY 06 JUNE 2023

TUE

2BV.7.5
Serge BIOLLAZ
Paul Scherrer Institut, Thermal Processes & Combustion Dpt., SWITZERLAND
Co-author: G. Guidati, ETHZ, Zürich, Switzerland
WHERE DOES SAF COME FROM IN 2050? BIOENERGY OR RENEWABLE ELECTRICITY?

2BV.7.6
Myrsini CHRISTOU
Center for Renewable Energy Sources and Saving, Biomass Dpt., GREECE
Co-authors: C. Zafiris, C. Tourkolias, Center for Renewable Energy Sources and Saving, Pikermi, Greece; M. Decorte, G. Owusu, EBA, Brussels, Belgium; L. Garcia Laverde, DBFZ, Leipzig, Germany; A. Rizzo, RE-CORD, Firenze, Italy; J. Lizasoain, BIOGEST, Vienna, Austria; L. Maggioni, C. Pieroni, CIB, Milan, Italy; B. Wiszniewska, PIGEOR, Warsaw, Poland; P. Canciani, INCE, Trieste, Italy; K. Vegere, LBA, Riga, Latvia; J. Habart, E. Siftova, CZBiom, Prag, Czech Republic; T. Trink, Estonian Biogas Association, Talin, Estonia; D. Fernandez, AEBIG, Madrid, Spain; T. Terzopoulos, M. Zafeiris, DEDA, Athens, Greece
BIOMETHANE MARKET DYNAMICS & FRAMEWORK CONDITIONS IN EUROPEAN AND MISSION INNOVATION COUNTRIES (THE PROJECT GREENMEUP)

2BV.7.7
Goncalo RODRIGUES
University of Glasgow, UNITED KINGDOM
POLICYMAKING IMPACTS IN LOW-CARBON AND ZERO-CARBON ENERGIES

2BV.7.10
Julia HANSSON
IVL Swedish Environmental Research Institute, Climate & Sustainable Cities Dpt., SWEDEN
Co-author: B. Unluturk, IVL Swedish Environmental Research Institute, Göteborg, Sweden
COST-EFFECTIVE MARINE FUELS AND PROPULSION TECHNOLOGIES FOR NORDIC SHIPPING - THE ROLE OF HYDROGEN VERSUS BIOFUELS

2BV.7.12
Sonja SECHI
Politecnico di Torino - Energy Department, Energia DENERG, ITALY
Co-authors: S. Giarola, Imperial College of London, London, United Kingdom; P. Leone, Politecnico di Torino, Torino, Italy
ASSESSING THE ROLE OF BIOENERGY FOR NET-ZERO INDUSTRY THROUGH INTEGRATED ASSESSMENT MODELS

VISUAL PRESENTATIONS 5BV.8

16.15 - 17.15 **Fundamental Pyrolysis and Laboratory Investigation**
POSTER AREA

This poster session focus on the fundamental pyrolysis and the laboratory scale investigation of the pyrolysis process itself.

CHAIRPERSONS:
Andreas APFELBACHER
Fraunhofer-Institut UMSICHT, GERMANY

Katerine RODRIGUEZ
Steeper Energy, CANADA

Status of 1 June 2023

5BV.8.3
Thomas HEINRICH
Leibniz-Institute für Agrartechnik und Bioökonomie, Post Harvest Technology Dpt., GERMANY
Co-author: T. Hoffmann, Leibniz-Institute für Agrartechnik und Bioökonomie e. V. (ATB), Potsdam, Germany
IMPLICATIONS OF THE PYROLYTIC PROCESS DESIGN ON THE RELEASE OF INORGANICS FROM GRASS

5BV.8.5
Gaofeng DAI
Xi'an Jiaotong University, P.R. CHINA
Co-authors: D. Gaofeng, M. Daoyang, Z. Ao, Z. Jiaye, Z. Yili, T. Houzhang, W. Xuebin, MOE Key Laboratory of Thermo-Fluid Science and Engineering, Xi'an Jiaotong University, Xi'an, P.R. China
NITROGEN MIGRATION OF BIOMASS NITROGEN-CONTAINING MODEL COMPOUND (2,5-DIKETOPIPERAZINE) DURING PRESSURIZED PYROLYSIS/GASIFICATION: EFFECT OF PRESSURE AND ATMOSPHERE

5BV.8.6
Christos TSEKOS
TNO, THE NETHERLANDS
Co-authors: B.J. Vreugdenhil, J.H.A. Kiel, TNO, Petten, The Netherlands
STAGED CONDENSATION OF RESIDUAL BIOMASS FAST PYROLYSIS PRODUCTS IN THE PILOT-SCALE PYRENA-PYPO PROCESS DEVELOPMENT UNIT

5BV.8.7
Luís TARELHO
Universidade de Aveiro, Environment and Planning Dpt., PORTUGAL
Co-authors: M.C. Santos, F.G.C.S. Silva, M.A.A. Matos, Universidade de Aveiro, Portugal
CHARACTERIZATION OF FLUE GAS COMPOSITION FROM COMBUSTION OF VAPOURS FROM PYROLYSIS OF RESIDUAL FOREST BIOMASS IN A PROTOTYPE OF AUGER REACTOR.

5BV.8.8
Emma OLSSON MANSSON
Chalmers University of Technology, Chemistry and Chemical Engineering Dpt., SWEDEN
Co-authors: A. Achour, D. Creaser, L. Olsson, Chalmers university of technology, Göteborg, Sweden; O. Öhrman, P. Arora, PREEM AB, Göteborg, Sweden
CONTAMINANT REMOVAL FROM INDUSTRIAL PYROLYSIS BIO-OIL TO DECREASE BIOREFINERY CATALYST DEACTIVATION

5BV.8.11
Elena MAESTRI
University of Parma, Chemistry, Life Sciences and Environmental Sustainability Dpt., ITALY
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FOREST ASSESSMENT AND BIOMASS AS ENERGY RESOURCE - THE FABER RESEARCH PROJECT

5BV.8.14
Alessandro GALIA
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Co-authors: C. Prestigiacomo, D. Ruvio, I. Franzè, O. Scialdone, University of Palermo, Palermo, Italy
CARBONIZATION OF WASTE ORGANIC MATRICES IN ZINC-BASED MOLTEN SALTS

5BV.8.15
Begüm BASER
Technical University of Denmark, Chemical and Biochemical Engineering Dpt., DENMARK
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PYROLYSIS OF WASTE TO SYNTHETIC FUELS ON CEMENT PLANTS

5BV.8.16
Izabella MAJ
Silesian University of Technology, Department of Power Engineering and Turbomachinery, POLAND
Co-author: K. Matus, Silesian University of Technology, Gliwice, Poland
CHARACTERIZATION OF ALUMINOSILICATE-MODIFIED BIOCHAR DERIVED FROM CATTLE MANURE

5BV.8.18
Gabriela DURAN JIMENEZ
University of Nottingham, UNITED KINGDOM
Co-authors: L.A. Stevens, J. Rodriguez, University of Nottingham, Nottingham, United Kingdom
WASTE AS RESOURCE IN CARBON CAPTURE BY SUSTAINABLE HEATING TECHNOLOGY

5BV.8.20
Edgar A. SILVEIRA
University of Brasilia, Mechanical Engineering Dpt., BRAZIL
Co-authors: P. P. O. Rodrigues, G. C. Lamas, M. G. Moreira, T. S. Gonzales, University of Brasilia, Brasília, Brazil; L.G. Galvão, University of Brasília, Brasília, Brazil; P. Rousset, French Agriculture Research Centre for International Development, Montpellier, France
PREDICTION MODEL OF INTERNAL HEAT GENERATION DURING WOOD BIOMASS DEGRADATION

16.15 - 18.30 **High efficiency and low emissions CHP technologies from biogenic residues**
ROOM MODULAR 2

This event will showcase the characteristics of the BLAZE system, developed by a 4 year long H2020 project, and why CHP solutions are pivotal for the green transition.

Break **17.15 - 17.30**

ORAL SESSION 1BO.13

17.30 - 18.30 **Algae and aquatic biomass: reactors and remediation**
AUDITORIUM EUROPA

This oral session highlights reactor production systems and explores remediative applications for industry and the environment.

CHAIRPERSONS:
Jack LEGRAND
University of Nantes, FRANCE

Scott TURN
University of Hawaii, USA

1BO.13.1
Sebastian WEICKERT
University of Hohenheim, Biobased Resources in the Bioeconomy Dpt., GERMANY
Co-authors: U. Schmid-Staiger, Fraunhofer Institute for Interfacial Engineering and Biotechnology IGB, Stuttgart, Germany; I. Lewandowski, University of Hohenheim, Stuttgart, Germany
A COMPARATIVE ECONOMIC EVALUATION OF SCENARIOS FOR THE CULTIVATION OF P. TRICORNUTUM USING FLAT-PANEL AIRLIFT PHOTOBIOREACTORS WITH ARTIFICIAL LIGHT OR NATURAL SUNLIGHT IN GERMANY

1BO.13.2
Ana Cláudia DE SOUSA COELHO
Instituto Politécnico de Setúbal, Engenharia Química e Biológica Dpt., PORTUGAL
Co-authors: A.R. Martins, C.A. Santos, Instituto Politécnico de Setúbal, Lavradio, Portugal; S. Badenes, A4F_Algae for Future, Lisboa, Portugal; M. Cachão, AVIPE – Associação de viticultores do Concelho de Palmela, Setúbal, Portugal
EVALUATION OF THE POTENTIAL OF EFFLUENTS FROM THE WINE INDUSTRY FOR THE CULTIVATION OF CHLORELLA VULGARIS

1BO.13.3
Lorenzo MOLLO
UNIVPM, Life and Environmental Science Dpt., ITALY
Co-authors: A. Norici, UNIVPM, Ancona, Italy; D. Caioni, N Rovelli, Enereco SpA, Fano, Italy
EUBCE Student Awardee Presentation
TOWARDS THE PHYCOREMEDIATION OF DIGESTATE: PHYSIOLOGICAL ANALYSIS OF ALGAL GROWTH IN AN ARTIFICIAL AND PRE-TREATED DIGESTATE

1BO.13.4
Sandor BARTHA
Ecoipar, BIO C-Romania, ROMANIA
Co-authors: S. Sandor, Ecoipar LTD, Sfantu Gheorghe, Romania; L. C Duarte, F. Carvalheiro, P. L Martins, C. Oliveira, LNEG - Laboratório Nacional de Energia e Geologia, Unidade de Bioenergia e Biorrefinarias, Lisbon, Portugal; N. Antal, Faculty of Environmental Science and Engineering, University Babe?-Bolyai Cluj–Napoca, Extension Sf., Sfantu Gheorghe, Romania
SEAWEEDS FROM BLACK SEA COAST - PROMISING FEEDSTOCK IN THE PRODUCTION OF ADDED-VALUE PRODUCTS IN A MODEL INTEGRATED BIOREFINERY

ORAL SESSION 5BO.14

17.30 - 18.30 **Valorisation of renewable and recycled carbon through the use of hydrogen**
ROOM ITALIA

This oral session addresses aspects of fuel production with hydrogen treatments to increase end-product quality mainly through hydrogenation, aiming at aviation fuel production and taking into account socio-economic impacts and market factors for FT fuels in the EU.

CHAIRPERSONS:
Guillaume BOISSONNET
Commissariat à l'Energie Atomique et aux Energies Alternatives, FRANCE

Oskar MEIJERINK
SkyNRG, THE NETHERLANDS

5BO.14.1
Anita DEMUTH
PtX Lab Lausitz, GERMANY
Co-authors: H. Lehmann, S. Voswinckel, PtX Lab Lausitz, Cottbus, Germany
LEARNING FROM BIOENERGY: SUSTAINABILITY DIMENSIONS OF HYDROGEN-BASED FUELS

5BO.14.2
Maria GOULA
Laboratory of Alternative Fuels and Environmental Catalysis, University of Western Macedonia, Chemical Engineering Dpt., GREECE
Co-authors: A.I. Llatsiou, N.D. Charisiou, Laboratory of Alternative Fuels and Environmental Catalysis, University of Western Macedonia, Kozani, Greece; A. Bansode, Delft University of Technology, The Netherlands
HYDROGENATION OF CO_2 FOR HIGHER ALCOHOL PRODUCTION: LITERATURE REVIEW

5BO.14.3
Felix HABERMEYER
German Aerospace Center, Alternative Fuels Dpt., GERMANY
Co-authors: J. Weyand, S. Maier, R.-U. Dietrich, German Aerospace Center, Stuttgart, Germany
POWER AND BIOMASS TO LIQUID - LIFTING THE BIOMASS LIMITATION FOR EUROPE'S SUSTAINABLE AND INDEPENDENT AVIATION FUEL PRODUCTION

5BO.14.4
Evert BOYMANS
TNO, Biobased and Circular Technologies Dpt., THE NETHERLANDS
Co-authors: C. Tsekos, B.J. Vreugdenhil, TNO, Petten, The Netherlands
FROM LIGNOCELLULOSIC BIOMASS GASIFICATION TO FT FUELS: A TRL-5 DEMONSTRATION

ORAL SESSION 3BO.15

17.30 - 18.30 **Acceleration of implementation by valorisation of bioresources**
ROOM BIANCA

This session presents cases on how bioresources can be valorised and how the highest value can be obtained. Several cases will be described that show the acceleration of implementation of the use of biomass.

CHAIRPERSONS:
Jaap KIEL
TNO, THE NETHERLANDS

Kees KWANT
Netherlands Enterprise Agency, Ministry of Economic Affairs, THE NETHERLANDS

3BO.15.1
Rainer JANSSEN
WIP GmbH & Co Planungs, GERMANY
Co-authors: D. Rutz, WIP Renewable Energies, Munich, Germany; P. Reumerman, J. Vos, BTG Biomass Technology Group, Enschede, The Netherlands; G. Talluri, RE-CORD, Florence, Italy; K. Siegfried, Deutsches Biomasseforschungszentrum, Leipzig, Germany; M. Karampinis, Bioenergy Europe, Brussels, Belgium; M. Matisons, Biofuel Region, Umea, Sweden
VALUE CHAIN APPLICATIONS FOR INTERMEDIATE BIOENERGY CARRIERS - MUSIC PROJECT RESULTS

3BO.15.2
Jan THIEL
Institut für Textiltechnik der RWTH Aachen University, GERMANY
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MELT SPINNING OF HIGHLY ELASTIC YARNS FROM SUSTAINABLE FEEDSTOCKS

3BO.15.3
Magda CONSTANTÍ
Fundacio URV, Chemical Engineering, SPAIN
Co-authors: V. Andhalkar, F. Medina, University Rovira i Virgili, Tarragona, Spain
TRANSFORMING SPENT COFFEE GROUND WITH COMBINED PHYSIC-CHEMICAL AND BIOLOGICAL PROCESSES TO ENABLE ECONOMIC WASTE VALORIZATION

3BO.15.4
Patrik KLINTBOM
RISE, SWEDEN
Co-authors: A. Sager, RISE-Research Institute of Sweden, Göteborg, Sweden; M. Cocchi, C. Zavattaro, ETA-Florence Renewable Energies, Florence, Italy; E. Mäki, P. Söderena, T. Kanto, VTT, Espoo, Finland; P. Mazzucchelli, CIRCE, Zaragoza, Spain; J. Sandquist, SINTEF, Trondheim, Norway; T. Fellenberg, FNR, Gülzow-Prüzen, Germany; B. Kerkow, FNR, FlorenGülzow-Prüzence, Germany
SET4BIO - A FRAMEWORK TO ACCELERATE BIOENERGY AND BIOFUELS SOLUTIONS ACROSS EUROPE AND BEYOND

ORAL SESSION IBO.5

17.30 - 18.30 **Low carbon fuels for Aviation and Shipping**
ROOM AVORIO

Significant progress has been achieved in using biofuels in road transport, however, the use of biofuels in aviation and shipping only recently started to attract the attention of the stakeholders and although some breakthroughs and advancements have been reported wider deployment in these two transport areas is still in the development stage. The session will report on the latest developments in using biofuels in aviation and shipping.

CHAIRPERSONS:
Maria GEORGIADOU
European Commission, DG RTD, BELGIUM

Kyriakos MANIATIS
Former European Commission, DG Energy, EUBCE Industry Coordinator, BELGIUM

IBO.5.1
Doris MATSCHEGG
BEST - Bioenergy and Sustainable Technologies, AUSTRIA
Co-author: A. Sonnleitner, BEST, Graz, Austria
SUSTAINABLE AVIATION FUEL (SAF) PRODUCTION AND CHALLENGES FOR MARKET UPTAKE

IBO.5.2
Ralph-Uwe DIETRICH
German Aerospace Center, Institute of Engineering Thermodynamics, GERMANY
Co-authors: S. Adelung, F. Habermeyer, S. Maier, J. Weyand, German Aerospace Center, Stuttgart, Germany
BIOFUEL PRODUCTION ROUTES ASSESSMENT FOR MARKET INTRODUCTION, INTEGRATION INTO ENERGY SYSTEMS AND POLICY BRIEFING

IBO.5.3
Julie RODRIGUEZ-GUERRERO
Steeper Energy, R&D Dpt., CANADA
Co-authors: V. Wills, Steeper Energy, Calgary, Canada; S. Gust, S Brummerstedt Iversen, Steeper Energy, Copenhagen, Denmark
PATHWAY FOR DIRECT UTILIZATION OF HTL OIL AS MARINE FUEL

IBO.5.4
Ludovic RAYNAL
IFP Energies nouvelles, Process Design Department, FRANCE
Co-authors: N. Cadran, J.C. Gabelle, R. Dastillung, O. Thinon, IFP Energies nouvelles, Solaize, France; X. Liege, Axens, Rueil-Malmaison, France; X. Begon, M. Gil, Michelin, Bassens, France
UP-SCALING AND DEMONSTRATION OF THE BIOBUTTERFLY PROCESS

VISUAL PRESENTATIONS 2BV.9

17.30 - 18.30 **Resource efficiency in bioeconomy**
POSTER AREA

This session is about technologies and principles that help the transition to a more circular bioeconomy and includes examples of residue valorisation from agricultural and industrial processes.

CHAIRPERSONS:
Birger KERCKOW
FNR - Agency for Renewable Resources, GERMANY

Berien ELBERSEN
Wageningen Environmental Research, THE NETHERLANDS

2BV.9.1
Tamara FERNÁNDEZ ARÉVALO
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MODEL2BIO. MODELLING TOOL FOR GIVING VALUE TO AGRI-FOOD RESIDUAL STREAMS IN BIO-BASED INDUSTRIES

2BV.9.2
Marielle TRENKNER
University of Hohenheim, Biobased Resources in the Bioeconomy Dpt., GERMANY
Co-author: B. Winkler, University of Hohenheim, Stuttgart, Germany
ANALYZING DIFFERENT TEXTILE STRUCTURES AS ALTERNATIVE SUBSTRATES FOR THE CULTIVATION OF BASIL AND PAK CHOI IN A NFT HYDROPONIC SYSTEM

2BV.9.3
Caroline PEREZ
DTU - Technical University of Denmark, Biotechnology and Biomedicine Dpt., DENMARK
Co-authors: M. Ferritto, S. Mussatto, DTU - Technical University of Denmark, Copenhagen, Denmark
ENZYMATIC EXTRACTION OF LIPIDS FROM BREWER'S SPENT GRAIN AIMING A CIRCULAR ECONOMY

2BV.9.4
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CONCEPTS, TOOLS AND APPLICATIONS FOR COMMUNITY-DRIVEN BIOECONOMY DEVELOPMENT IN EUROPEAN RURAL AREAS - THE SCALE-UP PROJECT

2BV.9.5
Eric ROVIRA CAL
CEIT, SPAIN
Co-authors: S. Jaray, L. Sancho, L. Besga, E. Ayesa, E. Aymerich, T. Fernández-Arévalo, CEIT, Donostia - San Sebastián, Spain
SYSTEM-WIDE APPROACH TO MODELLING AGRI-FOOD RESIDUAL STREAMS VALORISATION. DAIRY STREAMS CASE STUDY

2BV.9.6
Walter STEFANONI
CREA-IT, ITALY
Co-authors: L. Pari, S. Bergonzoli, L. Cozzolino, S. Lazar, CREA- Council for Agricultural Research and Economics, Monterotondo RM, Italy; R. Pari, Roma Tre University, Faculty of Law, Roma, Italy; A. Tonolo, Ministero delle politiche agricole alimentari e forestali (Mipaaf), Roma, Italy
INNOVATIVE WATER HARVESTING SYSTEM TO CATCH RUNOFF AND DRAINAGE WATER IN AGRICULTURE FIELDS

2BV.9.7
Matteo FERRITO
Technical University of Denmark, Biotechnology and Biomedicine Dpt., DENMARK
Co-authors: C. Lopes Perez, S. I. Mussatto, Technical University of Denmark, Kongens Lyngby, Denmark
EXTRACTION OF PROTEIN FROM BREWERS' SPENT GRAIN BY AN ENZYMATIC APPROACH

2BV.9.8
Mika AALTO
Lappeenranta University of Technology, Laboratory of Bioenergy, FINLAND
Co-authors: P. Shrestha, T. Ranta, LUT-university, Mikkeli, Finland
SIMULATION CIRCULARITY OF BIOGAS AND WATER TREATMENT PLANT USING THE ECO-EFFICIENCY INDEX

2BV.9.9
Odysseas KOPSIDAS
Aristotle University of Thessaloniki, Department of Economics, GREECE
THE DETERMINATION OF THE OPTIMAL LEVEL OF NATURAL RESOURCE EXTRACTION WITH ECONOMIC CRITERIA IN THE CASE OF THE EAST MEDITERRANEAN SEA BY MEANS OF 'DUTCH DISEASE' MODEL

2BV.9.10
Bruna OLIVEIRA
Agronomic Institute of Campinas, Soil Science and Environmental Resource, BRAZIL
Co-authors: K. Lourenço, M.C. Teixeira, H. Cantarella, Agronomic Institute of Campinas, Campinas, Brazil; J.L. Carvalho, Brazilian Biorenewables National Laboratory, Campinas, Brazil; L. Baggs, Global Academy of Agriculture and Food Security, Edinburg, United Kingdom
CONTRIBUTIONS OF NITRIFICATION AND DENITRIFICATION TO N2O EMISSIONS FROM SOILS TREATED WITH ORGANO-MINERAL FERTILIZER AND NITRIFICATION INHIBITOR

VISUAL PRESENTATIONS 5BV.10

17.30 - 18.30 **Pyrolysis Product Upgrade and Pyrolysis Application**
POSTER AREA

This session deals with the upgrade of different pyrolysis products as well as with the application of different technologies.

CHAIRPERSON:
Donatella BARISANO
ENEA Research Centre, ITALY

5BV.10.1
YongWoon LEE
Korea Institute of Industrial Technology, Thermochemical Energy System Group, REPUBLIC OF KOREA
EVALUATION OF REDUCTION CHARACTERISTICS OF NOX AND SOX BY BIOCHAR PRODUCED UNDER VARIOUS CONDITIONS

5BV.10.2
Shifa ZUHARA
Hamad Bin Khalifa University, Sustainability Dpt., QATAR
Co-authors: M. Alherbawi, G. McKay, Hamad Bin Khalifa University, Doha, Qatar
GTL-DERIVED BIOSOLIDS FOR CO_2-ACTIVATED CARBON PRODUCTION: PROCESS MODELLING AND OPTIMIZATION USING ASPEN PLUS

5BV.10.3
Gabriel ROEDER, Technical University of Munich, GERMANY
Co-authors: S. Fendt, H. Spliethoff, Technical University Munich, Garching, Germany
CONVERSION OF FUEL AND CHAR INTO NOX DURING PYROLYSIS AND COMBUSTION OF BIOMASS

5BV.10.4
Yasser ELHENAWY
Faculty of Engineering and the Built Environment, Chemical and Metallurgical Engineering, SOUTH AFRICA
Co-authors: M. Gadalla, Faculty of Engineering, Port Said, Egypt; F. Ashour, Faculty of Engineering, Cairo, Egypt; T. Majozi, Faculty of Engineering and the Built Environment, Johannesburg, South Africa
THERMODYNAMIC ANALYSIS AND EXPERIMENTAL STUDY OF ALTERNATIVE BIOFUELS USING SAWDUST SLOW PYROLYSIS

5BV.10.5
Richard OCHIENG
Norwegian University of Science and Technology, Manufacturing and Civil Engineering Dpt., NORWAY
Co-authors: A.C. Ceron, A.K. Konist, Tallinn University of Technology, TalTech, Tallin, Estonia; S.S. Sarker, The Norwegian University of Science and Technology, NTNU, Gjøvik, Norway
REVIEW AND EVALUATION OF BIOMASS PYROLYSIS MODELS FOR PROCESS MODELING AND OPTIMIZATION IN ASPENPLUS®

5BV.10.7
Edgar A. SILVEIRA
University of Brasilia, Mechanical Engineering Dpt., BRAZIL
Co-authors: T.S. Gonzales, P. P. O. Rodrigues, M.H. Dutra, M.G. Moreira, S.M. Silva, University of Brasilia, Brasilia, Brazil; P. Rousset, French Agriculture Research Centre for International Development (CIRAD), Montpellier, Brazil; M.E. Fonseca, University of Brasília, Brasilia, Brazil
A PROCESS MODELING AND SIMULATION STUDY FOR FOREST URBAN WASTE TORREFACTION

5BV.10.8
Vittor ALVES
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FAST PYROLYSIS OF SEWAGE SLUDGE IN A FLUIDIZED BED REACTOR

5BV.10.9
Angélica de Cássia OLIVEIRA CARNEIRO
Universidade Federal de Viçosa, Engenharia Florestal Dpt., BRAZIL
Co-authors: A.C.O. Carneiro, D.B. Donato, I.F. Demuner, A.Q. Lana, H.F. Siqueira, Universidade Federal de Viçosa, Viçosa, Brazil
FURNACE-KILN SYSTEM FOR METHANE REDUCTION IN THE PRODUCTION OF CHARCOAL FOR STEEL USE

5BV.10.10
Mireia MORA SANJUAN
Universitat Autònoma de Barcelona, Chemistry Dpt., SPAIN
Co-authors: F. Céspedes Mulero, Universitat AUniversitat Autònoma de Barcelonautònoma de Barcelona, Cerdanyola del Vallès, Spain; E. Fàbregas Martinez, Universitat Autònoma de Barcelona, Cerdanyola del Vallès, Spain; N. Puy Marimón, Centre de Ciència i Tecnologia Forestal de Catalunya, Solsona, Spain
PRODUCTION AND OBTENTION OF PYROLYTIC LIGNIN FOR THE SYNTHESIS OF PHENOLIC RESINS TO BOOST MEDITERRANEAN FOREST MANAGEMENT WITHIN THE CONTEXT OF A BIOREFINERY

5BV.10.12
Hanmin YANG
KTH Royal Institute of Technology, SWEDEN
H_2/SYNGAS PRODUCTION VIA PYROLYSIS AND CATALYTIC REFORMING IN AN AUGER REACTOR COMBINED WTH FIXED-CHAR-BED PART 1: THE INFLUENCE OF SPACE VELOCITY AND CATALYST PARTICLE SIZE

5BV.10.13
Takashi NOMURA
Kyoto University, JAPAN
Co-authors: H. Mizuno, E. Minami, H. Kawamoto, Kyoto university, Japan
FAST PYROLYSIS OF CELLULOSE BY INFRARED IRRADIATION FOR LEVOGLUCOSAN PRODUCTION

5BV.10.15
Luís TARELHO
Universidade de Aveiro, Environment and Planning Dpt., PORTUGAL
Co-authors: M.C. Santos, M.G.S. Videira, A.C.P. Morim, F.G.C.S. Silva, M.A.A. Matos, Universidade de Aveiro, Aveiro, Portugal
BIOCHAR PRODUCTION AND CHARACTERISTICS FROM PYROLYSIS OF RESIDUAL FOREST BIOMASS IN A FIXED-BED BATCH REACTOR

5BV.10.16
Mayra Alejandra SUAREZ
University of the Basque Country, Chemical Engineering Dpt., SPAIN
Co-authors: M. Cortazar, E. Fernandez, L. Santamaria, I. Garcia, P. Comendador, M. Artetxe, M. Amutio, M. Olazar, University of the Basque Country, Bilbao, Spain
THE COKE FORMATION AND EVOLUTION IN THE CATALYTIC STEAM REFORMING OF BIOMASS PYROLYSIS VOLATILES AT DIFFERENT FIXED BED LOCATIONS

5BV.10.17
Ronald M. LARA PRADO
KTH Royal Institute of Technology, Process Technology Dpt., SWEDEN
Co-authors: H. Kusar, KTH Royal Institute of Technology, Stockholm, Sweden; L. Lopez N., Universidad Mayor de San Andrés UMSA, La Paz, Bolivia
EXPERIMENTAL CHARACTERIZATION OF BOLIVIAN AGRICULTURAL RESIDUES FOR PYROLYSIS PURPOSES

5BV.10.18
Alexander SØGAARD
Technical University of Denmark, Chemical and Biochemical Engineering Dpt., DENMARK
Co-authors: A.P. Krebs, M. Høj, A.D. Jensen, Technical University of Denmark, Department of Chemical and Biochemical Engineering, Kongens Lyngby, Denmark; M.Z. Stummann, TOPSOE A/S, Kongens Lyngby, Denmark
ADVANCED REACTOR DESIGNS FOR CONTINUOUS PYROLYSIS OIL CONVERSION INTO RENEWABLE HYDROCARBON FUELS THROUGH HYDRODEOXYGENATION CATALYSIS

5BV.10.19
Yeonseok CHOI
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Co-authors: Q. Nguyen, University of Science and Technology, Daejeon, South Korea; S. Choi, Y. Jeong, S. Han, Korea Institute of Machinery and Materials, Daejeon, South Korea
THE EFFECTS OF CAO CATALYST ON THE FAST PYROLYSIS OF COFFEE GROUND

5BV.10.20
Stelios STEFANIDIS
Centre for Research and Technology Hellas, Chemical Process and Energy Resources Institute, GREECE
Co-authors: L. Stevens, C. Snape, University of Nottingham, United Kingdom; D. Fabbri, University of Bologna, Rimini, Italy; A.A. Lappas, Centre for Research and Technology Hellas, Thessaloniki, Greece
CATALYTIC PYROLYSIS OF SPENT SOLID CO_2 ADSORBENTS FOR THE RECOVERY OF RAW MATERIALS AND VALUABLE HETEROAROMATIC CHEMICALS

5BV.10.21
Klaus RAFFELT
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Co-authors: A.H.M. José, R.C.L.B Rodrigues, University of São Paulo/Lorena School of Engineering, Lorena, Brazil; M.M.C. Fraga, C. Carriel Schmitt, N. Dahmen, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen, Germany
FAST PYROLYSIS AND CATALYTIC UPGRADING OF PIASSAVA BIOMASS FOR FUEL PRODUCTION

5BV.10.22
Songbo HE
Nanjing Tech University, Joint International Research Laboratory of Circular Carbon, P.R. CHINA
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CHEMOCATALYTIC RECYCLING OF POST-CONSUMER PAPER SLUDGE

5BV.10.23
Andrea FACCHIN
University of Bologna, Chemistry G. Ciamician Dpt., ITALY
Co-authors: C. Torri, Y. Kucukaga, D. Fabbri, University of Bologna, Ravenna, Italy
FROM BIOMASS TO SUGARS, HTC-PYROLYSIS APPROACH

ORAL SESSION 1CO.1

09.00 - 10.00 **Supply of biomass and biomass by-products and residues from agriculture and forestry**
AUDITORIUM EUROPA

Resource efficient agriculture and forestry for decarbonising the economy, including mathematical modelling for supply chain design.

CHAIRPERSONS:
Neeta SHARMA
ENEA Research Centre, ITALY

Enrico PARIS
CREA-IT, ITALY

1CO.1.1
Søren Ugilt LARSEN
Danish Technological Institute, Division Food & Production, DENMARK
Co-authors: N. Ma, Danish Technological Institute, Taastrup, Denmark; K. Hjort- Gregersen, Danish Technological Institute, Aarhus N, Denmark; H.B. Moeller, Aarhus University, Aarhus N, Denmark
BALING AND ENSILING OF WET STRAW AS COMBINED STORAGE AND PRETREATMENT FOR ANAEROBIC DIGESTION

1CO.1.2
Marco FIALA
University of Milan, Agricultural Engineering Dpt., ITALY
Co-authors: M. Ferrari, University of Milan, Italy; G. Bezzi, CIB - Consorzio Italiano Biogas, Lodi, Italy; P. Mantovi, M. Soldano, E. Sinisgalli, Centro Ricerche Produzioni Animali - CRPA, Reggio Emilia, Italy
CORN RESIDUES FOR BIOMETHANE PRODUCTION: THREE YEARS TRIALS IN LOMBARDY REGION (ITALY) TO SELECT A PROPER COLLECTING MECHANIZATION SYSTEM

1CO.1.3
Dan ABUDU
Energy and Bioproducts Research Institute (EBRI), Aston University, UNITED KINGDOM
Co-authors: K. Chong, M. Röder, Energy and Bioproducts Research Institute (EBRI), College of Engineering and Physical Sciences, Asto, Birmingham, United Kingdom; L. Bastin, School of Informatics and Digital Engineering, College of Engineering and Physical Sciences, Aston U, Birmingham, United Kingdom
FOREST MANAGEMENT MONITORING FOR SUSTAINABLE BIOMASS USE AND ENERGY SECURITY

1CO.1.4
Soheyl KHALILPOURAZARI
Concordia University, CANADA
A ROBUST MATHEMATICAL MODEL FOR SUSTAINABLE BIOFUEL SUPPLY CHAIN NETWORK DESIGN UNDER UNCERTAINTY AND DISRUPTION RISK

ORAL SESSION 2CO.2

09.00 - 10.00 **Sustainable monitoring of bioenergy and the bioeconomy**
ROOM ITALIA

This oral session presents proposals for monitoring bioeconomy and bioenergy and their impacts, and includes sustainability indicators and certification schemes as well as a case study for greening steel production.

CHAIRPERSONS:
Yara EVANS
Imperial College London, UNITED KINGDOM

Berien ELBERSEN
Wageningen Environmental Research, THE NETHERLANDS

2CO.2.1
Gulizar BALCIOGLU
The University of Manchester, Chemical Engineering Dpt., UNITED KINGDOM
Co-authors: H. Jeswani, A. Azapagic, The University of Manchester, Manchester, United Kingdom
AN INTEGRATED SUSTAINABILITY ASSESSMENT OF HEAT AND ELECTRICITY GENERATION FROM BIOMASS IN TURKEY: CURRENT SITUATION AND FUTURE SCENARIOS

2CO.2.2
Costanza ROSSI
SQ Consult, THE NETHERLANDS
Co-authors: B. Wicke, Radboud University, Nijmegen, The Netherlands; M. Junginger, Utrecht University, Utrecht, The Netherlands; S. Ugarte, SQ Consult, Bunnik, The Netherlands
ECONOMIC FEASIBILITY OF CERTIFICATION SCHEMES AND LABELS FOR BIOBASED PRODUCTS

2CO.2.3
Stefan MAJER
DBFZ-German Biomass Research Centre, Biofuels Dpt., GERMANY
Co-authors: J. van Dam, Jinke van Dam Consulting, Bunnik, The Netherlands; U. Fritsche, IINAS, Darmstadt, Germany; B. Heukels, Rijksdienst voor Ondernemend Nederland, Utrecht, The Netherlands; Z.M. Harris, University of Surrey, Guildford, United Kingdom; G. Egnell, Swedish University of Agricultural Sciences, Uppsala, Sweden; D. Thrän, Helmholtz-Zentrum für Umweltforschung GmbH, LEIPZIG, Germany
LESSONS LEARNED FROM COMPLIANCE AND VERIFICATION PROCESSES IN CERTIFICATION OF FORESTRY BIOMASS

2CO.2.4
Daniela HIGGIN AMARAL
University of São Paulo, Institute of Energy and Environment, BRAZIL
Co-authors: A. P. De Souza Silva, M. J. Do Nascimento Anater, S. De Aquino Neiva, S. Teixeira Coelho, University of São Paulo, Sao Paulo, Brazil
SUSTAINABLE CHARCOAL FOR "GREEN STEEL" PRODUCTION: THE CASE OF BRAZIL

WEDNESDAY 07 JUNE 2023

WED

ORAL SESSION 4CO.3

09.00 - 10.00 **Novel methods for emission reduction and ash utilisation**
ROOM BIANCA

Novel approaches regarding NOx and aerosol emission reduction as well as for carbon capture and ash utilisation will be presented.

CHAIRPERSONS:
Marco BARATIERI
Free University of Bolzano, ITALY

Nicolai David JABLONOWSKI
Forschungszentrum Jülich, GERMANY

4CO.3.1
Christoph MANDL
BIOS Bioenergiesysteme, AUSTRIA
Co-authors: I. Obernberger, G. Knauss, BIOS Bioenergiesysteme, Graz, Austria; L. Schirnhofer, POLYTECHNIK Luft- u. Feuerungstechnik, Weissenbach, Austria; C. Breuer, P. Joshi, M. Bonifer, HERAEUS Deutschland GmbH & Co. KG, Hanau, Germany
REDUCTION OF NOX EMISSIONS FROM BIOMASS BOILERS BY COUPLING THE EXTREME AIR STAGING TECHNOLOGY WITH AN INTEGRATED THREE-WAY CATALYST

4CO.3.2
Alex SEBASTIANI
University College London, Chemical Engineering Dpt., UNITED KINGDOM
Co-authors: A. Paulillo, P. Lettieri, M. Materazzi, University College London, United Kingdom
DECARBONISING ENERGY-FROM-WASTE IN THE UK: A TECHNO-ECONOMIC AND ENVIRONMENTAL ASSESSMENT OF CAPTURING CARBON EMISSIONS

4CO.3.3
Hendrik MÖRTENKÖTTER
Technische Universität München, Chair of Energy Systems, GERMANY
Co-authors: S. Fendt, H. Spliethoff, Technische Universität München, Garching b. München, Germany
ALKALI REMOVAL BY MINERAL SORBENTS IN A NOVEL TWO-STAGED THERMOGRAVIMETRIC ANALYSIS SYSTEM

4CO.3.4
Thomas ZENG
DBFZ Deutsches Biomasseforschungszentrum gemeinnützige, Thermo-chemical Conversion Dpt., GERMANY
Co-authors: D. Kulshresth, DBFZ Deutsches Biomasseforschungszentrum gemeinnützige, Leipzig, Germany; H. Beidaghy Dizaji, Leipzig, Germany; S. Overmann, A. Vollpracht, RWTH Aachen University, Germany
POTENTIAL USE OF BOTTOM ASHES FROM NON-WOODY BIOMASS COMBUSTION AS SUSTAINABLE SUPPLEMENTARY CEMENTITIOUS MATERIALS

Status of 1 June 2023

ORAL SESSION ICO.1

09.00 - 10.00 **Thermochemical conversion of biomass: Status and R&D needs**
ROOM AVORIO

CHAIRPERSONS:
Kyriakos MANIATIS
Former European Commission, DG Energy, EUBCE Industry Coordinator, BELGIUM

Speakers:

J. Saddler
Senior Chair, University of British Columbia, Wood Science Dpt., Canda

Y. Matsumura
Hiroshima University, Graduate School of Advanced Science and Engineering, Japan

P. Ortiz-Toral
GTI Energy, Energy Supply and Conversion, Usa

B. van de Beld
BTG Biomass Technology Group, The Netherlands

VISUAL PRESENTATIONS 5CV.1

09.00 - 10.00 **Advancement in hydrothermal processing of wet biomass (I)**
POSTER AREA

This poster session contains reports on a range of hydrothermal processes for the production of intermediate products, carbonisation of the likes of sewage sludge, sugar beet residues and food waste, nutrient recovery, biocrude yield, as well as green hydrogen production, amongst other feedstocks.

CHAIRPERSON:
Nikolaos BOUKIS
Karlsruhe Institute of Technology, GERMANY

5CV.1.1
Daniel BLÜCHER
SINTEF Industry, NORWAY
Co-authors: T. Lange, SINTEF INDUSTRY, Trondheim, Norway; J. Sandquist, I. Saanum, SINTEF Energy Research, Trondheim, Norway; M. Uusitalo, Valmet Technologies, Tempere, Finland
CORROSION PERFORMANCE OF DIFFERENT ALLOYS EXPOSED TO HTL CONDITIONS

5CV.1.3
Dimitrios SIDIRAS
University of Piraeus, Industrial Management and Technology Dpt., GREECE
Co-authors: A. Nazos, University of West Attica, Egaleo, Greece; D. Politi, University of Piraeus, Greece
SEAWATER MODIFIED SPRUCE SAWDUST'S HIGHER HEATING VALUE OPTIMIZATION WITHIN THE BIOREFINERY AND THE ZERO-WASTE CIRCULAR BIOECONOMY CONCEPT

5CV.1.4
Heather WRAY
TNO, Biobased and Circular Technologies Dpt., THE NETHERLANDS
Co-authors: D.S. Zijlstra, J.W. Dijkstra, S. Shah, TNO, Petten, The Netherlands; P. Nanou, J. Pels, Torwash BV, Welgelegen, The Netherlands; F. Kruip, Limburg Filter, Maastricht, The Netherlands; I. Lundstrom, S. Lundqvist, Smurfit Kappa, Piteå, Sweden; A. Rodriguez Garcia, A. Hernandez Riba, Delafruit, La Selva Del Campo, Spain; G. Becker, E. Ovsyannikova, UHOH, Stuttgart, Germany; T. Hendrick, PAQUES, BALK, The Netherlands; M. Ugolini, Carefor Engineering, Firenze, Italy; L. Aanhagen, C. Wang, SWERIM, Luleå, Sweden; R. Monaghan, NUIG, GALWAY, Ireland; R. McGreal, E. O'Callaghan, Heat Systems, Claremorris, Ireland
HYDROTHERMAL TREATMENT OF WET BIOMASS RESIDUES TO PRODUCE INTERMEDIATE BIOENERGY CARRIERS AND BIOGAS

5CV.1.7
Dimitrios LIAKOS
Centre for Research and Technology Hellas, GREECE
Co-authors: S. Bezergianni, L. Chrysikou, C. Kekes, Centre for Research & Technology Hellas, Thermi - Thessaloniki, Greece; M. Sarafidou, E. Stylianou, A. Koutinas, Agricultural University of Athens, Greece
HYDROTHERMAL AND ACID PRETREATMENT OF SUGAR BEET RESIDUES FOR SUGARS PRODUCTION

5CV.1.9
Daniele CASTELLO
Aalborg University, Energy Technology Dpt., DENMARK
Co-authors: F. Marrakchi, T. Helmer Pedersen, L. Rosendahl, Aalborg University, Denmark
RECOVERY OF NUTRIENTS AND ORGANICS FROM POST-HYDROTHERMAL LIQUEFACTION WASTEWATER VIA ADSORPTION BY ACTIVATED HYDROCHAR

5CV.1.10
Krzysztof KAPUSTA
Central Mininig Institute, POLAND
Co-authors: D. Xu, M. Ma, P. Duan, Xi'an Jiaotong University, Xi'an, P.R. China; W. Basa, M. Pankiewicz-Sperka, Central Mininig Institute (GIG), Katowice, Poland
COUPLED EFFECT OF REACTIVE ATMOSPHERE AND HETEROGENEOUS CATALYST ON BIOCRUDE YIELD AND COMPOSITION DURING HYDROTHERMAL LIQUEFACTION (HTL) OF MUNICIPAL SEWAGE SLUDGE.

5CV.1.11
Stefan ARLT
BEST - Bioenergy and Sustainable Technologies, AUSTRIA
Co-authors: S. Hochgerner, G. Weber, BEST - Bioenergy and Sustainable Technologies GmbH, Vienna, Austria; G. Pipitone, G. Zoppi, S. Bensaid, Politecnico di Torino, Turin, Italy
DESIGN OF AN AQUEOUS PHASE REFORMING PROCESS DEMONSTRATION UNIT FOR THE PRODUCTION OF GREEN HYDROGEN FROM ORGANICS-LADEN RESIDUAL WATERS

5CV.1.12
Claudia PRESTIGIACOMO, University of Palermo, Engineering Dpt., ITALY
Co-authors: Y. Fan, T. Tietz, U. Hornung, N. Dahmen, Karlsruhe Institut of Technology, Karlsruhe, Germany; O. Scialdone, A. Galia, University of Palermo, Palermo, Italy
STATUS AND PERSPECTIVES OF HYDROTHERMAL LIQUEFACTION OF SEWAGE SLUDGE: FROM BATCH REACTORS TO A CONTINUOUS OPERATED PLANT IMPLEMENTATION

5CV.1.13
Thuat TRINH
Department of Chemistry, Porelab, NTNU, NORWAY
Co-authors: H. Do, Faculty of Applied Sciences, HoChiMinh City, Vietnam; K-Q Tran, Department of Energy and Process Engineering, Trondheim, Norway
MOLECULAR SIMULATION FOR HYDROTHERMAL CARBONIZATION OF SEWAGE SLUDGE

5CV.1.14
Thuat TRINH
Department of Chemistry, Porelab, NTNU, NORWAY
Co-authors: K.-Q. Tran, Department of Energy and Process Engineering, Trondheim, Norway; H. Do, Faculty of Applied Sciences, HoChiMinh City, Vietnam
ON THE EFFECT OF CHEMICAL FUNCTIONAL GROUP ON DEWATERING ABILITY OF HYDROCHAR BY MOLECULAR DYNAMICS SIMULATIONS ABSTRACT

VISUAL PRESENTATIONS 1CV.2

09.00 - 10.00 **Energy carriers and fuels production from biowaste**
POSTER AREA

This session describes different methods and processes to produce energy carriers, fuels and biofertilizer from treated biowaste such as industrial sludge and sewage sludge.

CHAIRPERSON:
Pedro HARO
Universidad de Sevilla, SPAIN

1CV.2.2
Bruna RODRIGUES
Universidade Federal de Viçosa, BRAZIL
Co-authors: A.C.O. Carneiro, C.M.M.E. Torres, D.C.D. Caldeira, C.M. Silva, Universidade Federal de Vicosa, Vicosa, Brazil
EVALUATION OF THE ENERGY POTENTIAL OFF RESIDUES FROM A THERMOMECHANICAL PULP MILL (TMP) FOR POWER GENERATION

1CV.2.4
Suani COELHO
Julio Romano Meneghini - Processo, BRAZIL
Co-authors: A.C Gutierrez-Gomez, D. Maluf Filho, M. Santos, M.J. do Nascimento Anater, V. Garcilasso, S. Teixeira Coelho, University of São Paulo, São Paulo, Brazil
POTENTIAL ESTIMATION OF MUNICIPAL SOLID WASTE FOR HYDROGEN PRODUCTION IN BRAZIL

1CV.2.6
Bruna RODRIGUES
Universidade Federal de Viçosa, BRAZIL
Co-authors: A.C.O. Carneiro, C.M.M.E. Torres, A.A.P. Rezende, C.M. Silva, Universidade Federal de Vicosa, Vicosa, Brazil
PELLETS PRODUCTION USING PRIMARY AND SECONDARY SLUDGE FROM A KRAFT PULP MILL

WEDNESDAY 07 JUNE 2023

WED

1CV.2.8
Suani COELHO
Julio Romano Meneghini - Processo, BRAZIL
Co-authors: A.C. Gutierrez-Gomez, B. Narváes-Romo, D. Maluf Filho, M. Mariano dos Santos, V. Pecora Garcilasso, S. Teixeira Coelho, University of São Paulo, São Paulo, Brazil
BIOENERGY GENERATION POTENTIAL FROM DIRECT COMBUSTION AND GASIFICATION OF MUNICIPAL SOLID WASTE IN BRAZIL

1CV.2.10
Edgar A. SILVEIRA
University of Brasilia, Mechanical Engineering Dpt., BRAZIL
Co-authors: B.S. Chaves, L.G. Galvão, Forest Products Laboratory (LPF), Brazilian Forest Service (SFB), Brasília, Brazil; G.C. Lamas, M.R. Cardoso, University of Brasilia, Brazil; P. Rousset, French Agriculture Research Centre for International Development (CIRAD), Montpellier, France
TORREFACTION OF CONSTRUCTION WOOD WASTE AND EUCALYPTUS BLENDS FOR BIOFUEL WITH ENHANCED ENERGY DENSITY AND LOW ASH CONTENT

1CV.2.13
Maura SANNINO
Università Federico II di Napoli, Dipartimento di Agraria, ITALY
Co-authors: R. Piscopo, V. Topa, S. Faugno, University of Naples Federico II, Italy; A. Assirelli, CREA Research center for engineering and agro-food processing, Monterotondo (RM), Italy; F. Esposito, CREA Research center for engineering and agro-food processing, Monterotondo, Italy
EVALUATION OF THE CALORIFIC VALUE OF INDUSTRIAL, AGRICULTURAL AND URBAN WASTE BIOMASS

1CV.2.14
Giorgos KARDARAS
CPERI/CERTH, GREECE
Co-authors: V. Proskynitopoulou, S. Lorentzou, K. Plakas, G. Kardararas, A. Vourros, I. Garagounis, P. Dimopoulos-Toursidis, K.D. Panopoulos, CPERI/CERTH, Thermi, Thessaloniki, Greece; A. Lampropoulos, G. Varvoutis, E. Papista, N. Ntavos, CLUBE, Kozani, Greece; K. Sakellariou, P. Kafasis, DIADYMA, KOZANI, Greece
ANAEROBIC DIGESTATE EXPLOITATION FROM BIOGAS PLANTS ORIGINATED IN WESTERN MACEDONIA

1CV.2.16
Ioana IONEL
Politehnica University of Timisoara, Mechanical Engineering Dpt., ROMANIA
Co-authors: D. Ciolea, University of Petrosani, Romania; D. Bisorca, I. Halmaciu, Politehnica University of Timisoara, Romania; M. Berca, V. Bobei, Technical University of Cluj Napoca, Romania
BIOMASS AS ENVIRONMETAL CLEANING INSTRUMENT. CASE STUDY FOR EVALUATION OF THE DEGREE OF AIR POLLUTION BASED ON ECOBIOINDICATION

1CV.2.17
Tzouliana KRAIA
CERTH, CPERI Dpt., GREECE
Co-authors: G. Kardaras, K. Panopoulos, CPERI/CERTH, Thermi, Thessaloniki, Greece; K. Kyriakopoulos, DETEPA, Amyntaio, Greece; N. Lestos, Hephaestus Group Europe, Thessaloniki, Greece; N. Perdikaris, Helector S.A., Athens, Greece
SUSTAINABLE LOCAL ALTERNATIVES FOR DISTRICT HEATING DECARBONISATION

Status of 1 June 2023

1CV.2.19
Brenda RODRIGUES
UNESP, BRAZIL
Co-authors: A. Sarti, B. S. de Mello, M. A. M. Costa, UNESP - Sao Paulo State University, Araraquara, Brazil
DEWATERING OF DRINKING-WATER TREATMENT SLUDGE BY SPRAY-DRYING TECHNOLOGY

1CV.2.21
Tanmay CHATURVEDI
Aalborg University, Chemical Engineering Dpt., DENMARK
Co-authors: T.M. Schou, M. Nøhr, ENORM Biofactory, Flemming, Denmark; S. Rudnyckyj, M.H. Thomsen, Aalborg University, Esbjerg, Denmark
UPCYCLING OF MUNICIPAL SOLID WASTE WITH HERMETIA ILLUCENS (L.)

1CV.2.22
Maria Lorena FALCO
Université de Pau et des Pays de l'Adour, IPREM-College STEE, FRANCE
Co-authors: N. Nouse, T. de Vrije, A. Lopez Contreras, Wageningen Food and Biobased Research, Wageningen, The Netherlands; C. Cravo-Laureau, R. Duran, Université de Pau et des Pays de l'Adour, Pau, France
CIRCULAR ECONOMY APPROACH FOR BIOPLASTIC AND LIPIDS PRODUCTION FROM PAPER-SLUDGE USING MICROBIAL COMMUNITIES

1CV.2.23
Luisa BLAESING
TU Bergakademie Freiberg, Institute of Chemical Technology, GERMANY
Co-authors: P. Froehlich, M. Bertau, TU Bergakademie Freiberg, Freiberg, Germany
THE VALORISATION OF LEATHER SHAVINGS BY RECOVERY OF CHROMIUM THROUGH DISINTEGRATIVE PROCESSES

09.00 - 13.00 Delivering on REPowerEU: bringing research and industry closer to accelerate innovation and uptake of biomethane
ROOM MODULAR 2

The unprecedented crisis Europe faces due to Russia's invasion of Ukraine has changed dramatically the global energy market and it has led to an energy crisis with huge negative consequences, bringing the European Union to rethink its energy policy and the future energy system. As a response to this new geopolitical situation, just a few weeks after the war started, the European Commission presented REPowerEU, a plan to rapidly reduce Europe's dependence on Russian fossil fuels.

The plan includes a series of important features, including boosting sustainable biomethane production to 35 bcm/year by 2030. In order to meet this gigantic growing demand, European biogas/biomethane producers and other key players along the value chain (e.g. biogas upgrading, biomethane integration within the gas network) will need to incorporate innovative solutions and continuously be supported by R&I.

09.30 - 13.00 Agrivoltaico e contesti territoriali: idee a confronto
ROOM MODULAR 1

L'EVENTO SI TERRÀ IN ITALIANO

Come pensare sistemi agrivoltaici per diversi contesti territoriali? La sessione di studio intende rispondere a queste ed altre domande attraverso una sessione multi-disciplinare di esperti dal mondo degli enti istituzionali e della ricerca, degli ordini e delle associazioni tecnico-scientifiche professionali e una sessione di discussione aperta con esperti e pubblico.

Break **10.00 - 10.15**

PLENARY SESSION CP.1

10.15 - 11.30 Biomass conversion to bioenergy
AUDITORIUM EUROPA

This plenary session covers some of the latest developments of technologies for the conversion of biomass and includes small-scale biomass combustion bolilers, fluidised bed gasification development from pilot to demonstration scale and the prospects for vastly expanding biogas production in Europe.

CHAIRPERSONS:
Christian THIEL
European Commission, Joint Research Centre, ITALY

Dina BACOVSKY
BEST - Bioenergy and Sustainable Technologies, AUSTRIA

CP.1.1
Ingwald OBERNBERGER
BIOS Bioenergiesysteme, AUSTRIA
Co-author: T. Brunner, BIOS Bioenergiesysteme, Graz, Austria
Keynote presentation
HIGHLIGHTS OF TECHNOLOGY DEVELOPMENT OF SMALL-SCALE PELLET BOILERS AND STOVES AND RESULTING EMISSION REDUCTION POTENTIALS

CP.1.2
David KADLEZ
TU Wien, Institute of Chemical, Environmental and Bioscience Engineering, AUSTRIA
Co-authors: F. Benedikt, K. Fürsatz, S. Müller, H. Hofbauer, TU Wien, Wien, Austria
TECHNOLOGY DEVELOPMENT OF ADVANCED DUAL FLUIDIZED BED STEAM GASIFICATION FROM PILOT TO DEMONSTRATION SCALE

CP.1.3
Jens Bo HOLM-NIELSEN
Aalborg University, Energy Dpt., DENMARK
FIVE TIMES LARGER BIOGAS PRODUCTION IN EUROPE 2030 HOW?

Break **11.30 - 11.45**

ORAL SESSION 1CO.4

11.45 - 12.45 **Biomethane and biofertilizer produced from treated biowaste**
AUDITORIUM EUROPA

This session describes different methods and processes to produce biogas and biomethane, biochar and biofertilizer from treated biowaste such as sewage sludge and digestate.

CHAIRPERSONS:
Pedro HARO
Universidad de Sevilla, SPAIN

Stefano CAPACCIOLI
ETA-Florence Renewable Energies, ITALY

1CO.4.1
Nicolas MARTINEZ
IMDEA Energy, SPAIN
Co-authors: J.L. Gálvez-Martos, S.G. Guerra, P.L.C. Cruz, J.D. Dufour, IMDEA ENERGY, Móstoles, Spain
ANALYSIS OF THE ROLE OF DRY REFORMING OF METHANE WITHIN A WASTE MANAGEMENT AND VALORIZATION SYSTEM

1CO.4.2
Erika SINISGALLI
CRPA, Environment & Energy Dpt., ITALY
Co-authors: M. Garuti, CRPA, Reggio Emilia REeggio Emilia RE, Italy; M. Soldano, S. Piccinini, CRPA, Reggio Emilia RE, Italy
DIGESTATE FROM BIOWASTE: STABILITY EVALUATION OF NEW FERTILIZING MATERIALS

1CO.4.3
Bruna RODRIGUES
Universidade Federal de Viçosa, BRAZIL
Co-authors: C.M.M.E Torres, A.C.O. Carneiro, C.M. Silva, UFV, Viçosa, Brazil
PRODUCTION OF PULVERIZED CHARCOAL WITH SLUDGE FROM KRAFT PULP MILL

1CO.4.4
Jens KITZHOFER
APEX Group, R&D Dpt., THE NETHERLANDS
Co-author: A. Gajda, APEX Group, Voorburg, The Netherlands
HEAT EXCHANGERS IN BIOMASS CHP AND SEWAGE SLUDGE INCINERATION PLANTS

WEDNESDAY 07 JUNE 2023

WED

ORAL SESSION 2CO.5

11.45 - 12.45 **Socio-economic assessment and public acceptance in bioeconomy and bioenergy**
ROOM ITALIA

This session presents socio-economic sustainability issues related to public acceptance of bioenergy and the bioeconomy.

CHAIRPERSONS:
Alexa LUTZENBERGER
ALRENE, GERMANY

Suani COELHO
Julio Romano Meneghini - Processo, BRAZIL

2CO.5.1
Dominik RUTZ
WIP GmbH & Co Planungs, Bioenergy & Bioeconomy Unit, GERMANY
Co-authors: R. Mergner, R. Janssen, WIP Renewable Energies, Munich, Germany; A. Holzmann, K. Schilcher, A. Sahin, Austrian Energy Agency, Vienna, Austria; N. Fenz, U. Höhne, OurPower, Vienna, Austria; A. Nikolaev, M. Trifonova, Black Sea Energy Research Centre, Sofia, Bulgaria; T. Heinel, B.&S.U. Beratungs- und Service-Gesellschaft Umwelt mbH (BSU), Berlin, Germany; B. Dannemann, A. Mohr, Deutscher Genossenschafts- und Raiffeisenverband (DGRV), Berlin, Germany; E. Süle, N. Sumbadze, Association of Young Professionals in Energy of Georgia (AYPEG), Tbilisi, Georgia; S. Robic, T. Simek, REGEA, Zagreb, Croatia; B. Kovács, National Society of Conservationists – Friends of the Earth Hungary (MTVSZ), Budapest, Hungary; B. Lugosi, Reflex Environmental Association (Reflex), Budapest, Hungary
SUPPORTING ENERGY COMMUNITIES IN EUROPE FOR A FAST ENERGY TRANSITION

2CO.5.2
Yara EVANS
Imperial College London, Centre for Environmental Policy, UNITED KINGDOM
Co-author: R. Diaz-Chavez, Imperial College London, United Kingdom
SOCIAL PARTICIPATION IN AND ACCEPTANCE OF THE BIOECONOMY

2CO.5.3
Marino BONAIUTO
Sapienza Università di Roma, ITALY
Co-authors: A. Milani, S. Ariccio, F. Dessi, Sapienza, University of Rome, Italy; F. Fornara, O. Mosca, University of Cagliari, Italy
BELIEFS ABOUT A SUSTAINABLE ENERGY TECHNOLOGY'S FEATURES AND CONTEXT DRIVE ITS ACCEPTABILITY AND ACCEPTANCE: SECOND-GENERATION BIOFUELS WITHIN THE EU CONTEXT

2CO.5.4
Martin JUNGINGER
Utrecht University, Copernicus Institute, THE NETHERLANDS
Co-authors: M. Mutchek, L. Shen, H.M. Junginger, Copernicus Institute of Sustainable Development, Utrecht, The Netherlands
STAKEHOLDER OPINION ON THE CREDIBILITY OF CERTIFICATION SCHEMES AND LABELS FOR BIO-BASED FEEDSTOCKS AND PRODUCTS

Status of 1 June 2023

ORAL SESSION 6CO.6

11.45 - 12.45 **Co-production of biofuels and biochemicals**
ROOM BIANCA

Biorefinery processes provide multiple products, many of which fall into the categories biochemicals and biofuels and in this oral session examples are given for biomethane plus bioplastic co-production, rice straw conversion to ethanol plus sugar substitute, and olive stones valorisation.

CHAIRPERSONS:
Julia WEYAND
DLR, GERMANY

Simone MACCAFERRI
Circular Biobased Europe Joint Undertaking, BELGIUM

6CO.6.1
Rebecca SERNA
University of Padova, ITALY
Co-authors: C. Liberatore, L. Bucci, L. Favaro, T. Morosinotto, L. Treu, S. Campanaro, University of Padova, Padova, Italy; B. Müller, BTS Biogas, Affi, Italy; A. Seco, A. Bouzas, University of Valencia, Valencia, Spain
CO_2 CONVERSION INTO BIOMETHANE AND POLYHYDROXYBUTYRATEB BY CUPRIAVIDUS NECATOR

6CO.6.2
Marlen VERGES
Fraunhofer CBP, Biomass Fractionation Dpt., GERMANY
Co-authors: F. Steffler, R. Hartmann, Fraunhofer CBP, Leuna, Germany
PILOT SCALE EXTRACTION OF OIL FROM RAPESEED USING THE ETHANA PROCESS

6CO.6.3
Camilo Ernesto CABRERA CAMACHO
Technical University of Denmark, Biotechnology and Biomedicine, DENMARK
Co-authors: R.C. de Assis Castro, I.C. Roberto, University of São Paulo, Lorena, Brazil; S.I. Mussatto, Technical University of Denmark, Kongens Lyngby, Denmark
TECHNO-ECONOMIC ASSESSMENT OF RICE STRAW CONVERSION INTO ETHANOL AND XYLITOL

6CO.6.4
Vesna NAJDANOVIC
Aston University, EBRI / Chemical Engineering and Applied Chemistry Dpt., UNITED KINGDOM
Co-authors: J. B. D Osei, A. Amiri, J. Wang, Aston University, Birmingham, United Kingdom
VALORISATION OF OLIVE STONES

WEDNESDAY 07 JUNE 2023

WED

ORAL SESSION ICO.2

11.45 - 12.45 **Biofuels in Africa**
ROOM AVORIO

This session is focussing on the re-emergence of Biofuels in Africa as an opportunity for equitable development. It is against the backdrop of various challenges experienced during the earlier waves of attempts at biofuel production in Africa. Having about 60% of the world's uncultivated arable land, the share of Africa in global food production and sustainable biofuels is relatively low. By adding value to the agricultural and forestry residues, Africa has enormous potential to improve standards of living, agricultural production and also raise her industrialisation level via the vehicle of sustainable biofuels production.

CHAIRPERSONS:
Matthew Oluwaseun OGUNTADE
Greencrystal Engineering, GERMANY

Kyriakos MANIATIS
Former European Commission, DG Energy, EUBCE Industry Coordinator, BELGIUM

ICO.2.1
Tomislav IVANCIC
FAO, ITALY
RESPONSIBLE SOURCING IN BIOFUELS SUPPLY CHAIN AND FEEDSTOCK DEVELOPMENT

ICO.2.2
Christian RAKOS
World Bioenergy Association, AUSTRIA
PELLETS PRODUCTION FROM AGRICULTURAL RESIDUES AND SOLID BIOFUELS PROJECTS DEVELOPMENTS IN AFRICA

ICO.2.3
Rocio DIAZ-CHAVEZ
Imperial College London, Centre for Environmental Policy, UNITED KINGDOM
BIOFUELS PRODUCTION IN AFRICA. A RENEWAL OF THE SECTOR?

ICO.2.4
Gordon AYRES
Southern African biogas industry association, SOUTH AFRICA
ONE STEP FORWARD ONE STEP BACK, OPPORTUNITIES AND CHALLENGES IN THE BIOGAS SPACE IN SOUTHERN AFRICA

Status of 1 June 2023

VISUAL PRESENTATIONS 4CV.3

11.45 - 12.45 **New approaches regarding combustion technology, emission reduction and new fuels**
POSTER AREA

Characterisation and utilisation of new fuels, emissions measurement, new small-scale combustion systems as well as new approaches towards emission reduction will be presented.

CHAIRPERSON:
Marco BARATIERI
Free University of Bolzano, ITALY

4CV.3.1
Thomas ZENG
DBFZ Deutsches Biomasseforschungszentrum gemeinnützige, Thermo-chemical Conversion Dpt., GERMANY
Co-authors: J. Nix, D. Müller, J. Karl, Chair of Energy Process Engineering, Department of Chemical and Bioengineering, Friedrich Alexander-, Nürnberg, Germany; H. Beidaghydizaji, DBFZ Deutsches Biomasseforschungszentrum gemeinnützige GmbH, Leipzig, Germany
EVALUATION OF THE EMISSION AND ASH BEHAVIOR OF A SMALL-SCALE FLUIDIZED BED COMBUSTION SYSTEM FOR THE UTILIZATION OF NON-WOODY SOLID BIOFUELS

4CV.3.2
Peter COLE
University of Sheffield, UNITED KINGDOM
Co-authors: D.F. Curry, W. Nimmo, University of Sheffield, United Kingdom; B. Dannatt, Durham Filtration, Jarrow, United Kingdom
LAB-BASED ASSESSMENT OF INDUSTRIAL FILTRATION MEDIA LONGEVITY FOR PARTICULATE EMISSIONS FROM BIOMASS COMBUSTION

4CV.3.5
Leteng LIN
Linnaeus University, SWEDEN
PARTICULATE MATTER EMISSION REDUCTION VIA AN INNOVATIVE CENTRIFUGAL SCRUBBER RUNNING AT A 3MW BIOMASS FIRED DISTRICT HEATING PLANT

4CV.3.8
Gregory DAVIS
Kettering University, Mechanical Engineering Dpt., USA
Co-authors: A. Mazzei, J. Bastiaan, S. Alasqah, Kettering University, Flint, Usa
REDUCING EMISSIONS FROM SMALL CARBURETED ENGINES WHEN USING A DROP-IN HIGH-BLEND ETHANOL FUEL

4CV.3.9
Enrico PARIS
CREA-IT, ITALY
Co-authors: B. Vincenti, A. Palma, M. Carnevale, F. Gallucci, CREA-IT, Monterotondo, Italy; A.R. Proto, S.F. Papandrea, UNIRC, Reggio Calabria, Italy
MONITORING OF ATMOSPHERIC MARKERS EMITTED BY THE COMBUSTION OF BIOMASS: COMPARISON BETWEEN CITRUS AND OLIVE

4CV.3.10
Francesco GALLUCCI
CREA-IT, ITALY
Co-authors: B. Vincenti, A. Palma, M. Carnevale, E. Paris, CREA-IT, Monterotondo, Italy
PARTICULATE MATTER FRACTIONS SAMPLING FROM BIOMASS BURNING BY A PROTOTYPE DEVICE

4CV.3.11
Adriano PALMA
CREA, Crea-IT, ITALY
Co-authors: B. Vincenti, M. Salerno, E. Paris, M. Carnevale, F. Gallucci, CREA, Monterotondo, Italy; A. Tonolo, MASAF, Rome, Italy
INVESTIGATION OF THE RELATIONSHIP BETWEEN PARTICLE EMISSIONS AND COMBUSTION CONDITIONS DURING WOOD PELLET COMBUSTION

4CV.3.12
Suani COELHO
Julio Romano Meneghini - Processo, BRAZIL
Co-authors: M. Mariano Dos Santos, T. Colombo Celso Gaeta, University of São Paulo, Brazil
CO_2 CAPTURE TECHNICAL POTENTIAL IN THE SUGAR AND ETHANOL SECTOR IN THE SÃO PAULO STATE

4CV.3.13
Andreas HUFT
Fraunhofer Institute for Environmental, Safety, and Energy Technology UMSICHT, Process Engineering Dpt., GERMANY
Co-authors: L.H. Harloff, E.S. Stahl, Fraunhofer Institute for Environmental, Safety, and Energy Technology UMSICHT, Oberhausen, Germany
UTILIZATION OF FOLIAGE - CLOSED LOOP RECYCLING AND ENERGETIC POTENTIAL ON MUNICIPAL LEVEL

4CV.3.15
Thorben DE RIESE
Technical University of Munich, Chair of Energy Systems, GERMANY
Co-authors: S. Fendt, H. Spliethoff, Technical University of Munich, Garching b. München, Germany
TOWARDS A MODEL FOR THE PREDICTION OF AEROSOL MITIGATION IN POWER PLANTS USING SOLID ADDITIVES

4CV.3.16
Edson BAZZO
Federal University of Santa Catarina, Department of Mechanical Engineering, BRAZIL
Co-authors: M. Sousa, Federal University of South and Southeast of Pará, Marabá, Brazil; L. Cancino, Federal University of Santa Catarina, Joinville, Brazil
MODELING OF POROUS MEDIA IN A RECIPROCATING GRATE FURNACE OF A 3MW BOILER BURNING EUCALYPTUS CHIPS

VISUAL PRESENTATIONS 3CV.4

11.45 - 12.45 **Biogas, Regional Energy Transition and Renewable Heat**
POSTER AREA

The posters in this session deal with biomass integration in energy systems, for example biogas and biomethanation, combined heat and power, and district heating.

CHAIRPERSONS:
Luc PELKMANS
IEA Bioenergy, BELGIUM

Heinz A. OSSENBRINK
Former Head of Unit of European Commission, Joint Research Centre, ITALY

3CV.4.2
Beethoven NARVÁEZ-ROMO
Fundação de Apoio a Universidade de São Paulo, BRAZIL
Co-authors: D. Perecin, A. Gutierrez-Gomez, S. Coelho, J. Meneghini, USP, Sao Paulo, Brazil
INTEGRATED APPRAISAL OF SUGARCANE BIOREFINERIES FOR GREEN HYDROGEN PRODUCTION IN THE BRAZILIAN CASE

3CV.4.3
Steffen LAUTERBACH
Technische Hochschule Ingolstadt, Institute of new Energy-Systems (InES), GERMANY
Co-author: M. Goldbrunner, Technische Hochschule Ingolstadt, Ingolstadt, Germany
COMBINATION OF PRESSURIZED WATER SCRUBBING WITH BIOLOGICAL METHANATION PROCESS FOR UPGRADING BIOGAS PLANTS - PROJECT OVERVIEW AND SIMULATION

3CV.4.4
Giovanna GONZALES CALIENES
National Research Council Canada, CANADA
Co-authors: M. Kannangara, F. Bensebaa, National Research Council Canada, Ottawa, Canada
TECHNO-ECONOMIC AND LIFE-CYCLE ASSESSMENT OF FOREST RESIDUE SUPPLY CHAIN AND COMBINED HEAT POWER GENERATION IN RURAL COMMUNITIES: A CASE STUDY IN CANADA

3CV.4.6
Tapio RANTA
LUT University, School of Energy Systems, FINLAND
Co-authors: A. Karhunen, M. Laihanen, LUT University, Lappeenranta, Finland
IMPACT OF WOODY BIOMASS USE ON THE COMPETITIVENESS OF DISTRICT HEATING PRODUCTION

3CV.4.7
Farbod FARZI
Université de Sherbrooke, Chemical Engineering Dpt., CANADA
Co-authors: I.E.A. Achouri, O.C. Chaib, N.A. Abatzoglou, Université de Sherbrooke, Sherbrooke, Canada
LIGNOCELLULOSIC BIOMASS VALORISATION BY TECHNOLOGICAL COUPLING OF ANAEROBIC DIGESTION/STEAM EXPLOSION PROCESS

WEDNESDAY 07 JUNE 2023

WED

3CV.4.10
Michel DELANAYE
MITIS SA, BELGIUM
Co-authors: T. Ridolfi, S. Capaccioli, ETA Florence, Florence, Italy; S. Lokke, Aalborg University, Aalborg, Denmark; M. Delanaye, MITIS, Liege, Belgium; B. Van De Beld, BTG-Biomass Technology Group, Enschede, The Netherlands; H. Korteweg, COGEN Europe, Brussels, Belgium; W. De Paepe, University of Mons, Mons, Belgium; R. Hermann, Fahrenheit, Munchen, Germany; G. Fuldner, Fraunhofer ISE, Friburg, Germany; S. Harboe-Minwegen, OWI Aachen, Aachen, Germany
FIT4MICRO: CLEAN AND EFFICIENT MICROCHCP BY MICRO TURBINE-BASED HYBRID SYSTEMS

3CV.4.13
Anes KAZAGIC
JP Elektroprivreda, Strategic Development Dpt., BOSNIA AND HERZEGOVINA
Co-authors: N. Ganibegovic, A. Brcaninovic, A. Mesic, J. Fazlic, I. Dzananovic, M. Music, Public Enterprise Electric Utility of Bosnia and Herzegovina, Bosnia And Herzegovina
EXPERIMENTAL BIOMASS CO-FIRING STUDIES ON 226 MWE CHP TUZLA UNIT 6

3CV.4.15
Cédric FRANTZ
EPFL, Group of Energy Materials, SWITZERLAND
Co-authors: Y. Hanria, L. Rumpf, M. Mensi, J. Van Herle, EPFL, Sion, Switzerland; M. Janák, C.R. Müller, ETHZ, Zürich, Switzerland
BIOGAS-REFORMING CATALYSTS DEACTIVATION MECHANISMS OF NI-FE AND RU-EXSOLUTION DURING PROLONGED EXPOSURE TO H2S AND DMS CONTAMINANTS

3CV.4.16
Cédric FRANTZ
EPFL, Group of Energy Materials, SWITZERLAND
Co-authors: L. Schucan, L. Savioz, S. Diethelm, P. Aubin, J. Van Herle, EPFL, Sion, Switzerland; D. Montinaro, SolydEra SA, Yverdon-les-Bains, Switzerland; F. Mittmann, Sunfire GmbH, Dresden, Germany
TESTING OF SOLID OXIDE FUEL CELLS FED WITH DRY AND STEAM REFORMED BIOGAS WITH HYDROGEN SULFIDE AND DIMETHYL SULFIDE CONTAMINANTS

3CV.4.17
Nicolai David JABLONOWSKI
Forschungszentrum Jülich, IBG-2: Plant Sciences, GERMANY
Co-authors: B. Ohrem, Forschungszentrum Jülich, Institute of Bio- and Geosciences, IBG-2: Plant SciencesForschungszentrum, Jülich, Germany; M. Gitzen, ForschungForschungszentrum Jülich, Institute of Bio- and Geosciences, IBG-2: Plant Sciences, Jülich, Germany; A. Soares Giroto, R. Borges, P. M. Grande, H. Klose, Forschungszentrum Jülich, Institute of Bio- and Geosciences, IBG-2: Plant Sciences, Jülich, Germany; M. Von Cossel, Biobased Resources in the Bioeconomy (340b), Institute of Crop Science, University of Hohenheim, Stuttgart, Germany
SMART FERTILIZATION FOR TAILORED VALORIZATION OF TALL WHEATGRASS BIOMASS

3CV.4.18
Pietro SIDOLI
Università di Bologna, ITALY
Co-authors: P. Haro, K. Guerra, Universidad de Sevilla, Sevilla, Spain
IMPLEMENTATION AND ECONOMIC ESTIMATION OF BIOMASS TECHNOLOGIES FOR HYDROGEN PRODUCTION: A CASE STUDY OF ANDALUSIAN REFINERY

Status of 1 June 2023

3CV.4.19
Jongseo LEE
Agency for Defense Development, REPUBLIC OF KOREA
Co-authors: S. Han, S. Park, Agency for Defense Development, Daejeon, South Korea
DIRECT CONVERSION OF RAW BIOMASS TO ELECTRICITY WITH FLOW FUEL CELL USING POLYOXOMETALATE ELECTRON MEDIATORS

3CV.4.20
João CARDOSO
Instituto Politécnico de Portalegre, Mechanical Engineering Dpt., PORTUGAL
Co-authors: V. Silva, PolytePolytechnic Institute of Portalegrechnic Institute of Portalegre/CESAM, Portalegre, Portugal; J. Chavando, Polytechnic Institute of Portalegre/CESAM, Portalegre, Portugal; D. Eusébio, Polytechnic Institute of Portalegre, Portalegre, Portugal; M. Hall, University of Texas at Austin, Austin, TX, Usa
BIOMASS AND AMMONIA CO-FIRING: A NUMERICAL ANALYSIS FOR COAL PHASE-OUT

3CV.4.21
Vittor ALVES
Karlsruher Institut für Technologie, GERMANY
Co-authors: D. Meyer, R. Moreira, A.P. de Souza Silva, A. Ushima, Institute of Technological Research, São Paulo, Brazil; K. Raffelt, Karlsruhe Institute of Technology, Karlsruhe, Germany
THERMOCHEMICAL BIOMASS CONVERSION PROCESS IN A SMALL-SCALE FLUIDIZED BED REACTOR: FAST PYROLYSIS OF EUCALYPTUS WOOD CHIPS AND GASIFICATION OF SUGARCANE STRAW

3CV.4.22
Charley Michelle FLACH
Institut für neue Energie-Systeme, GERMANY
Co-author: M.G. Goldbrunner, Institut für neue Energie-Systeme (InES), Ingolstadt, Germany
DIRECT METHANATION AND STORAGE CONCEPTS FOR THE FLEXIBILIZATION OF BIOGAS PLANTS

3CV.4.23
Uwe BEHMEL
HAW Landshut, GERMANY
Co-author: J. Blattenberger, HAW Landshut, Landshut, Germany
CIRCULAR ECONOMY SOLUTIONS FOR SMALL COMMUNITIES OR FARMS

3CV.4.24
Pietro MELE
University of Rome Tor Vergata, Industrial Engineering Dpt., ITALY
Co-authors: S. Cordiner, V. Mulone, L. Bartolucci, University of Rome Tor Vergata, Rome, Italy
VALORIZATION OF MEDITERRANEAN AGRO-INDUSTRIAL WASTE THROUGH FAST PYROLYSIS INTO BIO-ENERGY CARRIERS: A HAZELNUT SHELL/OLIVE POMACE CASE STUDY

3CV.4.25
Giorgos KARDARAS
CPERI/CERTH, GREECE
Co-authors: Tz. Kraia, K.D. Panopoulos, CPERI/CERTH, Thermi, Thessaloniki, Greece
A NOVEL HYBRID RENEWABLE ENERGY SYSTEM FOR SMALL DECENTRALIZED COMMUNITIES

3CV.4.26
Arthur WAEBER
EPFL, Energy Science & Technology Dpt., SWITZERLAND
OPTIMAL INTEGRATION OF THE CLEAN CARBON CONVERSION GASIFICATION PLANT IN A DISTRICT HEATING NETWORK

Break **12.45 - 13.45**

PLENARY SESSION CP.2

13.45 - 14.45 **Bumpy Road Ahead: Preparing for the Updated Renewable Energy Directive**
AUDITORIUM EUROPA

This plenary session explains the impact of the recent EU legislation on the bioenergy sector, the state of play on the political level, and the views of industry while exploring how the legislation will be implemented and what impacts this is likely to have in the future.

CHAIRPERSON:
Daniel REINEMANN
Bioenergy Europe, BELGIUM

Speakers:

A. Arellano
Sustainable Resources Verification Scheme, Germany

A. Cinotti
Renantis SpA, Italy

Break **14.45 - 15.00**

ORAL SESSION 5CO.7

15.00 - 16.00 **Valorisation of Pyrolysis Products**
AUDITORIUM EUROPA

This session deals with the valorisation of pyrolysis products in general. There are aspects like bio char application, bio-oil upgrading by catalysts and by the IH2 technology.

CHAIRPERSONS:
Beatrice VINCENTI
CREA, ITALY

Tim SCHULZKE
Fraunhofer UMSICHT, GERMANY

5CO.7.1
Aravind GANESAN
Université du Québec à Trois-Rivières, Pulp, Paper and Forest Products Dpt., CANADA
Co-authors: O. Rezazgui, J. Barco Burgos, P. J. Mangin, UQTR, Trois-Rivieres, Canada
EUBCE Student Awardee Presentation
VALORIZATION OF WASTE LIGNOCELLULOSE BIOMASS RESIDUES SEQUESTERED FROM QUEBEC'S LA TUQUE FORESTS INTO RENEWABLE BIOFUELS FOR LONG-HAUL TRANSPORTATION SECTORS VIA THE IH2 TECHNOLOGY (PROJECT B.E.L.T)

5CO.7.2
Mariana Myriam CAMPOS FRAGA
KIT, IKFT Dpt., GERMANY
Co-authors: J. Vogt, C. C. Schmitt, K. Raffelt, N. Dahmen, KIT, Eggenstein-Leopoldshafen, Germany
NBOPO4 AS A CATALYST SUPPORT FOR PYROLYSIS OIL UPGRADING - BETWEEN ACID SITES, SUPPORT-METAL INTERACTION AND OIL PROPERTIES

5CO.7.3
Yang ZHANG
Luleå University of Technology, SWEDEN
Co-author: K. Umeki, Luleå University of Technology, Luleå, Sweden
ENHANCING BIO-CARBON PRODUCTION FROM BIOMASS PYROLYSIS BY INTERNAL RECIRCULATION OF BIO-OIL

5CO.7.4
Christopher KICK
Fraunhofer UMSICHT, Advanced Carbon Cycle Technologies, GERMANY
Co-authors: P. Peetz, A. Apfelbacher, M. Meiller, R. Daschner, A. Hornung, Fraunhofer UMSICHT, Sulzbach-Rosenberg, Germany
DEVELOPMENT AND COMMISSIONING OF AN INNOVATIVE BIOREFINERY FOR THE CONVERSION OF CONTAMINATED BIOMASS INTO HIGH-QUALITY ENERGY CARRIERS

ORAL SESSION 2CO.8

15.00 - 16.00 **Resource efficiency in bioeconomy**
ROOM ITALIA

This session is focusses on approaches, technologies and evaluations that support the transition to more circular systems in bioeconomy.

CHAIRPERSONS:
Rocio DIAZ-CHAVEZ
Imperial College London, UNITED KINGDOM

Wolter ELBERSEN
Wageningen Research, THE NETHERLANDS

WEDNESDAY 07 JUNE 2023

WED

2CO.8.1
Luigi PARI
CREA- Council for Agricultural Research and Economics, Centro di ricerca Ingegneria e Trasformazioni agroalimentari, ITALY
Co-authors: W. Stefanoni, S. Bergonzoli, P. Cozzolino, S. Lazar, CREA- Council for Agricultural Research and Economics, Monterotondo RM, Italy; S. Lahbouki, A. Meddich, Center of Agrobiotechnology and Bioengineering, Research Unit Labelled CNRST, Marrakech, Morocco; A. Outzourhit, Department of Biology, Faculty of Science Semlalia, Cadi Ayyad University, Marrakech, Morocco; A.L. Fernando, MEtRICs, Departamento de Ciências e Tecnologia da Biomassa, Faculdade de Ciências e Tecnologia, Univ, Lisboa, Portugal
A SUBSURFACE WATER RETENTION SYSTEM TO COLLECT RAINWATER FOR INCREASING FOOD PRODUCTION AND COMBAT DESERTIFICATION

2CO.8.2
Sylvain MARSAC
ARVALIS, R&D Dpt., FRANCE
Co-authors: N. Dagorn, T. Monicard, ARVALIS - Institut du Végétal, Baziège, France; A. Olou, G. Oudoire, ARVALIS - Institut du Végétal, Boigneville, France; A. Damiano, H. Kech, AILE, Rennes, France; L. Bes de Berc, AAMF, Paris, France; C. Richard, ENGIE, Stains, France; H. Guerault, CRA Pays de Loire, Angers, France; U. Batel, Oxyane, Pusignan, France; C. Grandeur, EURALIS, Lescar, France; T. Roux, CAVAC, La Roche sur Yon, France
ECONOMIC BALANCE AND INTEGRATED ASSESSMENT OF FOOD/FEED CROPS AND ENERGY COVER CROPS IN DOUBLE CROPPING SYSTEMS FOR ON FARM BIOGAS PRODUCTION

2CO.8.3
Ana Luisa FERNANDO
Universidade Nova de Lisboa, Chemistry Dpt., PORTUGAL
Co-authors: S. Boléo, B. Barbosa, Universidade Nova de Lisboa, Caparica, Portugal; J. Costa, ISEC, Lisbon, Portugal
TOWARDS A GREEN ECONOMY - PERENNIAL GRASSES PRODUCTION OPPORTUNITIES AND CONSTRAINTS IN HEAVY METALS CONTAMINATED SOILS UNDER DIFFERENT IRRIGATION REGIMES

2CO.8.4
Tamara FERNÁNDEZ ARÉVALO
CEIT, SPAIN
Co-authors: M. Mendiola, CTIC-CITA, Alesón, La Rioja, Spain; A. Podhorski, TECNUN, Donostia - San Sebastián, Spain; L. Sijtsma, WFBR, Wageningen, The Netherlands; E. Maron, CELABOR, Chaineux, Belgium; L. Papista, CluBE, Kozani, Greece; M. Diaz, FOOD+i, Calahorra, Spain; M. Uyttebroek, Flanders' FOOD, Brussels, Belgium; M. Obermeier, ESCI, Oldenburg, Germany; K.G. Sakellariou, DIADYMA, Kozani, Greece
MODEL2BIO. MODELLING TOOL FOR GIVING VALUE TO AGRI-FOOD RESIDUAL STREAMS IN BIO-BASED INDUSTRIES

Status of 1 June 2023

ORAL SESSION 4CO.9

15.00 - 16.00 **Innovative combustion concepts and novel modelling approaches**
ROOM BIANCA

New combustion technologies as well as novel modelling approaches are described for combustion systems using gaseous, liquid and solid biomass fuels, and will include a novel looping technology to achieve negative emissions.

CHAIRPERSONS:
Ingwald OBERNBERGER
BIOS Bioenergiesysteme, AUSTRIA

Thomas ZENG
DBFZ Deutsches Biomasseforschungszentrum gemeinnützige, GERMANY

4CO.9.1
Johannes HAIMERL
Chair of Energy Systems, Technical University of Munich, GERMANY
Co-authors: S. Fendt, H. Spliethoff, Chair of Energy Systems, Technical University of Munich, Garching b. München, Germany
MODELLING AND ANALYSIS OF NOX FORMATION PATHS FOR PULVERIZED BIOMASS COMBUSTION

4CO.9.2
Martin HAAF
Sumitomo SHI FW, R&D and Patents Dpt., FINLAND
Co-authors: B. Arias, M.E. Diego, C. Abanades, CSIC-INCAR, Oviedo, Spain; M. Magdeldin, Sumitomo SHI FW, Espoo, Finland; E. Coda Zabetta, Sumitomo SHI FW, Varkaus, Finland; M. Lorenzo, E. DelaLlera, HUNOSA, Oviedo, Spain
CALCIUM LOOPING USING CFB TECHNOLOGY TO ACHIEVE NEGATIVE EMISSIONS IN BIOMASS-FIRED POWER PLANTS

4CO.9.3
Martina BLANK
BIOS Bioenergiesysteme, AUSTRIA
Co-author: I. Obernberger, BIOS Bioenergiesysteme, Graz, Austria
NOVEL PACKED-BED CFD MODEL FOR PELLET COMBUSTION: VALIDATION AND APPLICATION TO A STOVE

4CO.9.4
Invited

WEDNESDAY 07 JUNE 2023

WED

ORAL SESSION ICO.3

15.00 - 16.00 **Setting up the scene for the biomethane market in Europe**
ROOM AVORIO

In response to the difficulties and disruptions of the global energy market, the European Commission recently presented the REPowerEU plan which, among other things, aims to support the objective of increasing the annual production and use of biomethane to 35 billion cubic meters by 2030. Thanks to this European plan, it will be possible to reduce the dependence on natural gas in a cost-effective way. At the same time, it will be possible to contribute to the creation of an integrated energy system with net zero emissions, the diversification of farmers' incomes and a circular approach. Given the importance of this challenge, important players in the biomethane sector have been involved in the Industry Track of EUBCE who will bring their experience and their commitment aimed at achieving the objective REPowerEU plan.

CHAIRPERSONS:
Lorenzo MAGGIONI
Lorenzo Maggioni, ITALY

Myrsini CHRISTOU
Center for Renewable Energy Sources and Saving, GREECE

Speakers:

G. Cancian
EBA, Belgium

M. Gius
Biogas Wipptal, Italy

L. Brega
Prodeval Sas, France

D. Macor
EDISON Energia, Business Dpt., Italy

VISUAL PRESENTATIONS 4CV.5

15.00 - 16.00 **Biogas research and innovation (I)**
POSTER AREA

This poster session contains a variety of reports from projects, including gas cleaning, nutrient removal, ex-situ biomethanation, plant maintenance and the impact on methane losses, mixed feedstock for enhancing methane production and the performance of various feedstocks in the AD process.

CHAIRPERSONS:
Jens Bo HOLM-NIELSEN
Aalborg University, DENMARK

Dominik RUTZ
WIP GmbH & Co Planungs, GERMANY

Status of 1 June 2023

4CV.5.5
Vanja JURISIC
University of Zagreb Faculty of Agriculture, Agricultural Technology, Storing and Transport Dpt., CROATIA
Co-authors: G.D. Zupancic, G. Lukic, M. Panjicko, Sustainable Technologies Development Centre Ltd, Zagreb, Croatia; K. Spelic, N. Bilandzija, A. Matin, T. Kricka, University of Zagreb Faculty of Agriculture, Zagreb, Croatia
A COMPARATIVE ANALYSIS OF BIOGAS/BIOMETHANE POTENTIAL AND BIODEGRADABILITY OF CORN SILAGE AND ARUNDO DONAX L. IN THE MESOPHILIC CONTINUOUS ANAEROBIC DIGESTION SYSTEMS

4CV.5.6
Oliver HURTIG
European Commission, JRC, ITALY
Co-authors: M. Buffi, N. Scarlat, European Commission, JRC, Ispra, Italy; A. Agostini, Italian National Agency for New Technologies, Energy and the Environment, ENEA, Bologna, Italy; C. Carbone, Italian National Agency for New Technologies, Energy and the Environment, ENEA, Rome, Italy
BIOMETHANE LOSSES IN MODERN BIOGAS PLANTS: COST EFFECTIVENESS OF A DETECTION AND REPAIR PROGRAMME

4CV.5.7
Ana MATIN
University of Zagreb Faculty of Agriculture, Agricultural Technology, Storing and Transport Dpt., CROATIA
Co-authors: K. Spelic, M. Kontek, M. Grubor, N. Bilandzja, T. Kricka, V. Jurisic, University of Zagreb Faculty of Agriculture, Croatia
THE POSSIBILITY OF USING PANICUM VIRGATUM AS RAW MATERIAL FOR BIOGAS PRODUCTION CONSIDERING THE HARVEST TIME

4CV.5.9
Si-Kyung CHO
Dongguk University, REPUBLIC OF KOREA
Co-author: T. Ajay, Dongguk University, Goyang, Nepal
DEVELOPMENT OF A NOVEL GRAPHENE OXIDE COATED CARRIER FOR ENHANCED EX-SITU BIOMETHANATION

4CV.5.11
Bernhard HUBER
TU München, Regenerative Energiesysteme Dpt., GERMANY
Co-author: M. Gaderer, TU München, Straubing, Germany
POSITIONING PROPOSALS FOR SENSORS WHICH MONITOR AGITATION EFFICIENCY AND MIXING QUALITY IN BIOGAS FERMENTERS

4CV.5.14
Matteo FRANCAVILLA
University of Foggia, Agriculture, Food and Environmental Science Dpt., ITALY
Co-authors: P. Marasco, M. Marone, A. Carnevale, University of Foggia, Foggia, Italy; S. Trotta, M. Salvatori, M. Fedele, Sistemi Energetici SpA, Foggia, Italy
EFFICIENT BIOGAS DESULFURIZATION BY MEANS CARBONACEOUS MATERIALS DERIVED FROM BIOWASTES

WEDNESDAY 07 JUNE 2023

WED

4CV.5.16
Rashmi IRA
Indian Institute Of Technology Mandi, School of Biosciences and Bioengineering, INDIA
Co-authors: V. Sharma, S. Kumar, M. Koul, L. Sharma, A. Halder, T. Prakash, Indian Institute Of Technology Mandi, Mandi, India
DESIGNING SYNTHETIC MICROBIAL CONSORTIA FOR BIOHYTHANE PRODUCTION USING "COW DUNG" AS A SUBSTRATE AND EVALUATING MICROBIAL DYNAMICS BY METAGENOMIC PROFILING

4CV.5.17
Radziah WAHID
Antec Biogas AS, Research and Development Dpt., NORWAY
Co-author: E. Govasmark, Antec Biogas AS, Oslo, Norway
INCREASING THE HYDROLYSIS OF FISH WASTES BY A BIOLOGICAL PRE-TREATMENT APPROACH

4CV.5.18
Josef HOFFMANN
University of Applied Sciences Landshut, Faculty of Mechanical Engineering, GERMANY
Co-authors: J. Hofmann, V. Hidalgo-Sanchez, U. Behmel, T. Wainz, J. Blattenberger, C. Pritscher, W. Fischer, D. Hehenberger-Risse, University of Applied Sciences Landshut, Landshut, Germany; T. Finsterwalder, K. Finsterwalder, Finsterwalder Umwelttechnik GmbH, Bernau/Chiemsee, Germany
A NOVEL TYPE OF SMALL-SCALE BIOGAS PLANTS WITH TEXTILES

4CV.5.19
Josef HOFMANN
University of Applied Sciences Landshut, Faculty of Mechanical Engineering, GERMANY
Co-authors: V. Hidalgo Sánchez, M.E.B. Borges Chinea, University of La Laguna, La Laguna, Spain; D. Cuñarro, University of La Laguna, La Laguna, Spain; T. Finsterwalder, Finsterwalder Umwelttechnik GmbH & Co. KG, Bernau am Chiemsee, Germany
BIOGAS POTENTIAL ON THE ISLAND OF TENERIFE WITH THE BIODEGRADABLE FRACTION FROM HOTELS` WASTE

VISUAL PRESENTATIONS 3CV.6

15.00 - 16.00 **Biorefineries and their concepts**
POSTER AREA

This poster sessions contains an array of reports from projects covering integrated biorefineries and biorefining concepts where the main focus is on the production of biochemicals, but also biofuels.

CHAIRPERSON:
Maria GEORGIADOU
European Commission, DG RTD, BELGIUM

3CV.6.2
Stephanie FJÄLL
RISE, SWEDEN
Co-author: J. Olsson, RISE, Lund, Sweden
AGRICULTURAL BIOREFINERY - CASE STUDY ON LOCAL SCALE

Status of 1 June 2023

3CV.6.3
Miguel ALBA
University of Seville, Chemical and Industrial Engineering Dpt., SPAIN
Co-authors: L. Romero-Piñeiro, B. Alonso-Fariñas, P. García, University of Seville, Seville, Spain; S. Moreno, European Comission, Seville, Spain
DEVELOPMENT OF A TOOL FOR THE TECHNO-ECONOMIC EVALUATION OF GREEN HYDROGEN PRODUCTION AND INTEGRATION INTO EXISTING REFINERIES

3CV.6.4
Eric ROVIRA CAL
CEIT, SPAIN
Co-authors: L. Sancho, T. Fernández-Arévalo, CEIT, Donostia - San Sebastián, Spain; J.A.C. Verbokkem, M.A.W. Budde, L. Sijtsma, Wageningen University & Research, Wageningen, The Netherlands; E. Maron, C. Malterre, CELABOR, Herve, Belgium
POTATO PEELS BIOREFINERY FOR BIO-BASED CHEMICALS AND NUTRITIONAL COMPOUNDS PRODUCTION

3CV.6.5
Daniela GODINA
Latvian State Institute of Wood Chemistry, LATVIA
Co-authors: M. Puke, P. Brazdausks, Latvian State Institute of Wood Chemistry, Riga, Latvia; I. Filipova, Latvian SLatvian State Institute of Wood Chemistrytate Institute of Wood Chemistry, Riga, Latvia
OAT HUSKS AS A POTETIAL BIOMASS FOR A NOVEL BIO-REFINING METHOD FOR OBTAINING 2-FURALDEHYDE, ACETIC ACID AND NANOFIBRILATED LIGNOCELLULOSIC MATERIAL

3CV.6.7
Hsiao Kai CHU
Institute of Nuclear Energy Research, Chemistry Division, TAIWAN
Co-authors: Y.C. Lin, Institute of Nuclear Energy Research, TaoyuTaoyuan an City, Taiwan; C. M. Ou, G.L. Guo, H.J. Wei, Institute of Nuclear Energy Research, Taoyuan City, Taiwan
MULTIPLE APPLICATIONS OF AGRICULTURAL RESIDUES BIOREFINERIES FOR BIOCHEMICAL PRODUCTION

3CV.6.12
Yoongyo LEE
Bioenergy Research Center, REPUBLIC OF KOREA
Co-authors: Y. Lee, Y. Song, H. Bae, Bioenergy Research Center, Gwangju, South Korea
INCREASED PECTINASE PRODUCTION BY ASPERGILLUS ACULEATUS AFTER DOUBLE DELETION OF CREA AND CREB INVOLVED IN CARBON CATABOLITE REPRESSION

3CV.6.14
Andreas ZIMMERMANN
Hamburg University of Technology, Process Engineering Dpt., GERMANY
Co-author: M. Kaltschmitt, Hamburg University of Technology, Hamburg, Germany
RECOVERY OF PREBIOTIC CARBOHYDRATES FROM SIDE STREAMS OF BIOREFINERIES EXEMPLIFIED BY FRUCTANS AND PENTOSANS FROM BIOETHANOL THIN STILLAGE

3CV.6.15
Fernanda THIMOTEO AZEVEDO JORGE
AgroParisTech, FRANCE
Co-authors: A. Sant'Ana da Silva, Instituto Nacional de Tecnologia, Rio de Janeiro, Brazil; G. Victor Brigagão, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil
AÇAÍ WASTE VALORIZATION VIA MANNOSE AND POLYPHENOLS PRODUCTION: TECHNO-ECONOMIC AND ENVIRONMENTAL ASSESSMENT

WEDNESDAY 07 JUNE 2023

WED

3CV.6.16
Hanseob JEONG
National Institute of Forest Science, REPUBLIC OF KOREA
Co-authors: S. Jang, J. Lee, S. Lee, National Institute of Forest Science, Seoul, South Korea
EVALUATION OF SUGAR AND FURFURAL PRODUCTION POTENTIAL USING DOMESTIC FOREST RESIDUE FROM SUSTAINABLE FOREST MANAGEMENT

3CV.6.17
Luis VELAZQUEZ-ARAQUE
University of Guayaquil, Chemical Engineering Dpt., ECUADOR
Co-authors: A. Ordóñez Chávez, M. Cárdenas Calle, University of Guayaquil, Guayaquil, Ecuador
PRODUCTION OF ACTIVATED CARBON FROM COCOA POD HUSKS AND BANANA PEELS USING H_3PO_4 AND H_2SO_4 AS ACTIVATING AGENTS

3CV.6.18
Sebastian SANCHEZ VILLASCLARAS
University of Jaén, Chemical Engineering, Environmental and Materials Dpt., SPAIN
Co-authors: S. Mateo, E. Robles, S. Sánchez Villasclaras, A. J. Moya, University of Jaén, Spain; G. Fabbrizi, A. Nicolini, University of Perugia, Italy
MICROWAVE ASSISTED ORGANOSOLV PRETREATMENT OF OLIVE TREE PRUNING AND CARDOON STALKS TO OBTAIN CELLULOSE

3CV.6.19
Hyunjin JUNG
Sugaren Co., Laboratory Dpt., REPUBLIC OF KOREA
Co-authors: H. Ryu, Sugaren Co.,Ltd., Gyeonggi-do, South Korea; K.K. Oh, Sugaren Co.,Ltd., Department of Chemical Engineering, Dankook University., Gyeonggi-do, South Korea
ALKALINE FRACTIONATION OF RICE HUSK FOR CONCOMITANT PRODUCTION OF NANO-STRUCTURED SILICA, BIO-SUGAR, AND FURFURAL

3CV.6.20
Liam MANNION
Trinity College Dublin, School of Physics Dt., IRELAND
Co-authors: A. Bell, T.W. Murphy, S. Dooley, M.R. Ghanni, Trinity College Dublin, Dublin, Ireland
VARIATIONS IN HYDROPROCESSED RENEWABLE JET (HRJ) SUSTAINABLE AVIATION FUEL (SAF) PRODUCTION EMISSIONS BY CHEMICAL COMPOSITION OF VEGETABLE OIL FEEDSTOCKS

3CV.6.21
Stanislav RUDNYCKYJ
Aalborg University, Energy Dpt., DENMARK
Co-authors: T. Chaturvedi, M.H. Thomsen, Aalborg University, Esbjerg, Denmark
LOW-DOSAGE ENZYMATIC DECOMPOSITION OF OFMSW FOR SUGAR RECOVERY AND ETHANOL PRODUCTION

3CV.6.22
Aadila CAYENNE
Hochschule Flensburg University of Applied Sciences, GERMANY
Co-authors: M. Monção, L. Matsakas, Department of Civil, Environmental and Natural Resources Engineering, Luleå Tekniska Universitet, Luleå, Sweden; M.H. Thomsen, Department of Energy Technology, Aalborg University, Esbjerg, Denmark; H. Uellendahl, Hochschule Flensburg University of Applied Sciences, Flensburg, Germany
INCREASING THE BIOCHEMICAL METHANE POTENTIAL OF SALICORNIA DOLICHOSTACHYA BY ORGANOSOLV FRACTIONATION IN A HALOPHYTE BIOREFINERY

Status of 1 June 2023

15.00 - 18.20 **Sustainability certification of bio-based products**
ROOM MODULAR 1

With the increasing shift from fossil to bio-based products; safeguarding the sustainability of biobased products and their compliance with a variety of European policy objectives is becoming an important topic.

The Horizon Europe projects HARMONITOR, STAR4BBS and SustCert4BioBased assess certification schemes and labels (CSLs) and their use to ascertain the sustainability of bio-based products in the European Union.

15:30 - 17:00 **La filiera Bosco-Legno-Energia**
ROOM MODULAR 2

FIPER propone a EUBCE una conferenza di restituzione dei risultati di due progetti di cui è partner, il progetto USEFOL e il progetto europeo BeCOOP, entrambi incentrati su aspetti specifici della filiera bosco-legno-energia.

Il progetto USEFOL (Approcci innovativi per la valutazione della fornitura di servizi ecosistemici in foreste lombarde) è finanziato dalla Regione Lombardia e si prefigge di realizzare un modello di calcolo, integrato con sistemi informativi geografici (GIS) e con database disponibili in Regione Lombardia, per classificare e fornire informazioni a livello di singola particella forestale in termini di biomassa legnosa prelevabile e di carbonio stoccato, il tutto grazie alla ricerca dei dipartimenti DISAA dell'Università di Milano e DISAFA dell'Università di Torino.

Break **16.00 - 16.15**

ORAL SESSION 5CO.10

16.15 - 17.15 **Fundamental Pyrolysis**
AUDITORIUM EUROPA

The session focusses on fundamental pyrolysis investigations like modelling, impact due to process design and upgrading procedures by etherification.

CHAIRPERSONS:
Yukihiko MATSUMURA
Hiroshima University, JAPAN

Jaap KIEL
TNO, THE NETHERLANDS

5CO.10.1
Sabah MARIYAM
Hamad Bin Khalifa University, Division of Sustainable Development, QATAR
Co-authors: M. Alherbawi, T. Al-Ansari, G. Mckay, Hamad Bin Khalifa University, Doha, Qatar
BIOENERGY POTENTIAL OF DAIRY MANURE VIA PYROLYSIS: EFFECT OF OPERATING CONDITIONS ON THE KINETIC TRIPLET AND PRODUCT YIELDS

5CO.10.2
Tim SCHULZKE
Fraunhofer UMSICHT, Low Carbon Technologies, GERMANY
Co-authors: V. Angenedt, P. Nakos, Fraunhofer UMSICHT, Oberhausen, Germany; K. Schleef, F. Langschwager, U. Schuemann, University of Rostock, Rostock, Germany
ESTERIFICATION OF PYROLYSIS OILS WITH HIGHER ALCOHOLS TO MARINE FUELS

5CO.10.3
Haruo KAWAMOTO
Kyoto University, Graduate School of Energy Science, JAPAN
Co-authors: J. Wang, E. Minami, Kyoto University, Kyoto, Japan; M. Asmadi, University Technology Malaysia, Johor bahru, Malaysia
EFFECTS OF CELL WALL ULTRASTRUCTURE ON THERMAL REACTIVITY OF CELLULOSE AND HEMICELLULOSE

5CO.10.4
Premchand PREMCHAND
Scuola Superiore Studi Pavia IUSS (Istituto Universitario di Studi Superiori), Science, Technology and Society Dpt., ITALY
Co-authors: F. Demichelis, D. Chiaramonti, S. Bensaid, D. Fino, Politecnico Di Torino, Italy
VALORISATION OF ORGANIC WASTE BIOMASS THROUGH SLOW PYROLYSIS IN CARBON DIOXIDE AND NITROGEN ATMOSPHERES: PRODUCTS DISTRIBUTIONS AND CHARACTERISATIONS

ORAL SESSION 2CO.11

16.15 - 17.15 **Environmental and biodiversity impacts of bioenergy**
ROOM ITALIA

Environmental and biodiversity impacts of bioenergy, assessing possible trade-offs and life cycle assessment.

CHAIRPERSON:
Karen MASCARENHAS
RCGI - Research Centre for Greenhouse Gas Innovation, BRAZIL

2CO.11.1
Anna DUDEN
Utrecht University, Copernicus Institute of Sustainable Development, THE NETHERLANDS
Co-authors: P.A. Verweij, F. van der Hilst, Utrecht University, The Netherlands
TRADE-OFFS AND SYNERGIES IN ECOSYSTEM SERVICES IN BIO-ENERGY PRODUCING REGIONS: OPPORTUNITIES FOR WIN-WIN-WIN SITUATIONS FOR CARBON STOCK, BIODIVERSITY AND HYDROLOGICAL SERVICES

2CO.11.2
Moritz VON COSSEL
University of Hohenheim, Biobased Resources in the Bioeconomy (340b), GERMANY
Co-authors: K. Grant, Landwirtschaftliches Zentrum für Rinderhaltung, Grünlandwirtschaft, Milchwirtschaft, Wild und Fische, Aulendorf, Germany; U. Thumm, University of Hohenheim 340b, Stuttgart, Germany
BOOSTING BIODIVERSITY IN INTENSIVELY USED GRASSLAND THROUGH SPECIES-RICH SUBPLOTS

2CO.11.3
Marie WOUTS
ENGIE, FRANCE
Co-authors: C. Jeandaux, C. Richard, ENGIE, Stains, France; N. Dagorn, T. Monicard, S. Marsac, ARVALIS, Baziège, France; A. Damiano, AILE, Pacé, France
LIFE CYCLE ASSESSMENT OF ENERGY COVER CROPS-BASED ANAEROBIC DIGESTION PLANTS IN FRANCE

2CO.11.4
Ana Luisa FERNANDO
Universidade Nova de Lisboa, Chemistry Dpt., PORTUGAL
Co-authors: L. Gomes, J. Moreira, Universidade Nova de Lisboa, Caparica, Portugal; J. Costa, ISEC, Lisbon, Portugal
TOWARDS A GREEN ECONOMY - ENVIRONMENTAL IMPACT ASSESSMENT OF PHYTOMANAGEMENT OF CONTAMINATED SOILS BY INDUSTRIAL CROPS

ORAL SESSION 4CO.12

16.15 - 17.15 **Suitability of various feedstock as solid biofuels**
ROOM BIANCA

This oral session looks at the potential use of mainly residues from other processes, and from contaminated land, as additional biomass feedstock and fuel for combustion.

CHAIRPERSONS:
Thomas SCHLEKER
European Commission, DG RTD, BELGIUM

Capucine DUPONT
The Delft Institute for Water Education, THE NETHERLANDS

4CO.12.1
Viktoria SCHEFF
University of Kassel, Resource Management and Solid Waste Engineering, GERMANY
Co-authors: G. Dürl, D. Laner, University of Kassel, Kassel, Germany; H. A. Raza, K. Kätzl, M. Wachendorf, University of Kassel, Witzenhausen, Germany; S. Margraf, Abfallentsorgung Kreis Kassel, Kassel, Germany
PROCESSING STEPS FOR COMPOST OVERSIZE FRACTION AS A SOLID BIOFUEL FOR THERMAL UTILIZATION WITH THE FOCUS ON BOTTOM ASH SLAGGING

4CO.12.2
Marta MARTINS
Universidade Nova de Lisboa. Faculdade de Ciências e Tecnologia., PORTUGAL
Co-authors: F. Pires, L. Gomes, Universidade Nova de Lisboa, Caparica, Portugal; J. Moreira, Universidade Nova de Lisboa - Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa, Caparica, Portugal; C. Armaro, R. Castello, F. Alessandro, G. Testa, S.L. Cosentino, UniCatania, Catania, Italy; J. Costa, ISEC, Lisboa, Portugal; M. Abias, Universidade Católica de Moçambique, Pemba, Mozambique; A.L. Fernando, Universidade Nova de LisboaUniversidade Nova de Lisboa - Faculdade de Ciências e Tecnologia da Unive, CaparicaCaparica, Portugal
THERMOCHEMICAL POTENTIAL OF TALL WHEATGRASS CULTIVATED IN HEAVY METAL CONTAMINATED SOILS

4CO.12.3
Niharika SHARMA
The Delft Institute for Water Education, THE NETHERLANDS
Co-authors: C. Dupont, C.M. Hooijmans, B. Lolkema, IHE Delft Institute for Water Education, Delft, The Netherlands; P. Mawioo, University of Eldoret, Eldoret, Kenya
EXTENSIVE CHARACTERIZATION OF VARIOUS SOURCES OF FAECAL SLUDGE FOR FURTHER USE AS SOLID FUEL

4CO.12.4
Dag Helge HERMUNDSGÅRD
University of Bergen, NORWAY
Co-authors: T. Barth, S. Ghoreishi, University of Bergen, Norway; R. Brusletto, Arbaflame, Oslo, Norway
EXAMINATION OF PRETREATMENT VARIABLES FOR CO-PRODUCTION OF BLACK PELLETS AND VALUABLE PLATFORM CHEMICALS

ORAL SESSION ICO.4

16.15 - 17.15 **Biomass in Africa**
ROOM AVORIO

European targets in Fit-for-55 and related policies, as well as policies from practically all the OECD countries and IEA, place a strong emphasis on sustainable biomass resources to meet their increasing higher demand for energy, chemicals and materials. Several studies indicate that there are sufficient resources to meet for the near-term targets, however beyond 2030 it is recognized by all that efficient supply chains for biomass residual streams and new sustainable crops need to be developed.
The countries of the African continent present abundant biomass resources that can create local employment benefiting the local communities as well as facilitate the regional energy production, industrialization and development. The presentations in this session will address the above topics and showcase an emerging interest in increasing the availability of sustainable biomass resources in Africa.

CHAIRPERSONS:
Myrsini CHRISTOU
Center for Renewable Energy Sources and Saving, GREECE

Wolter ELBERSEN
Wageningen Research, Food and Biobased Products Dpt., THE NETHERLANDS

ICO.4.1
Essel Ben HAGAN
Individual Consultant, GHANA
HARNESSING AFRICA'S BIOMASS RESOURCES FOR COMMERCIAL PRODUCTION AND MARKET FOR SUSTAINABLE AVIATION FUEL (SAF) - PROSPECTS AND CHALLENGE (1)

ICO.4.2
Francis KEMAUSUOR
Kwame Nkrumah University of Science and Technology, Department of Agricultural Engineering, GHANA
HARNESSING AFRICA'S BIOMASS RESOURCES FOR COMMERCIAL PRODUCTION AND MARKET FOR SUSTAINABLE AVIATION FUEL (SAF) - PROSPECTS AND CHALLENGE (2)

ICO.4.3
Hassan EL BARI
Ibn Tofail University, Physics Dpt., MOROCCO
TOWARD BIOMASS ENERGY DEVELOPMENT IN AFRICA: OPPORTUNITIES AND OBSTACLES

ICO.4.4
Jacob SONIBARE
Obafemi Awolowo University, Chemical Engineering Dpt., NIGERIA
BIOMASS SUPPLY AND SPATIAL DISTRIBUTION IN NIGERIA FOR SIGNIFICANT ENERGY INTERVENTION

ICO.4.5
Tonderayi MATAMBO
University of South Africa - Science Campus, Department of Environmental Science, SOUTH AFRICA
ACCESSING AGRICULTURAL AND AGRO-PROCESSING ORGANIC WASTE STREAMS AS BIOGAS FEEDSTOCK IN SOUTH AFRICA

VISUAL PRESENTATIONS 6CV.7

16.15 - 17.15 Biorefinery platforms for bio-based chemicals and polymers

This poster session covers projects addressing a range of biorefineries designed for the conversion of various types of biomass, focussing on processes for the production of biobased chemicals and polymers, process optimisation and product evaluation.

CHAIRPERSONS:
Janis RIZIKOVS
Latvian State Institute of Wood Chemistry, LATVIA

Ivana AZUAJE VILLASMIL
North Carolina State University, Forest Biomaterials Dpt., USA

6CV.7.1
Sudip K. RAKSHIT
Lakehead University, Chemical Engineering Dpt., CANADA
Co-authors: N. Kosamia, Lakehead University, Thunder Bay, Canada; A. Sanchez, Laboratorio de Futuros en Bioenergía, Unidad Guadalajara de Ingeniería Avanzada, Centro de Investiga, Zapopan, Mexico
FEASIBILITY STUDY OF BIOMASS-BASED INTEGRATED SUCCINIC ACID PRODUCTION BASED ON TECHNO-ECONOMIC AND MONETIZED LIFE CYCLE ANALYSIS

6CV.7.2
Bernhard DROSG
BEST - Bioenergy and Sustainable Technologies, AUSTRIA
Co-authors: M. Marzynski, M. Neubauer, L. Knoll, L. Rachbauer, BEST GmbH, Tulln, Austria; M. Deutsch, U. Poms, K. Schulze, M. Gölles, BEST GmbH, Graz, Austria; W. Fuchs, IFA Tulln, Tulln, Austria
DETAILED SET-UP OF A LAB-SCALE BIOREACTOR FOR MICROBIAL, ANAEROBIC, GAS FERMENTATION

6CV.7.3
Tatiana Aurora CONDEZO CASTRO
Universidade Federal de Viçosa, Engenharia Florestal Dpt., BRAZIL
Co-authors: G.D.S. Damasceno Silva, B.A.N. Albuquerque Nascimento, J.P.F.A. Fonseca do Amaral, A.A.P.R. Passos Rezende, C.M.S. Mudadu Silva, Universidade Federal de Viçosa, Viçosa, Brazil; M.C. Cardoso, Universidade Federal de Minas Gerais, Belo Horizonte, Brazil
USE OF ACTIVATED CARBON FOR REMOVAL OF PHOSPHORUS IN KRAFT PULP MILL TERTIARY EFFLUENT TREATMENT PLANT

6CV.7.4
Laura PLAZAS TOVAR
São Paulo Federal University, Chemical Engineering Dpt., BRAZIL
Co-authors: L. Mayuri Aiacyda de Souza, G. Biscardi de Simone, Department of Chemical Engineering, São Paulo Federal University, Diadema, Brazil; J. Otavia Bahú, Center for Energy and Petroleum Studies, University of Campinas, Campinas, Brazil; A. Gonsalez de Araujo, Department of Chemistry and Industrial Chemistry, Diadema, Brazil; J. F. Cuadros Bohorquez, Estacio de Sá University, Campus Maracanã, Rio de Janeiro, Brazil
ADVANCES ON A SYNTHETIC WITTIG REAGENT PRODUCTION IN AN INTEGRATED BIOREFINERY AND INSIGHT ON BIO-BASED LEVULINIC ACID-FUNCTIONALIZED VIA OLEFINATION REACTION

6CV.7.5
Soo-Kyeong JANG
National Institute of Forest Science, REPUBLIC OF KOREA
Co-authors: J. Jeong, S. Lee, J. Yang, H. Na, S. Lee, National Institute of Forest Science, Seoul, South Korea
EVALUATION OF FURFURAL AND 5-HMF SEPARATION EFFICIENCY FROM SUPERCRITICAL HYDROLYSATES USING ORGANIC SOLVENT EXTRACTION

6CV.7.6
Thomas CARR
Newcastle University, School of Engineering Dpt., UNITED KINGDOM
Co-authors: K.B. Boodhoo, F.R.A. Russo Abegão, Newcastle University, Newcastle upon Tyne, United Kingdom
VALORISATION OF HEMICELLULOSE BY-PRODUCTS VIA ANTISOLVENT PRECIPITATION IN A SPINNING DISC REACTOR

6CV.7.7
Iara FONTES DEMUNER
Universidade Federal de Viçosa, Engenharia Florestal Dpt., BRAZIL
Co-authors: I.F. Demuner, M.R. Coura, A.M.M.L. Carvalho, C.M. Silva, Universidade Federal de Viçosa, Viçosa, Brazil; A.C.O. Carneiro, UniversidUniversidade Federal de Viçosaade Federal de Viçosa, Viçosa, Brazil; F.J.B. Gomes, Universidade Federal Rural do Rio de Janeiro, Seropédica, Brazil
PRODUCTION OF LIGNOSULFONATES FROM EUCALYPT KRAFT LIGNIN BY SULFOMETHYLATION PROCESS

6CV.7.8
Eungyu JEGAL
Chonnam National University, REPUBLIC OF KOREA
Co-authors: Y. Lee, Bio-energy ReBio-energy Research Centersearch Center, Gwangju, South Korea; H-J Bae, Bio-energy Research Center, Gwangju, South Korea
CONTINUOUS BIOCATALYTIC PRODUCTION OF TREHALOSE BY RECYCLING CBD-TAGGED TREHALOSE SYNTHASE FROM MALTOSE

6CV.7.9
Fernando RUSSO ABEGÃO
Newcastle University, School of Engineering, UNITED KINGDOM
Co-authors: Z. Zhu, K. Boodhoo, Newcastle University, Newcastle Upon Tyne, United Kingdom
OPTIMISATION OF CATALYTIC PRODUCTION OF 5-HMF AND FURFURAL USING PHOSPHOTUNGSTIC-DERIVED HETEROPOLY ACIDS

6CV.7.10
Sari RAUTIAINEN
VTT Technical Research Centre of Finland, FINLAND
Co-authors: S. Kasipandi, S. Känsäkoski, T. Ohra-Aho, J. Lehtonen, VTT Technical Research Centre of Finland, Espoo, Finland
CATALYTIC DEPOLYMERISATION OF NOVEL ORGANOSOLV LIGNINS

6CV.7.13
Derar ALKHATEB
Avantium, Renewable Chemistries Dpt., THE NETHERLANDS
Co-author: A. Jongerius, Avantium, Amsterdam, The Netherlands
DAWN TECHNOLOGY TM - SECOND GENERATION BIOREFINERY AND ITS LIGNIN PROPERTIES

6CV.7.14
Raimonds MAKARS
Latvian State Institute of Wood Chemistry, LATVIA
Co-authors: J. Rizikovs, D. Godina, A. Paze, R. Berzins, Latvian State Institute of Wood Chemistry, Riga, Latvia
BIRCH OUTER BARK CHARACTERISATION AFTER EXTRACTION AND ITS POTENTIAL FOR OBTAINING SUBERIN FATTY ACIDS

6CV.7.15
Henri STEINWEG
Karlsruhe Institute of Technology, IKFT Dpt., GERMANY
Co-authors: N. Dahmen, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen, Germany; V. Mol, SecondCircle, Søborg, Denmark; B. Wittgens, SINTEF Industry, Trondheim, Norway
THE INTERFACE IN FERMENTATIVE CCU PROCESS DEVELOPMENT OF BIOTECHNOLOGY AND PROCESS TECHNOLOGY

6CV.7.16
Aigars PAZE
Latvian State Institute of Wood Chemistry, Biorefinery laboratory, LATVIA
Co-authors: J. Rizhikovs, S. Vitolina, R. Berzins, D. Godina, R. Makars, Latvian State Institute of Wood Chemistry, Riga, Latvia; A. Teresko, ZS DOKTUS, Cesis, Latvia
BIRCH OUTER BARK BETULIN PARTICLES CONTAINING HYDROGELS AS A FEEDSTOCK FOR OBTAINING OF PICKERING EMULSIONS

6CV.7.17
Enio ZANCHETTA
EPFL, EPFL ENAC IIE GR-LUD, SWITZERLAND
Co-authors: B. Mercier, E. Damergi, H. Pick, C. Ludwig, EPFL, Lausanne, Switzerland
NOVEL GREEN BIOREFINERY PROCESS TO PRODUCE NANO-SCALED HIGH PERFORMANCE CELLULOSE POLYMERS FROM THE MICROALGA CHLORELLA VULGARIS

6CV.7.19
Tamara Alejandra MENARES TAPIA
Ghent University, BELGIUM
Co-authors: F. Ronsse, Ghent University, Gent, Belgium; L.E. Arteaga Pérez, Universidad del Bío-Bío, Concepción, Chile
OPTIMIZING LIGNIN PYROLYSIS PRODUCT DISTRIBUTION VIA G-VALEROLACTONE SOLVOLYSIS: EFFECTS OF EXTRACTION CONDITIONS ON THE STRUCTURE

VISUAL PRESENTATIONS 3CV.8

16.15 - 17.15 **Technologies and assessment of the valorisation of bioresources**
POSTER AREA

The valorisation of bioresources in different situations, regions but also applications will be presented and jointly evaluated in this poster session.

CHAIRPERSONS:
Kees KWANT
Netherlands Enterprise Agency, Ministry of Economic Affairs, THE NETHERLANDS

Daniela THRÄN
DBFZ-German Biomass Research Centre, GERMANY

3CV.8.1
Nariê RINKE DIAS DE SOUZA
NTNU - Industrial Ecology Programme, NORWAY
Co-author: F. Cherubini, NTNU, TRONDHEIM, Norway
TOWARDS NEW APPROACHES FOR ASSESSING THE CLIMATE CHANGE MITIGATION POTENTIALS OF NOVEL BIOPOLYMERS FROM LIGNOCELLULOSIC BIOMASS

3CV.8.4
Edgar A. SILVEIRA
University of Brasilia, Mechanical Engineering Dpt., BRAZIL
Co-authors: M.N. Guedes, R.V. Soares, L.F.L. Lira, S. Monteiro, A.C.P Brasil Junior, University of Brasilia, Brazil
EVALUATION OF THE EFFECT OF COOLING RATES ON THE ENERGY CAPACITY OF VEGETABLE OILS AS PHASE CHANGE MATERIALS (PCMS)

3CV.8.5
Svetlana PROSKURINA
Lappeenranta-Lahti University of Technology, Laboratory of Sustainable Energy Systems, FINLAND
Co-author: E. Vakkilainen, Lappeenranta University of Technology, Lappeenranta, Finland
EUBCE Student Awardee Presentation
ROLE OF BIOMASS USAGE IN EU AT POINT OF CARBON NEUTRALITY

3CV.8.7
Olgu BIRGI
WIP GmbH & Co Planungs, Biomass Dpt., GERMANY
Co-authors: R. Janssen, WIP Renewable Energies, Munich, Germany; A. Rueda, A. Fresneda, C. Jarauta-Córdoba, A. Carmona, CIRCE, Zaragoza, Spain; A. Lympeti, M. Zeneli, G. Zisopoulos, P. Grammelis, CERTH, Marousi, Greece; M. Karampinis, Bioenergy Europe, Brussels, Belgium
SUCCESS CASES ON THE USE OF BIOMASS FOR THE DECARBONISATION OF THE CEMENT, STEEL AND GLASS INDUSTRY

3CV.8.8
Lorenzo TESTA
Politecnico di Torino, Galileo Ferraris Energy Dpt., ITALY
Co-authors: A. Salimbeni, Renewable Energy Consortium for Research and Development (RE-CORD), Florence, Italy; D. Chiaramonti, Politecnico di Torino, Turin, Italy
TECHNOLOGY INNOVATION ASSESSMENT OF LOW ILUC RISK SYSTEMS IN THE EU BIOFUELS SECTOR

3CV.8.9
Rainer JANSSEN
WIP GmbH & Co Planungs, GERMANY
Co-author: R. Mergner, WIP Renewable Energies, Munich, Germany
PROMOTING INNOVATION EXCELLENCE IN TRANSFORMATION OF COAL REGIONS TO CLIMATE-NEUTRAL, THRIVING ECONOMIES

3CV.8.10
Carsten HERBES
Nuertingen-Geislingen University, ISR Dpt., GERMANY
Co-author: B. Rilling, Nuertingen-Geislingen University, Nuertingen, Germany
RENEWABLE GASES IN THE HEATING MARKET: IDENTIFYING CONSUMER PREFERENCES THROUGH A DISCRETE-CHOICE EXPERIMENT

3CV.8.11
Haresankar JAYASANKAR
University of Galway, IRELAND
Co-authors: S. Szufa, Lodz University of Technology, Lodz, Poland; W. Heather, TNO, Petten, The Netherlands; R. Monaghan, University of Galway, Galway, Ireland
CLEANING STEEL WITH PAPER: MODELLING A SUPPLY CHAIN FOR PAPER BIO-SLUDGE TO REPLACE COAL IN STEEL MAKING

Break **17.15 - 17.30**

ORAL SESSION 5CO.13

17.30 - 18.30 **Synthetically produced fuels from biomass**
AUDITORIUM EUROPA

This session looks at some of the key aspects related to mainly hydrocarbon fuel production including bio-LPG and FT fuel along with an analysis of design for biobased fuel production and liquid fuels from lignocellulosic biorefineries.

CHAIRPERSONS:
Patrik KLINTBOM
RISE, SWEDEN

Pedro ORTIZ-TORAL
GTI Energy, USA

5CO.13.1
Julia WEYAND
DLR, GERMANY
Co-authors: S. Maier, R.-U. Dietrich, DLR, Stuttgart, Germany
PROCESS DESIGN ANALYSIS OF A BIOMASS-BASED FUEL PRODUCTION PROCESSES FOR VARIOUS CENTRAL EUROPEAN REGIONS

5CO.13.2
Sebastian PONCE
Universidad San Francisco de Quito, ECUADOR
Co-author: Y. Rodriguez, Universidad San Francisco de Quito, Quito, Ecuador
BIOCHAR-BASED CATALYST FOR THE PRODUCTION OF DIESEL-LIKE FUELS FROM WASTE MOTOR OIL

5CO.13.3
Wouter ARTS
KU Leuven, BELGIUM
Co-authors: H. Latine, T. Nicolai, D. Raikwar, B. Pandalone, KU Leuven, Heverlee, Belgium
LIGNIN-FIRST BIOREFINING OF LIGNOCELLULOSE: A FIRST STEP TOWARDS LIQUID BIOFUELS

5CO.13.4
Patrick LITTLEWOOD
GTI Energy, Energy Supply & Conversion, USA
Co-authors: T. Marker, M. Herrera, M. Bradford, P. Ortiz-Toral, GTI Energy, Des Plaines, Usa
RENEWABLE BIOLPG PRODUCTION BY COOL LPG

ORAL SESSION 2CO.14

17.30 - 18.30 **Environmental impact of bioenergy**
ROOM ITALIA

This oral session addresses a range of environmental impacts of bioenergy with respect to carbon capture, life cycle assessment of biochar applications and combustion of densified logs.

CHAIRPERSONS:
Mirjam ROEDER
Aston University, UNITED KINGDOM

Sylvain MARSAC
ARVALIS - Institut du Végétal, FRANCE

2CO.14.1
Suviti CHARI
University College London, Chemical Engineering Dpt., UNITED KINGDOM
Co-authors: A. Sebastiani, A. Paulillo, P. Lettieri, M. Materazzi, University College London, United Kingdom
EUBCE Student Awardee Presentation
ADVANCED THERMOCHEMICAL CONVERSION WITH CCS OF VARIED BIOMASS CONTAINING WASTE FEEDSTOCKS FOR HYDROGEN PRODUCTION

2CO.14.2
Luca CAMPION
Hasselt University, Environmental Economics Dpt., BELGIUM
Co-authors: T. Pape Thomsen, Roskilde University, Denmark; B. Weidema, Aalborg University, Copenhagen, Denmark; R. Malina, T. Kuppens, Hasselt University, Belgium
CONSEQUENTIAL LIFE CYCLE ASSESSMENT OF BIOCHAR: COMPARING TWO BIOCHAR PRODUCTION FEEDSTOCKS AND TWO BIOCHAR APPLICATIONS

2CO.14.3
Julie SCHOBING
Université de Haute-Alsace, FRANCE
Co-authors: A. Meyer, G. Leyssens, N. Zouaouai, Université de Haute-Alsace, Mulhouse, France; F. Cazier, D. Dewaele, C. Pusca, F. Goutier, Université du Littoral Côte D'Opale, Dunkerque, France; P. Genevray, Université de Haute-Alsace, Dunkerque, France
COMBUSTION OF NIGHT DENSIFIED LOGS: ENVIRONMENTAL IMPACT OF THE RECOMMENDED USE OF THE MANUFACTURER

2CO.14.4
Antonio PANTALEO
European Innovation Council, Dipartimento DISAAT, BELGIUM
BIOMASS FOR HYDROGEN: RESEARCH PRIORITIES AND REGULATORY NEEDS ARISING FROM THE EIC PATHFINDER CHALLENGE ON GREEN HYDROGEN GENERATION

ORAL SESSION 4CO.15

17.30 - 18.30 **Development of pretreatments, especially torrefaction, via process combination, pilot scale experiments and kinetic modelling**
ROOM BIANCA

This oral session looks at the pretreatment of biomass by steam explosion and by torrefaction, with torrefaction considered on its own or as a treatment step before pyrolysis.

CHAIRPERSON:
Gururaja Rao SRIDHAR
Sardar Swaran Singh National Institute of Bioenergy, INDIA

4CO.15.1
Nannan WU
UGent, BELGIUM
Co-authors: Q. Niu, J. Pieters, F. Ronsse, Ghent University, Ghent, Belgium
INFLUENCE OF CITRIC ACID WASHING ON THE TORREFACTION BEHAVIOR AND PRODUCTS PROPERTIES OF SUGARCANE TRASH

4CO.15.2
Abhishek SINGHAL
Tampere University, Engineering and Natural Science Dpt., FINLAND
Co-authors: A. Goel, A. Bhatnagar, J. Konttinen, T. Joronen, Tampere University, Finland; C. Roslander, O. Wallberg, Lund University, Sweden
COMBINED LEACHING AND STEAM EXPLOSION PRETREATMENT FOR IMPROVING FUEL QUALITY OF BIOMASS

4CO.15.3
Ji-ho YOO
Korea Institute of Energy Research, Fine dust research Lab., REPUBLIC OF KOREA
Co-authors: I. Rani, B. Wijaya, H. Im, S. Kim, S. Lee, H. Choi, D. Chun, J. Lim, Korea Institute of Energy Research, Daejeon, South Korea; Y. Rhim, Neosys, Daejeon, South Korea
CONTINUOUS BIOMASS TORREFACTION/PYROLYSIS USING A PILOT SCALE (1 TPD) FLEXIBLE COUNTER FLOW MULTI-BAFFLE (F-COMB) REACTOR

4CO.15.4
Heeyoon KIM
Sungkyunkwan University, School of Mechanical Engineering, REPUBLIC OF KOREA
Co-authors: S. Yu, C. Ryu, Sungkyunkwan University, Suwon, South Korea; H. Ra, S. Yoon, Korea Institute of Energy Research (KIER), Daejeon, South Korea
PREDICTION MODEL FOR PYROLYSIS KINETICS OF TORREFIED BIOMASS BASED ON RAW BIOMASS PROPERTIES AND TORREFACTION SEVERITY

WEDNESDAY 07 JUNE 2023

WED

ORAL SESSION ICO.5

17.30 - 18.30 **SAF deployment in Africa - the case of Ethiopia**
ROOM AVORIO

One of the main pathways towards a low-carbon economy in Europe and worldwide is the utilization of sustainable biomass feedstock to produce biofuels. Advanced biofuels, contributing to the mitigation of CO_2 emissions in transport, will pave the way towards a low carbon economy by 2030 and later. Brassica carinata (or Ethiopian Mustard), an oil crop from Ethiopia, but also other crops, constitute promising potential biomass feedstocks to produce biofuels, especially Sustainable Aviation Fuel (SAF), being able, therefore, to contribute to the decarbonization of aviation, one of the most difficult sectors. The industrial part of this SAF value chain requires the involvement of potential investors who have to optimize transportation of produced/elaborated feedstock and stream them in biorefineries. Given that the required feedstock for SAF production in Europe is not adequate to cover the targets of fit-for-55 and REPowerEU policies, a discussion takes place whether Africa and especially countries with long tradition in cultivating necessary crops could be part of the solution.

CHAIRPERSONS:
Theodor GOUMAS
EXERGIA, Energy & Environment Dpt., GREECE

Kyriakos MANIATIS
Former European Commission, DG Energy, EUBCE Industry Coordinator, BELGIUM

ICO.5.1
Yitatek YITBAREK
Exergia Energy and Environment Consultants S.A., GREECE
SAF DEVELOPMENT IN AFRICA, THE ETHIOPIAN ROADMAP

ICO.5.2
George VOURLIOTAKIS
Exergia S.A., Energy Policy and Planning, GREECE
SUSTAINABLE OPTION OF BRASSICA CARINATA PRODUCTION IN ETHIOPIA

ICO.5.3
David CHIARAMONTI
Politecnico di Torino, DENERG Dpt., ITALY
THE FORTHCOMING SAF MARKET IN THE EU: POTENTIAL COLLABORATIONS WITH AFRICA

ICO.5.4
Oskar MEIJERINK
SkyNRG, Future Fuels, THE NETHERLANDS
TBC

ICO.5.5
Abubeker YIMAM
EXERGIA A.E., GREECE
TBC

Status of 1 June 2023

VISUAL PRESENTATIONS 6CV.9

17.30 - 18.30 **Co-production of biofuels and biochemicals**
POSTER AREA

This poster session covers an array of projects directed towards the production of both biofuels and biochemicals from mainly forestry residues and agricultural residues using a broad range of biorefinery approaches.

6CV.9.1
Rudolfs BERZINS
Latvian State Institute of Wood Chemistry, Biorefinery Laboratory, LATVIA
Co-authors: A. Paze, S. Vitolina, J. Rishikovs, Latvian State Institute of Wood Chemistry, Riga, Latvia; A. Teresko, Dokus ZS, Cesis, Latvia
OPTIMISATION OF ANTISOLVENT PRECIPITATION METHOD TO OBTAIN COLLOIDAL PARTICLES FROM ETHANOL SOLUTIONS FROM BIRCH OUTER BARK EXTRACTIVES

6CV.9.3
Roman TSCHENTSCHER
SINTEF, Process Chemistry and Functional Materials Dpt., NORWAY
Co-authors: A. Minnard, SINTEF, Oslo, Norway; C.J. Hjerpe, J. Kihlman, AF Industry, Karlstad, Sweden; N. Schupp, E. Oehl, S. Waldvogel, University of Mainz, Mainz, Germany
ELECTROCHEMICAL DEPOLYMERISATION OF KRAFT LIGNIN IN BLACK LIQUOR

6CV.9.4
Vorapat SANGUANCHAIPAIWONG
King Monkut's Institute of Technology Ladkrabang, Biology Dpt., Faculty of Science, THAILAND
Co-authors: C. Pingmuang, J. Jumangmor, D. Phiromphong, King Monkut's Institute of Technology Ladkrabang, Bangkok, Thailand; N. Leksawasdi, Chiang Mai University, Chiang Mai, Thailand
THE EFFECT OF SWEET POTATO PEEL HYDROLYSIS METHODS ON THE PRODUCTION OF BUTYRIC ACID AND BUTANOL USING CLOSTRIDIUM ACETOBUTYLICUM

6CV.9.7
Antonio CAIVANO
Technical University of Denmark, DENMARK
Co-authors: G. Dragone, S.I. Mussatto, Technical University of Denmark, Kongens Lyngby, Denmark
CO_2 FIXATION IN MIXOTROPHIC GROWTH OF ACETOGENS

6CV.9.10
Daria LEBEDEVA
Stockholm University, Organic Chemistry Dpt-, SWEDEN
Co-author: J.S.M. Samec, Stockholm University, Stockholm, Sweden
RECOVERY OF HEMICELLULOSE FROM WOOD AND ITS CONVERSION TO SUSTAINABLE HYDROCARBON FUELS VIA FURFURAL FORMATION

6CV.9.11
Prans BRAZDAUSKS
Latvian State Institute of Wood Chemistry, Biorefinery Laboratory Dpt., LATVIA
Co-authors: M. Puke, P.L. Linina, Latvian State Institute of Wood Chemistry, Riga, Latvia
IMPACT OF PHOSPHORUS-CONTAINING CATALYSED PRETREATMENT ON THE ENZYMATIC HYDROLYSIS OF CELLULOSE

VISUAL PRESENTATIONS 4CV.10

17.30 - 18.30 **Biogas research and innovation (II)**
POSTER AREA

This is the second biogas poster session and contains reports from projects, including biomass from contaminated land, feedstock pretreatment, effectiveness of inoculants, methane potentials of crop residues, biowastes for AD, and biogas process diagnostics, process mathematical modelling, and other topics.

CHAIRPERSONS:
Ioana IONEL
Politehnica University of Timisoara, ROMANIA

Bernhard DROSG
BEST - Bioenergy and Sustainable Technologies, AUSTRIA

4CV.10.5
Ayush AGARWAL
Paul Scherrer Institute & École Polytechnique Fédérale de Lausanne, SWITZERLAND
Co-authors: L. Torrent, J. Indekofer, S.M A. Biollaz, Paul Scherrer Institute (PSI), Villigen PSI, Switzerland; C. Ludwig, Paul Scherrer Institute (PSI) & École Polytechnique Fédérale De Lausanne (EPFL), Villigen PSI, Switzerland
BIOGAS DIAGNOSTICS: QUANTIFYING SILOXANES AND SULFUR COMPOUNDS FOR IMPROVING ENERGY USE OF BIOMASS

4CV.10.6
Alessandro NERI
Università degli Studi Mediterranea di Reggio Calabria, Agriculture Dpt., ITALY
Co-authors: S. Benalia, G. Zimbalatti, B. Bernardi, University Mediterranea of Reggio Calabria - Department of Agriculture, Reggio Calabria, Italy; W. Gabauer, I. Mihajlovic, K. Ghassemi, L. Poschmaier-Kamarad, University of Natural Resources and Life Sciences, Institute of Environmental Biotechnology, Tulln an der Donau, Austria
RECOVERY OF AGRIFOOD BY-PRODUCTS AND FOOD WASTE FOR BIOMETHANE PRODUCTION

4CV.10.8
Elena FRANCHITTI
University of Torino, Public Health and Pediatrics Dpt., ITALY
Co-authors: M. Vallino, National Council of Research, Turin, Italy; D. Traversi, University of Torino, Turin, Italy
PRESENCE AND PERSISTENCE OF VIRAL BIOINDICATORS IN WASTE TREATMENT SLUDGES PRE AND POST ANAEROBIC DIGESTION

4CV.10.9
Erika SINISGALLI
CRPA, Environment & Energy Dpt., ITALY
Co-authors: M. Soldano, P. Mantovi, CRPA- Centro Ricerche Produzioni Animali, Reggio Emilia, Italy; G. Bezzi, CIB - Consorzio Italiano Biogas, Lodi, Italy; M. Fiala, Università degli Studi di Milano, Milano, Italy; M. Ferrari, CRPA- CeUniversità degli Studi di Milanontro Ricerche Produzioni Animali, Milano, Italy
CORN CROP RESIDUES: CHEMICAL CHARACTERIZATION AND BIOMETHANE POTENTIAL

4CV.10.10
Ciro VASMARA
CREA Research Centre for Agriculture and Environment, ITALY
Co-authors: S. Cianchetta, S. Galletti, CREA Research Centre for Agriculture and Environment, Bologna, Italy; R. Marchetti, E. Ceotto, CREA Research Centre for Animal Production and Aquaculture, S.Cesario s/P, Italy
COMBINING DARK FERMENTATION WITH ANAEROBIC DIGESTION ENHANCE BIOGAS PRODUCTION FROM PRE-TREATED GIANT REED (ARUNDO DONAX L.)

4CV.10.12
Yingmu CHANG
DBFZ, GERMANY
Co-authors: D. Thraen, DBFZ; UFZ;University Leipzig, Leipzig, Germany; W. Stinner, DBFZ, Leipzig, Germany
VALUE CREATION OF BIOGAS IN CHINA

4CV.10.14
Francis Robert Demetri C. QUINGCO
Silliman University / Southeast Asian Regional Center for Graduate Study and Research in Agriculture, PHILIPPINES
Co-author: J.E. Emmanuel, Silliman University, Dumaguete, Philippines
DESIGN OF BIOGAS EQUIPMENT USING FILTER CAKE WITH AND WITHOUT COW DUNG ADDITIVES AS INPUT

4CV.10.15
Lukas KRATKY
Czech Technical University in Prague, Process Engineering Dpt., CZECH REPUBLIC
Co-author: R. Sulc, Czech Technical UniCzech Technical University in Pragueversity in Prague, Prague, Czech Republic
IDENTIFYING PROCESS EFFICIENCY OF BIOGAS UPGRADE TO BIOMETHANE BY HOLLOW FIBRE MEMBRANE

4CV.10.16
Uwe BEHMEL
HAW Landshut, GERMANY
BIOLOGICAL REPOWERING OF BIOGAS DIGESTERS

4CV.10.17
Gowtham BALASUNDARAM
IIT Roorkee, Civil Engineering, INDIA
Co-authors: P. Gahlot, A.A. Kazmi, IIT Roorkee, Roorkee, India; V.K. Tyagi, NIH, Roorkee, India
COULD THERMAL HYDROLYSIS BE AN EFFECTIVE SOLUTION FOR SLUDGE VALORIZATION AND MICROPOLLUTANT REMOVAL?

Conference Dinner **19.30**

ORAL SESSION 4DO.1

09.00 - 10.00 **Biogas Developments and innovative solutions**
AUDITORIUM EUROPA

This oral session covers the diversity of the application of biogas technologies in reducing greenhouse gas emissions, the treatment of lignocellulosic biomass, use in the pig rearing sector and also includes an assessment of the biogas potential from organic waste in Africa.

CHAIRPERSONS:
Bernhard DROSG
BEST - Bioenergy and Sustainable Technologies, AUSTRIA

Kurt HJORT-GREGERSEN
Danish Technological Institute, DENMARK

4DO.1.1
Lukas KNOLL
DBFZ, Biochemical Conversion Dpt., GERMANY
GREENHOUSE GAS EMISSIONS FROM ANAEROBIC DIGESTION AND COMPOSTING PLANTS FOR ORGANIC WASTE TREATMENT

4DO.1.2
Gert HOFSTEDE
Hanze University of Applied Sciences, iLST Dpt., THE NETHERLANDS
Co-authors: K.E. Koc, A. Kloekhorst, F. Faber, K. Zwart, J.P.H. Nap, Hanze University of Applied Sciences, Groningen, The Netherlands; J. Krooneman, G.J.W. Euverink, Engineering and Technology institute Groningen, University of Groningen, Groningen, The Netherlands
A BIOLOGICAL PROCESS FOR CONVERTING LIGNOCELLULOSIC GRASS INTO VOLATILE FATTY ACIDS: THE COW AS INSPIRATION

4DO.1.3
Brandon GILROYED
University of Guelph Ridgetown Campus, School of Environmental Sciences, CANADA
Co-authors: V. Matten, L. McNea, K. Van Overloop, University of Guelph Ridgetown Campus, Ridgetown, Canada
POTENTIAL FOR INCORPORATION OF SWINE MORTALITY ALKALINE HYDROLYSATE INTO ANAEROBIC DIGESTION

4DO.1.4
Hans LANGEVELD
Biomass Research, THE NETHERLANDS
Co-authors: G. Ghaffari, L. Laroche, E. Pinners, F. Quist-Wessel, Biomass Research, Wageningen, The Netherlands; K. Kinusu, APBL, Nairobi, Kenya; M. Muvule, BSUL, Kampala, Uganda
BIOGAS POTENTIAL FROM ORGANIC WASTE IN AFRICA

ORAL SESSION 2DO.2

09.00 - 10.00 **European biomass production to support the EU bioeconomy**
ROOM ITALIA

The presentations in this session highlight the role of perennial crops in supporting EU bioeconomy. Recommendations for good governance of the rural bioeconomy will be shown, and the value of bioenergy system services will be addressed.

CHAIRPERSONS:
Birger KERCKOW
FNR - Agency for Renewable Resources, GERMANY

Anne BOUTER
JRC European Commission, ITALY

2DO.2.1
Christina ZINKE
Helmholtz-Centre for Environmental Research, GERMANY
Co-author: A. Bezama, Helmholtz-Centre for Environmental Research (UFZ), Leipzig, Germany
GOVERNANCE FOR RURAL BIOECONOMY - GOOD PRACTICES AND POLICY BARRIERS IN EUROPEAN REGIONS

2DO.2.2
John CLIFTON-BROWN
JLU Uni Giessen, GERMANY
Co-authors: A.H. Hastings, IBES, Aberdeen, Aberdeen, United Kingdom; A. Kiesel, Uni. Hohenheim, Stuttgart, Germany
PERENNIAL BIOMASS CROPPING AND USE IN EUROPE: SHAPING THE POLICY ECOSYSTEM

2DO.2.3
Dan TAYLOR
Energy and Bioproducts Research Institute, UNITED KINGDOM
Co-authors: K. Chong, M. Roeder, Energy and Bioproducts Research Institute, Birmingham, United Kingdom
CAN SUSTAINABLE BIOMASS HELP US ACHIEVE NET ZERO? THE POLITICS OF PEOPLE AND THE PLANET

2DO.2.4
Elina MÄKI
VTT Technical Research Centre of Finland, FINLAND
Co-authors: C. Hennig, N. Lange, DBFZ Deutsches Biomasseforschungszentrum, Leipzig, Germany; F. Schipfer, TU Wien, Wien, Austria; D. Thrän, UFZ Helmholtz Centre for Environmental Research, Leipzig, Germany; T. Schildhauer, PSI Paul Scherrer Institut, Villigen, Austria
DEFINING THE VALUE OF BIOENERGY SYSTEM SERVICES FOR ACCELERATING THE INTEGRATION OF BIOENERGY INTO A LOW-CARBON ECONOMY

ORAL SESSION 5DO.3

09.00 - 10.00 **Hydrogen produced from biomass**
ROOM BIANCA

This oral session includes a look at selected processes for hydrogen production from biomass making use of technologies such as dark fermentation, gasification in supercritical water and hydrogen production from woody biomass.

CHAIRPERSONS:
Matteo PRUSSI
Politecnico di Torino, ITALY

Katerine RODRIGUEZ
Steeper Energy, CANADA

5DO.3.1
Obaidullah MOHIUDDIN
Newcastle University, UNITED KINGDOM
Co-authors: S. Velasquez, A. Vidal, L. Rios Solis, Newcastle University, Newcastle upon Tyne, United Kingdom
BIOHYDROGEN PRODUCTION FROM AGRICULTURAL BIOMASS USING DUAL DARK AND PHOTO-FERMENTATION

5DO.3.2
Natascha EGGERS
Fraunhofer IFF, GERMANY
Co-authors: F. Giebner, M. Wagner, MicroPro GmbH, Gommern, Germany; D. Heinemann, STREICHER Anlagenbau GmbH & Co. KG, Gommern, Germany; T. Birth, HAW Hamburg, Hamburg, Germany; A. Hurtado, TU Dresden, Dresden, Germany
HYPERFERMENT - MORE EFFICIENT BIOGAS PLANTS VIA HYDROGEN PRODUCTION

5DO.3.3
Thanos VADARLIS
Institut für Katalyseforschung und -technologie, GERMANY
Co-authors: A. A. Vadarlis, N. Boukis, J. Sauer, Institut für Katalyseforschung und -technologie (IKFT), Eggenstein-Leopoldshafen, Germany; A. A. Lemonidou, Aristotle University of Thessaloniki (AUTH), Thessaloniki, Greece
GENERATION OF HYDROGEN FROM WET BIOMASS WASTE VIA GASIFICATION IN SUPERCRITICAL WATER AND SEQUENTIAL REFORMING OF THE HYDROCARBONS

5DO.3.4
Veronica GUBIN
Vienna University of Technology, AUSTRIA
Co-authors: F. Benedikt, M. Hammerschmid, T. Popov, S. Müller, H. Hofbauer, TU Wien, Vienna, Austria
TECHNO-ECONOMIC AND ENVIRONMENTAL ASSESSMENT OF 1 MW HYDROGEN PRODUCTION FROM WOODY BIOMASS GASIFICATION

ORAL SESSION IDO.1

09.00 - 10.00 **The development of the bio-economy and the establishment of a stable and reliable supply chain for fuels, materials and chemical in China**
ROOM AVORIO

The bioeconomy has become a new engine for the development of human society. It is expected to account for 1/3 of global manufacturing output by 2030, worth 30 trillion US dollars. China is one of the countries with the richest bioresources in the world. The Chinese government decided to accelerate the development of the bioeconomy, and the National Development and Reform Commission issued the "14th Five-Year Plan for the Development of Bioeconomy" in May 2022. Relying on technological innovation, China has made breakthroughs in biochemical approach and thermochemical approach, two kinds of biomass conversion technology. Biodegradable plastics, bio nylons, sustainable aviation fuels (SAF), straw biorefinery and other key areas of the bioeconomy have been commercialized. Advanced biofuels, such as sweet sorghum ethanol, cellulosic ethanol, are at pre-commercialization stage. The world's largest polylactic acid production facility is under construction in Bengbu, Anhui province. A biorefinery which processes one million tons of straw annually has operated smoothly in Daqing, Heilongjiang province. SAF produced in Suzhou has successfully entered international market. A cellulosic ethanol demonstration plant in Hebei province will be in operation in late June this year. The China session is a window to showcase the development of bioeconomy in China. From biofuels to bio-based materials, all have entered commercialization stage. These proved technical innovations will benefit China-EU collaboration on economy transition, carbon neutral, etc., and the achievement of the UN 17 sustainable development goals by 2030.

CHAIRPERSONS:
Shizhong LI
Tsinghua University, P.R. CHINA

Kyriakos MANIATIS
Former European Commission, DG Energy, EUBCE Industry Coordinator, BELGIUM

IDO.1.1
Bin XU
BBCA, P.R. CHINA
HIGH-VALUE UTILIZATION OF CROP STRAW

IDO.1.2
Haofu LUO
Guangxi Shenzhou Environmental Protection Industry Holding Group Co. LTD, P.R. CHINA
THE FIRST BIOGAS DEMONSTRAION PROJECT IN CHINA: RECYCLING COMPLEX OF URBAN AND RURAL BIO-WASTE IN HAINAN, PRC

IDO.1.3
Bin XU
EcoCeres, Inc., Agricultural Waste Utilization, HONG KONG
A POSSIBLE WAY FOR AGRICULTURE WASTE UTILISATION ECONOMICAL

IDO.1.4
Chengzhen JIANG
Jinan Shengquan Group Share-Holding Co., Ltd., P.R. CHINA
BIOREFINERY: FROM VISION TO REALITY

THURSDAY 08 JUNE 2023

THU

VISUAL PRESENTATIONS 1DV.1

09.00 - 10.00 **Agro-industrial feedstocks and side streams**
POSTER AREA

This poster session covers a range of projects addressing sustainable agro-industrial feedstocks and use of residues and their valorisation and includes topics such as feedstock pretreatment and quality and nutrient recycling.

CHAIRPERSONS:
Efthymia ALEXOPOULOU
CRES - Center for Renewable Energy Sources and Saving, GREECE

1DV.1.1
Filippo OTTANI
University of Modena and Reggio Emilia, Dept. of Engineering Enzo Ferrari, ITALY
Co-authors: G. Santunione, N. Morselli, M. Puglia, G. Allesina, S. Pedrazzi, University of Modena and Reggio Emilia, Modena, Italy; G. Nigro, RI.NOVA Soc. Coop., Cesena, Italy; M. Mora, Cantine Riunite & CIV, Reggio Emilia, Italy
VINE LEAVES HARVESTING AND UTILIZATION FOR NUTRACEUTICAL PURPOSES - VINE LEAF FOR LIFE PROJECT

1DV.1.2
Enrico SANTANGELO
CREA, Research Centre for Engineering and Agro-Food Processing, ITALY
Co-authors: P. Papetti, University of Cassino, Cassino, Italy; A. Mazzucato, University of Tuscia, Viterbo, Italy; A. Del Giudice, A. Scarfone, C. Beni, CREA, Monterotondo, Italy
BIOACTIVE COMPOUNDS IN PEELS OF TWO HIGH-ACCUMULATING TOMATO LINES GROWN UNDER LOW-INPUT FARMING CONDITIONS

1DV.1.3
Enrico SANTANGELO
CREA, Research Centre for Engineering and Agro-Food Processing, ITALY
Co-authors: E. De Santis, A. de Ludicibus, A. Assirelli, C. Beni, CREA, Monterotondo, Italy; F. Lecce, M. De Mei, F. Petrazzuolo, S. Arnone, ENEA, Santa Maria di Galeria, Italy
RECOVERY OF AGRI-FOOD LEFTOVERS MEDIATED BY BLACK SOLDIER FLY (HERMETIA ILLUCENS, L.): (I) LARGE-SCALE BIOCONVERSION TRIALS AND CHARACTERIZATION OF LARVAL BIOMASS

1DV.1.4
Enrico SANTANGELO
CREA, Research Centre for Engineering and Agro-Food Processing, ITALY
Co-authors: A. Del Giudice, A. de Iudicibus, A. Assirelli, C. Beni, E. De Santis, F. Gallucci, CREA, Monterotondo, Italy; S. Arnone, F. Lecce, ENEA, Santa Maria di Galeria, Italy
RECOVERY OF AGRI-FOOD LEFTOVERS MEDIATED BY BLACK SOLDIER FLY (HERMETIA ILLUCENS, L.): (II) SEPARATION OF LARVAE AND BIOCONVERTED SUBSTRATES

1DV.1.5
Austra ZUSEVICA
Latvian State Forest Research Institute Silava, LATVIA
Co-authors: D. Lazdina, J. Vigovskis, V. Lazdina, LSFRI Silava, Salaspils, Latvia; D. Lazdina, Institute of horticulture, Dobele, Latvia
AGROFORESTRY SYSTEMS AND AFFORESTED MARGINAL AREAS - BIOMASS FACTORIES & BEE PASTURES

1DV.1.6
Edgar A. SILVEIRA
University of Brasilia, Mechanical Engineering Dpt., BRAZIL
Co-authors: N.P.B. Souto, Military Institute of Engineering, Nuclear Engineering Graduate Program, Rio de Janeiro, Brazil; B.S. Chaves, Forest Products Laboratory (LPF), Brazilian Forest Service (SFB), Brasília, Brazil; G.C. Lamas, T. Barbosa, M.R. Cardoso, University of Brasilia, Brasília, Brazil; P. P. O. Rodrigues, University of Brasília, Brasília, Brazil; P. Rousset, French Agriculture Research Centre for International Development (CIRAD), Montpellier, France
INFLUENCE OF TORREFACTION SEVERITY ON WOOD BLEND FROM AMAZONIAN RESIDUES

1DV.1.7
Daniela HIGGIN AMARAL
University of São Paulo, Institute of Energy and Environment, BRAZIL
Co-authors: A.P.D.S. Silva, Instituto de Pesquisas Tecnológicas, São Paulo, Brazil; M.J.N. Anater, S.T Coelho, Universidade de São Paulo - USP, Brazil
THE IMPORTANCE OF THE PHYSICOCHEMICAL CHARACTERIZATION OF BIOMASSES FOR PLANNING THEIR ENERGY USE

1DV.1.8
Luis Jorge CRUZ REINA
Universidad de Los Andes, Chemical Engineering Dpt., COLOMBIA
Co-authors: G. Dirceu-López, J. Repizo, S. Correa, C. Carazzone, R. Sierra, Universidad de los Andes, Bogotá, Colombia; I. Herrera-Orozco, Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas (CIEMAT), Madrid, Colombia
SUSTAINABILITY ANALYSIS OF THE EXTRACTION OF VALUABLE COMPOUNDS FROM COLOMBIAN CASHEW NUT SHELLS BY SOXHLET

1DV.1.9
Edgar A. SILVEIRA
University of Brasilia, Mechanical Engineering Dpt., BRAZIL
Co-authors: R. Barcelos, P.P.O. Rodrigues, G.C. Lamas, R.B.W. Evaristo, G.F. Ghesti, S.M. Luz, University of Brasilia, Brazil; P. Rousset, French Agriculture Research Centre for International Development (CIRAD), Montpellier, France; O.L.P. França, University of Brasília, Brazil
INFLUENCE OF EXTRACTIVE REMOVAL ONTORREFACTION KINETICS OF PEQUI AGRO-EXTRACTIVE RESIDUES

1DV.1.11
Juliën VOOGT
Wageningen Food & Biobased Research, THE NETHERLANDS
Co-authors: W. Elbersen, Wageningen UR, Wageningen, The Netherlands; Ben van den Broek, Wageningen University and ResearchResearch, Wageningen, The Netherlands
STARCH FROM OIL PALM TRUNKS FOR FOOD AND NON-FOOD APPLICATIONS TO REDUCE OIL PALM FOOTPRINT

1DV.1.12
Omex MOHAN
University of Alberta, Mechanical Engineering Dpt., CANADA
Co-author: A. Kumar, University of Alberta, Edmonton, Canada
INVESTIGATION INTO THE DRAG REDUCTION BEHAVIOR DURING PIPELINE HYDRO-TRANSPORTATION OF FORESTRY RESIDUES

THURSDAY 08 JUNE 2023

1DV.1.14
Urte STULPINAITE
Lithuanian Research Centre for Agriculture and Forestry, LITHUANIA
Co-author: V. Tilvikiene, Lithuanian Research Centre for Agriculture and Forestry, Akademija, Lithuania
IMPROVING HEMP RESIDUES PELLET QUALITY BY MIXING IT WITH DIFFERENT BIOMASS

1DV.1.15
Giorgos KARDARAS
CPERI/CERTH, GREECE
Co-authors: TZ. Kraia, K.D. Panopoulos, CPERI/CERTH, Thermi, Thessaloniki, Greece; K. Tsanaktsidis, UOWM, KOZANI, Greece; C. Pappa, BioEnergia S.A, LAKKOMA, Greece
VALORIZATION OF AGRICULTURAL RESIDUES: INCREASING SUSTAINABILITY OF DEDICATED ENERGY CROPS

1DV.1.16
Natalia A. TARAZONA LIZCANO
Helmholtz-Zentrum Hereon, Institut für Aktive Polymere, GERMANY
Co-authors: Y. Ortega Santiago, Department of Chemical and Food Engineering, Universidad de los Andes; Universidad Popular del Cesar, Bogota, Colombia; F. Salcedo Galán, Department of Chemical and Food Engineering, Universidad de los Andesum Hereon GmbH Institut für Akt, Bogota, Colombia; M. Quimbayo, M. Segura, Universidad Popular del Cesar, Cesar, Colombia
DEVELOPMENT OF COMPOSITE MATERIALS BASED ON DAIRY WASTES AND BIODEGRADABLE POLYMERS FOR AGRICULTURAL APPLICATIONS

1DV.1.17
Florent EVEILLE
GIZ, Biogas Dpt., KENYA
Co-authors: M. Rotich, GIZ, Nairobi, Kenya; P. Gichohi, Independant, Nairobi, Kenya
POTENTIAL ASSESSMENT FOR SMALL-SCALE (0 TO 50M3) AND MEDIUM-SCALE (50 TO 500M3) BIODIGESTERS IN KENYA

1DV.1.18
Clement OWUSU PREMPEH
Deutsches Biomasseforschungszentrum, Thermochemical Conversion Dpt., GERMANY
Co-authors: I. Hartmann, S. Formann, M. Eiden, M. Nelles, Deutsches Biomasseforschungszentrum, Leipzig, Germany; K. Neubauer, H. Atia, Leibniz-Institute for Catalysis e.V. (LIKAT), Rostock, Germany; A. Wotzka, S. Wohlrab, Deutsches BiomasseforschungszentrumLeibniz-Institute for Catalysis e.V. (LIKAT), Rostock, Germany
PERFORMANCE AND CHARACTERIZATION OF SOL-GEL-DERIVED CORNHUSK SUPPORT FOR LOW-TEMPERATURE CATALYTIC METHANE COMBUSTION

THU

Status of 1 June 2023

VISUAL PRESENTATIONS 5DV.2

09.00 - 10.00 **Advancement in hydrothermal processing of wet biomass (II)**
POSTER AREA

This is the second hydrothermal processing poster session and includes an array of presentations covering for example, reaction mechanisms, design and modelling of reactors, and the hydrothermal processing of a range of diverse biomass feedstocks.

CHAIRPERSONS:
Bert VAN DE BELD
BTG Biomass Technology Group, THE NETHERLANDS

Daniele CASTELLO
Aalborg University, DENMARK

5DV.2.1
Edoardo TITO
Politecnico di Torino, Disat Dpt., ITALY
Co-authors: P. Pipitone, A. Monteverde Videla, R. Pirone, S. Bensaid, Politecnico di Torino, Italy
DEEPENING THE REACTION MECHANISMS DURING HYDROTHERMAL LIQUEFACTION OF BIOMASS WASTE

5DV.2.4
Byung Hwan UM
Hankyong National University, Chemical Engineering Dpt., REPUBLIC OF KOREA
EFFECT OF ETHANOL ON HYDROTHERMAL LIQUEFACTION OF KENAF: CHARACTERISTICS OF LIGNIN IN FRACTIONATED LIGHT AND HEAVY OIL

5DV.2.7
Tero JORONEN
Tampere University, FINLAND
Co-authors: V. Agrawal, B. Arjmand, J. Konttinen, Tampere University, Finland
DESIGN AND MODELLING OF THE INTEGRATED HYDROTHERMAL LIQUEFACTION REACTOR

5DV.2.9
Maria Paola BRACCIALE
Sapienza-University of Rome, Chemical Engineering Materials Environment Dpt., ITALY
Co-authors: M. Damizia, A. Amadei, P. De Filippis, B. de Caprariis, Sapienza University of Rome, Roma, Italy; JH. Ferrasse, Laboratoire de Mécanique, Modélisation & Procédés, Marseille, France
HYDROTHERMAL LIQUEFACTION OF SEWAGE SLUDGE MODEL COMPOUNDS: EFFECT OF HEATING RATE ON BIO-CRUDE YIELD AND QUALITY OF MIXTURE OF CELLULOSE-ALBUMINE-LIPIDS

5DV.2.10
Yukihiko MATSUMURA
Hiroshima University, Graduate School of Advanced Science and Engineering, JAPAN
Co-authors: Y. Suganuma, Hiroshima UHiroshima Universityniversity, HigaHigashi-Hiroshimashi-Hiroshima, Japan; N. Watanabe, T. Ichikawa, W. Kim, Y. Nakashimada, K. Nishida, Hiroshima University, Higashi-Hiroshima, Japan
HYDROTHERMAL TREATMENT OF CHICKEN MANURE TO REMOVE AMMONIA

5DV.2.11
Christian KLUPFEL
German Biomass Research Center, Biorefineries Dpt., GERMANY
Co-authors: B. Herklotz, German Biomass Research Center, Leipzig, Germany; P. Biller, Aarhus University, Denmark
ENERGETIC AND MATERIAL VALORISATION OF DIGESTATE VIA HYDROTHERMAL LIQUEFACTION: INFLUENCE OF BIOCHEMICAL COMPOSITION AND PROCESS PARAMETERS

5DV.2.12
Mariusz WADRZYK
AGH University of Science and Technology, POLAND
Co-authors: M. Plata, L. Korzeniowski, R. Janus, M. Lewandowski, AGH University of Science and Technology Kraków, Kraków, Poland
HYDROTHERMAL LIQUEFACTION OF BLACKCURRANT POMACE - EFFECT OF PRIOR REMOVAL OF WATER-EXTRACTIVES ON YIELD AND QUALITY OF RESULTANT BIOPRODUCTS.

5DV.2.13
Nicholas CANABARRO
Paul Scherrer Institut, SWITZERLAND
Co-authors: D. Yeadon, F. Vogel, D. Baudouin, Paul Scherrer Institut, Villigen, Switzerland
INORGANIC SALTS EXTRACTION FROM BLACK LIQUOR UNDER HYDROTHERMAL LIQUEFACTION CONDITIONS

5DV.2.16
Falilat KASSIM
Loughborough University, Civil Engineering Dpt., UNITED KINGDOM
Co-authors: O.O.D Afolabi, M. Sohail, Loughborough University, Loughborough, United Kingdom
A MULTI-PARAMETRIC STUDY ON HYDROTHERMAL CARBONISATION OF MIXED AGRI-FOOD WASTE FOR THE PRODUCTION OF HIGH-QUALITY SOLID BIOFUEL

5DV.2.17
Klaus RAFFELT
Karlsruhe Institute of Technology, Institute of Catalysis Research and Technology, GERMANY
Co-authors: N.C. Telis, C. C. Schmitt, N. Dahmen, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen, Germany; R.R. Soares, Federal University of Uberlândia, Uberlandia, Brazil
PERFORMANCE EVALUATION OF A NIOBIUM-BASED PELLET CATALYST: HYDRODEOXYGENATION OF BIO - OIL IN A TRICKLE BED REACTOR

09.00 - 12.00 **Harnessing CO_2 for sustainable CCUS value chains: The CooCE concept**
ROOM MODULAR 3

Carbon Capture Use and Storage (CCUS) technologies promise to make a significant contribution to reduction *of carbon emissions from energy-intensive industries. This workshop will engage stakeholders to discuss CCUS. The focus is on the CooCE project, which is developing a biotechnological platform using efficient and sustainable biological processes for the conversion of CO_2 into upgraded biofuels for transportation, along with valuable chemicals and high-volume biopolymers for bioplastic production for the packaging industry. CooCe is jointly funded by ACT- ERANET, under the European Union's Horizon 2020 (No 327331) and by the UK Department for Business, Energy and Industrial Strategy.*

The workshop is organised by CooCE's partners at Imperial College. Participation is open to anyone attending the EUBCE 2023 in person. We aim to recruit stakeholders from academia and research, industry, SMEs, NGOs

policymakers, and public agencies. This will allow for a rich discussion from a range of perspectives on CCUS technologies, products and value chains that can help inform policymaking and investment decisions. For more information on the CooCE, please visit: https://cooce.eu/.

09.30 - 12.20 **Valorization of by-products from vegetable oil refining in sustainable bio-based products**
ROOM MODULAR 2

IRODDI (Innovative Refining process for valorization of vegetable Oil Deodorizer DIstillates) is a project funded by the Bio-Based Industries Joint Undertaking (BBI JU) under the European Union's Horizon 2020 Research and Innovation programme (grant agreement Nº 887407) aimed to develop new biobased products using Free Fatty Acids (FFAs) contained in the residual side streams of the refining process of oils and fats, as well as develop innovative technologies for isolation of valuable minor compounds contained in them using softer operational conditions (https://iroddi.eu/).

This 36-months project is in its final phase, and this is its final event.

Break **10.00 - 10.15**

PLENARY SESSION DP.1

10.15 - 11.30 **Biomass conversion to intermediate bioenergy carriers and sustainable biofuels**
AUDITORIUM EUROPA

This plenary oral session includes overview presentations involved in the continuing development and deployment of fast-pyrolysis for heat and power generation, the hydrothermal liquefaction process chain from pulp all the way products, and the direct conversion of solid waste to drop-in fuels by the novel mechanical catalytic conversion process.

CHAIRPERSONS:
Donatella BARISANO
ENEA Research Centre, ITALY

Leonardo TOGNOTTI
University of Pisa, Dipartimento di Ingegneria Civile e Industriale, ITALY

DP.1.1
Bert VAN DE BELD
BTG Biomass Technology Group, THE NETHERLANDS
Co-authors: J. Florijn, E. Holle, BTG Biomass Technology Group, Enschede, The Netherlands; D. Preijde, R. Scheer, Abato Motoren, Den Bosch, The Netherlands
Keynote presentation
SMART AND FLEXIBLE HEAT & POWER FROM FAST PYROLYSIS OIL

DP.1.2
Maximilian WÖRNER
Karlsruhe Institute of Technology, GERMANY
Co-authors: A. Barsuhn, Karlsruhe Institute of Technology, Karlsruhe, Germany; U. Hornung, N. Dahmen, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen, Germany
FROM PULP TO AROMATIC PRODUCTS - UNDERSTANDING THE LIGNIN DEPOLYMERIZATION DURING HYDROTHERMAL LIQUEFACTION (HTL)

DP.1.3
David LUNN
XFuel Limited, IRELAND
Co-authors: N. Ball, T. Guenther, XFuel Limited, Dublin, Ireland
MECHANICAL CATALYTIC CONVERSION (MECC): A NOVEL PROCESS FOR THE CONVERSION OF SOLID BIOMASS AND WASTE OIL INTO DROP-IN LIQUID TRANSPORT FUELS AND OTHER BY-PRODUCTS WITH DECARBONISATION POTENTIAL

Break **11.30 - 11.45**

ORAL SESSION 4DO.4

11.45 - 12.45 **Innovative Biogas applications**
AUDITORIUM EUROPA

This biogas oral session focusses on innovations in biogas technology, its application in the treatment of a wide variety of feedstocks and the refinement of raw biogas for innovative conversion to energy.

CHAIRPERSONS:
Jens Bo HOLM-NIELSEN
Aalborg University, DENMARK

Katja OEHMICHEN
DBFZ-German Biomass Research Centre, GERMANY

4DO.4.1
Claudio CARBONE
ENEA, Energy Technologies and Renewables, ITALY
Co-authors: A. Giaconia, A. Agostini, ENEA, Rome, Italy; G. Papa, EBA, Brussels, Belgium; S. Proietti, ISINNOVA, Rome, Italy
INNOVATIVE BIOMETHANE PATHWAYS: THE BIOMETHAVERSE PROJECT

4DO.4.2
Invited

4DO.4.3
Jaroslaw MILEWSKI
Warsaw University of Technology, Institute of Heat Engineering, POLAND
Co-authors: K. Michalska, Textile Research Institute, Lodz, Poland; A. Kacprzak, Technical University of Lodz, Lodz, Poland
EXPERIMENTAL INVESTIGATION OF DAIRY BIOGAS AS FUEL FOR A MOLTEN CARBONATE FUEL CELL

4DO.4.4
Rjaa Jawad ASHRAF
Coventry University, Centre for Computational Science and Mathematical Modelling, UNITED KINGDOM
Co-authors: J.D. Nixon, J. Brusey, Coventry University, United Kingdom
MATHEMATICAL OPTIMISATION OF A CASE STUDY WASTEWATER ANAEROBIC DIGESTION SYSTEM USING ADM1 COUPLED WITH THE TRANSFORMER TOOL

ORAL SESSION 2DO.5

11.45 - 12.45 **Supporting biomass for transport fuels, chemicals and industry in the EU**
ROOM ITALIA

Two presentations in this session focus on biofuel related GHG reductions in the transport sector and related policy measures. The other two presentations highlight defossilisation and decarbonisation in industry and agriculture.

CHAIRPERSONS:
Martin JUNGINGER
Utrecht University, THE NETHERLANDS

Rainer JANSSEN
WIP GmbH & Co Planungs, GERMANY

2DO.5.1
Joanna SPARKS
Aston University, UNITED KINGDOM
Co-authors: M. Roeder, P. Thornley, Aston University, Birmingham, United Kingdom; A. Welfle, University of Manchester, Manchester, United Kingdom
CARBON FOR CHEMICALS - HOW CAN BIOMASS DE-FOSSILISE THE CHEMICAL SECTOR?

2DO.5.2
Niels DÖGNITZ
DBFZ, GERMANY
Co-author: E. Etzold, DBFZ, Leipzig, Germany
GERMAN GHG QUOTA IN THE TRANSPORT SECTOR - CERTIFICATE TRADING AS A PROMISING BUSINESS MODEL?

2DO.5.3
Julia HANSSON
IVL Swedish Environmental Research Institute, Climate & Sustainable Cities Dpt., SWEDEN
Co-authors: E. Furusjö, Rise Research Institutes of Sweden, Stockholm, Sweden; J. Lundgren, Luleå University of Technology, Sweden; P. Nojpanya, T. Gustavsson Binder, IVL Swedish Environmental Research Institute, Göteborg, Sweden
COSTS FOR REDUCING GHG EMISSIONS FROM ROAD AND AIR TRANSPORT WITH BIOFUELS AND ELECTROFUELS

2DO.5.4
Chuan MA
WIP GmbH & Co Planungs, GERMANY
Co-authors: D. Rutz, V. Hofmeier, R. Janssen, WIP Renewable Energies, Munich, Germany
SUPPORTING BIOMASS USAGE AND PRODUCTION TO DECARBONIZE INDUSTRIES - THE AGROFOSSILFREE PROJECT

THURSDAY 08 JUNE 2023

THU

ORAL SESSION 5DO.6

11.45 - 12.45 **Fundamentals and applications of HTL**
ROOM BIANCA

This session deals with the hydrothermal liquefaction process steps from depolymerization to biocrude upgrading, as well as looking into techno-economics for a range of feedstocks.

CHAIRPERSONS:
Bernd WITTGENS
SINTEF Industry, NORWAY

Bert VAN DE BELD
BTG Biomass Technology Group, THE NETHERLANDS

5DO.6.1
Sylvanus LILONFE
The University of Nottingham, UNITED KINGDOM
Co-authors: I. Dimitriou, B. Davies, J. McKechnie, University of Nottingham, United Kingdom
TECHNO-ECONOMIC AND LIFE CYCLE ANALYSES OF RENEWABLE HYDROCARBON FUELS FROM UK WET BIOMASS FEEDSTOCKS

5DO.6.2
Dimitrios LIAKOS
Centre for Research and Technology Hellas (CERTH), GREECE
Co-authors: S. Bezergianni, L. Chrysikou, N. Tourlakidis, V. Vasdekis, Centre for Research & Technology Hellas, Thermi - Thessaloniki, Greece; K. Triantafyllidis, Aristotle University of Thessaloniki, Thessaloniki, Greece
HYDROTHERMAL LIQUEFACTION OF VARIOUS BIOMASS TYPES TOWARDS BIOFUELS INTERMEDIATES

5DO.6.3
Maria Jose RIVAS ARRIETA
Aarhus University, DENMARK
Co-author: P. Biller, Aarhus University, Denmark
SEPARATION AND RECOVERY OF INORGANICS DURING HTL OF MANURE: TOWARDS NUTRIENTS CIRCULARITY

5DO.6.4
Daniele CASTELLO
Aalborg University, Energy Technology Dpt., DENMARK
Co-authors: M.S. Haider, L.A. Rosendahl, Aalborg University, Denmark
WHAT IT TAKES TO ACHIEVE COMPLETE DENITROGENATION DURING CONTINUOUS HYDROPROCESSING OF NITROGEN-RICH BIOCRUDES: ROAD MAP TOWARDS SUSTAINABLE AVIATION AND DIESEL FUEL

Status of 1 June 2023

ORAL SESSION IDO.2

11.45 - 12.45 **Indian Bioeconomy Initiatives - Supply chain challenges - opportunities for mainstreaming sustainable fuel, chemical and material and Indo-EU cooperation**
ROOM AVORIO

National Policy on Biofuels-2018 has set out very ambitious targets on blending of Ethanol, Diesel with BioEthanol and BioDiesel and replacement of fossil gaseous fuels with BioMethane (Compressed Biogas) India has achieved 10% blending of Ethanol in Gasoline in 2022 5 months ahead of the target, and is well on target to achieve 20% blending by 2025. The CBG program is also taking off with 47 Commercial plants commissioned under SATAT and another 80 to be commissioned before the end of the year. India has also come up with an aggressive SAF program and a couple of commercial projects have been announced. The Indian government has been highly proactive and closely interacting with the Industry to identify the challenges and carry out timely intervention to address them with policy tweaking. Government is also looking at broad basing the National Policy on biofuels to encompass Bio materials and Bio chemicals. The panelists in the session are expected to throw more light on the exciting developments and renewed targets.

CHAIRPERSONS:
Ramakrishna YAGATI
Ministry of Petroleum & Natural Gas, INDIA

Kyriakos MANIATIS
Former European Commission, DG Energy, EUBCE Industry Coordinator, BELGIUM

Speakers:

P. Jain
LanzaTech, India

A. Ray
Former Director CSIR - Indian Institute of Petroleum, Analytical Sciences Dpt., India

S. Joshipura
Praj Industries Limited, India

VISUAL PRESENTATIONS 1DV.3

11.45 - 12.45 **Microalgae, macroalgae, and aquatic systems: production to end use**
POSTER AREA

This session includes the latest results on algae and aquatic biomass production systems and their products.

CHAIRPERSON:
Scott TURN
University of Hawaii, USA

1DV.3.1
Ankita BHATT
Indian Institute of Technology Roorkee, Hydro and Renewable Energy Dpt., INDIA
Co-authors: M. Suthar, Indian Institute of Technology Roorkee and Central University of Haryana, Mahendergarh, Roorkee and Haryana, India; P. Arora, S.K. Prajapati, Indian Institute of Technology Roorkee, Roorkee, India
MICROALGAE-MEDIATED SIMULTANEOUS REMOVAL OF PATHOGENIC BACTERIA AND NUTRIENTS FROM WASTEWATER

1DV.3.3
Sebastian SANCHEZ VILLASCLARAS
University of Jaén, Chemical Engineering, Environmental and Materials Dpt., SPAIN
Co-authors: F. Mnasser, M.L. Martínez-Cartas, University of Jaen, Spain
EFFECT OF OIL MILL WASTEWATER USE IN THE CULTIVATION OF SCENEDESMUS SP

1DV.3.6
Mamta BHANDARI
Indian Institute of Technology Roorkee, Hydro and Renewable Energy Dpt., INDIA
Co-author: S.K. Prajapati, Indian Institute of Technology Roorkee, Roorkee, India
MICROALGAE CULTIVATION IN DRINKING WATER TO REJECT FOR WATER RECYCLING AND BIOMASS PRODUCTION

1DV.3.8
Leandro MADUREIRA
University of Minho, Centre of Biological Engineering, PORTUGAL
Co-authors: F. Maciel, A. Vicente, University of Minho, Braga, Portugal; J. Silva, ALLMICROALGAE, Natural Products S.A., R&D Department, Pataias, Portugal
USE OF AGRO-INDUSTRIAL BY-PRODUCTS FOR PAVLOVA SPP. CULTURE AS RELEVANT PRODUCTION STRATEGIES FOR CLEAGINOUS MICROALGAE

1DV.3.9
Francisco PEREIRA
University of Minho, PORTUGAL
Co-authors: P. Geada, J.A. Teixeira, University of Minho, Braga, Portugal
EFFECT OF AIR FLOW RATE AND STIRRING SPEED CONDITIONS ON HETEROTROPHIC GROWTH OF CHLORELLA VULGARIS IN STIRRED-TANK FERMENTER

1DV.3.10
Nicola DI FIDIO
University of Pisa, Chemistry and Industrial Chemistry Dpt., ITALY
Co-authors: S. Fulignati, M. Vento, L. Pistelli, A. Pardossi, A.M. Raspolli Galletti, University of Pisa, Pisa, Italy
GREEN EXTRACTION AND CHARACTERISATION OF ULVAN FROM RESIDUAL ULVA RIGIDA ALGA RECOVERED FROM ORBETELLO LAGOON

1DV.3.11
Vitor SOUSA
University of Minho, Center of Biological Engineering, PORTUGAL
Co-authors: F. Maciel, A. Vicente, O. Dias, P. Geada, University of Minho, Braga, Portugal
DUNALIELLA SALINA BIOMASS, A NOBLE SOURCE OF CAROTENOIDS: OPTIMIZATION PROCESS OF ß-CAROTENE ACCUMULATION

1DV.3.12
Jaber Mohammed ALHARBI
King Abdulaziz Universty, Chemical and Materials Engineering Dpt., SAUDI ARABIA
Co-author: A. Bahadar, King Abdulaziz Universty, Jeddah, Saudi Arabia
MICROALGAE CULTIVATION ASSESSMENT IN A CIRCULAR LOOP PBR USING ALGAL DATA ANALYZER

1DV.3.13
Jack LEGRAND
University of Nantes, GEPEA Dpt., FRANCE
Co-authors: K. Mangi, J. Pruvost, E.-K. Si-Ahmed, University of Nantes, Saint-Nazaire, France; J. Hoeniges, University of NantesUniversity of California, Los Angeles, Usa; L. Pilon, University of California of Nantes, Los Angeles, Usa
INFRARED RADIATION FILTRATION THROUGH SELF-SUSTAINED CONDENSATE FILM IN OUTDOOR ALGOFILM© SOLAR PHOTOBIOREACTOR

1DV.3.14
Gonzalo Mauricio FIGUEROA TORRES
ScotBio, R&D Dpt., UNITED KINGDOM
Co-authors: Y.C. Chen, P. Mulheran, University of Strathclyde, Glasgow, United Kingdom; L. Novoveska, R. Kindt, ScotBio, Livingston, United Kingdom
DEVELOPMENT OF A POWER-DEPENDENT PREDICTIVE MODEL FOR THE CULTIVATION OF SPIRULINA BIOMASS AT SCOTBIO

1DV.3.15
Sergejs KOLESOVS
University of Latvia, Institute of Biology, LATVIA
Co-authors: A. Sergejevs, K. Neiberts, P. Semjonovs, University of Latvia, Riga, Latvia
MIXOTROPHIC PRODUCTION OF MICROALGAE CHROMOCHLORIS ZOFINGIENSIS BIOMASS ON LACTOSE-CONTAINING SUBSTRATES FOR PRODUCTION OF LAYING HENS FEED

VISUAL PRESENTATIONS 1DV.4

11.45 - 12.45 **Biomass resources and potential (I)**
POSTER AREA

This poster session explores case studies and different methods for assessing biomass resources and potentials.

CHAIRPERSONS:
Myrsini CHRISTOU
Center for Renewable Energy Sources and Saving, GREECE

Wolter ELBERSEN
Wageningen Research, THE NETHERLANDS

1DV.4.1
Ioana IONEL
Politehnica University of Timisoara, Mechanical Engineering Dpt., ROMANIA
Co-authors: C.F. Pambou Nziengui, N. Manfoumbi Boussougou, Université des Sciences et Techniques de Masuku (USTM), Franceville, Gabon; R. Moutou Pitti, Université Clermont Auvergne INP, Clermont-Ferrand, France; C.M. Craciunescu, Universitatea Politehnica Timisoara, Timisoara, Romania
INVESTIGATION ON THE BEHAVIOR OF MONOPETALANTHUS WOOD FROM GABONESE FOREST, DURING A NATURAL DRYING PHASE

1DV.4.3
Thayse HERNANDES
LNBR - Brazilian Biorenewables National Laboratory, Sustainability Division, BRAZIL
Co-authors: D.S. Henzler, G. P. Petrielli, H. B. Pescarini, G. P. Nogueira, LNBR/CNPEM - Brazilian Biorenewables National Laboratory, Campinas, Brazil
AGROCLIMATIC MODELING FOR EUCALYPTUS AVAILABILITY ESTIMATION TO PRODUCE ADVANCED BIOFUELS

1DV.4.4
Mariana ABREU
NOVA School of Science and Technology, PORTUGAL
Co-authors: A. Reis, L. Quental, P. Patinha, F. Girio, Laboratório Nacional de Energia e Geologia - LNEG, I.P, Lisboa, Portugal; A.L. Fernando, NOVA School of Science and Technology | FCT NOVA, Almada, Portugal
GIS-BASED MODEL TO IDENTIFY MARGINAL SOILS FOR BIOENERGY PRODUCTION

1DV.4.5
Daniela HIGGIN AMARAL
University of São Paulo, Institute of Energy and Environment, BRAZIL
Co-authors: M. J. Do Nascimento Anater, A. P. De Souza Silva, S. Teixeira Coelho, University of São Paulo, Brazil
PERSPECTIVES FOR SUSTAINABLE FOREST BIOMASS AS ENERGY SOURCE IN CENTRAL WEST BRAZIL

1DV.4.6
Nicolas DAGORN
ARVALIS Institut du Végétal, FRANCE
Co-author: S. Marsac, ARVALIS - Institut Du VegetalALIS - Institut Du Vegetal, Baziege, France
ASSESSMENT OF BIOMASS POTENTIAL AND TECHNICAL RECOMMENDATION FOR GROWING ENERGY COVER CROP AT FRENCH LEVEL AREA

1DV.4.7
Martin COLLA
UCLouvain University, BELGIUM
Co-authors: J. Blondeau, VUB, Brussels, Belgium; H. Jeanmart, UCLouvain University, Louvain La Neuve, Belgium
CRITICAL REVIEW AND BROADER PERSPECTIVES ON THE BIOENERGY POTENTIALS - THE CASE OF BELGIUM

1DV.4.8
Daniela HIGGIN AMARAL
University of São Paulo, Institute of Energy and Environment, BRAZIL
Co-authors: M. Anater, D.H. Amaral, S.T. Coelho, University of São Paulo, Brazil; A.P.S. Silva, University of São Paulo and Technological Research Institute (IPT), Brazil
OPPORTUNITIES AND POTENTIAL FOR INCREASING SUSTAINABLE CHARCOAL PRODUCTION IN BRAZIL

1DV.4.9
Daniela HIGGIN AMARAL
University of São Paulo, Institute of Energy and Environment, BRAZIL
Co-authors: M.J.N. Anater, D. Perecin, J. M. Pacheco, M. Mariano Dos Santos, V. Pecora Garcilasso, S. Teixeira Coelho, University of São Paulo, SÃO PAULO, Brazil; K. Schneider, L. Nascimento, D. Odílio Dos Santos, L. Cassanta Vidotto, R. Rüther, Federal University of Santa Catarina, Florianópolis, Brazil; A. De Couto Amorim, The Energy Research Office, Rio De Janeiro, Brazil
POTENTIAL FOR ELECTRICITY GENERATION FROM BIOMASS WASTE IN BRAZILIAN ISOLATED SYSTEMS

1DV.4.12
Fragkoulis PSATHAS
National Technical University of Athens, Sector of Industrial Management and Operational Research, School of Mechanical Engineering, GREECE
Co-authors: A. Rentizelas, P. Georgiou, National Technical University of Athens, Zografou, Greece; A. Colantoni, L. Bianchini, R. Alemanno, G. Colla, Department of Agriculture and Forest Sciences, Viterbo, Italy
BIOMASS SUPPLY CHAIN OPTIMIZATION WITH A VARIABLE HARVESTING SCHEME

1DV.4.14
Antti KARHUNEN
Lappeenranta-Lahti University of Technology, LUT School of Energy Systems - Bioenergy, FINLAND
Co-authors: M. Laihanen, T. Ranta, Lappeenranta-Lahti University of Technology, Lappeenranta, Finland
POSSIBILITIES TO REPLACE PEAT BY DOMESTIC BIOMASS

1DV.4.15
Pratik SANODIYA
Veer Chandra Singh Garhwali Uttarakhand University of Horticulture, Agronomy Dpt., INDIA
Co-authors: H. Gupta, Department of Agronomy, I. Ag. Sc., Varanasi, Varanasi, India; A. Singh, Department of Agricultural Statistics, I.Ag. Sc., Varanasi, Varanasi, India
VARIOUS LAND USE SYSTEMS FOR BIOMASS ACCUMULATION, CARBON STOCK, CO_2 SEQUESTRATION AND CARBON CREDIT: IMPLICATION FOR CLIMATE CHANGE MITIGATION AND BETTER OPTIONS FOR GROWER EARNINGS IN SUBTROPICAL POCKETS OF VINDHYAN REGION, INDIA

1DV.4.16
Mohammad SADR
Helmholtz Zentrum für Umweltforschung, GERMANY
Co-authors: Dr. Esmaeili Aliabadi, Dr. Thrän, UFZ-DBFZ, Leipzig, Germany
ASSESSING THE SEASONALITY IMPACT ON BIOENERGY PRODUCTION FROM AGRICULTURAL BIOMASS IN GERMANY

1DV.4.17
Berien ELBERSEN
Wageningen Environmental Research, Earth Informatics Dpt., THE NETHERLANDS
Co-authors: P. Römkens, R. Rietra, M. Eupen, I. Staritsky, S. Verzandvoort, Wageningen Environmental Research (WENR), Wageningen, The Netherlands
LANDS AFFECTED BY DIFFUSE POLLUTION: A POTENTIAL RESOURCE FOR LOW ILUC BIOMASS?

1DV.4.18
Jarno FÖHR
Lappeenranta-Lahti University of Technology, Energy Technology Dpt., FINLAND
Co-authors: K. Kinnunen, A. Gyawali, M. Aalto, T. Ranta, Lappeenranta-Lahti University of Technology LUT, Mikkeli, Finland
UPDATING OF WOOD FUEL TERMINAL MODELS TO ENSURE FUEL SUPPLY IN FINLAND

11:45 - 13:45	**Upscaling the production of low ILUC risk biomass feedstock for the bioeconomy** **ROOM MODULAR 1**

Break **12.45 - 13.45**

ORAL SESSION 4DO.7

13.45 - 14.45	**Biogas innovations and research** **AUDITORIUM EUROPA**

This biogas oral session extends a look at the developments in the use of technologies for innovative applications, including evaluation of AD date for use in artifical intelligence, desulpherisation for power-to-gas, utilisation of biomass syngas and in-situ biogas enrichment.

CHAIRPERSONS:
Ioana IONEL
Politehnica University of Timisoara, ROMANIA

Claudio CARBONE
ENEA, ITALY

4DO.7.1
Ciro VASMARA
CREA Research Centre for Agriculture and Environment, ITALY
Co-authors: A. Orsi, D. Bochicchio, CREA Research Centre for Animal Production and Aquaculture, S.Cesario s/P, Italy; E. Ceotto, CREA RCREA Research Centre for Animal Production and Aquacultureesearch Centre for Agriculture and E, S.Cesario s/P, Italy
MULTI-FEEDSTOCK ANAEROBIC DIGESTION TO ENHANCE 2ND GENERATION METHANE PRODUCTION

4DO.7.2
Sebastian BORGQUIST
DTU Kemiteknik, Chemical Engineering Dpt., DENMARK
Co-authors: S.N.B. Villadsen, J. Abildskov, P. L. Fosbøl, DTU Kemiteknik, Kongens Lyngby, Denmark
PILOT EXPERIMENTS FOR A NEW PTX GAS DESULPHURIZATION TECHNOLOGY

4DO.7.3
Lu FENG
NIBIO - Norsk Institutt for Bioøkonomi, NORWAY
Co-authors: N. Aryal, University of South-Eastern Norway, Borre, Norway; B. Bilgic, NIBIO -Norsk Institutt for Bioøkonomi, Aas, Norway; S.J. Horn, Norwegian University of Life Sciences, Aas, Norway
BIOAUGMENTATION OF ENRICHED HYDROGENOTROPHIC METHANOGENS INTO TRICKLE BED REACTORS FOR H_2/CO_2 CONVERSION

4DO.7.4
Pietro POSTACCHINI
Free University of Bolzano, ITALY
Co-authors: L. Menin, S. Piazzi, F. Patuzzi, M. Baratieri, Free University of Bolzano, Bolzano, Italy; A. Grimalt-Alemany, Technical University of Denmark, Copenhagen, Denmark
EUBCE Student Awardee Presentation
BIOMETHANE PRODUCTION FROM THE CO-DIGESTION OF BIOMASS-DERIVED SYNGAS AND BREWERY SPENT YEAST: EXPERIMENTAL INVESTIGATION OF MIXED MICROBIAL CULTURES ADAPTATION AND CONTINUOUS CO-DIGESTION

ORAL SESSION 2DO.8

13.45 - 14.45 **LCA-based consideration to determine the carbon sink potential of bio-based value-chains**
ROOM ITALIA

The session will contribute to the discussion about using LCA as an effective tool to determine the resource expectation for bio-based materials, and how they can contribute to accelerate the development of carbon sinks.

CHAIRPERSONS:
Marco BUFFI
European Commission Joint Research Centre, ITALY

Guido REINHARDT
IFEU-Institut Heidelberg, GERMANY

2DO.8.1
Ronja WOLLNIK
German Biomass Research Centre, Bioenergy Systems Dpt., GERMANY
Co-authors: S. Abel, University of Greifswald, Greifswald, Germany; M. Borchers, D. Thrän, Helmholtz Centre for Environmental Research (UFZ), Leipzig, Germany; P. Elsasser, P. Herrmann, Thünen Institute, Hamburg, Germany; J. Hildebrandt, M Mühlich, Zittau/Görlitz University of Applied Sciences, Zittau, Germany; R. Seibert, Justus Liebig University Gießen, Gießen, Germany; N. Szarka, German Biomass Research Centre (DBFZ), Leipzig, Germany
RESOURCE EXPECTATION FOR BIO-BASED CDR IN GERMANY

2DO.8.2
Matteo PRUSSI
Politecnico di Torino, DENERG Dpt., ITALY
Co-authors: F. Barracco, D. Fino, D. Chiaramonti, Politecnico di Torino, Italy
LCA-BASED ASSESSMENT OF BIOCHAR PRODUCTION FROM WOOD CHIP

2DO.8.3
Invited

2DO.8.4
Anne BOUTER
JRC European Commission, ITALY
Co-author: S. Duval-Dachary, IFP Energies nouvelles, Rueil-Malmaison, France
LIFE CYCLE ASSESSMENT OF LIQUID BIOFUELS: WHAT THE SCIENTIFIC LITERATURE TELLS US? A STATISTICAL ENVIRONMENTAL REVIEW ON CLIMATE CHANGE

ORAL SESSION 5DO.9

13.45 - 14.45 **Supercritical water gasification**
ROOM BIANCA

This session deals with hydrothermal gasification, both catalytic and non-catalytic, including the separation of minerals and salts.

CHAIRPERSONS:
Nikolaos BOUKIS
Karlsruhe Institute of Technology, GERMANY

Daniele CASTELLO
Aalborg University, DENMARK

5DO.9.1
Julian DUTZI
KIT, GERMANY
Co-authors: N. Boukis, J. Sauer, KIT, Karlsruhe, Germany
GASIFICATION OF CONTAMINATED BIOMASS UNDER THE CONDITIONS OF SUPERCRITICAL WATER

5DO.9.2
Sasa BJELIC
Paul Scherrer Institut, Energy and Environment Dpt., SWITZERLAND
Co-authors: D. Salionov, Paul Scherrer Institut, Villigen, Switzerland; Ch. Hunston, F. Vogel, D. Baudouin, Paul Scherrer Instut, Villigen PSI, Switzerland
THE NATURE OF CARBON DEPOSITS AND THEIR FORMATION PATHWAYS DURING CATALYTIC SUPERCRITICAL WATER GASIFICATION OF GLYCEROL

5DO.9.3
Babak ARJMAND
Tampere University, Materials Science and Environmental Engineering Dpt., FINLAND
Co-authors: V. Agrawal, J. Konttinen, T. Joronen, Tampere University, Finland
CONTINUOUS SEPARATION OF SALTS AND SOLID PRODUCTS DURING HYDROTHERMAL LIQUEFACTION PROCESS

5DO.9.4
Hary DEMEY
Commissariat à l'Energie Atomique et aux Energies Alternatives, CEA/DRT/LITEN/DTCH/SCPC/LRP Dpt., FRANCE
Co-authors: G. Ratel, B. Lacaze, M. Marotta, O. Delattre, J. Hardy, G. Haarlemmer, A. Roubaud, Commissariat à l'Energie Atomique et aux Energies Alternatives, Grenoble, France
HYDROGEN PRODUCTION BY SUPERCRITICAL WATER GASIFICATION OF BLACK LIQUOR-BASED WASTEWATER

ORAL SESSION IDO.3

13.45 - 14.45 **Thermochemical Biomass Conversion for Energy Applications**
ROOM AVORIO

Thermochemical conversion processes such as gasification, fast pyrolysis and hydrothermal liquefaction are versatile process that can convert biomass to a variety of energy and chemical vectors. The session aims to present the latest development of thermochemical conversion in view of deployment of these technologies in the market.

CHAIRPERSONS:
Maria GEORGIADOU
European Commission, DG RTD, BELGIUM

Kyriakos MANIATIS
Former European Commission, DG Energy, EUBCE Industry Coordinator, BELGIUM

IDO.3.1
Invited

IDO.3.2
Zach EL ZAHAB
GTI Energy, USA
COOLGEL - INTEGRATED BIOREFINERY FOR PRODUCTION OF SUSTAINABLE BIO-EFUELS

IDO.3.3
Loukia CHRYSIKOU
CERTH Centre for Research and Technology Hellas, Chemical Process and Energy Resources Institute, GREECE
Co-authors: S. Bezergianni, A. Dimitiradis, N. Tourlakidis, Centre for Research & Technology Hellas, Thermi - Thessaloniki, Greece; N. Bergvall, A.C. Johansson, L. Sandstrom, RISE, Pitea, Sweden; L. Meca, P. Kukula, Ranido, Prague, Czech Republic; L. Raymakers, HyET Hydrogen, Arnhem, The Netherlands
INDUSTRIALLY RELEVANT SCALE VALIDATION OF BIOMASS CONVERSION VIA ABLATIVE FAST PYROLYSIS AND HYDROPROCESSING TOWARDS REFINERY INTEGRATION

IDO.3.4
Enrico PITTIS
Dürr Systems AG, Sales, GERMANY
Co-author: S. Jensen, Dürr Systems AG, Bietigheim-Bissingen, Germany
HEAT AND POWER THROUGH POLYHELD® WOOD GASIFICATON AND CYPLAN® ORC TECHNOLOGY

THURSDAY 08 JUNE 2023

THU

VISUAL PRESENTATIONS 1DV.5

13.45 - 14.45 **Biomass resources and potential (II)**
POSTER AREA

This poster session explores assessments and case studies and different methods for assessing biomass resources and potentials and includes projects on crop protection systems and multi-feed biomass supply chains.

1DV.5.1
Arun GYAWALI
LUT University, FINLAND
Co-authors: K. Koppelmäki, University of Helsinki, Mikkeli, Finland; J. Föhr, T. Ranta, LUT University, Mikkeli, Finland
SUITABILITY STUDY OF BIOGAS PLANT ESTABLISHMENT BASED ON AGROECOLOGICAL SYMBIOSIS (AES) CONCEPT IN LAKE REGIONS OF FINLAND

1DV.5.9
Ingrid Santos MIGUEZ
Universidade Federal do Rio de Janeiro, Biochemistry Dpt., BRAZIL
Co-authors: F. F. Bezerra, A. R. Todeschini, A. S. Silva, Universidade Federal do Rio de Janeiro (UFRJ), Rio de Janeiro, Brazil; C. L. O. Petkowicz, Universidade Federal do Paraná, Paraná, Brazil
STRUCTURAL CHARACTERIZATION OF CRYSTALINE MANNAN I FROM AÇAÍ SEEDS (EUTERPE OLERACEA MART.)

1DV.5.13
Celián ROMÁN-FIGUEROA
Bionostra Chile Research, CHILE
Co-authors: L.A. Bravo, M. Cea, Universidad de La Frontera, Temuco, Chile; M. Paneque, Universidad de Chile, Santiago, Chile
EFFECT OF EXOGENOUS APPLICATION OF FATTY ACIDS ON CROP PROTECTION AGAINST FREEZING STRESS

1DV.5.14
Nurhan DUNFORD
Oklahoma State University, Biosystems Engineering Dpt., USA
Co-authors: F.M. Alptekin, M.S. Celiktas, Ege University, Izmir, Turkey
VALORISATION OF UNDERUTILIZED BIOMASS AS ENERGY STORAGE MATERIALS

Status of 1 June 2023

1DV.5.18
Jasmine VERSYCK
ILVO-Plant, B2BE facilitator, BELGIUM
Co-authors: S. Snellinx, E. Belderbos, ILVO-Social Sciences, Merelbeke, Belgium; D. Cuypers, VITO-Nexus, Mol, Belgium
MONBIO 2.0: AN OVERVIEW OF THE FLEMISH BIOECONOMY AND ITS MONITORING METHODOLOGY

1DV.5.19
Abel RODRIGUES
INIAV, UTI Dpt., PORTUGAL
Co-authors: A. Gonçalves, CERIS, Instituto Superior Técnico, Universidade de Lisboa, Oeiras, Portugal; B. Maças, INIAV, Oeiras, Portugal, GeoBioTec, Nova School of Science and Technology, FCT, Caparica, Elvas, Portugal; A. Cordeiro, INIAV, Oeiras, Portugal, Oeiras, Portugal; P. Brito, Valoriza, Instituto Politécnico de Portalegre, Portelagre, Portugal
A FIRST STAGE OF AN ITERATIVE STRATEGY FOR EMPIRICAL SPATIAL MODELLING OF BIOMASS STRAW IN ALENTEJO, PORTUGAL

1DV.5.20
Carmen GIRON-DOMINGUEZ
Munster Technological University, Circular Bioeconomy Dpt., IRELAND
Co-authors: J. Gaffey, A. Hand, R. Ludgate, H. McMahon, CircBio, Munster Technological University, Tralee, Ireland; R. Van Der Weide, K. Wevers, ACRRES, Wageningen University and Research, Lelystad, The Netherlands; P. Borisov, V. Popov, Agricultural University of Plovdiv, Plovdiv, Bulgaria; J. Kallman, RISE Processum, Domsjo, Sweden; L. Puggaard, Food and Bio Cluster Denmark, Aarhus, Denmark; I. Rodilla, A. Casillas, B. Del Toro, I. Paredes, Innovarum, Madrid, Spain; P. Jurga, Institute of Soil Science and Plant Cultivation, Pulaway, Poland; A. Galatsopoulos, White Research, Saint-Gilles, Belgium; L. Parodos, E. Tsagaraki, Q-PLAN International, Thessaloniki, Greece
UNDERSTANDING THE BIOMASS AVAILABILITY, FLOWS AND VALUE CHAINS OF DIVERSE RURAL REGIONS IN EUROPE

1DV.5.22
Carmen GIRON-DOMINGUEZ
Munster Technological University, Circular Bioeconomy Dpt., IRELAND
Co-authors: G. Bishop, D. Styles, University of Galway, Galway, Ireland; J. Gaffey, Munster Technological University, Tralee, Ireland
IDENTIFYING ENVIRONMENTALLY SUSTAINABLE AND SCALABLE FEEDSTOCKS FOR CIRCULAR BIOECONOMY

1DV.5.23
Symone COSTA DE CASTRO
University of Campinas, Organic Chemistry Dpt., BRAZIL
Co-authors: N. Baltazar Soares, L. Tasic, University of Campinas, Campinas, Brazil
SWEET ORANGE BIOMASS AS A RESOURCE OF VALUE-ADDED PRODUCTS: FROM WASTE TO CHEMICALS WITH MULTIPLE APPLICATIONS

1DV.5.25
Erik RÖNNQVIST
Creative Optimization, SWEDEN
Co-authors: M. Frisk, Creative Optimization, HALMSTAD, Sweden; A. Eriksson, L. Engberg Sundström, Skogforsk, Uppsala, Sweden
INTEGRATED BIOENERGY SUPPLY CHAINS FOR SYNTHETIC NATURAL GAS AND ENERGY PRODUCTION

1DV.5.28
Ilze VAMZA
Riga Technical University, LATVIA
SYSTEM DYNAMICS THINKING TO OPTIMIZE CARBON STORAGE IN THE WOOD-BASED ECONOMY

VISUAL PRESENTATIONS 4DV.6

13.45 - 14.45 **Densification, torrefaction and other innovative pretreatments: experimental studies at different scales and numerical modelling**
POSTER AREA

This is a poster session focussed on biomass pretreatments, pelleting and briquetting methods for densification, properties of densified biomass, the effects of contaminants on subsequent conversion processes and pretreatment approaches for flexible feedstock applications.

CHAIRPERSONS:
Capucine DUPONT
The Delft Institute for Water Education, THE NETHERLANDS

Bernd WITTGENS
SINTEF Industry, NORWAY

4DV.6.2
Alberto ASSIRELLI
CREA - Research Center for Engineering & Agro-Food Processing, ITALY
Co-authors: T. Gasperini, G. Toscano, S. Di Stefano, UNIPM Marche University Polithecnic Department of Agricultural, Food and Environmental Sciences - Ma, Ancona - An, Italy
EFFECTS OF THE LENGTH OF PELLET ON COMBUSTION EFFICIENCY IN A DOMESTIC THERMAL SYSTEM

4DV.6.3
Alberto ASSIRELLI
CREA - Research Center for Engineering & Agro-Food Processing, ITALY
Co-authors: T. Gasperini, UNIPM Marche University Polithecnic Department of Agricultural, Food and Environmental Sciences - Ma, Ancona, Italy; G. Toscano, S. Fabrizi, M. Naspi, UNIPM Marche University Polithecnic Department of Agricultural, Food and Environmental Sciences - Ma, Ancona - An, Italy
EFFECTS OF GEOMETRICAL PARAMETERS OF WOOD PELLET ON MASS FLOW RATE IN A HOPPER-AUGER PROTOTYPAL ANALYTIC INSTRUMENT

4DV.6.5
Michael-Alexandros KOUGIOUMTZIS
Centre for Research and Technology Hellas, Chemical Process and Energy Resources Institute, GREECE
Co-authors: V. Filippou, Energy Community of Karditsa, Greece; E. Karampinis, Bioienergy Europe, Brussels, Belgium; C. Louka, P. Grammelis, E. Kakaras, Centre for Research and Technology Hellas, Athens, Greece
VALORIZATION OF SPENT COFFEE GROUND BY MIXING WITH RESIDUAL BIOMASS FOR PELLET PRODUCTION. EVALUATION OF SOLID FUEL PROPERTIES AT DIFFERENT MIXTURES

4DV.6.6
Seongil KIM
Korea Institute of Industrial Technology, REPUBLIC OF KOREA
Co-authors: S. Lee, Korea Institute of Industrial Technology, Busan, South Korea; Y. Lee, Korea Institute of Industrial Technology, Cheonan-si, South Korea
EXPERIMENTAL STUDY ON THE GRINDABILITY ANALYSIS OF TORREFIED BIOMASS

4DV.6.7
Carla FUENTES BOIX
Forest Science and Technology Centre of Catalonia, Forest Chemistry, Bioproducts and Human Health DPT., SPAIN
Co-authors: C. Fuentes, N. Puy, P. Rovira, CTFC, Solsona, España, Spain
WOOD BIOMASS AS BIOFUEL: IMPROVING THERMAL PROPERTIES THROUGH LOW-TEMPERATURE TORREFACTION

4DV.6.9
Elie LACOMBE
French Alternative Energies and Atomic Energy Commission (CEA), SCPC, Reactor and Process Lab, LITEN, CEA Dpt., FRANCE
Co-authors: T. Melkior, M. Marchand, French Alternative Energies and Atomic Energy Commission (CEA), LITEN, SCPC, Reactor and Process Lab, Grenoble, France; C. Dupont, IHE Delft, Department of Water Supply Sanitation and Environmental Engineering, Delft, The Netherlands
TORREFACTION OF OAK AND OLIVE STONES IN A SEMI-INDUSTRIAL HEARTH FURNACE: REACTOR MODELLING AND EXPERIMENTAL VALIDATION

4DV.6.10
Heather WRAY
TNO, Biobased and Circular Technologies Dpt., THE NETHERLANDS
Co-authors: P. Abelha, R. Visser, TNO, Petten, The Netherlands
PRE-TREATMENT OF METAL-CONTAMINATED BIOMASS FOR DOWNSTREAM CONVERSION TO BIOFUELS

4DV.6.13
Zahra KAZEMI-MEHRABADI
Polytechnique Montreal, CANADA
Co-authors: S. Tuomi, I. Hiltunen, VTT Technical Research Centre of Finland Ltd, Finland; P. Stuart, Polytechnique Montreal, Montreal, Canada
BIOMASS PRE-PROCESSING TECHNOLOGY FOR FLEXIBLE FEEDSTOCKS

4DV.6.16
Luis Saúl ESTEBAN PASCUAL
CIEMAT-CEDER, Renewable Energy Dpt., SPAIN
Co-authors: M.J. Fernández Llorente, I. Mediavilla, R. Barro, E. Borjabad, R. Bados, CIEMAT, Soria, Spain
FUEL PROPERTIES AND COMBUSTION BEHAVIOUR OF OLIVE TREE AND VINEYARD PRUNING BIOMASS

4DV.6.18
Regan CEASER
Universidad Rovira i Virgili, Chemical Engineering Dpt., SPAIN
Co-authors: S. Rosa, D. Montané, M. Constantí, F. Medina, Universidad Rovira i Virgili, Tarragona, Spain
CELLULOSE PRODUCTION AT HIGH SOLIDS LOADING FROM MIXED SOFTWOOD BY A MICROWAVE-ASSISTED DEEP EUTECTIC SOLVENT PRETREATMENT

4DV.6.19
Carlos ARCE
Czech Technical University, Process Engineering Dpt., CZECH REPUBLIC
Co-author: L. Krátý, Czech Technical University, Praha, Czech Republic
THE EFFECT OF PROCESS VARIABLES ON PARTICLE SIZE AND ENERGY CHARACTERISTICS FOR BALL MILLING OF BEECH CHIPS

4DV.6.20
Ye-Eun LEE
Korea Institute of Civil engineering and building Technology, Land, Water and Environment Research Dpt., REPUBLIC OF KOREA
Co-authors: Y. Jeong, K.-H. Ahn, J.-H. Jung, I-T. Kim, Korea Institute of Civil engineering and building Technology (KICT), Goyang-si, South Korea
COMPARATIVE STUDY OF FOOD WASTE BIOCHAR POST-TREATMENT METHODS FOR SOLID FUEL USAGE

4DV.6.21
Jiyeon PARK
Korea Institute of ceramic engineering&technology, REPUBLIC OF KOREA
Co-authors: B.I. Sang, Chemical Engineering Department, Hanyang University, Seoul, South Korea; Ji.H. Lee, Korea Institute of ceramic engineering&technology, Cheongju-si, South Korea
REDUCTION OF CORROSION OF BOILER HEAT EXCHANGERS BY ALKALI METAL SALTS IN BIOMASS BY APPLYING ACID TREATMENT AND FUEL ADDITIVE UTILIZATION TECHNOLOGY

4DV.6.22
Mirjam HAVEKOST
Technical University Mittelhessen, GERMANY
Co-author: S. Pohl, Technical University Mittelhessen, Giessen, Germany
STUDY ON THE INFLUENCE OF FUEL MIXTURE AND CACO3 ON ASH MELTING BEHAVIOR OF HORSE MANURE

4DV.6.23
Benjamin RABDEAU
RAGT Energie, FRANCE
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ADAPTATION OF PELLETIZING CONDITIONS TO A SET OF AGRICULTURAL WASTE FROM SENEGAL AND CÔTE D'IVOIRE

Break **14.45 - 15.00**

15.00 - 16.00 **Closing**
AUDITORIUM EUROPA

Introduction to the Closing Session

Highlights of the Conference

Industry Track

Ceremony of Students Awards

Ceremony of Poster Awards

Farewell

PRIZES AND AWARDS

Giuliano Grassi Prize

A new prize for the Excellence in Biomass Industrial Deployment

In view of recognition of the role of the industry, in 2022, the EUBCE management decided to establish the Giuliano Grassi Prize: Excellence in Biomass Industrial Deployment to be awarded to an individual whose contribution in the industrial deployment of biomass has been exceptional in facilitating market deployment of biomass.
After quite some thought and search, the name "Giuliano Grassi Prize" was proposed, in view of the contribution of Dr Giuliano Grassi during his lifetime to Renewable Energies and in particular Bioenergy and Photovoltaic, as the European leader of the aforementioned programmes managed in Brussels on behalf of the European Union, becoming engaged in large integration projects for Renewable Energies, in particular Bioenergy, all over Europe. He also initiated links with major players in India, China, Latin America and Africa. One of the international networks he initiated is EUBIA, the European Industry Association with the headquarters in Brussels.

The Linneborn Prize

Recipient for outstanding contributions to biomass

The Prize was established in 1994 by European Commission for outstanding contributions to the development of energy from biomass and is awarded every year to an individual for outstanding merits in biomass.
The Prize is named in honour of Johannes Linneborn, a pioneer of wood gasification. Deeply rooted in human ethics, he had far-reaching visions on the world's development, on health, transport and agriculture.
The prize is awarded every year at EUBCE (European Biomass Conference & Exhibition) to honor scientific, technical or managerial merit in the development of biomass, to a single european individual (but occasionally to a non-european) for the long period of continuos achievements.
The Linneborn Prize Committee selects the individual to be honoured with the prize. The committee is formed by: (a) all the past awardees, (b) the Chairperson of EUBCE, (c) one representative of the European Commission, (d) the organiser of EUBCE.

Poster Awards

The Poster Awards ceremony is one of the highlights of the Conference Closing, placing emphasis on the most outstanding Visual Presentations of each topic.
Its own ceremony during each EUBCE edition highlights exceptional visual presentations that combine scientific novelty and excellence during that year's conference and exhibition.

Student Awards

The aim of the student awards is to encourage high-quality work amongst young researchers. The awards are bestowed, live, during the EUBCE 2023 closing session to select matriculated students who made significant contributions to remarkable biomass research.

EUBIA Award

EUBIA was established in 1996 as an international non-profit association that groups together technology providers, knowledge centers and market forces active in the field of biomass. EUBIA promotes the use of biomass as an energy source, developing innovative bioenergy concepts and fostering international cooperation, as well as protecting industrial interests identifying new opportunities, strengthening the European policies, promoting job creation and a better environment for all.

The EUBIA Award was created in 2000, almost 20 years ago, when biomass development was at its early stage. The role of this prize has always been to support those companies and organizations demonstrating high effort and success in biomass technology development at a commercial and industrial level.
Since 2000 EUBIA, the European Biomass Industry Association, gives its annual prize to companies who demonstrated an high effort in supporting biomass development at commercial and industrial level.

PUBLICATIONS

BIOFPR — BIOFUELS, BIOPRODUCTS & BIOREFINING

BioFPR (Biofuels, Bioproducts & Biorefining) is published by Wiley and has an impact factor of 5.239. Biofuels, Bioproducts and Biorefining is a vital source of information on sustainable products, fuels and energy. Examining the spectrum of international scientific research and industrial development along the entire supply chain. The journal publishes a balanced mixture of peer-reviewed critical reviews, commentary, and policy updates. Biofuels, Bioproducts and Biorefining is dedicated to fostering growth in the biorenewables sector and serving its growing interdisciplinary community by providing a unique, systems-based insight into technologies in these fields as well as their industrial development.

SCIENTIFIC JOURNAL PUBLICATION

Biomass and Bioenergy is an international journal publishing original research papers and short communications, review articles and case studies on biological resources, chemical and biological processes, and biomass products for new renewable sources of energy, food and materials. The scope of the journal extends to the environmental, management and economic aspects of biomass and bioenergy.
Our publishing partnership, established in 2012, gives a prestigious opportunity to the authors of abstracts submitted for EUBCE: each year a selected number of the highest scored abstracts is invited to be peer reviewed and published in a recurring special issue of Biomass & Bioenergy.

ENERGIES — OPEN ACCESS JOURNAL OF ENERGY RESEARCH, ENGINEERING AND POLICY

A peer-reviewed open access journal of related scientific research, technology development, engineering, and the studies in policy and management. It is published semi-monthly online by MDPI. Many presenters from previous editions of EUBCE have been featured in Energies.

SUSTAINABILITY — OPEN ACCESS JOURNAL OF ENVIRONMENTAL CULTURAL, ECONOMIC, AND SOCIAL SUSTAINABILITY

It provides an advanced forum for studies related to sustainability and sustainable development, and is published semimonthly online by MDPI. The Canadian Urban Transit Research & Innovation Consortium (CUTRIC) and International Council for Research and Innovation in Building and Construction (CIB) are affiliated with Sustainability and their members receive discounts on the article processing charge.

CONFERENCE PROCEEDINGS

Scopus is the world's largest abstract and citation database of peer-reviewed research literature with over 22,000 titles from more than 5,000 international publishers. Delivering a comprehensive overview of the world's research output in the fields of science, technology, medicine, social sciences, as well as arts and humanities, Scopus features smart tools to track, analyze and visualize research.

BE-SUSTAINABLE

A source of news, information, and resources on biomass, bioenergy and the bioeconomy. BE-Sustainable is published by ETA-Florence Renewable Energies. An annual BE Sustainable Special Issue contains a selection of some of the most relevant and cutting-edge contributions presented during each EUBCE.

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David CHIARAMONTI, Polytechnic of Turin, IT

Low ILUC Biofuels
Chris MALLINS, Cerulogy, UK

Confusing Legislation
Guillaume BOISSONNET, CEA, FR

Beyond Annex IX
Paolo CORVO, BF Partners, IT

Biobased products and materials
Simone MACCAFERRI, CBE JU, IT

LSB
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Progress in Biomethanol and Hydrogen
Matthias ÓLAFSSON, Methanol Institute, BE
Maximilian KUHN, Hydrogeneurope, BE

Low carbon fuels for Aviation and Shipping
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Thermochemical Liquefaction
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Biofuels in Africa
Oluwaseun OGUNTADE, Greencrystal Engineering, DE

Biomethane
Lorenzo MAGGIONI, Biomethane expert, IT
Myrsini CHRISTOU, CRES, GR

Biomass Africa
Myrsini CHRISTOU, CRES, GR

SAF in Africa
Theodor GOUMAS, EXERGIA, GR

Bioeconomy in China
Shizhong LI, Tsinghua University, CN

Bioeconomy in India
Ramakrishna YB, BEST Associates, IN

Thermochemical Biomass Conversion for Energy Applications
Kyriakos MANIATIS, EUBCE Industry Track Coordinator, BE
Maria GEORGIADOU, European Commission, DG RTD, Directorate General for Research, BE

AWILAB DIGESTER

Extendable to multiple connected digester units

Gas measurement, analysis & automatic sensor calibration

Scale-up function of data to real-world conditions

Automatic conversion to norm conditions

Multi-colored 7" touch panel

PRODUCT INNOVATION:

AWILAB DIGESTER

Your mobile, plug-and-play laboratory fermenter for your wet substrate gasification experiments.

Interval, continuous and reverse stirring

Agitator with powerful motor for high dry matter content. Adjustable blades

Insulated stainless steel tank with automatic leak test & heatable shell

Testing substrate supplements (additives & enzymes)

Monitoring flow rate, temperature, pressure, pH, Redox, stirrer power consumption

Live at Stand 21!

BESTON
RECYCLING FOR BETTER LIFE

BESTON GROUP CO., LTD

RECYCLING FOR BETTER LIFE

Beston Group Co., Ltd. is the Environmental Protection Division of Henan Golee Holding Group, responsible for promoting resource regeneration solutions, equipment manufacturing and project implementation in the global market. Beston is solid waste treatment overall solution provider and manufacturer of supporting equipment and the NO.1 of China's foreign trade export in this subdivision field.

Beston was established in 2013 and mainly engaged in: waste pyrolysis equipment, waste oil distillation equipment, biomass carbonization equipment, paper pulp molding equipment, waste sorting equipment. At the same time, we provide packaging technical solutions, installation and commissioning services, and project operation services, etc. The products and service are widely sold in more than 130 countries and regions all over the world.

- WASTE PYROLYSIS EQUIPMENT
- WASTE OIL DISTILLATION EQUIPMENT
- BIOMASS CARBONIZATION EQUIPMENT
- PAPER PULP MOLDING EQUIPMENT
- WASTE SORTING EQUIPMENT

BESTON CARBONIZATION TECHNOLOGY

- Customized proposal for Puro Earth Standard certification;
- 24 hours continuous operation, large capacity;
- Heat is self-sustained by reusing the syngas and hot smoke from the production process;
- Safely devices: explosion-proof hole, explosion-proof hydro-seal and alarm device;
- Double cylinder design with three points support;
- Safely cooling discharger;
- Sealed feeding and reactor system;
- Highly automatic design with PLC.

FEEDSTOCK

All kinds of biomass materials and agriculture waste, such as wood chips, sawdust, coconut shell, coffee shell, rice husk, peach kernel, hazelnut shell, peanut shell, corn stalk, cotton stalk, wheat straw, palm silk and so on.

BIOCHAR

Biochar is essentially solid atmospheric carbon extracted from waste biomass and buried in the soil. It can endure in soil for thousands of years. Agriculture and forestry carbon sequestration and emission reduction, improve soil fertility, making it an ideal technology for scalable carbon removal. It has multiple commercial uses at potentially industrial volumes, for example, as greenhouse additive, as fuel for grilling and rinsing, in soil regeneration and in wastewater treatment, in foundry, chemical iindustry and other fields. It is produced from biomass or biowaste, through pyrolysis (heated in the absence of oxygen).

BIKE

BIOFUELS PRODUCTION
AT LOW - ILUC RISK
FOR EUROPEAN SUSTAINABLE
BIOECONOMY

Safe and reliable biomass value chains for sustainable biofuels and the bioeconomy

bike-biofuels.eu

The BIKE project explores and demonstrates the reliability of a series of low-ILUC risk biofuels production routes

BIKE is developing the first ever certification module for low ILUC risk biofuels

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No. 952872.

Bio4A

Advanced Sustainable Biofuels for Aviation

BIO4A is a Horizon 2020 project to scale up the industrial production and the market uptake of sustainable aviation fuel, made from residual lipids. The project enables the large-scale pre-commercial production of ASTM-certified sustainable aviation fuel in the EU.

It also investigates the alternative supply of sustainable feedstocks by recovering EU MED marginal land for drought resistant crop production.

The project tested the entire value chain and logistic at industrial scale and assessed the environmental performance of the overall process.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 789562.

BIOMAC

European Sustainable Bio-based Nanomaterials Community

Creating an **Open Innovation Test Bed** for the development of new biobased nanomaterials and solutions

Providing access to services and facilities for SMEs eager to test new applications for **nanomaterials**

biomac-oitb.eu

The project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No. 952941.

CERESiS

Contaminat**E**d land **R**emediation through **E**nergy crops for **S**oil **i**mprovement to liquid biofuel **S**trategies

4 use cases

CERESiS DSS will be implemented in 4 real-scale projects in **Ukraine, Italy, UK** and **Brazil.**

Context

Land decontamination through phytoremediation, i.e. growing energy crops to produce clean biofuels.

Non-agricultural landbanks, including brownfield sites, former landfills and mining sites, such as Pb-Zn mines.

Heavy metals contamination at tailing sites of ilmenite sand mines, located within Zhytomyr region.

Agricultural farm area in Viterbo contaminated with As from historical use of pesticides.

Large agricultural areas with Cr contamination from tanneries waste used as fertilizers for many years.

Objectives

- Demonstrate the suitability and effectiveness of various conventional and novel species of energy crops for phytoremediation purposes in contaminated land, against a variety of the most common contaminants globally.
- Demonstrate the potential of two novel thermochemical processes, i.e. Supercritical Water Gasification (SCWG) and Fast Pyrolysis (FP), for the production of biofuels and key biofuel precursors suitable for further upgrading, from contaminated biomass.
- Provide decision support to stakeholders and policy makers in order to achieve optimal win-win solutions for site-specific land decontamination through phytoremediation while simultaneously producing clean liquid biofuels.

Output

CERESiS aims to influence policy makers and stakeholders with recommendations on how to support the incorporation of phytoremediation in biofuel production value chains. To this end, the project will develop a Decision Support System (DSS) and test it in 4 use cases (UA, IT, UK, BR). The DSS can be further exploited outside the scope of the project and propose optimal pathways (i.e. best choice of energy crops, most appropriate cultivation and harvesting methods, conversion and separation technologies and supply chain design) for each individual case of site, area, region or country.

12 partners	8 countries	4 use-cases	3,564,700 EU Funding	11/2020 start	4/2024 end

BIOLOGICAL CARE NATURALLY ENERGY

methanTUBE

Around the Biogas

Biological Care is the ideal partner for Green Economy operators. Since the beginning, Biological Care has been strongly focused on Sustainability and Circular Economy development and consolidation

Thanks to a long-term experience built in the chemical sector, where it was born, Biological Care scientifically investigates on every cutting-edge field in the Green Economy system, from BIO WASTE to BIO BUG, until the new horizons of BIOMETHANE, with a view to building an eco-friendly industrial philosophy, promoting a large-scale production of renewable energy.

To achieve this aim, it follows pre-feasibility studies for industries that must manage large amounts of production waste, analysing its energetic potential to direct the customer through the realisation of an owned Biogas plant, in order to change the costs in an economic resource.

It supports and leads industries from the initial phase of consultancy to the planning and implementation phases, to after-sale assistance for a proper management of the plant. It analyses, buys e provides BIOMASS and PRODUCTS with a high methanation, coming from agricultural and agri-food sectors, to create diets able to maximize the productivity of biodigesters.

It also develops advanced systems that allow Biogas and Biomethane productors to have a clear and constantly updated picture of the operation of their owned plant. METHAN TUBE® is an example of this technology, that simulate the biodigester operation, monitoring the properties of the used biomasses with a dedicated software.
Thanks to METHAN TUBE®, Biological Care is able to guide and assist the client throughout the management of his productive cycle, providing the best products on the market to maximise the plant's operations.
With its dedicated software, developped by Biological Care, the data collected are transmitted through the Internet to be elaborated so as to create a customized energy mix for any kind of biodigestor.

For more information contact us:
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BIOLOGICAL CARE NATURALLY ENERGY

ABOUT US

BIOREF
Laboratório Colaborativo para as Biorrefinarias

CoLAB BIOREF - Collaborative Laboratory for Biorefineries connects highly qualified knowledge and innovation with the industrial sector.

Our mission is to identify and address the specific requirements of companies in the field of biorefining technologies, while actively promoting bioeconomy and bioenergy.

We promote a market-oriented Research and Innovation (R&I) Agenda that focuses on two strategic domains: Bioenergy & Renewable Gases and Sustainable Bioeconomy.

We are committed to the national and EU strategic goals, being the entity responsible for drawing up the Portuguese Biomethane Action Plan.

DOMAINS

Bioenergy & Renewable Gases

Sustainable Bioeconomy

OUR ASSOCIATES

LNEG, HYChem, SILICOLIFE, tratolixo, Ciências ULisboa, a4f, BLC3, biotrend, galp, U.PORTO, dourogás, sysadvance, RAIZ, TAP AIRPORTUGAL, utad, TÉCNICO LISBOA, universidade de aveiro, POLITÉCNICO DE PORTALEGRE, NOVA

OUR SERVICES

BIOENERGY & RENEWABLE GASES

- DEVELOPMENT AND OPTIMISATION OF RENEWABLE METHANE TECNOLOGIES
- DEVELOPMENT AND OPTIMIZATION OF BIOMASS GASIFICATION AND PURIFICATION TECHONOLOGIES
- MODELING, OPTIMISATION & SCALE-UP OF THERMOCHEMICAL AND BIOCHEMICAL PROCESSES
- BROAD CONSULTANCY SERVICES, MARKET RESEARCH, TECHNICAL-ECONOMIC ANALYSIS, AND LIFE CYCLE ASSESSMENT

SUSTAINABLE BIOECONOMY

- DEVELOPMENT OF SUSTAINABLE BIOREFINING TECHNOLOGIES FROM ALGAE AND LIGNOCELLULOSIC BIOMASS
- DEVELOPMENT OF SUSTAINABLE BIOMASS VALUE CHAINS FROM AGRICULTURE, FORESTRY, ALGAE SECTORS
- DEVELOPMENT, OPTIMISATION AND SCALE-UP OF FERMENTATIVE AND ENZYMATIC PROCESSES
- PRODUCTION OF VALUE-ADDED BIOCOMPOUNDS FOR FOOD, FEED, PHARMA, NUTRACEUTICAL, CHEMICAL, COSMETICS AND BIOPOLYMER INDUSTRIES

BPC INSTRUMENTS

AMPTS® III – a tool for anaerobic batch fermentation tests

The Automatic Methane Potential Test System (AMPTS®) III is the analytical tool preferred by scientists and engineers for conducting various anaerobic batch fermentation tests. This includes performing, with up to 18 test vials, biochemical methane potential (BMP) tests, anaerobic biodegradability studies, specific methanogenic activity (SMA) assays as well as conducting residual gas potential (RGP) analyses on digested slurry. All of this is performed with easy access to sampling, analysis, recording and report generation; fully integrated and automated. In its standard form AMPTS III houses 18 glass reactors, but there is also a slimmed down version available, AMPTS III Light, which houses 9 glass reactors.

- Highly precise and accurate data
- Significant reductions in time and labour
- Standardisation of measurement procedures, data interpretation and reports
- User-friendly operations with remote access

"AMPTS helped us minimising the differences in laboratory skills between different researchers by following the same procedure for BMP testing in which manual handling is minimised, while a huge number of data points are gathered…

By using the AMPTS apparatus we can achieve reproducible results even with students who perform the test for the first time. We now include the AMPTS as a standardised test in our regular curriculum practical work."

Prof. Jules van Lier, Delft University of Technology, the Netherlands

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A competitive bioeconomy for a sustainable future

Circular Bio-based Europe Joint Undertaking

Can Europe move to a low-carbon economy where new green jobs bring life back to regions and their environment? Is there a way to safely produce food and everyday products locally, cut long supply chains, and reduce Europe's reliance on imported ingredients and raw materials?

For 10 years, European bioeconomy stakeholders have been working on these challenges with the support of CBE JU - Circular Bio-based Europe Joint Undertaking, a public-private partnership that funds projects deploying innovative bio-based solutions and advancing competitive bio-based industries in Europe.

The goal of CBE JU is to help Europe become the world's first climate-neutral continent while increasing the sustainability and circularity of production and consumption systems. By combining public and private investment, CBE JU helps reduce investment risk in cutting-edge technologies while adding the skills and knowledge necessary to fulfil market demands. Projects supported by CBE JU must show a strong positive impact on the environment, apply cascading uses to the biomass and cannot compete with food production.

The partnership's €250 million investment in 14 first-of-their-kind commercial-scale biorefineries across Europe has already attracted €1.3 billion in private investment and created nearly 20,000 jobs. Many of these are new, highly skilled jobs in remote, rural, and coastal areas where the biomass is sourced. Altogether, these first biorefineries are expected to reduce 800 KT of CO_2. What's more, each biorefinery's model can be replicated in other regions, bringing great economic and environmental benefits to the local communities.

Discover the stories of the CBE JU-funded biorefineries.

The map on the following page shows the flagship project's name, the biomass, and the bio-based solutions they produce. The two flagship biorefineries selected in the Call for project proposals 2022 are included in orange.

€215.5 million available for advancing Europe's circular bio-based economy

A total of €215.5 million will be dedicated to advancing competitive circular bio-based industries in Europe across 18 topics.

All stakeholders of the circular bio-based industries ecosystem can apply by 20 September 2023, 17:00 Brussels time.

Learn more.

ITALIAN NATIONAL AGENCY FOR NEW TECHNOLOGIES,
ENERGY AND SUSTAINABLE ECONOMIC DEVELOPMENT

SCAN ME
enea.it

ENEA, National Agency for New Technologies, Energy and Sustainable Economic Development, is a public body with about 2200 employees and 14 research centres and labs spread over Italy and has a specific mission in applied research and innovation technology activities, also through prototypes and product industrialization.

Main actions include applied research, technology transfer and technical-scientific support to companies, associations, central and local administrations. The current organization structure consists of four Departments:

- energy technologies (renewable sources, energy storage, smart grids), for which the Agency is also the coordinator of the Energy National Technology Cluster;
- nuclear fusion and nuclear safety (the Agency is the reference national research coordinator);
- energy efficiency (with the National Agency for Energy Efficiency);
- department of sustainability. The R&D activities assigned to ENEA focus also on the areas of hydrogen (e.g. production, use and storage) as a solution of great promise for meeting climate challenges and EU target at 2050.

ENEA supports the productive system as well as public authorities (Ministry of Environment and Energy Security in particular) in the transition towards the circular economy and the resource efficiency.
ENEA is one of the founding members of the EERA (European Energy Research Alliance) that is part of the Strategic Energy Technology (SET-Plan) of the EC, is part of ECRA (European Climate Research Alliance), MEDENER, and Enterprise Europe Network (EEN), the largest network of services supporting competitiveness and innovation for SMEs, is associate member of the Biobased Industries Consortium-BIC, SPRING (Italian Circular Bioeconomy Cluster) and participates in several tasks of the IEA Bioenergy Network since more than 10 years.

Division Bioenergy, Biorefineries and Green Chemistry

As part of the Energy Department, the Division of Bioenergy, Biorefineries and Green chemistry includes more than 60 experienced researchers, technicians and plant operators who have gained unique experience in process development and characterization, and non-standardized operations.
The main research capacities regard the study and development from bench to pilot scale facilities of many thermochemical and biotechnological processes as detailed below:

- thermochemical processes on biomass and waste for the production of energy and secondary products via gasification and pyrolysis;
- advanced and intensified approach of syngas purification and its upgrading for the production of liquid and gaseous biofuels, including hydrogen;
- processes at single and two-stage anaerobic fermentation, biological clean up of the produced biogas;
- pretreatment and fractionation processes for the production of platform molecules from lignocellulosic biomass (sugars and lignin);
- fermentation, downstream processing, process control for the production of chemical intermediates of industrial interest;
- CO_2 biofixation processes;
- process modelling and techno-economic assessment;
- WEB-GIS based availability and potential of terrestrial and aquatic biomasses.

Alongside the POR H2 initiative, the division's R&D programme has been further broadened with lines of activity aimed at H2 production from biomass and its chemical storage. The Division is currently engaged in national and international collaborations with the following universities: UNIBAS, UNIVAQ, UNICAL, UNIME; EPFL, BOKU, LTU, TU Eindhoven, DTU, Wageningen, LINZ, research institutions (e.g. KIT, TNO, FZ Julich, Tecnalia), industrial stakeholders (Versalis, Novamont, ENI, NextChem, Calabra Maceri, CMD SpA, ASCOT Industrial, Walter Tosto SpA, Marion Technologies, Calida-Cleantech, HyGear, Solid Power.
Detailed materials can be retrieved at stand N4 in the exhibition area of the Conference.

EBIO

Biofuels Through Electrochemical Transformation Of Intermediate Bio-Liquids

EBIO is a Horizon 2020 project that aims to turn low value crude bio liquids into energy dense biofuels for sustainable road transport.

The project's proven concepts contribute to accelerating and reducing the cost of the next generation of sustainable renewable energy generation.

ebio-h2020.eu

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No. 101006612.

ETIP Bioenergy
European Technology and Innovation Platform

An open platform for bioenergy stakeholders

ETIP Bioenergy Platform contributes to create an enabling environment for the development of bioenergy and advanced biofuels technologies.

The ETIP-B2022-2025 project supports the Platform maximizing the impact of its activities among bioenergy stakeholders at European and global level.

etipbioenergy.eu

The ETIP-B2022-2025 project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101075503

etaflorence
renewable
energies

ETA Florence Renewable Energies has been envisioning, transforming and accelerating green innovations for over 26 years.

ETA's core services support the development, execution, and exploitation of renewable energy projects, by providing project and stakeholder management, technical input, as well as, communication services.

Strategic consulting

Communication & dissemination

Publications

Events organising

Discover more @
www.etaflorence.it

Follow us on

ETA has a 5-star rating for leading and coordinating the communication and dissemination activities of EU funded projects.

Fit4Micro

MicroCHP hybrid heating system running on sustaible liquid biofuels for multi-family houses

Fit4Micro is a Horizon Europe Project that aims at developing a highly efficient microCHCP running on sustainable biofuels for increasing environmental sustainability of the building sector.
The technology developed will be able to provide renewable heating, cooling and power production.
The Fit4Micro solution will lead to higher levels of socioeconomic and environmental sustainability in the household sector.

fit4micro.eu

Funded by the European Union

This project has received funding under European Union's Horizon Europe programme, under Grant Agreement n. 101083536.

FlexSNG

Flexible Production of Synthetic Natural Gas and Biochar via Gasification of Biomass and Waste Feedstocks

The H2020 project FlexSNG aims to develop a cost-effective gasification-based process for flexible production of pipeline-quality biomethane, high-value biochar and renewable heat from a wide variety of low-quality biomass residues and biogenic waste feedstocks.

flexsng.eu

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No. 101022432 and the Government of Canada's New Frontiers in Research Fund (NFRF) and the Fonds de recherche du Québec (FRQ).

GOLD

Growing energy crops on contaminated land for biofuels and soil remediation

GOLD is a Horizon 2020 project that aims at bridging the gap between phytoremediation solutions by growing energy crops on contaminated lands and clean biofuel production.

The project will contribute to the production of sustainable pollutants to ultimately bring polluted land back to agriculture.

gold-h2020.eu

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement N°. 101006873

GREENMEUP

Enhancing the uptake of biomethane in Europe

GreenMeUp is a Horizon Europe Project that will facilitate the wider market uptake of biomethane in the EU. The project will foster biomethane production in member states with less-developed market rates.
It will also design a set of market uptake measures for biomethane deployment.
The project will contribute to the achievement of the REPowerEU targets.

greenmeup-project.eu

Funded by the European Union

This project has received funding under European Union's Horizon Europe programme, under Grant Agreement n. 101075676.

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Biomass Carbonization Application

Biomass Pyrolysis Polygeneration Carbonization System

Agricultural And Forestry Waste: Tree Branch, Rice Husk, Peanut Shell

Agricultural And Forestry Waste: Nut Shell, Straw, Wood Chip

→ Thermal Energy, Biochar, Wood Vinegar, Wood Tar, Steam, Electricity

Biomass Distributed Energy Station

Biomass Gasification Power Generation
Biomass Gasification Polygeneration
Biomass Mobile Energy Station

Agricultural And Forestry Waste: Leaf, Wood Chip, Soybean Husk

Biomass Raw Materials And Industrial Wastes: Waste Wooden Case, Pharmaceutical Residue, Bamboo Slice

→ Thermal Energy, Biochar, Wood Vinegar, Wood Tar, Steam, Electricity

Industrial Application Of Biomass Gasification

Biomass Gasifier/Biomass Burner

Agricultural And Forestry Waste: Root Residue, Cotton Shell, Straw

Biomass Raw Materials And Industrial Wastes: Biomass Pellet, Wood Powder, Waste Wood Pallet

→ Thermal Energy, Biochar, Wood Vinegar, Wood Tar, Steam

Solid Waste Gasification System

Waste Pyrolysis Gasification Steam Power Generation System

Household Waste (kitchen waste, etc.): Kitchen Waste, Fruit And Vegetable Waste, Discarded Clothing

Industrial Waste Of Plastic Products: Shoe Factory Waste, Plastic Product, Scrap Form

→ Electricity, Steam, Thermal Energy

Website: www.haiqienvtech.com

Tel:+86 13524134141 / 15652453195

E-Mail : Stella@haiqimachine.com / Steven@haiqimachine.com

Add: Block C, 888 Huanhu West Road, Pudong New Area, Shanghai, China

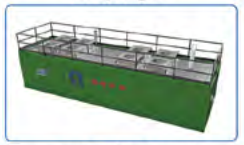
Biomass Distributed Energy Station

Zero carbon, low carbon, negative carbon technology

Biomass Gasification Poly- Generation System

Biomass Gasification System For Hydrogen

Biomass Gasification Steam Power Generation System



Waste Mobile Energy Station System

Biomass Mobile Energy Station System

Biomass Carbonization System

Active, comprehensive and lasting climate protection

Biomass Pyrolysis Carbonization System

Solid Waste Gasification System

Using technology to improve the environment waste to energy

Waste Pyrolysis Gasification Steam Power Generation System

Industrial Application Of Biomass Gasification

Renewable clean energy expert/save 30%-70% of energy costs for enterprises

Biomass Gasification For Boiler System

Biomass Gasification Multifunction Drying Waste Heat System

Biomass Gasification For Drying And Calcination System

Biomass Sawdust Burner

Biomass Pellet Burner

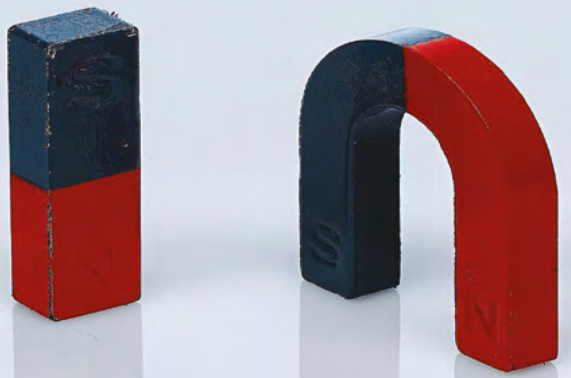
Biomass Wood Powder Burner

Biomass Multifunctional Chip Burner

Biomass Automatic Slagging Burner

IDEAS

FOR THE BRAVE NEW WORLD OF CHEMICALS



ICECHIM is a Contract Research Organization offering tailor-made R&D services based on unique technology & expertise in the chemical industry.

Building on 75 years of academic expertise in commodity and specialty chemicals innovation. Our teams develop patented proprietary technology enabling fast, versatile, unique and exclusive chemical transformations for sustainable business.

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TNO innovation for life

Your reliable R&D partner for the transition towards a circular bio-based economy

The *Biobased and Circular Technologies* group of TNO Energy & Materials Transition is developing knowledge and technology for efficient and cost-effective thermochemical processing of biomass, biogenic residues and waste into fuels, chemicals, materials and energy in the framework of a circular bio-based economy. Our work covers the entire process chain, from feedstock to product synthesis.

TNO Energy & Materials Transition provides R&D support and bio-based and circular technology solutions in the areas:

- Biomass, biogenic residues and waste characterization and application
- Fractionation, pretreatment and upgrading
- Thermochemical conversion: e.g., torrefaction, hydrothermal treatment, gasification, combustion, pyrolysis
- Combined thermochemical-biochemical conversion concepts
- Syngas treatment and catalytic conversion to biofuels and biochemicals
- Smart co-production of energy, chemicals and materials involving cascading and biorefinery concepts
- Chemical recycling of plastics
- Resource-efficient residues utilisation

Would you like to know more? Visit https://www.tno.nl/en/sustainable/co2-neutral-industry/biobased-fuels-chemicals/biomass-fuels-feedstock/

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  Semi automatic isoperibol calorimeter
- **ASH MELTING BEHAVIOUR**
  Detvermination of ash fusibility
- **CARBON AND SULFUR ANALYSIS**
  By high-temperature combustion
- **MOISTURE / ASH / VOLATILES IN BIOFUELS**
  Automated Macro Thermogravimetry

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- Intuitive, user-oriented software

Midas

Marginal lands and industrial crops for the European bioeconomy

MIDAS is a Horizon Europe project that will develop and demonstrate innovative solutions to grow industrial crops on marginal agricultural land and build sustainable value chains for a wide range of bio-based products.

The project will grow industrial crops on marginal land with climate-resilient and biodiversity-compatible systems.

MIDAS results will support and contribute to the European Green Deal and UN Sustainable Developments Goals.

midas-bioeconomy.eu

Funded by the European Union

This project has received co-funding from the European Union's Horizon Europe Research and Innovation Programme under Grant Agreement N° 101082070.

NEGEM

Quantifying and Deploying Responsible Negative Emissions

NEGEM is a Horizon 2020 Project that aims at assessing the realistic potential of Carbon Dioxide Removal and its contribution to achieving climate neutrality.

The project will identify promising NETPs having significant real-world potential in terms of technological parameters, planetary boundaries, costs, social acceptance and feasibility.

negemproject.eu

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No. 869192.

NewWave

Sustainable biobased products for the construction industry

newwave-horizon.eu

Contributing to the circular economy by introducing sustainable raw materials in 4 manufacturing lines

Replacing toxic chemicals, and introducing sustainable and circular wood-products in the building sector

Funded by the European Union

Grant Agreement Nr.101058369

Phy2Climate

Clean biofuel production and phytoremediation solutions from contaminated lands worldwide

A global approach for recovery of arable land through improved phytoremediation coupled with advanced liquid biofuel production and climate friendly copper smelting process

phy2climate.eu @phy2climate phy2climateproject Phy2Climate Project

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No. 101006912

REFOLUTION

Unlocking the potential of biofuels

Refinery integration, scale-up and certification for aviation and marine biofuels production

The REFOLUTION project aims to demonstrate the cost-effective production of advanced biofuels for aviation and marine sector

via a process that can be implemented in existing European refineries.

refolution.eu

The REFOLUTION project has received co-funding from the European Union's Horizon Europe Research and Innovation Programme under Grant Agreement N° 101096780.

SET4BIO

Renewable fuels and bioenergy for a low-carbon Europe

The SET4BIO project supports and accelerate the implementation of the **SET Plan Action 8 - *Renewable Fuels and Bioenergy*.**

Activating stakeholders
Mobilizing resources
Stimulating innovation

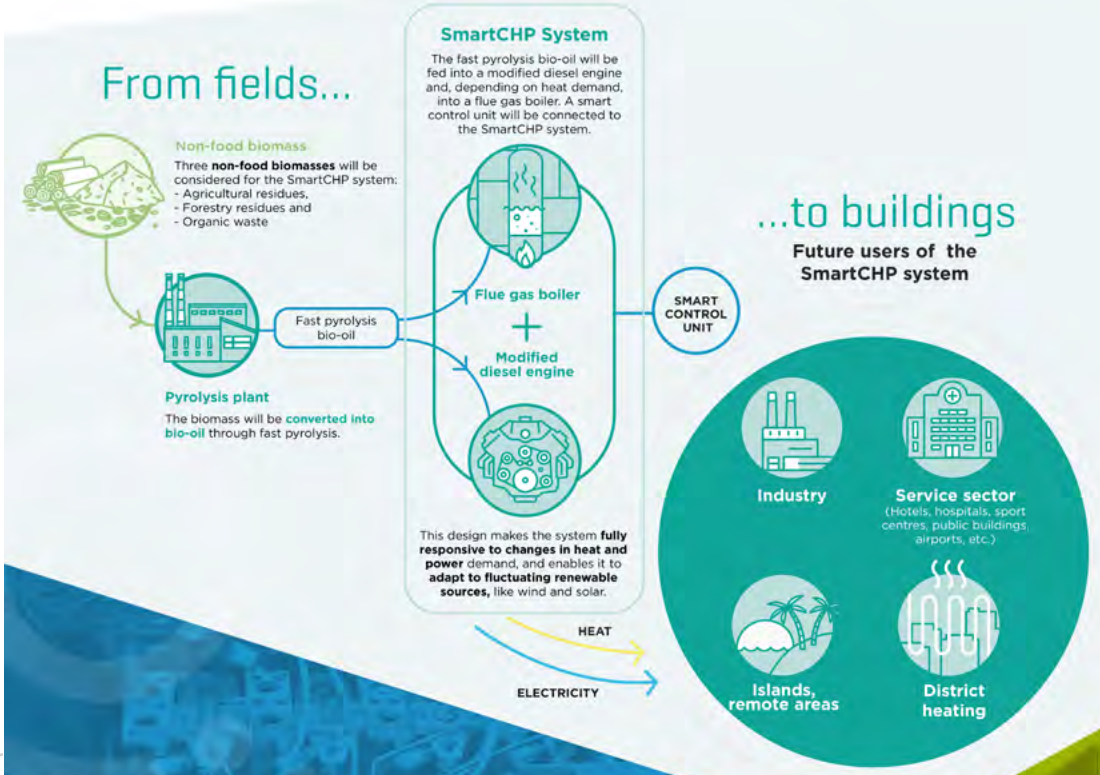
Cost competitive and efficient renewable fuels and bioenergy

set4bio.eu

The SET4BIO project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 884524

SmartCHP
COGENERATING A RENEWABLE FUTURE

SmartCHP will develop a novel, flexible small-scale cogeneration unit to produce heat and electricity from sustainable biomass.



www.smartchp.eu

@SmartCHP2020 @SmartCHP project

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement Nº 815259.

STEAMBIOAFRICA

Turning Waste Woody Biomass into Clean, Secure and Affordable Energy in Southern Africa.

www.steambioafrica.com

Stand 9

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement **No 101036401**

STEAMBIOAFRICA

The Global Coal Market is over 7000 million tonnes/year. Global Wood Pellets is only 55 million tonnes /year. In Namibia alone there are over 450 million million tonnes of unwanted encroacher bush that is degrading potential productive land. We will make this biomass more coal-like in handling and combustion properties we can :

- Replace coal with a more sustainable alternative
- Stimulate bush harvesting and land restoration
- Create new jobs and wealth across the region

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement **No 101036401**

Advanced Biofuels Technology Ready for Commercial Deployment

Hydrofaction®
TECHNOLOGY

Steeper Energy is a world leader in advanced biofuels technology that can reduce the carbon intensity of the transportation sector while providing a unique, efficient and renewable solution for managing sustainable biomass and organic wastes, such as residues from agriculture and forestry.

Hydrofaction® is a highly optimized version of hydrothermal liquefaction that produces drop-in renewable fuels with high energy density.

- Petro-equivalent
- High energy density (>38MJ/kg)
- Low oxygen content (<10wt%)
- Carbon neutral to carbon negative
- Upgradable to renewable marine, diesel, and jet fuels and renewable chemicals at existing refineries


Hydrofaction® Oil


Hydrofaction® Demo Plant

Steeper Energy facilities:

- 30 BPD industrial-scale Demonstration Plant in Tofte, Norway
- Advanced Biofuels Center in Calgary, Canada to test pathways to finished fuels
- Continuous Bench Scale Pilot Plant in Aalborg, Denmark

- A cost-effective solution for lignocellulosic biomass residuals
- Industry leading conversion rates:
  - 45% biomass-to-oil conversion on a mass basis
  - Up to 85% of the biomass input energy recovered in the biocrude

steeper ENERGY

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STEEPERENERGY.COM

Sunset Laboratory Inc.

Cutting Edge Carbon Aerosol Analysis

OCEC Field Analyzer

The Field Analyzer provides automated semi-continuous thermo-optical analysis of carbonaceous aerosol. The latest edition incorporates advances in electronic and optical technology, an optimized oven and a new detector designed for precise and reliable field operation. Improved features include an easy access panel for filter service and calibration and inline pressure regulators for superior flow control.

OCEC Laboratory Analyzer

The Laboratory Carbon Analyzer is the industry reference for organic and elemental carbon analysis. Available for both transmittance and reflectance optical modes and customizable protocols such as NIOSH, EUSAAR2 or IMPROVE A. New features include an enhanced laser system, automated flow control and redesigned power control, making this the most reliable OC/EC analyzer on the market today.

Autoloader

The latest addition to our product range. The Autoloader can be coupled with the Laboratory Analyzer, allowing automated, unattended analysis of up to 36 samples. The sample tray is easy to load and stored in a controlled environment prior to analysis. The Autoloader provides an invaluable upgrade for extensive OC/EC analysis.

Accessories and Performance Samples

Sunset provides all the essential accessories for reliable aerosol sampling and carbon analysis. From Carbon Filter Denuders for semi-volatiles removal, to $PM_{2.5}$ inlets and certified Performance Evaluation Samples and solutions. Contact us for an introduction to all the available accessories and their applications.

OCEC Analysis

Sunset Laboratory performs OCEC analysis of samples from an extensive array of sources and for a wide variety of applications. Analysis can be performed applying any temperature protocol, including NIOSH, EUSAAR2 and IMPROVE A. Send us your samples and benefit from our expertise and experience.

Main Office (USA):
Sunset Laboratory Inc.
10180 SW Nimbus Avenue
Suite J/5
Tigard, OR 97223-4341
Phone: 5036241100

East Coast Office (USA):
Sunset Laboratory Inc.
620 Valley Forge Road
Suite G
Hillsborough, NC 27278
Phone: 9192453131

European Office:
Sunset Laboratory B.V.
Science Park 408
1098 XH, Amsterdam
The Netherlands
Phone: +31207052300

www.sunlab.com

Sunset Laboratory Inc.

Cutting Edge Carbon Aerosol Analysis

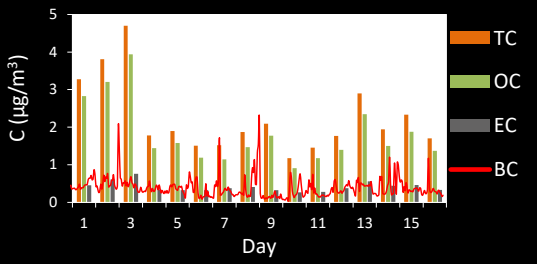
Model 4 Semi-Continuous OCEC Field Analyzer

- ✓ Organic Carbon
- ✓ Elemental Carbon
- ✓ Black Carbon
- ✓ Total Carbon

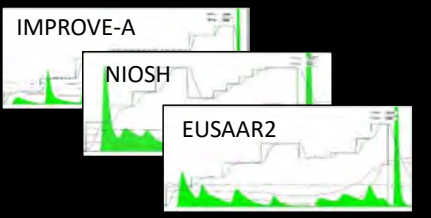
- Ambient Air Quality
- Indoor Air Quality
- Exposure Assessment
- Long-term Studies

- Robust and reliable solution for carbonaceous aerosol analysis
- Thermal-optical method using improved laser and superior NDIR detector
- Automated sampling and analysis cycle, low maintenance
- Ideal for field monitoring campaigns and remote locations
- The only U.S. EPA ETV verified Black Carbon Monitor (*EPA/600/R-14/308*)

Carbon Speciation

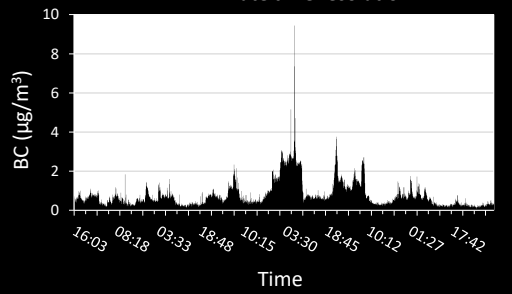


Multiple Analysis Protocols

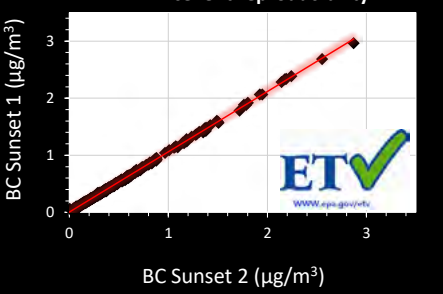


Black Carbon Monitoring

- ➢ 1 minute time resolution



- ➢ Excellent reproducibility



SAFI Consortium

Sustainable and Alternative Fibers Initiative (SAFI) is the major global university-industry partnership effort focused on researching, developing, and utilizing alternative fibers to manufacture a myriad of sustainable products.

Areas of Research

Feedstock Supply Chain
Every step of the process is evaluated to gain insights into availability, biomass, cost and feedstock delivered cost.

Conversion
Develop, evaluate and optimize sustainable pulping processes for alternative fibers.

Fiber & Product Performance
Fiber, pulp and material properties are evaluated to best match the application to manufacture sustainable products.

Techno-Economic Analysis
Simulate conversion processes to estimate capital investment, financial return and implied quantitative risks.

Life Cycle Assessment
Assess environmental burdens associated with production of biomass and their conversion to fibers and final products.

Consumer Perception
Use data-based communication strategies to understand perceptions and behavior of sustainable-oriented customers.

Be part of the most aggressive research program to fast-track the utilization of alternative fibers valued at $3.5 million per year.

SAFI Members

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LEARN MORE www.go.ncsu.edu/SAFI

SulfaTrap™

Taking Sulfur Out of the Equation

SulfaTrap LLC is a leading supplier of deep desulfurization products and contaminant removal systems (in addition to sulfur compounds, metals, halides, CO_2, H_2O, siloxanes) for the chemicals, energy, biogas, consumer goods, and oil and gas industries. The proprietary sorbent products eliminate any sulfur contaminant ranging from simple sulfides (e.g., hydrogen sulfide, carbonyl sulfide) to highly complex mercaptans and thiophenes from a very wide range of feedstocks and process streams. SulfaTrap LLC provides its customers fully customized turn-key clean-up and purification systems for various applications:

- Natural gas/Associated gas
- Biogas and food grade CO_2
- LPG and C4/C5 fractions
- Natural Gas Oils
- Bio-ethanol and bio-diesel fuel

PRODUCTS FOR BIOGAS

SulfaTrap LLC offers a wide range of products to treat the biogas from anaerobic digestion and bio-waste gasification. The effective utilization of biogas as bio-methane or as feedstock in chemical processes or power generation (e.g., fuel cell systems) requires the removal of impurities (e.g., sulfur, halides, siloxanes) to prevent degradation of process equipment and poisoning of the catalysts used in the chemical conversion.

Product	Application
SulfaTrap™-R7Q/R7J	Bulk H_2S Removal from dry or moist biogas
SulfaTrap™-R8C	Mercaptan, COS removal, purification of CO_2 to food grade
SulfaTrap™-R8HB	Removal of heavy sulfur compounds, VOCs and siloxanes
SulfaTrap™-R2GX	Removal of halides, HCN and sulfur polishing

The sulfur concentration in biogas can be very high (200 - 15,000 ppmv) and saturated with water (~5-8% vol. H_2O). SulfaTrap™-R7Q/R7J sorbents are offered for bulk removal of H_2S. SulfaTrap™-R8 series sorbents are formulated to remove mercaptans, organic di-sulfides and tri-sulfides and reduce the sulfur concentration in the biogas to low ppbv levels. SulfaTrap™-R8HB sorbent also remove siloxanes from biogas, achieving very low siloxane concentrations without the need to use refrigeration.

SulfaTrap™

Taking Sulfur Out of the Equation

SulfaTrap™-R8HB sorbent also removes VOCs, tars and heavy hydrocarbons that may be present in landfill gases. SulfaTrap™-R2 series sorbents are highly effective for removing organic sulfur compounds, halides and cyanides, allowing the conversion of biogas to value-added biochemicals through biological processes.

PRODUCT FEATURES

- Near ambient temperature operation (-20 to 110°C)
- High capacity (H_2S capacity in excess of 35% wt. S)
- High removal efficiency for all sulfur species (reducing sulfur content to less than 5 ppbv)
- Tolerance to moisture and heavy hydrocarbons
- Easy disposal (no flammability, toxicity or pyrophorocity)
- Regenerable and/or expendable operation

TURN-KEY SOLUTIONS

SulfaTrap LLC provides its customers with fully customized turn-key clean-up and purification systems. SulfaTrap material scientists and engineering experts will work closely with you to engineer the best solution for your application. Protect your fuel cell with the SulfaTrap™ family of sulfur sorbents!

SulfaTrap LLC
www.sulfatrap.com
5600 Ward Road, #300, Arvada, CO 80002
Contact Us @ info@sulfatrap.com

TNO innovation for life

Your reliable R&D partner for the transition towards a circular bio-based economy

The *Biobased and Circular Technologies* group of TNO Energy & Materials Transition is developing knowledge and technology for efficient and cost-effective thermochemical processing of biomass, biogenic residues and waste into fuels, chemicals, materials and energy in the framework of a circular bio-based economy. Our work covers the entire process chain, from feedstock to product synthesis.

TNO Energy & Materials Transition provides R&D support and bio-based and circular technology solutions in the areas:

- Biomass, biogenic residues and waste characterization and application
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- Thermochemical conversion: e.g., torrefaction, hydrothermal treatment, gasification, combustion, pyrolysis
- Combined thermochemical-biochemical conversion concepts
- Syngas treatment and catalytic conversion to biofuels and biochemicals
- Smart co-production of energy, chemicals and materials involving cascading and biorefinery concepts
- Chemical recycling of plastics
- Resource-efficient residues utilisation

Would you like to know more? Visit https://www.tno.nl/en/sustainable/co2-neutral-industry/biobased-fuels-chemicals/biomass-fuels-feedstock/

bioflexpor

Development of a small-scale technology for 2G bioethanol production

Innovative Features

- Pre-treatment without the addition of acids or organic solvents and flexible for various residual biomass
- Zero waste technology (solid or liquid)
- Co-fermentation of C5/C6 sugars
- In situ production of hemicellulolytic enzymes to be tested as a supplement to commercial enzymes

1 Innovative solution

4 Strategic partners

800k € Total investment

prio

prio.pt

Partners

prio · LNEG · CBE · florecha forest solutions

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CONFERENCE

Monday – Wednesday 09:00 – 18:30
Thursday 09:00 – 16:00

EXHIBITION

Monday After Conference opening to 18:30
Tuesday-Wednesday 09:00-18:30
Thursday 09:00 – 15:00

REGISTRATION – PRESENTERS' DESK

Sunday 16:00-18:00
Monday 07:30-18:30
Tuesday-Wednesday 08:30-18:30
Thursday 08:30 – 15:00

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