



# e-EUBCE 2020

28<sup>th</sup> European Biomass  
Conference & Exhibition

*Bioeconomy's role in the  
post-pandemic economic recovery*

VIRTUAL | 6 - 9 JULY

## CONFERENCE PROGRAMME and EXHIBITION CATALOGUE

Status of 5 July 2020

[www.eubce.com](http://www.eubce.com)

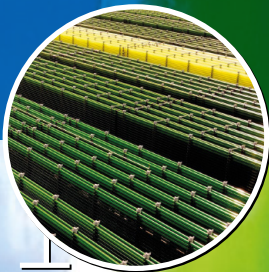
# CONFIDENCE BUILT ON **EXPERIENCE**

## CONFERENCE PROGRAMME

MICROALGAE  
INDUSTRIAL  
PRODUCTION

CONTRACT  
RESEARCH AND  
DEVELOPMENT

### EXPERTS ON MICROALGAE



ALGAFARM  
SECIL / ALLMICROALGAE



BIOFAT  
(FP7 EU PROJECT)



ALGATEC  
ECO BUSINESS PARK

● A4F is a **biotechnology company**, located in Portugal, with more than **20 years** of accumulated experience in microalgae **Research & Development and Industrial Production.**

Specialized in the design, build, operation and transfer (DBOT) of commercial-scale microalgae production units, deploying different scalable production technologies that better adapt to our **Customers' business.**

↓  
Also develops standard **operating procedures** for optimized microalgae production, according to production goals and with industry best practices.

# e-EUBCE Live Opening

Monday 6 July 2020

Main Auditorium / web-streamed  
Join us for free

## Bioeconomy's role in the post-pandemic economic recovery

*The recovery packages as a new window of opportunity  
for a massive European renewable energy industry*

### 09.00 – 10.00 Scientific Opening Session

**CHAIR:**

**Nicolae SCARLAT**

European Commission, Joint Research Centre, Technical Programme Chair

*with*

**David CHIARAMONTI**

Polytechnic of Turin, Energy Department, Italy

**The effects of the pandemic and energy security coupled to energy storage**

**Andrè FAAIJ, Director of Science**

TNO Energy Transition, Director of Science, The Netherlands

**An integral view on the biobased economy in Europe**

**Q&A**

**Philippe Mauguin**

INRAE President, e-EUBCE General Chair

**Welcome Addresses**

### 10.00 - 11.00 Live Panel Debate: Bioeconomy from Concepts to Practices The International Vision

**CHAIR:**

**Giovanni DE SANTI**

European Commission, Director of the Directorate for Sustainable Resources

**Bio-economy as an opportunity to increase resilience after the pandemic crisis**

*with*

**Maria DA GRAÇA CARVALHO**

European Parliament, MEP

**Arnaud LEROY**

ADEME President, France

**Monique AXELOS**

INRAE Scientific Director for Food and Bioeconomy, France

**Paolo FRANKL**

IEA - International Energy Agency, Head of Renewable Energy Division

**Jennifer HOLMGREN,**

LanzaTech CEO, US

**Q&A**

### 11.00 - 12.00 Live Panel Debate: The European Green Deal and Bioenergy

**CHAIR:**

**Paolo FRANKL**

IEA - International Energy Agency, Head of Renewable Energy Division

**Bioenergy in the Green Deal in international competition with lowest Oil prices**

*with*

**Claude TURMES**

Minister of Energy of Luxembourg

**Giulio VOLPI**

European Commission DG Energy Renewables and CSS Policy

**Jim SPAETH**

IEA Bioenergy ExCo Chair & U.S. Department of Energy, Energy Efficiency & Renewable

**Jean-Louis BAL**

SER - Syndicat des énergies renouvelables, President, France

**Gloria GAUPMANN**

LSB Advanced Biofuels Coalition, Chair & Clariant Head of Public Affairs, Technology & Innovation

**Freddie STAERMOSE**

Generation Fuels and Dry Bulks - Vice President, ARGUS

**Q&A**

**VIRTUAL e-EUBCE FACILITATOR, ANIMATING Q&A MODERATOR:**

**Heinz OSSENBRINK**

Former European Commission, JRC, Renewable Energy and Energy Efficiency

**Networking & Exhibition Visiting Time 12.00 - 14.00**

## ORAL SESSION 1AO.1

14.00 - 15.00 Territorial Biomass Assessment

*Case studies of territorial biomass assessment and mobilisation from around the world.***CHAIR & MODERATOR:****Enrico CEOTTO**

CREA- Council for Agricultural Research and Economics, ITALY

**1AO.1.1**

M. Ooba, T. Togawa, S. Nakamura

National Institute for Environmental Studies, Fukushima, Japan

**An Evaluation of Woody Biomass Production and Consumption by Using of an Integrated and Dynamic indicator of Carbon Sequestration****1AO.1.2**

N. Ghasemi, B. Elbersen, M. Van Eupen, S. Mantel

Wageningen Environmental Research, The Netherlands

P. Ciria, P. Perez, J. Carrasco, M. Sanz

Spanish Ciemat, Madrid, Spain

**Identifying Agricultural Abandoned Lands for Biomass Monitoring and Managing Using Landsat Imagery****1AO.1.3**

A. Younis, Y. Trujillo, R. Benders, A. Faaij

Energy and Sustainability Research Institute Groningen, University of Groningen, The Netherlands

**Subnational Assessment of the Biomass Cost-Supply Potential: Spatial Distribution of Energy Crops and Residues in Colombia****1AO.1.4****EUBCE Student Awardee Presentation**

L.M.S. Menandro, S.G.Q. Castro, T.A.D. Hernandez, G.A.F. Castioni, R.O. Bordonal, A.C.S. Luciano, J.L.N. Carvalho

LNBR/CNPEM - Brazilian Biorenewables National Laboratory, Brazilian Center for Research in Energy an, Campinas, Brazil

**Guidelines for Sugarcane Straw Removal: A Decision-Making Tool for Assessing the Potential and Availability of Biomass**

## ORAL SESSION 2AO.2

14.00 - 15.00 Production, Characterization and Quality of Solid Biofuels

*The session covers presentations regarding the development of innovative methods for solid biofuels characterization, factors influencing fuels quality and biomass management procedures to improve the fuel quality, as well as the combustion behaviour of solid biofuels.***CHAIR & MODERATOR:****Thomas Andreas SCHLEKER**

European Commission DG RTD, EU

**Peter Arendt JENSEN**

Danish Technical University, DENMARK

**2AO.2.1**

N. Kirstein, C. Hennig

DBFZ -German Biomass Research Centre, Leipzig, Germany

D. Thrän

UFZ - Helmholtz Centre for Environmental Research, Leipzig, Germany

**Current Status of Solid Biogenic Fuels in the European Union: Overview on Qualities, Standards and Applications****2AO.2.2**

A. Pollex, J. Mühlenberg

DBFZ Deutsches Biomasseforschungszentrum gemeinnützige GmbH, Leipzig, Germany

T. Zeng

DBFZ Deutsches Biomasseforschungszentrum gemeinnützige GmbH DBFZ Deutsches

Biomasseforschungszentrum, Leipzig, Germany

**Development of A Simple and Rapid Test Method for Potassium to Ensure Fuel Quality of Woody Biomass Fuels****2AO.2.3**

S. Lavergne, M. Campargue

RAGT Energie, Albi, France

S.H. Larsson

SLU, Umeå, Sweden

M. Marchand

CEA, Grenoble, France

C. Dupont

IHE, Delft, The Netherlands

**Effect of Process Parameters and Biomass Composition on Flat-Die Pellet Production from Underexploited Forest and Agricultural Feedstocks**

## ORAL SESSION 3AO.3

14.00 - 15.00 New Processes for Bioproducts

*This session addresses new approaches to bio-based chemicals and materials, and new products types.***CHAIR & MODERATOR:****Tanja BARTH**

University of Bergen, NORWAY

**Kevin CRAIG**

DOE - Golden Field Office, USA

**3AO.3.1**

S. Kakadellis, Z..M. Harris

Imperial College, London, United Kingdom

**Don't Scrap the Waste: Bioplastic Food Packaging is Not Inherently 'Green' but Offers Benefits Through Alternative End-of-Life Management of Food Waste****3AO.3.2**

E. Heracleous, E. Pachatouridou, A.A. Lappas

CPERI-CERTH, Thessaloniki, Greece

B. Russell, B. Lee, D. Dugar

VISOLIS, Geleen, The Netherlands

**A Novel Hybrid Bio-Thermochemical Route for the Production of Bio-Isoprene Via Decarboxylation of Mevalonolactone (MVL)****3AO.3.3**

I. Mediavilla, R. Bados, L.S. Esteban

CEDER-CIEMAT, Lubia-Soria, Spain

M.A. Blázquez

University of Valencia, Valencia, Spain

**Characterisation of the Essential Oil and the Biomass Obtained by Mechanised Harvesting of Cistus Ladanifer L.****3AO.3.4**

V. Van-Dunem, L. Sanfins, F. Pires, L.C. Duarte, F. Gírio, F. Carvalheiro

LNEG, Lisbon, Portugal

**Effect of Catalysts on Organosolv Ethanol-Based Pre-Treatment for the Selective Fractionation of Polysaccharides and Lignin**

14.00 - 16.00 R&amp;I for Embedded Bioenergy in Energy Consuming Sectors

Networking &amp; Exhibition Visiting Time 15.00 - 15.10

## ORAL SESSION 3AO.4

15.10 - 16.10 Technological Improvements of Advanced Ethanol Production

*Recent trends on bioalcohols production using new pre-treatments, simultaneous saccharification and fermentation are included in the latest advances addressed in this topic.***CHAIR & MODERATOR:****Francisco GIRIO**

LNEG - Laboratório Nacional de Energia e Geologia, PORTUGAL

**James SPAETH**

U.S. Department of Energy, USA

**3AO.4.1**

G. Prasoulas, D. Mamma, D. Kekos

National Technical University of Athens, Greece

A. Konti, N. Scarlat

Joint Research Centre, Ispra, EU

**Assessment of the Food Waste as a Feedstock for Bioethanol Production: Simultaneous Saccharification and Fermentation Using Mixed Microbial Cultures and Hydrolytic Enzymes Produced on-Site****3AO.4.2**

W. Sun, T. Greaves, M. Othman

RMIT University, Melbourne, Australia

**Electro-Assisted Organosolv Pretreatment of Lignocellulosic Materials****3AO.4.3**

J.A. Gonzalez-Rios, A. Sanchez

CEMIE-BIO/CINVESTAV, Zapopan, Jal., Mexico

L. Amaya-Delgado

CIATEJ, Zapopan, Jal., Mexico

D. Sauvageau

University of Alberta, Edmonton,, Canada

**The Self-Cycling Saccharification-Fermentation, A New Strategy to Process Lignocellulosic Biomass at High Solid Loadings.**

## ORAL SESSION 2AO.5

15.10 - 16.10

**Novel Modeling Approaches and Application  
of Residue Based Fuels**

*New models regarding packed bed conversion, alkali release from the fuel bed as well as emission modeling are presented. Moreover, the utilisation of residues from olive production as well as of used cooking oil in novel combustion systems is addressed.*

**CHAIR & MODERATOR:****Ingwald OBERNBERGER**

BIOS Bioenergiesysteme, AUSTRIA

**Jean-Michel COMMANDRÉ**

CIRAD, FRANCE

**2AO.5.1**M. Blank, C. Benesch, I. Obernberger  
Bios Bioenergiesysteme, Graz, Austria**Packed Bed Modeling for CFD Simulations of Pellet Combustion****2AO.5.2**Y. Ge, X.. Kong, J. Pettersson  
University of Gothenburg, Sweden**Release of Alkali Metal during Biomass Pyrolysis and Combustion****2AO.5.3**

C. Le Dreff- Lorimier DREFF, S. Aguinaga

CSTB, Nantes, France

R. Bounaceur, F. Battin-Leclerc, O. Herbinet

LRGP, Nancy, France

**AeroCAB Project: Towards a Method to Predict Pollutants from Residential Wood Heating Appliances****2AO.5.4**

A. O'Connell, N. Scarlat

JRC, Ispra, EU

G. Vaitilingom

CIRAD, Montpellier, France

**Used Cooking Oil as a Blend Fuel for Domestic Heating**

## ORAL SESSION 3AO.6

15.10 - 16.10

**Biotechnology for Biobased Products and Materials**

*This session focuses on biotechnology in production of chemicals and materials.*

**CHAIR & MODERATOR:****Solange MUSSATTO**

Technical University of Denmark, DENMARK

**Claude MIRODATOS**

CNRS, France

**3AO.6.1**

P. Yaseneva, P.K. Aulakh, A.A. Lapkin

University of Cambridge, United Kingdom

**Analysis of the Influence of Feedstocks and Processing Technologies on Valorisation of Bio-Waste Terpenes****3AO.6.2**

G. Lotti

Renewable Energy Consortium for Research and Demonstration, ITALY

**High-Value Compounds Production from Tetraselmis Suecica in a Biorefinery Concept: Lab Scale Investigation Test****3AO.6.3**

C. Mihailof, A. Marianou, S. Karakoulia, A. Lappas

LEFH/CPERI/CERTH, Thessaloniki, Greece

**Heterogeneously Catalysed Conversion of Cellulose to High-Added Value Chemicals****Networking & Exhibition Visiting Time 16.10 - 16.20**

## ORAL SESSION 1AO.7

16.20 - 17.20 **Achieving Sustainable Biomass Potentials**

*Global biomass potentials and sustainability constraints.*

**CHAIR & MODERATOR:****Gerard OSTHEIMER**

World Business Council for Sustainable Development, USA

**Andreas KLEINSCHMIT VON LENGEFELD**

FCBA, FRANCE

**1AO.7.1**E. Garbolino, T. Pourbaix  
MINES ParisTech, Sophia Antipolis, France  
W. Daniel

University of Antwerp, Antwerp, Belgium

L. Dieckhoff, M.L. Rabot-Querci

EIFER, Karlsruhe, Germany

**Potential Impacts of Climate Change Towards 2050 on Wood Resources in two Contrasted Bioclimatic Regions in France****1AO.7.2**J. Broeze, H. Bos, L. Garcia Chavez  
Wageningen Food & Biobased Research, The Netherlands**Quantification of Agricultural Production Potential in Relation to Food and Biobased Demands****1AO.7.3**E.E. Silva Lora, D.M.M. Yepes, T.A.C. Dias  
UNIFEI, Itajubá, Brazil**Global Potential Assessment of Available Land for Bioenergy Projects in 2050 within Food Security Limits****1AO.7.4**F. Ginaldi, G.A. Cappelli, E. Ceotto  
CREA-AA, Bologna, Italy  
S.L. Cosentino, S.A. Corinzia  
Università degli Studi di Catania, Catania, Italy**Assessment of Giant Reed Biomass Potentials (Arundo Donax L.) in Marginal Areas of Italy Via the Application of Arungro Simulation Model**

## ORAL SESSION 2AO.8

16.20 - 17.20 **Innovative Measures Towards High Efficiency and Low Emissions in Large Scale Combustion**

*The session deals with retrofitting of existing combustion plants, in particular aiming at fuel flexibility and high efficiency. Innovative modeling and experimental methods are also addressed to decrease maintenance costs, support failure prediction and high availability.*

**CHAIR & MODERATOR:****Marco BARATIERI**

Free University of Bolzano, ITALY

**2AO.8.1**M.-A. Kougioumtzis, I.-P. Kanaveli, E. Karampinis, P. Grammelis, E. Kakaras  
CERTH, Athens, Greece**Combustion of Olive Tree Pruning Pellets Versus Olive Tree Pruning Chips and Exhausted Olive Cake at Industrial Boiler. Monitoring of Emissions and Combustion Efficiency****2AO.8.2**P.A. Jensen, G. Wang, F.J. Frandsen  
DTU, Lyngby, Denmark  
B. Sander

Ørsted A/S, Fredericia, Denmark

**Laboratory and Full Scale Power Plant Study on the Use of Solid Additives in Biomass Fired Pulverized Fuel Power Plants****2AO.8.3**H. Niederwieser, C. Zemann, M. Göllles  
BEST - Bioenergy and Sustainable Technologies GmbH, Graz, Austria  
M. Reichhartinger

Graz University of Technology, Austria

**Soft-Sensor for the On-Line Estimation of the Flue Gas Mass Flow in Biomass Boilers with Additional Monitoring of the Heat Exchanger Fouling****2AO.8.4**A.W. Mainassara Chekaraou, A. Rousset, B. Peters, X. Besseron  
University of Luxembourg, Luxembourg  
C. Galletti

University of Pisa, Italy

M.G. Gallo, F. Sansone

Enel Green Power, Rome, Italy

**Detailed Numerical Three-dimensional and Transient Analysis of a Grate Firing Combustion Process by Innovative High Performance Computing****2AO.8.5**M.K. Cieplik  
TNO, Petten, The Netherlands  
J. Kiel

ECN part of TNO, Petten, The Netherlands

**Project ARBAHEAT- Taking Coal Plant Repowering one Step Further**

## ORAL SESSION 3AO.9

16.20 - 17.20 Chemical Pathways to Biobased Products

*This session focuses on chemical strategies for converting biomass to products.***CHAIR & MODERATOR:****Dieter BRYNIOK**

Hochschule Hamm-Lippstadt of University of Applied Sciences, GERMANY

**Monique AXELOS**

INRAE, FRANCE

**3AO.9.1**

T. Istasse, G. Debroux, L. Bockstal, A. Richel

Laboratory of Biomass and Green Technologies, University of Liege, Gembloux, Belgium

V. Lemaury, R. Lazzaroni

Laboratory for Chemistry of Novel Materials, University of Mons, Mons, Belgium

**Transformation of Monosaccharides to Furanic Compounds and Polymers in Deep Eutectic Solvents****3AO.9.2**

S. Rautiainen, N. van Strien, H. Pöhler

VTI, Espoo, Finland

**Unique Pathway to Platform Chemicals - 2,5-Furandicarboxylic Acid and Muconic Acid from Sugar Acids****3AO.9.3**

C. Løhre, T. Barth

University of Bergen, Norway

R. Brusletto

Arbaflame, Oslo, Norway

**Side-Stream Effluent from Large Scale Steam Explosion at Black-Pellet Plant Revealing High Furfural-Content and Added Product-Value****3AO.9.4**

J. Köchermann, C. Klüpfel

DBFZ Deutsches Biomasseforschungszentrum, Leipzig, Germany

M. Klemm

DBFZ Deutsches Biomasseforschungszentrum, Leipzig, Gibraltar

**Brønsted/Lewis-Acid Combinations for Hydrothermal Production of Levulinic Acid from Starch Residues****Networking & Exhibition Visiting Time 17.20 - 18.30**

## ORAL SESSION 1BO.1

09.00 - 10.00 Agricultural Residues for Energy Production

*Agro-industrial residues for advanced biofuels, bioenergy carriers, heat and for soil amendment.***CHAIR & MODERATOR:****Emmanuel GARBOLINO**

ASES France R &amp; D / Climpact Data Science, FRANCE

**Raphael SLADE**

Imperial College London, UNITED KINGDOM

**1BO.1.1**

V. Dombinov

Forschungszentrum Jülich GmbH, IBG-2: Plant Sciences, Jülich, Germany

H. Herzel, C. Vogel, C. Adam

Federal Institute for Materials Research (BAM, Thermochemical Residues Treatment and Resource Recove, Berlin, Germany

S. Willbold

Forschungszentrum Jülich, ZEA3, Jülich, Germany

G. Vettorazzi Levandowski

Universidade Federal de Goiás (UFG), Goiânia, Brazil

M. Meiler

Fraunhofer UMSICHT, Energy Technology, Sulzbach-Rosenberg, Germany

F. Müller

TU Clausthal (CUTEC), Clausthal-Zellerfeld, Germany

J.W. Zang, W.A. da Fonseca-Zang

Instituto Federal de Goiás (IFG), Goiânia, Brazil

N.D. Jablonowski

Forschungszentrum Jülich, IBG-2: Plant Sciences, Jülich, Germany

S.D. Schrey

Forschungszentrum Jülich, IBG-2: Plant Sciences, Jülich, Germany

**Phosphorus Availability and Efficiency of Thermochemical Treatments of Bagasse-Based Fertilizers Depends on Co-Processed Biomass****1BO.1.2**

M. Christou, K. Tsiotas, I. Papamichael

CRES, Pikerimi, Greece

K. Panopoulos, T. Kraia, G. Kardaras

CERTH, Thessaloniki, Greece

Y. Fallas, N. Ntavos

CLUBE, Thessaloniki, Greece

**Agroforestry Residues for Intermediate Bioenergy Carriers****1BO.1.3**

M. Ugolini, L. Recchia

CA.RE. FOR. Engineering, Florence, Italy

**European Regions Suitability for Advanced Biofuel Production Cases Scenarios for Residual Biomass Supply Chains****1BO.1.4**

D.R. Negrao, L.Y. Ling, C. Driemeier

LNBR, Campinas, Brazil

**Debris in Sugarcane Bagasse and Straw Zoomed through Microscale X-Ray Analyses**



## ORAL SESSION 2BO.2

**09.00 - 10.00**      **Innovative Integrated Gasification Systems  
Modeling and Demonstration**

*In this session, typical pilot-scale gasification systems are the focus dealing with aspects of integration of process units.*

**CHAIR & MODERATOR:****Wiebren DE JONG**

Delft University of Technology, THE NETHERLANDS

**Yann ROGAUME**

University of Lorraine, FRANCE

**2BO.2.1**M. Prestipino, F. Famoso, S. Brusca, A. Galvagno  
University of Messina, Italy**Process and Location Optimization by GIS-Based Modeling of a Biomass Gasification-Power Plant  
for Planning Sustainable and Local Bioenergy Systems: A Sicilian Case Study****2BO.2.2**D. Barisano, F. Nanna, A. Villone, E. Catizzone  
ENEA, Rotondella, Italy

C. Freda

ENEA, Portici, Italy

F. Cosentino, D. Carboni, F. Di Benedetto

ENEA, Brindisi, Italy

E. Bocci

USGM, Roma, Italy

**Towards the Implementation of the BLAZE Technology for CHP Applications: Preliminary  
Gasification Tests at a Bench Scale Bubbling Fluidized Bed****2BO.2.3**N. Morselli, F. Ottani, P. Tartarini, P. Tartarini  
UniMORE, Modena, Italy**Enhanced Heat Transfer in Tubes-In-Shell Heat Exchanger for Syngas Cooling: a Comparison  
between Conventional and Perforated Twisted Tape Inserts****2BO.2.4**V. Pérez, E. Borjabad, L. Esteban, R. Ramos  
CEDER-CIEMAT, Lobia (Soria), Spain**Sewage sludge solar drying and gasification at pilot scale for CHP**

## ORAL SESSION 3BO.3

**09.00 - 10.00**      **System Assessment in Biorefineries**

*Techno-economic and life-cycle assessment of biorefineries.*

**CHAIR & MODERATOR:****Alain QUIGNARD**

IFPEN, FRANCE

**Yukihiko MATSUMURA**

Hiroshima University, JAPAN

**3BO.3.1**

P. Gurría Albusac

European Commission, Joint Research Center, EU

**Biorefineries as Key Element of the Bioeconomy in the European Union****3BO.3.2**C.M. Nwachukwu, A. Toffolo, E. Wetterlund  
Luleå University of Technology, Sweden

C. Wang

Swerim, Luleå, Sweden

**Optimizing Biomass Utilisation in Iron and Steel Production****3BO.3.3**

L. Menin, V. Benedetti, F. Patuzzi, M. Baratieri

Free University of Bolzano, Italy

**Techno-Economic Modeling of a Liquid Scrubbing Process for the Co-Production of Biomethane  
and Biomethanol from Syngas****3BO.3.4**

B. Guo, W. Frey, U. Hornung, N. Dahmen

Karlsruhe Institute of Technology, Germany

**Biorefinery of Microalgae Via Combination of Pulsed Electric Field Treatment and Hydrothermal  
Liquefaction - A Techno-Economic Assessment**

## ORAL SESSION 5BO.4

## 09.00 - 10.00 Integrating Bioenergy in the Energy System

*Bioenergy is considered to play an important role in future scenarios that keep climate warming well below 2°C. Transition towards renewable technologies is a key measure in climate change mitigation. This session will discuss different technological options and conversion routes for bioenergy to develop energy systems towards the energy transition.*

**CHAIR & MODERATOR:****Heinz A. OSSENBRINK**

Former Head of Unit of European Commission, Joint Research Centre, EU

**Pedro HARO**

Universidad de Sevilla, SPAIN

**5BO.4.1***Invited***5BO.4.2**X. Li, T. Damartzis, F. Maréchal  
EPFL, Sion, Switzerland**Towards CO2 Neutral Societies: A Framework for Energy and Carbon Flows Modeling****5BO.4.3**E. Le Net, A. Chappaz, E. Le Goff, V. Lacroix  
CEA, Grenoble, France**Carbon Cycle: Comparison of Different Systems Based on Several Sources of Carbon and Energy****5BO.4.4**L. Pelkmans  
IEA Bioenergy, Mol, Belgium  
J. Spaeth  
US Department of Energy, Denver, Usa  
M. Brown  
University of the Sunshine Coast, Maroochydore, Australia  
K. Kwant  
Netherlands Enterprise Agency, Utrecht, The Netherlands  
P. Bennett  
SCION, Rotorua, New Zealand  
P. Buckley  
IEA Bioenergy, Dublin, Ireland  
U.R. Fritsche  
IINAS, Darmstadt, Germany  
G. Berndes  
Chalmers University of Technology, Gothenburg, Sweden  
A. Grassi  
ETA Florence Renewable Energies, Italy  
V. Djemelinskaia  
Social Media Manager, Vienna, Austria**Creating Trust Through Effective, Fact-Based Communication is Key for Further Deployment of Sustainable Bioenergy****Networking & Exhibition Visiting Time 10.00 - 10.10**

## PLENARY SESSION BP.1

## 10.10 - 12.00 The Role of Biomass and Bioenergy in European Green Deal

**BP.1.1**P. Klintbom  
RISE, Sweden**The Role of Etip Bioenergy in Promoting Advanced Bioenergy Research, Innovation and Market Deployment in the Eu****BP.1.2**J. Spaeth  
DOE, Usa**Perspectives from the US biofuels and bioenergy industry****BP.1.3**P. Mengal  
BBI, Belgium**BBI JU Vision for a Resource Efficient and Sustainable Low-carbon Economy****BP.1.4**N. Di Virgilio  
CNR, Italy**The new CAP proposal - opportunities for the bioeconomy****BP.1.5**Paul Durrant  
International Renewable Energy Agency (IRENA), Head of End-use Sectors & Bioenergy, GERMANY**The Critical Role of Biomass in the Global Transition to Net-Zero Emissions****Networking & Exhibition Visiting Time 12.00 - 14.00**

## ORAL SESSION 1BO.5

## 14.00 - 15.00 Biomass on Marginal Land

*Land use change and environmental concern over biomass and bioenergy production have fueled research to support the production of biomass on marginal land. In this session presentations will cover a wide range of crops and management strategies for producing biomass on marginal conditions.*

**CHAIR & MODERATOR:****Efthymia ALEXOPOULOU**

CRES - Center for Renewable Energy Sources and Saving, GREECE

**Danilo SCORDIA**

University of Catania, ITALY

**1BO.5.1**

M. Acciai, F. Zanetti, A. Monti

DISTAL - University of Bologna, Italy

B. Elbersen

Wageningen Environmental Research, The Netherlands

**Are Camelina [Camelina sativa (L.) Crantz] and Crambe (Crambe abyssinica R.E. Fr.) Feasible non-food Crops under Sloppy Marginal Land?****1BO.5.2**

K.D. Thelen

Michigan State University, East Lansing, Usa

G.R. Sanford

University of Wisconsin, Madison, Usa

**Marginal Soils Affect Bioenergy Feedstock Yield and Quality****1BO.5.3**

J. Costa

ISEC, Lisbon, Portugal

L. Gomes, M. Ferreira, C. Graça, A.L. Fernando

FCT NOVA, Caparica, Portugal

M. Abias

3UnUniv Católica Moçambique, Caparica, Mozambique

F. Germanà, F. Zanetti, A. Monti

UNIBO, Bologna, Italy

**Production of Oil Crops for Bioenergy Under Heavy Metal Contaminated Soils**

## ORAL SESSION 2BO.6

## 14.00 - 15.00 Small Scale Gasification Advanced Testing and Characterisation Related to Emissions

*This session concerns research works dedicated to small-scale laboratory characterisation of fuels for gasification and small-scale testing works.*

**CHAIR & MODERATOR:****Wolter PRINS**

Ghent University, BELGIUM

**Donatella BARISANO**

ENEA Research Centre, ITALY

**2BO.6.1**

K. Koido, K. Kurosawa, M. Sato

Fukushima University, Japan

**Catalytic Role of Ca and K in Erianthus Char Gasification****2BO.6.2**

F. Kerscher, J. Bolz, I. Stellwag, H. Spliethoff

Technical University Munich, Munich, Germany

**Experimental Investigation of Mineral Sorbents for Alkali Removal in Gasification and Combustion Plants****2BO.6.3**

E. Cordioli, M. Baratieri

Free University of Bolzano, Italy

F. Patuzzi

Free University of Bolzano Free University of Bolzano, Italy

M.J. Castaldi

City College of New York, New York, Usa

**Toluene Cracking Using Char from A Commercial Gasifier without Activation****2BO.6.4**

H. Yokoyama, Y. Matsumura

Hiroshima University, Higashi-Hiroshima, Japan

**Decomposition Rate of Glycine as Protein Model Compound in Supercritical Water**

## ORAL SESSION 3BO.7

14.00 - 15.00 Concepts for Biorefineries

*Integrated concept development.***CHAIR & MODERATOR:****Maria GEORGIADOU**

European Commission, DG RTD, EU

**Robert DASCHNER,**

Fraunhofer-Institut UMSICHT, Energy Management Dpt., GERMANY

**3BO.7.1**S. Ghysels, A.E. Estrada León, N. Priharto, M. Pala, J. De Vrieze, K. Rabaey, W. Prins, F. Ronsse  
Ghent University, BelgiumN. Acosta Ortiz  
Ghent University, , Belgium**Improving the Biorefinery Output by Coupling Ethanol Fermentation, Anaerobic Digestion and Pyrolysis****3BO.7.2**G. Haarlemmer, M. Peyrot, M. Briand  
CEA, Grenoble, France**Thermochemical Conversion of Industrial Wastes Produced at a Pulp and Paper Mill Into Biofuels****3BO.7.3**J.R. Bastidas-Oyanedel, J.E. Schmidt  
University of Southern Denmark, Odense, Denmark**Unlocking Value from Food Waste - Chemicals and Biogas Production****3BO.7.4**J.W. van Hal  
TNO, Petten, The Netherlands  
A.B. Bjerre  
DTI, Taastrup, Denmark**Driving on Seaweed: Major Achievements of the H2020 MacroFuels Project towards Producing Biofuels from Macroalgae.**

## ORAL SESSION IBO.8

14.00 - 15.00 Strategies and Initiatives

*Successful strategies and policies for the industrialization of renewable energy production.***CHAIR & MODERATOR:****Bruno GAGNEPAIN**

ADEME, FRANCE

**IBO.8.1**D. Bacovsky  
Bioenergy and Sustainable Technologies, Wieselburg, Austria**The Contribution of Advanced Renewable Transport Fuels to Transport Decarbonisation in 2030 and Beyond****IBO.8.2**R Mergner, R Janssen, D Rutz  
WIP Renewable Energies, Munich, Germany  
Smart Strategies for the Transition in Coal Intensive Regions**IBO.8.3**M Gómez, S Zapata, J Aranda, C Bartolomé  
CIRCE - Research Centre for Energy Resources and Consumption, Zaragoza, SpainB. Annevelink  
WFBR- Stichting Wageningen Research, The Netherlands, The NetherlandsL. Urciuoli  
ZLC- Fundación Zaragoza Logistics, SpainM. Karampini  
CERTH- Ethniko Kentro Erevnas Kai Technologikis, Greece, GreeceM. Kougioumtzis  
CERTH- Ethniko Kentro Erevnas Kai Technologikis, GreeceC. Gunnarsson, J. Olsson  
RISE Research Institutes of Sweden, SwedenA. Kravchenko  
UCAB - Association Ukrainian Agribusinessclub, UkraineA. Suardi  
CREA- Consiglio per la Ricerca in Agricoltura e L'analisi dell' Economia Agraria, ItalyC. Serrat  
APS - Agroindustrial Pascual Sanz, Zaragoza, SpainI. Boukis  
NUTRIA - Anonymi Biomichaniki Etairia Typopiisis Kai Emporias Agrotikon, GreeceD. Karlsson  
LANTMÄNNEN - Lantmännen Ekonomisk Forening, SwedenT. Gustafsson  
PROCESSUM - RISE Processum AB, SwedenP. Fernández  
Spanish CO-OPS - Cooperativas Agro-Alimentarias de España. Sociedad Cooperativa, SpainC. Stavropoulou  
INASO - Institutouto Agrotikis Kai Synetairistikis Oikonomias INASO PASEGES, GreeceB. Falcon  
AESAs - Agriconsulting Europe S.A, Belgium

D. Stojiljkovic  
UBFME - University of Belgrade. Faculty of Mechanical Engineer, Serbia  
C. Jarauta  
CIRCE, Spain  
**From Agroindustries to Integrated Biomass Logistics Centres. AGROinLOG Project: Summary of Final Results**

**IBO.8.4**  
G. Lamers  
BMNT, Vienna, Austria  
**The Bioeconomy Strategy of Austria**

**Networking & Exhibition Visiting Time 15.00 - 15.10**

**ORAL SESSION 1BO.9**

**15.10 - 16.10 Annual and Perennial Crops**

*In this session presentations will tackle agronomic and environmental issues related to a range of annual and perennial biomass crops.*

**CHAIR & MODERATOR:**  
**Ana Luisa FERNANDO**  
Universidade Nova de Lisboa, PORTUGAL

**Vance OWENS**  
South Dakota State University, USA

**1BO.9.1**  
W. Zegada-Lizarazu, A. Parenti, A. Monti  
University of Bologna, Italy  
**Is Sunnhemp (*Crotalaria Juncea L.*) a Valid Biomass Feedstock Alternative in Temperate Climates?**

**1BO.9.2**  
D. Scordia, G. Testa, S. Calcagno, S.A. Corinzia, B.R. Ciaramella, A. Piccitto, S.L. Cosentino  
UNICT-Di3A, Catania, Italy  
**Potential and Actual Yield of African Fodder Cane (*Saccharum Spontaneum Ssp. Aegypticum*) on Areas Affected by Biophysical Constraints**

**1BO.9.3**  
M. Christou, E. Alexopoulou  
CRES, Pikermi, Greece  
F. Zanetti, A. Monti  
Unibo, Bologna, Italy  
M. Krzyzaniak, M. Stolarski  
UWM, Olsztyn, Poland  
E.N. Van Loo  
WUR, Wageningen, The Netherlands  
**Effect of Varieties, Sowing Dates and Densities on Camelina & Crambe Yields - Final Results of COSMOS Project**

## ORAL SESSION 2BO.10

15.10 - 16.10

**Innovations in Feedstock for Gasification  
for Synthesis Gas Production**

*In this session various feedstocks for the gasification for synthesis gas production are discussed and analysed. Their behaviour on the quality of the fluid is studied.*

**CHAIR & MODERATOR:****Markus BOLHÄR-NORDENKAMPF**

Valmet, AUSTRIA

**David BAXTER**

Former European Commission, Joint Research Centre, EU

**2BO.10.1**S. Valin, F. Defoort, S. Ravel, P. Pons de Vincent, S. Thiery, H. Miller  
CEA, LITEN, Grenoble, France**Fluidized Bed Gasification of New Feedstocks and Blends - Focus on Agglomeration****2BO.10.2**M. Schmid, G. Scheffknecht  
IFK University of Stuttgart, Stuttgart, Germany**Closing the Loop for Carbon and Raw Materials by Sewage Sludge Gasification for Syngas and Ash Utilization****2BO.10.3**E. Paris, F. Gallucci  
CREA, Monterotondo, Italy  
D. Borello, B. De Caprariis  
Università La Sapienza, Roma, Italy  
V. Ancona  
CNR, Bari, Italy  
P. Plescia  
CNR, Monterotondo, Italy**Use of an Innovative Instrumental Apparatus for Sampling the Emissions Generated by the Simulation of Energy Conversion Processes of Biomass Obtained from PABR (Plant Assisted Bio-Remediation)**

## ORAL SESSION 3BO.11

15.10 - 16.10

**Bio-Based Products from Biorefineries**

*Development of bio-based products.*

**CHAIR & MODERATOR:****René VAN REE**

Wageningen Research, THE NETHERLANDS

**Tomasz CALIKOWSKI**

European Commission, EU

**3BO.11.1**L. Jasiunas, L. Miknius  
Kaunas University of Technology, Lithuania**Biodiesel Plant-integrated Production of Biopolyols - A Bioeconomy Approach****3BO.11.2**S.U. Larsen, A.B. Bjerre  
Danish Technological Institute, Aarhus, Denmark  
N. Ma, X. Hou  
Danish Technological Institute, Taastrup, Denmark  
A. Bruhn  
Aarhus University, Silkeborg, Denmark  
A. Macleod  
Scottish Marine Institute, Argyll, United Kingdom  
U.G. Bak  
Ocean Rainforest, Kaldbak, Denmark**Ensilaging of Seaweed Biomass for Biorefining****3BO.11.3**C. Mukarakate, N. Wilson, M. Griffin, S. Habas, K. Magrini, K. Lisa, M. Yung, M. Nimlos, J. Schaidle  
National Renewable Energy Laboratory, Golden, Usa**Bio-oil as a Platform for Products: Improved Process Economics and Enhanced Utilization of Carbon and Oxygen by Expanding the Product Slate from Catalytic Fast Pyrolysis of Biomass****3BO.11.4**R. Daschner  
Fraunhofer-Institut Umsicht, Energy Management Dpt., Germany  
A. Hornung, S. Eder  
Fraunhofer-Institut UMSICHT, Sulzbach-Rosenberg, Germany  
M. Ouadi  
University of Birmingham, United Kingdom  
T. Hornung  
Susteen Technologies, Sulzbach-Rosenberg, Germany  
J. Zhou  
Verfahrenstechnik Schwedt GmbH, Schwedt/Oder, Germany  
D. Lieftink  
HyGear Technology and Services BV, Arnhem, The Netherlands  
S. Capaccioli  
ETA-Florence Renewable Energies, Italy

A. Contin, S. Righi, D. Marazza, F. Baioli  
 Università di Bologna, Ravenna, Italy  
 I. Rapone, R. Miglio  
 ENI, Novara, Italy  
 M. Langley, C. Tuck  
 WRG, Exeter, United Kingdom  
 A. Claret, J. Bastos  
 Leitat, Terrassa, Spain

**To-Syn-Fuel Project To Convert Sewage Sludge In Value-Added Products**

**ORAL SESSION 4BO.12**

**15.10 - 16.10**

**Strategy Guidance for Local and Regional Bioenergy Projects**

*This session will illustrate approaches how local and regional projects for non-food biomass projects for bioenergy and the wider bioeconomy can be fostered.*

**CHAIR & MODERATOR:**

**Martin JUNGINGER**

Utrecht University, THE NETHERLANDS

**Mirjam RÖDER**

Aston University, UNITED KINGDOM

**4BO.12.1**

E. Alexopoulou

CRES, Pikermi, Greece

**Non-Food Crops Producing Feedstocks for Bio-Based Products and Materials to Feed EU's Circular Economy**

**4BO.12.2**

J.S. Ford, P.G. Taylor, C.S.E. Bale

University of Leeds, United Kingdom

**The Prospects for Reviving Perennial Energy Crop Cultivation in the UK**

**4BO.12.3**

M. Torre, P. Tratzi, L. Tomassetti, M. Segreto, V. Rizza, P. Fazzini, V. Cozza, V. Paolini, F. Petracchini

CNR - IIA, Monterotondo, Italy

A. Palma, M. Carnevale, E. Paris, F. Gallucci

CREA, Monterotondo, Italy

**Development and Evaluation of a Decision Support System for Energy Exploitation of Biomass**

**4BO.12.4**

P. Canciani

Central European Initiative, Trieste, Italy

B. Elbersen

Wageningen University & Research, Wageningen, The Netherlands

C. Panoutsou

Imperial College London, United Kingdom

**Fostering Bioeconomy in Central, East And South-East Europe. The Experience of Celebio Project in the Czech Republic, Slovakia, Hungary, Slovenia, Croatia and Bulgaria.**

**Networking & Exhibition Visiting Time 16.10 - 16.20**

## ORAL SESSION 1BO.13

16.20 - 17.20

**Broadening Opportunities for Bioenergy Feedstock Production from Sustainable Agricultural Practices**

*The session 1BO.13 discusses integrated biomass production for energy purposes with particular focus on bioenergy production integrated into farming systems. It will give insights into how farming practices can improve by adopting bioenergy feedstock production.*

**CHAIR & MODERATOR:****Toshimasa MASUYAMA**

IRENA - International Renewable Energy Agency, GERMANY

**Marisol BERTI**

North Dakota State University, USA

**1BO.13.1**

M. Francavilla, M. Marone, P. Marasco, M. Monteleone  
University of Foggia – STAR\*Facility Centre– Department of Agriculture, Food and Environment Science,  
Foggia, Italy

**Artichoke biorefinery to obtain the vegetable (artichoke heads) and a range of high-value chemical compounds, feeds and bioenergy****1BO.13.2**

C. Panoutsou  
Imperial College London, London, United Kingdom  
P. Anttila, J. Routa, J. Laitila, A. Asikainen  
Luke, Joensuu, Finland  
W. Baumgarten  
FNR, Berlin, Germany  
R. Spinelli  
Consiglio Nazionale Ricerca, Rome, Italy  
W. Gerwin  
BTU Cottbus-Senftenberg, Cottbus, Germany  
E. Alakangas  
VTT, Juvaskyla, Finland

**Opportunities and challenges for broadening biomass feedstock in Europe****1BO.13.3**

M. Von Cossel, M. Wagner, J. Lask, E. Magenau, A. Bauerle, I. Lewandowski, B. Winkler  
Department of Biobased Products and Energy Crops (340b), Institute of Crop Science, University of Ho,  
Stuttgart, Germany  
V. Von Cossel, K. Warrach-Sagi, V. Wulfmeyer  
Institute of Physics and Meteorology (120), University of Hohenheim, Stuttgart, Germany  
B. Elbersen, I. Staritsky, M. Van Eupen  
Earth Informatics, Wageningen University and Research Centre, Wageningen, The Netherlands  
Y. Iqbal  
College of Bioscience and Biotechnology, Hunan Agricultural University, Changsha, P.R. China  
N.D. Jablonowski  
IBG-2: Plant Sciences, Institute of Bio- and Geosciences, Forschungszentrum Jülich, Jülich, Germany  
S. Happe

Institute of Animal Breeding and Husbandry, Kiel University, Kiel, Germany

A.L. Fernando

MEtRICs, Departamento de Ciências e Tecnologia da Biomassa, Faculdade de Ciências e Tecnologia, Univ,  
Caparica, Portugal

D. Scordia, S.L. Cosentino

Dipartimento di Agricoltura, Alimentazione e Ambiente (Di3A), University of Catania, Catania, Italy

**Bioenergy Cropping Systems of Tomorrow****1BO.13.4**

A. Parenti, W. Zegada-Lizarazu, A. Borghesi, A. Monti  
University of Bologna, Bologna, Italy

**Agronomic performance of dedicated lignocellulosic feedstocks in a double cropping system following a cereal food crop**



## ORAL SESSION 2BO.14

16.20 - 17.20

**Advances in Gasification Processes  
for Synthesis Gas Production**

In this session the process related factors for production of syngas are discussed as well as the cleaning and upgrading possibilities.

**CHAIR & MODERATOR:****Frederik RONSSE**

Gent University, BELGIUM

**Jean-Henry FERRASSE**

Aix Marseille Universite, FRANCE

**2BO.14.1***Invited***2BO.14.2**

E.H. Boymans, B.J. Vreugdenhil

TNO, Petten, The Netherlands

**Towards Advanced Biofuels Production from Energy Crops; Gasification and Gas Cleaning****2BO.14.3****EUBCE Student Awardee Presentation**

H. Boujjat, S. Rodat, G. Mitsuyoshi

CEA, Grenoble, France

S. Abanades, S. Chuayboon

CNRS PROMES, Odeillo, France

**Experimentation, Simulation and Scale-Up Study of a Solar Hybrid Reactor for Continuous Biomass Steam Gasification****2BO.14.4**

T. Kertthong, Y.-H. Chen, M. Beirou, M. Schmid, G. Scheffknecht

Institute of Combustion and Power Plant Technology, University of Stuttgart, Stuttgart, Germany

**Upgrading of Synthesis Gas From Biomass Gasification by Reforming of Recycled Methane**

## ORAL SESSION 4BO.15

16.20 - 17.20

**Resource Efficient Bioeconomy**

Resource efficiency in industrial and policy related circular economy strategies.

**CHAIR & MODERATOR:****Luc PELKMANS**

CAPREA Sustainable Solutions, BELGIUM

**Calliope PANOUTSOU**

Imperial College London, UNITED KINGDOM

**4BO.15.1**

L. Visser, R. Hoefnagels, H.M. Junginger

Utrecht University, The Netherlands

G. Latta, R. Pokharel

University of Idaho, Moscow, Usa

**Impact of Increased Pellet Production on Feedstock Allocation and Carbon Flux in the SE US****4BO.15.2****EUBCE Student Awardee Presentation**

P. Stegmann, M. Londo, M. Junginger

Utrecht University, The Netherlands

V. Daioglou

PBL, Den Haag, The Netherlands

**Integrated Assessment of the Role of the Circular Bioeconomy in Climate Change Mitigation: The Case of Plastics****4BO.15.3**

A.K. Lutzenberger

KRU FEA, Siek, Germany

**A Resource-Efficient Europe - A Programme for Climate, Competitiveness and Employment****4BO.15.4**

K.W. Kwant, A.M. Hamer, D. Both, B. Braakman

Netherlands Enterprise Agency, Utrecht, The Netherlands

**The Development of the Circular Economy and Role of Biomass in the Netherlands**

## ORAL SESSION IBO.16

16.20 - 17.20

Industrial Power and Heat Process and Systems

A selection of innovative projects dealing with pyrolysis, anaerobic digestion, gasification and transport fuels, linked with the use of biomass feedstock or waste.

**CHAIR & MODERATOR:**

**Thomas HABAS**  
ENGIE, FRANCE

**Sylvie VALIN**

CEA Grenoble, FRANCE

**IBO.16.1**

L. van de Bekd, E. Leijenhorst  
BTG, Enschede, The Netherlands  
S. Ramaswamy, M. Grote, D. Möntmann  
OWI, Herzogenrath, Germany  
A. Toussaint  
BTG Bioliquids, Enschede, The Netherlands  
T. Rütten  
MEKU, Dauchingen, Germany

**Residue2heat: Renewable Residential Heating with Fast Pyrolysis Bio-Oil****IBO.16.2**

T.W.F.M. Bouten, J. Withag, A.L.U.E. Axelsson  
OPRA Turbines International, Hengelo, The Netherlands  
B.A. Putra, A.K. Pozarlik, G. Brem  
University of Twente, Enschede, The Netherlands  
C. Benesch, T. Brunner  
BIOS Bioenergiesysteme, Graz, Austria

**Experimental and Numerical Investigation of the Application of Fast-Pyrolysis Oil in a Gas Turbine Combustor****IBO.16.3**

L. Wang, M. Perez-Fortes, J. Van, S. Diethelm  
EPFL, Sion, Switzerland

**Progress of EU project WASTE2GRIDS: Converting WASTE to Offer Flexible GRID Balancing Services with Highly-integrated, Efficient Solid-oxide Plants**

## IBO.16.4

J. Van Herle  
EPFL, Sion, Switzerland

**Biogas Cleaning and Integration with Solid Oxide Fuel Cells**

**Networking & Exhibition Visiting Time 17.20 - 18.30**

## ORAL SESSION 1CO.1

09.00 - 10.00

Valorization of Municipal and Industrial Wastes  
for Materials and Energy

This session will present the results from a range of research works focused on the recovery and the valorization of municipal and industrial waste both materials and energy. Experimental trials, concept studies and assessments are included.

**CHAIR & MODERATOR:**

**Jens Bo HOLM-NIELSEN**  
Aalborg University, DENMARK

**Matteo PRUSSI**

European Commission, JRC, EU

**1CO.1.1**

H. Honkanen, T. Pennanen, L. Turunen  
JAMK University of Applied Sciences, Jyväskylä, Finland

**Testing of Applicability of Pulp Production Waste to Concrete and Concrete-Like Materials****1CO.1.2**

L.A. Souza, A. Sanches-Pereira, I.L. Sauer  
Institute of Energy and Environment, University of São Paulo, São Paulo, Brazil, São Paulo, Brazil  
**Analysis of Energy Recovery from Domestic Wastewater: Identifying Characteristics that Influence Energy Recovery Implementation in Brazilian Municipalities**

**1CO.1.4**

K. Kohansal, L.A. Rosendahl, S.S. Toor, T.H. Pedersen  
Aalborg University, Denmark

**Water and Nitrogen Management in Hydrothermal Liquefaction of Urban Waste**

## ORAL SESSION 5CO.2

**09.00 - 10.00**      **Technological Options and Assessments  
for Energy Integration**

*This session will discuss different technological options for bioenergy to develop the future energy grids and energy systems.*

**CHAIR & MODERATOR:****Oskar MEIJERINK**

SkyNRG, THE NETHERLANDS

**Christian THIEL**

European Commission, Joint Research Centre, EU

**5CO.2.1**K. Guerra, P. Haro, A. Ronda-Gálvez, R. Gutiérrez, A. Gómez-Barea  
Universidad de Sevilla, Spain**Renewable Hydrogen Production, Underground Storage and Highly Flexible and Synchronous  
Generation of Electricity to Balance the Future European Electric Grid****5CO.2.2**E. Lozano, T. Pedersen, L.A. Rosendahl  
Aalborg University, Denmark**Integration of Hydrothermal Liquefaction and Carbon Capture for the Production of Advanced  
Liquid Biofuels With BECCS****5CO.2.3**A. Agostini, C. Carbone, F. Gracceva  
ENEA, Rome, Italy

V. Motola

ENEA, Ispra, Italy

Y. Zong, S. You

DTU, Roskilde, Denmark

M. Perez Fortes, L. Wang

EPFL, Sion, Switzerland

**Waste2Grids: The Potential of Waste-based Solid-oxide Plants for Grid-balancing Services****5CO.2.4**

M. Dotzauer, K. Schering

DBFZ Deutsches Biomasseforschungszentrum gemeinnützige GmbH, Leipzig, Germany

K. Deweß

Hochschule Merseburg, Merseburg, Germany

**Flexible Bioenergy by Batteries? Comparison of Conventional Capacity Extension and Utilization  
of Battery Storage Systems for Demand Driven Power Generation of Biogas Plants**

## ORAL SESSION 3CO.3

**09.00 - 10.00**      **Upgrade of Pyrolysis Products**

*This session deals with the upgrade of the liquid pyrolysis products by fractional condensation and esterification for chemicals, materials, fuels and energy.*

**CHAIR & MODERATOR:****Andreas APFELBACHER**

Fraunhofer-Institut UMSICHT, GERMANY

**Ralph P. OVEREND**

Biomass &amp; Bioenergy Journal, CANADA

**3CO.3.1**

P.J. de Wild

ECN part of TNO, Petten, The Netherlands

**Biomass Pyrolysis with Fractionated Product Recovery for Chemicals, Materials, Fuels and Energy****3CO.3.2**

M. Peters, T. Schulzke

Fraunhofer UMSICHT, Oberhausen, Germany

**Esterification of Pyrolysis Oils with Higher Alcohols to Improve Liquid Properties**

## ORAL SESSION 4CO.4

09.00 - 10.00 **Fostering Sustainability in Bioeconomy**

*This session will address the issue of sustainability in different biomass supply chains and regions around the world.*

**CHAIR & MODERATOR:****Alexa LUTZENBERGER**

ALRENE, GERMANY

**Peter CINCIANI**

Central European Initiative, ITALY

**4CO.4.1**

T. Jayabalan, S. Schucht, E. Real, L. Letinois, S. Proust, M. Marlair

INERIS, Verneuil-en-Halatte, France

F. Sessa, J. Laffely

Quantis, Lausanne, Switzerland

M.C. Romano

Politecnico di Milano, Italy

**Sustainability and Safety Assessment of DME Production from Biomass Gasification With Flexible Sorption-Enhanced Processes****4CO.4.2**

S.E. Taelman, D. Sanjuan-Delmás, J. Dewulf

Ghent University, Belgium

D. Tonini

**Comprehensive Sustainability Framework for European Waste Management Systems: A Case Study on Food Waste as Valuable Resource****4CO.4.3**

T.D. Beuchelt

ZEF - University of Bonn, Germany

R. Schneider

Welthungerhilfe, Bonn, Germany

L. Gamba

WWF, Berlin, Germany

**Paving a Way for Food Security in Global Biomass Supply Chains****4CO.4.4**

R. Diaz-Chavez

SEI, Nairobi, Kenya

**Sustainable Integration of Bioenergy And Bioeconomy The Global South. New Forms of Landscape Governance?****Networking & Exhibition Visiting Time 10.00 - 10.10**

## PLENARY SESSION CP.1

10.10 - 12.00 **Views from the Stakeholders****CHAIR & MODERATOR:****Christian THIEL**

European Commission, Joint Research Centre, EU

**James SPAETH**

U.S. Department of Energy, USA

**CP.1.1**

R. Venendaal

BTG, The Netherlands

**A Bioenergy Industry Perspective for Reaching Carbon Neutrality by 2050****CP.1.2**

K. Craig

DOE, Usa

**The Bio - Advantage - from Bottles to BOTTLE; the U.S. DOE's Research on Drop-in, Performance Advantage, and Recycled Bio-materials****CP.1.3**

B. Gabrielle

AgroParisTech, Thiverval-Grignon, France

B. Elbersen

Wageningen Environmental Research, Wageningen, The Netherlands

U. Fritsche

International Institute for Sustainability Analysis and Strategy, Heidelberg, Germany

**Bioenergy Crops: The Silver Bullet to Cool the Planet ?****CP.1.4**

F. Belin

ErGar, Belgium

**Greening the gas grid****Networking & Exhibition Visiting Time 12.00 - 14.00**

## ORAL SESSION 2CO.5

14.00 - 15.00

**Results from Industrial Anaerobic Digestion Plants and Related Research**

*This session will address the issues of efficiency and ways to improve control in anaerobic digestion plants and biogas cleaning.*

**CHAIR & MODERATOR:****Dominik RUTZ**

WIP Renewable Energies, GERMANY

**Serge BIOLLAZ**

Paul Scherrer Institut, SWITZERLAND

**2CO.5.1**

M. Pohl, T. Barchmann, J. Liebetrau

DBFZ Deutsches Biomasseforschungszentrum gemeinnützige, Leipzig, Germany

**Biogas Monitoring Programme III: Energy Efficiency Assessment of 61 Biogas Plants in Germany****2CO.5.2**

M. Ravina, S. Borzooei, G. Campo, A. Cerutti, D. Panepinto, B. Ruffino, V. Riggio, M.C. Zanetti

Turin Polytechnic, Italy

G. Scibilia

SMAT Research Center, Turin, Italy

L. Meucci

SMAT S.p.A., Turin, Italy

**Optimizing Sewage Sludge Digestion in Wastewater Treatment Plants: A Case Study from the Largest WWTP in Italy****2CO.5.3**

M. Kolano, M. Kraume

TU Berlin, Germany

**Using Thrust to Control the Mixing Process in Biogas Fermenters**

## ORAL SESSION 4CO.6

14.00 - 15.00

**Environmental Assessments of Biomass Systems**

*This session evaluates the environmental impacts of different biomass, bioenergy and biorefinery systems, ranging from pulp and paper to rice straw, grass and residues.*

**CHAIR & MODERATOR:****Uwe R. FRITSCHÉ**

IINAS, GERMANY

**Karen MASCARENHAS**

Imperial College, UNITED KINGDOM

**4CO.6.1**

A. Ekman Nilsson

RISE Research Institute of Sweden, Lund, Sweden

G. Croxatto Vega, J. Sohn, S. Irving Olsen

DTU Technical University of Denmark, Lyngby, Denmark

**Upgrading Agricultural Residues in a Biorefinery Setting: Life Cycle Assessment Including Regional Parameters****4CO.6.2**

M. Roeder, P. Thornley

Supergen Bioenergy Hub, Birmingham, United Kingdom

**Environmental Performance and Trade-Offs of Biogas Production from Rice Straw****4CO.6.3**

G. Balcioglu, H. Jeswani, A. Azapagic

Department of Chemical Engineering and Analytical Science, The University of Manchester, United Kingdom

**Environmental Life Cycle Assessment of Energy from Anaerobic Digestion of Different Feedstocks in Turkey****4CO.6.4**

L. Timma, T. Kristensen, M. Trydeman Knudsen

Department of Agroecology, Aarhus University, Tjele, Denmark

**Dynamic Sustainability Analysis of Green Biorefineries by Combining Life Cycle Assessment and System Dynamics Methods. Case Study of Danish Agriculture**

## ORAL SESSION 3CO.7

14.00 - 15.00

## Pyrolysis Processes and Analytics

The session introduces advanced analytical technologies like Pyrolysis TG-MS. Furthermore, fast Pyrolysis of Lignite via fluidized bed will be discussed. Catalytic pyrolysis and TCR are presented. Detailed Grid Measurements in a Gas Turbine Combustor fueled with pyrolysis oil is focus as well.

## CHAIR &amp; MODERATOR:

**Wim VAN SWAAIJ**

University of Twente, THE NETHERLANDS

**Ursel HORNUNG**

Karlsruhe Institute of Technology, GERMANY

## 3CO.7.1

Q. Niu, N. Wu, J. Pieters, W. Prins, F. Ronsse  
Ghent University, Belgium**Comparative Study of Microalgae Pretreatment Based on Py-GC/MS for Fast Pyrolysis**

## 3CO.7.2

J. Grunwald, R. Daschner, A. Hornung  
Fraunhofer UMSICHT, Sulzbach-Rosenberg, Germany**Thermo-Catalytic Reforming of Sewage Sludge and Hydrogenation of Resulting TCR® Oils - A Route to Renewable Chemicals and Fuels**

## 3CO.7.3

A. Puente-Urbina  
ETH Zurich, , Switzerland  
A. Singh-Morgan  
ETH Zurich and University of Edinburgh, Zurich, Switzerland  
J. A. van Bokhoven  
ETH Zurich and Paul Scherrer Institute, Zurich, Switzerland**Stabilization of GVL-Lignin to Tune Product Selectivity of Fast Pyrolysis**

## ORAL SESSION ICO.8

14.00 - 15.00

## Renewable Fuels: The Industry Perspective

Promising technologies to produce renewable energy from sustainable raw materials.

## CHAIR &amp; MODERATOR:

**Philippe MARCHAND**

Expert, FRANCE

**Adam BROWN**

REA - Renewable Energy Association, UNITED KINGDOM

## ICO.8.1

M. Janhunen, L. Ranta  
UPM, Helsinki, Finland**Climate Positive Fuels for Transport Decarbonization: Sequential Cropping Responding to the Need to Develop New Sustainable Feedstock for Lipid Biofuels**

## ICO.8.2

S. Bezergianni, A. Dimitriadis, L. Chryssikou, P. Manara  
Centre for Research & Technology Hellas, Thessaloniki, Greece  
M. Auervald, D. Kubicka  
University of Chemistry & Technology Prague, Prague, Czech Republic  
U. Pfisterer  
BP Europa, Bochum, Germany  
P. Kukula  
Ranido, Prague, Czech Republic  
L. Meca  
Ranido s.r.o, Prague, Czech Republic**Towards Bio-oil Integration in an Underlying Refinery**

## ICO.8.3

A. Pekaretz  
Wood Technology Company, Irkutsk, Russian Federation  
O. Fedorova, Y. Mandre, E. Akim  
SPGTUITD, St-Petersburg, Russian Federation  
N. Vinogradov  
St. Petersburg State University of Technology and Design, St-Petersburg, Russian Federation  
**Development of Industrial Implementation and Scientific Basis of Innovative Technology for Producing Fuel Wood and Wood-Coal Briquet from Sawdust**

## ICO.8.4

H. Horn, R. Modaresi  
Tretknisk, Oslo, Norway  
J. Dibdiakova  
NIBIO, Ås, Norway  
A. Vestlund  
Bergene Holm, Brandval, Norway**Environmental and Economic Impact of Rapid X-Ray Measurement of Forest Biomass at Bioenergy Plants****Networking & Exhibition Visiting Time 15.00 - 15.15**

## ORAL SESSION 5CO.9

15.10 - 16.10

## Alternative Renewable Fuels

*This session will discuss the opportunities of power-to-x, hydrogen and other alternative fuels and the opportunities of using alternative fuels to increase the efficiency of existing biofuels.*

**CHAIR & MODERATOR:****Patrik KLINTBOM**

RISE, SWEDEN

**Alain BENGOUER**

CEA, FRANCE

**5CO.9.1**G. Grim, Z. Huang, M. Guarnieri, J. Ferrell, L. Tao, J. Schaidle  
National Renewable Energy Laboratory, Golden, Usa

**What is the Technical and Economic Feasibility of Utilizing Electricity-Driven CO2 Reduction to Transform our Carbon Economy?**

**5CO.9.2**H. P. Schmid  
WS Reformer, Germany

**Analysis and Comparison of Transport Fuels from Biogas Origin**

**5CO.9.3**G. Zamboni, M. Capobianco  
University of Genoa, Italy

**Experimental Analysis of the Influence of Diesel-Used Cooking Oil Methyl Ester Blends on Efficiency, Emissions and Combustion Process in a Diesel Engine.**

**5CO.9.4**M. Padella, R. Edwards, A. O'Connell, N. Scarlat  
JRC, Ispra, EU

**Novel Tranport Fuels in the New Renewable Energy Directive**

## ORAL SESSION 4CO.10

15.10 - 16.10

## Environmental Impacts of Biomass Systems

*This session covers different conversion routes and their contribution to climate mitigation. The approaches are divers in relation to conversion technologies addressed, methodologies applied, and policy perspectives taken.*

**CHAIR & MODERATOR:****Guido REINHARDT**

IFEU-Institut Heidelberg, GERMANY

**Rocio DIAZ-CHAVEZ**

Stockholm Environment Institute, KENYA

**4CO.10.1**T. Mai-Moulin, R. Hoefnagels, M. Junginger  
Utrecht University, The Netherlands

**Sustainability Criteria of the Revised Renewable Energy Directive (RED II): Towards Harmonised Criteria and Possible Trade-Offs for Multi-Output Biorefineries**

**4CO.10.2**M. Kaltschmitt  
Hamburg Technical University, GermanyH.M. Junginger  
Utrecht University, The NetherlandsB. Buchspies  
Hamburg University of Technology, Hamburg, Germany

**Straw Utilization for Biofuel Production: A Consequential GHG Assessment of Bioethanol and Biomethane Provision with a Focus on the Time-Dependency of Emissions**

**4CO.10.3**S. Proskurina, E. Vakkilainen  
LUT University, Lappeenranta, FinlandR. Sikkema  
Wageningen University & Research (WUR), Environmental Sciences Group, The Netherlands

M. Banja

Air and Climate Unit, Directorate for Energy, Transport and Climate, JRC, RC, Ispra, Italy  
**How shall the EU Countries Contribute to the 2030 Renewable Energy Target in the New NECP's and what is the Environmental Impact of using Solid Biomass?**

**4CO.10.4****Steven Mandley**

Utrecht University, Energy &amp; Resources Dpt., The Netherlands

**Eu Bioenergy In 2050: The What, Where And Why - An Assessment of Global and Regional Climate Policy on Future EU Bioenergy Consumption, Trade Requirements and Mitigation Potential -**

## ORAL SESSION 3CO.11

## 15.10 - 16.10 Process Development, Modeling and Liquid Product Upgrading

*Modeling and schemes for hydrothermal processes are presented in the first part of the session, followed by a detailed focus on catalytic hydrotreatment of HTL biocrudes: what are the challenges and how can they be addressed?*

**CHAIR & MODERATOR:****Scott TURN**

University of Hawaii, USA

**Pavlina NANOU**

ECN part of TNO, THE NETHERLANDS

**3CO.11.1**

E. Moghaddam, W de Jong

TU Delft, The Netherlands

M. Siedlecki, K. Michalska

CBI Pro-Academia, Lodz, Poland

**Supercritical Water Gasification of Multi-Sourced Wet Biomasses: From the Lab-Scale Experiments towards a Novel design of a SCWG Plant**

**3CO.11.2**

C. Penke, L. Moser, V. Batteiger

Bauhaus Luftfahrt, Taufkirchen, Germany

**Modeling of Cost Optimized HTL Fuel Production by Process Integration**

**3CO.11.3**

D. Castello, M.S. Haider, L.A. Rosendahl

Aalborg University, Denmark

**Denitrogenation: A Big Challenge for Biocrude Upgrading to Drop-In Fuels**

## ORAL SESSION ICO.12

## 15.10 - 16.10 Full Chain Demonstration of Advanced Biofuels

*Various feedstocks are converted to a variety of products in complete demonstration plants. Operation experiences and next step of developments will be in focus.*

**CHAIR & MODERATOR:****Bert VAN DE BELD**

BTG Biomass Technology Group, THE NETHERLANDS

**Ingvar LANDÄLV**

Fuel &amp; Energy Consulting, SWEDEN

**ICO.12.2**

M. Hitzl, M. Hernandez

Ingelia, Valencia, Spain

M. Renz

ITQ, Valencia, Spain

C. Wang, P. Cobden

Swerim, Lulea, Sweden

**Carbon sourcing of Cupola Furnace Industry with Hydrothermally Carbonised Paper Sludge, a Circular Economy Model**

**ICO.12.3**

A. Koudil

Bionext, Solaize, France

G. Cheviron

Axens, Rueil-Malmaison, France

N. Ullrich

tkIS, Dortmund, Germany

L. Bournay

IFPE, Solaize, France

M. Hecquet

Total, Harfleur, France

**The BioTfuel Project for Second-generation Biofuels : Towards the Completion of more than 10 Years R&D Efforts**

**Networking & Exhibition Visiting Time 16.10 - 16.20**



## ORAL SESSION 5CO.13

16.20 - 17.20

## Market Perspectives for Biomass in the Green Deal

*This session presents the market perspectives and the required conditions to make this market grow within the EU Green Deal. All sectors: biofuels, bioproducts and sustainable biomass production are incorporated.*

## CHAIR &amp; MODERATOR:

**Giuliano GRASSI**

European Biomass Industry Association, BELGIUM

**Kees KWANT**

Netherlands Enterprise Agency, Ministry of Economic Affairs, THE NETHERLANDS

## 5CO.13.1

A. Uslu, J. van Stralen

TNO Energy Transition, Amsterdam, The Netherlands

**Systemic Analysis of Renewable Fuels (RESfuels) for 2030 and Beyond.**

## 5CO.13.2

M. Prussi, N. Scarlat, J. Rejtharova

EC-JRC, Ispra, EU

M. Acciaro, V. Kosmas KLU, Hamburg, Germany

**Greening EU Waterborne Sector: The Potential Contribution of Biofuels**

## 5CO.13.3

M.M.M. Overbeek

Wageningen Economic Research, The Hague, The Netherlands

A.C. Hoes

Wageningen Economic Research, The Netherlands

S. Albertini

FVA, Rome, Italy

**Challenges for the Uptake of Bio-based Products**

## 5CO.13.4

U.R. Fritsche

IINAS, Darmstadt, Germany

K. Moosmann

GIZ, Eschborn, Germany

T. Pirelli

FAO &amp; GBEP, Rome, Italy

K. Sander

World Bank, Washington, DC, Usa

**Forest Landscape Restoration and Sustainable Bioenergy as a Bridge to Achieve the Paris Agreement, and the SDGs: Implementation Experiences and Financing Options**

## ORAL SESSION 3CO.14

16.20 - 17.20

## Treatment and Analysis of Hydrothermal Process Streams

*Advanced analytics on hydrothermal process streams and a detailed view of hydrothermal carbonization aspects are presented.*

## CHAIR &amp; MODERATOR:

**Lasse ROSENDAHL**

Aalborg University, DENMARK

**Tim SCHULZKE**

Fraunhofer UMSICHT, GERMANY

## 3CO.14.1

N.L. Taufer, V. Benedetti, M. Baratieri, M. Pecchi

Free University of Bolzano, Italy

Y. Matsumura

Hiroshima University, Japan

D. Basso

HBI, Bolzano, Italy

**Experimental Investigation into the Coupling of Hydrothermal Carbonization of Digestate and Supercritical Water Gasification of Liquid by-products**

## 3CO.14.2

U. Kongjampee, T. Barth

University of Bergen, Norway

**The Fate of Pharmaceutical Residues during HTL Conversion of Biogas Residues Relative to Bio-oil Yields**

## 3CO.14.3

D. Baudouin, R. Wang, R. Deplazes, F. Vogel

PSI - Paul Scherrer Institut, Villigen, Switzerland

R. Kirsten, T. Wintgens

FHNW, Muttens, Switzerland

**The Behaviour of Black Liquor Salts Under Hydrothermal Conditions and their Continuous Extraction**

16.20 - 18.20

## Algae Industry Workshop

Networking &amp; Exhibition Visiting Time 17.20 - 18.30

## ORAL SESSION 2DO.1

09.00 - 10.00 **Biogas Cleaning and Use in Local Communities**

*This session covers biogas cleaning in the form of siloxane removal and small-scale treatment for use in fuel cells, and in addition, biogas production from residues for use in decentralized local communities.*

**CHAIR & MODERATOR:****Alessandro AGOSTINI**

ENEA Research Centre, ITALY

**Ioana IONEL**

Politehnica University of Timisoara, ROMANIA

**2DO.1.1**E. Takaluoma, A. Rimpiläinen  
University of Applied Science Kajaani, Finland**Novel Geopolymer Adsorbents for Siloxane Removal from Biogas****2DO.1.2**B.A. Pereira, T.F. Sawatani, T.S.O. De Souza  
Department of Hydraulic and Environmental Engineering, Polytechnic School, University of São Paulo, BrazilA. Tagima, J.B. Borba, S.C. Santos, C.A. D'Aquino, I.L. Sauer  
Institute of Energy and Environment, University of São Paulo, Brazil  
G.M.F.L. Leite, A.A. Baptista

Department of Agribusiness, Food and Nutrition, University of São Paulo, Piracicaba, Piracicaba, Brazil

**Energy Recovery of in Situ Shredded Kitchen Residues: Decentralized Municipal Organic Solid Waste Treatment and Bioenergy Generation Potential for a Local Community in Brazil****2DO.1.3**

S Biollaz, A. Calbry-Muzyka, J. Indlekofer, T. Schildhauer, J. Schneebeli, T. Wieseler

Paul Scherrer Institute, Villigen, Switzerland

M. Gandiglio, A. Lanzini  
Politecnico di Torino, Italy

P. Gislou, S. McPhail, F. Santoni

ENEA CR Casaccia, Rome, Italy

**Development of a Small-Size Cleaning Unit for Biogas Use in High-Efficiency Fuel Cells: Experimental Investigation of Different Sorbents Materials**

## ORAL SESSION 4DO.2

09.00 - 10.00 **GHG Performance of Bioenergy Including Carbon Capture**

*This session addresses the potential, feasibility and challenges for different strategies for climate mitigation with bioenergy and carbon capture.*

**CHAIR & MODERATOR:****Monica PADELLA**

European Commission, JRC, EU

**Pierre COLLET**

IFP Energies Nouvelles, FRANCE

**4DO.2.1**S. Garcia-Freites  
Tyndall Manchester, Manchester, United KingdomM. Roeder  
Supergen Bioenergy Hub, Birmingham, United Kingdom**Feasibility of Bioenergy with Carbon Capture and Storage (BECCS) Under the UK's Net-Zero Emission Target****4DO.2.2**K.L. Mascarenhas, S.T. Coelho, J.R. Meneghini  
Research Centre for Gas Innovation (RCGI / FAPESP / Shell), São Paulo, Brazil**Challenges for BECCS Implementation through a Socio-technical Approach****4DO.2.3**M.P. van Veen, H.M. Junginger  
Utrecht University, The NetherlandsK. Zagt  
Bureau, Heerenveen, The Netherlands**Identifying the Greenhouse Gas Reduction Potential of Autogenerative High Pressure Digestion****4DO.2.4**

Yuri Kroyan

Aalto University, Mechanical Engineering Dpt., FINLAND

**End-Use Performance of Alternative Fuels in Aviation, On-Road and Marine Transportation**

**ORAL SESSION 3DO.3**

**09.00 - 10.00 Innovations in Advanced Biofuels Production and Use**

*This session deals with innovations and progress in processes for advanced biofuels production from different feedstocks.*

**CHAIR & MODERATOR:**

**Guillaume BOISSONNET**

Commissariat à l'Energie Atomique, FRANCE

**Dimitrios SIDIRAS**

University of Piraeus, GREECE

**3DO.3.1**

D. Chiaramonti, T. Barsali, D. Casini

RE-CORD/UniFI, Florence, Italy

S. Thion

Total, Courbevoie, France

O. Meijerink

SkyNRG, Amsterdam, The Netherlands

B. De Ulibarri

CENER, Sarriguen, Spain

Y. Herreras Yambanis

Camelina Company Espana, Fuente el Saz de Jarama, Spain

M. Cocchi

ETA Florence Renewable Energies, Italy

A. Jones

Joint Research Center, Brussels, Belgium

**BIO4A: Bringing SAF to Scale and Delivering Sustainable Lipids for Aviation**

**3DO.3.2**

C. Frilund, S. Tuomi, E. Kurkela

VTT, Espoo, Finland

M. Selinsek

Ineratec, Karlsruhe, Germany

**Compact Gasification and Synthesis Process for Transport Fuels: PDU-Scale Validation of Complete BtL Process**

**3DO.3.3**

S. Gori, C. Antonetti, F. Doveri, A.M. Raspolli Galletti, G. Pasini, G. Caposciutti, S. Frigo

University of Pisa, Italy

**A Green Approach for the Valorisation of Arundo Donax L. and Paper Mill Waste to Produce the Advanced Biofuel N-Butyl Levulinate**

**3DO.3.4**

S. Rios, O. Lépine

AlgoSource Technology, Saint-Nazaire, France

S. Awad, D. Drouin, J. Pruvost, J. Legrand

GEPEA, Saint-Nazaire, France

**Experimental Study on the Production of Biodiesel from Nannochloropsis Oceanica Microalgae and its Engine Tests**

**09.00 - 11.00 Overcoming Collaboration Challenges Between the Feedstock Owners and Bio-Based Industries**

**Networking & Exhibition Visiting Time 10.00 - 10.10**

ORAL SESSION 2DO.4

10.10 - 11.10 **Biological Methanation Processes**

*Biological methanation is the focus of this session with examples of a trickle bed reactor, ex-situ biotrickling filter methanation and in-situ methanation with hydrogen additions.*

**CHAIR & MODERATOR:**

**Bernhard DROSG**

BEST - Bioenergy and Sustainable Technologies, AUSTRIA

**Arthur WELLINGER**

European Biogas Association, BELGIUM

**2DO.4.1**

J.M. Triolo, L. Yde

University of Southern Denmark, Odense, Denmark

**Assay for Testing Packing Materials for Ex-Situ Bio-Methanation**

**2DO.4.2**

*Invited*

**2DO.4.3**

T. Weidlich, T. Trabold, P. Treiber, M. Neubert, J. Karl

Friedrich-Alexander-Universität Erlangen-Nürnberg, Chair of Energy Process Engineering, Nuremberg, Germany

**Experimental Performance of a Trickle-Bed Reactor for Biological Methanation**

ORAL SESSION 4DO.5

10.10 - 11.10 **International Strategies and Governance Systems for Bioenergy and the Bioeconomy**

*This session will focus on a variety of strategies and governance mechanisms to steer bioenergy and the bioeconomy in different world regions.*

**CHAIR & MODERATOR:**

**Birger KERCKOW**

FNR - Agency for Renewable Resources, GERMANY

**Robert M'BAREK**

European Commission, JRC, EU

**4DO.5.1**

Y. Zhou, N. Pavlenko, B. Comer, S. Searle

International Council on Clean Transportation, Washington D.C., Usa

D. Rutherford

International Council on Clean Transportation, San Francisco, Usa

**Biofuel's Potential in International Shipping Decarbonization**

**4DO.5.2**

C. Panoutsou, A. Singh, T. Christensen

Imperial College, London, United Kingdom

L. Pelkmans

Caprea, Brussels, Belgium

**Informed Decision Making in Bioeconomy Through Use of Value Chain Indicators**

**4DO.5.3**

F.X. Johnson, M. Fielding, G. Gladkykh, O. Olsson

Stockholm Environment Institute, Sweden

N. Canales

Stockholm Environment Institute, Bogota, Colombia

M. Ogeya

Stockholm Environment Institute, Nairobi, Kenya

R. Bailis

Stockholm Environment Institute, Boston, Usa

M. Aung

Stockholm Environment Institute, Bangkok, Thailand

**Governing Alternative Bioeconomy and Development Pathways: An International Comparison**

**4DO.5.4**

G. Beekman, S. van Berkum, H. Bos-Brouwer, H. Dagevos, W. de Haas, L. van Hoof, C. de Lauwere, C.

Plaisier, M. Pleijte, D. Puente

Wageningen UR, The Netherlands

**Governance in Transitions Towards A Circular and Climate Neutral Society**

ORAL SESSION 3DO.6

10.10 - 11.10

**Thermally Treated Biomass - From Fundamentals to Applications**

*Intermediate (commodity) bioenergy carriers are key in making forestry, agricultural biomass (residues) and organic wastes available for biochemicals/-materials and bioenergy applications. They facilitate logistics and conversion, but also sustainability certification and trade. This session addressed production, production fundamentals and application of solid bioenergy carriers produced via thermal treatment.*

**CHAIR & MODERATOR:**

**Jaap KIEL**

ECN part of TNO, THE NETHERLANDS

**Liang WANG**

SINTEF Energy Research, NORWAY

**3DO.6.1**

H. Demey, T. Melkior, A. Chatroux, M. Grateau, P. Pons de Vincent, S. Thierry, M. Marchand  
Commissariat à l'Énergie Atomique et aux Énergies Alternatives, Grenoble, France

**Torrefaction of Poplar Biomass: Manufacturing of Efficient Biocoal Materials for Cofiring Applications and as Reducing Agents in Metallurgical Industries**

**3DO.6.2**

L.G.O. Galvão, B. S. Chaves

Forest Products Laboratory, Brazilian Forest Service, Brasília, Brazil

E.A. Silveira, A. Caldeira-Pires, M.V. Girão de Moraes

Mechanical Engineering Dpt., University of Brasília, Brazil

P. Rousset

French Agriculture Research Centre for International Development, Montpellier, France

A.T. do Vale

Forest Engineering Department, University of Brasília, Brazil

**Combined Thermo-Acoustic Upgrading of Solid Fuel: Experimental and Numerical Investigation**

**3DO.6.3**

R. Deutsch, S. Martini, N. Kienzl

BEST - Bioenergy and Sustainable Technologies GmbH, Graz, Austria

C. Strasser

BEST- Bioenergy and Sustainable Technologies GmbH, Graz, Austria

**Customizing Biomass as Reducing Agent in Blast Furnace Ironmaking - Reduction Potential and Fluidization**

**3DO.6.4**

**EUBCE Student Awardee Presentation**

C. Saavedra, L. Simonin, S. Martinet

CEA-LITEN, Grenoble, France

C. Mathei-Ghimbeu

CNRS, Mulhouse, France

C. Dupont

IHE, Delft, The Netherlands

**Biochar-Derived Carbonaceous Materials as Electrodes of the Next-Generation Sodium-Ion Batteries: Elucidating the Impact of Biomass Composition in the Electrode Performance.**

Networking & Exhibition Visiting Time 11.10 - 11.20

11.20 - 13.00

**Closing Session**

Networking & Exhibition Visiting Time 13.00 - 14.00

13.00 - 15.00  
**for Europe's Industry**

**BIOFIT Industry Form - H2020 Project on Bioenergy Retrofits**

14.00 - 15.30

**Sustainable biomass supply chains**

14.00 - 15.30  
**Objective**

**Bioenergy - The Overlooked Contributor To The 1.5°C Climate**

14.00 - 15.30

**FLEDGED Project**

14.00 - 15.30

**Fostering bioeconomy in central, East and South-East Europe.**

16.00 - 17.30

**Bioenergy Stakeholders Workshop**

Networking & Exhibition Visiting Time 17.30 - 18.30

ORAL  
THU

ORAL  
THU

**VISUAL PRESENTATIONS 4AV.1**

**14:00 - 15:00**

**Biomass Strategies and Sustainability Implementation  
Towards a Bioeconomy**

*This visual session covers different methodologies to assess sustainability for different regions and pathways, including resource efficiency in value chains for energy, fuels and biobased products for the bioeconomy are addressed. In addition, strategies and policies for bioeconomy in many different countries and regions of the world are addressed for a wide range of biomass substrates and their conversion to diverse bioproducts.*

**CHAIR & MODERATOR:**

**Calliope PANOUTSOU**

Imperial College London, UNITED KINGDOM

**Rocio DIAZ-CHAVEZ**

Stockholm Environment Institute, KENYA

**4AV.1.1**

B. Sumfleth, S. Majer

DBFZ Deutsches Biomasseforschungszentrum, Leipzig, Germany

D. Thrän

Helmholtz Zentrum für Umweltforschung UFZ, DBFZ Deutsches Biomasseforschungszentrum, Leipzig, Germany

**Low iLUC Risk Indicators for Certification in the EU Bioeconomy**

**4AV.1.2**

C.M.T. Rocha, S.T. Coelho

Institute of Energy and Environment, University of São Paulo, Brazil

T.A.G. Fuentes

Institute of Ecology, National Autonomous University of Mexico, Mexico City, Mexico

A. Ghilardi

Research Center in Environmental Geography, National Autonomous University of Mexico, Mexico City, Mexico

**Energy Utilization of Biomass Residues in Underdeveloped Communities: Study Brazil and Mexico**

**4AV.1.3**

A. Sánchez, M. López-Ortega

Unidad Guadalajara de Ingeniería Avanzada, Centro de Investigación y Estudios Avanzados (CINVESTAV), Zapopan, Jalisco, Mexico

T. L. Junqueira, A. Bonomi

Brazilian Biorenewables National Laboratory (Lnbr), Campinas, São Paulo, Brazil

**Enhancing Sustainable Sugarcane Bioethanol Production In Mexico with the Brazilian Experience**

**4AV.1.4**

L. Zihare, I. Muizniece, A. Kubule, D. Blumberga

Riga Technical University, Riga, Latvia

**Country Level Sustainability Evaluation of Bioeconomy**

**4AV.1.5**

B.S. Elbersen, R. Bugter

Wageningen Environmental Research, Wageningen, The Netherlands

M. Leeuwen, van

Wageningen Economic Research, Wageningen, The Netherlands

K. Meesters, J. Broeze

Wageningen Food and Biobased Research, Wageningen, The Netherlands

R Jongschaap

Wageningen Plant Research, Wageningen, The Netherlands

P. Mostert, M. Vries, de

Wageningen Livestock Research, Wageningen, The Netherlands

I. Fels-Klerx, van der

Wageningen Food Safety Research, Wageningen, The Netherlands

G. Piet

Wageningen Marine Research, Wageningen, The Netherlands

**Monitoring Circularity in the Bioeconomy: The Example of the Netherlands**

**4AV.1.6**

M. Von Cossel, C. Amarysti, H. Wilhelm, N. Priya, B. Winkler, L. Hoerner

Dpt.of Biobased Products and Energy Crops (340b), Institute of Crop Science, University of Hohenheim, Stuttgart, Germany

**Changes in Energy and Material Cycles of a Biogas Plant through Replacing Maize with Cup Plant**

**4AV.1.7**

R. M'barek, G. Philippidis, T. Ronzon

European Commission, JRC, EU

**Synergies and Trade-Offs of Sustainable Development - A Bio-Economic Perspective with SDG Insights**

**4AV.1.8**

M.C. Vivas-Cuellar, E.A. Collado Dominguez, D.A. Arias Durand, D. Jorge Rimachi

Universidad Nacional de Ingeniería, Lima, Peru

O.G. Marin Flores

Washington State University, Pullman, Usa

**Clean Technologies for Obtaining Feather Flour by the Physical Hydrolysis Method Using Chicken Feather Waste**

**4AV.1.9**

D. Rutz, F. Colmorgen, R. Janssen

WIP Renewable Energies, Munich, Germany

**Biogas - Global Challenges, Markets and Cooperation Opportunities**

**4AV.1.10**

L. Hagman

Linköping University, Sweden

**Creating a Circular Biorefinery Through Anaerobic Digestion**

**4AV.1.12**

T. Ranta, M. Laihanen, A. Karhunen

LUT University, Lappeenranta, Finland

**Sustainability of Forest-Based Bioenergy- A Student Survey**

**4AV.1.13**

B. Velázquez Martí

Departamento de Ingeniería Rural y Agroalimentaria, Universitat Politècnica de València (Spain), Valencia, Spain

C. Mena Campoverde

Facultad de Economía, Universidad Católica de Santiago de Guayaquil (Ecuador), Guayaquil, Ecuador

**Model for the Distribution of Energy and Food Crops to Maximize GDP and Guarantee Food Sovereignty**

**4AV.1.14**

A. Roth  
Laboratoire de Génie Chimique, Université de Toulouse, CNRS, INPT, UPS, Toulouse, France/CIRAD-Upr B, Montpellier, France  
F. Pinta  
CIRAD-Upr BioWooEB, F-34398 Montpellier. Université Montpellier, CIRAD, France, Montpellier, France  
S. Negny, L. Montastruc  
Laboratoire de Génie Chimique, Université de Toulouse, CNRS, INPT, UPS, Toulouse, France, Toulouse, France

**Identifying Sustainable Strategies and Policies to Strengthen Local Forestry and Wood Based Economy - The Case Study of The Cévennes Area (France) and the Chestnut Tree**

**4AV.1.15**

I. Gyparis, D. Sidiras  
University of Piraeus, Greece

**A Pathway Towards the Development of EU Energy Sector: Unconventional Gas or Biofuels?**

**4AV.1.16**

P. Sridan, P. Surapolchai  
Social Research Institute, Chulalongkorn University, Bangkok, Thailand

**A Systemic Approach to Biomass Energy Development: Thailand's Path towards Sustainable Development**

**4AV.1.17**

H. Honkanen  
JAMK University of Applied Sciences, Jyväskylä, Finland  
A. Aalto  
JAMK University of Applied Sciences, Saarijärvi, Finland  
H. Koponen  
Regional Council of Central Finland, Jyväskylä, Finland

**Connecting Rural Areas in Baltic Sea Region to Boost Smart and Sustainable Bioeconomy**

**4AV.1.19**

A. Younis, R. Benders, T. Lap, A. Faaij  
Energy and Sustainability Research Institute Groningen, University of Groningen, Groningen, The Netherlands  
R. Delgado, A. Cadena  
Modeling and analysis group: Energy-Environment-Economy, School of Engineering, Universidad de los Andes, Bogota, Colombia  
M. Gonzalez-Salazar  
Institute for Technology Assessment and Systems Analysis, Karlsruhe Institute of Technology, Karlsruhe, Germany

**Systems Analysis of the Bioeconomy as a Path Towards Low Carbon Development in Colombia**

**4AV.1.20**

T.M. Lammens  
BTG Bioliquids, Enschede, The Netherlands  
R. Venendaal  
BTG Biomass Technology Group, Enschede, The Netherlands

**Methodologies for Biogenic Carbon Determination when Co-Processing Fast Pyrolysis Bio-Oil**

**4AV.1.25**

M. Sajdak  
Polish Academy of Sciences Scientific Center in Paris, Paris, France  
R. Sikkema

Wageningen University & Research Centre, The Netherlands  
**Higher Efficiencies First or Diversification of Support for Bio-Heat and -Electricity?**

**4AV.1.32**

Z.M. Harris, J. Feng, D. Ying, E Seigné-Itoiz, Y. Kountouris  
Centre for Environmental Policy, Imperial College London, London, United Kingdom  
T.J. Hudelson, H. Lieth, G. Taylor  
Plant Sciences Department, University of California, Davis, Davis, Usa

**Vertical Farming as a Game Changer for BECCS Technology**

**4AV.1.37**

E. Falch, V. Hjeltnes  
NTNU, Norwegian University of Science and Technology, Trondheim, Norway  
R. Slizyte  
SINTEF Ocean, Trondheim, Norway  
N. Kaushik  
Amity University, Noida, India

**The power of educating students to make an impact on food loss reduction in a global perspective**

**4AV.1.39**

A. Pavlou, G. Penoglou  
CERTH/CPERI, Thessaloniki, Greece  
C. Kiparissides  
CERTH/CPERI & AUTH, Thessaloniki, Greece

**Chemicals and Polymers from Microalgae: an Economic Assessment**

**4AV.1.42**

L Fryda  
TNO, Petten, The Netherlands  
F. Carvalheiro, L. Duarte, C. Oliveira  
LNEG, Lisbon, Portugal  
I. del Campo  
CENER, Navarra, Spain

**The Role of Protocols and Benchmarks in a Bio Based Economy**

**Networking & Exhibition Visiting Time 15:00 - 15:10**

## VISUAL PRESENTATIONS 4AV.2

15:10 - 16:10

## Environmental and Climate Impacts of Biomass Systems

*This session deals with land and soil interactions associated with biomass production systems from an ecosystem perspective. This session also deals with a range of processes for reduced GHG emissions, carbon capture, BECCS/BECCUS, C-efficiency in energy systems including transport, and the impacts of biomass crops on soils in different regions of the world.*

**CHAIR & MODERATOR:****Monica PADELLA**

European Commission, JRC, EU

**Mirjam RÖDER**

Aston University, UNITED KINGDOM

**4AV.2.2**

R.-U. Syrbe, T. H. Tran, K. Grunewald, H. Herold, G. Meinel

Leibniz Institute of Ecological Urban and Regional Development, Dresden, Germany

**Biomass Based Residential Heating as Ecosystem Service - Spatial Implications and Service Trade-Offs of German Energy Transition****4AV.2.3**

I. Fraboulet, F. Del-Gratta

INERIS, Verneuil-en-Halatte, France

J.S. Andersen, M.W. Warming-Jespersen

DTI, Aarhus, Denmark

D. Bäckström

RISE, Borås, Sweden

S. Janhäll

RISE, Borås, Sweden

F. Hugony

ENEA, Milan, Italy

C. Morreale

INNOVHUB, Milan, Italy

**European Inter-Comparison Campaigns on PM and OGCs Atmospheric Emissions Test Methods from Residential Wood Combustion using a Stack Simulator Generating Real Biomass Combustion Gases****4AV.2.35**

E. Alexopoulou

CRES - Center for Renewable Energy Sources and Saving, Biomass Dpt., GREECE

**Growth Responses of Sorghum and Switchgrass to Heavy Metals****4AV.2.5**

X. Kong, C.. Salvador, R. Pathak, M. Le Breton, S. Gaita, K. Mitra, M. Hallquist, J. Pettersson

University of Gothenburg, Sweden

S. Carlsson, K. Davidsson

RISE Research Institutes of Sweden, Borås, Sweden

Å. Hallquist

IVL Swedish Environmental Research Institute, Gothenburg, Sweden

**Factor Analysis and Molecular Characterization of Emissions from a Residential Wood Burning Boiler****4AV.2.6**

E. Paris, A. Assirelli, B. Vincenti, M. Carnevale, V. Di Stefano, F. Gallucci

CREA, Monterotondo, Italy

V. Paolini, E. Guerriero

CNR, Montelibretti, Italy

**Comparison Between VOCs Emitted from Orange With and Without Peel and Development of a Emission Abatement System****4AV.2.7**

G.G. Correia, D.S. Henzler, K.M.B. Bruno, O. Cavalett, T.A.D. Hernandez

Brazilian Center for Research in Energy and Materials (CNPEM)/ Brazilian Biorenewables National Labo, Campinas, Brazil

**Yield Estimation and Water Use Efficiency for Sugarcane Production in Center-South Brazil****4AV.2.8**

A. Cecchin, M. Berti

North Dakota State University - Department of Plant Sciences, Fargo, Usa

G. Pourhashem

North Dakota State University - Department of Coatings and Polymeric Materials, Fargo, Usa

**Evaluating Environmental Impacts of Introducing Winter Camelina and Field Pennycress into the Current Cropping Systems in the Upper Midwest of the USA****4AV.2.9**

S. Righi, R. Guerra, L. Vogli, F. Baioli

University of Bologna, Ravenna, Italy

**Polyhydroxybutyrate from Sewage Sludge: Life Cycle Assessment Methodological Choices and Inventory****4AV.2.10**

S. Righi, F. Baioli

University of Bologna, Ravenna, Italy

S. Marinello

University of Modena and Reggio Emilia, Reggio Emilia, Italy

**Life Cycle Assessment of a Biofuel Production System from Algal Biomass Cultivated in Photobioreactors****4AV.2.11**

P. Arora

Indian Institute of Technology, Roorkee, India

V. Thomas, M.J. Realff

Georgia Institute of Technology, Atlanta, Usa

Y. Yuan, R. Chance

Algenol Biofuels, Fort Myers, Usa

**Sustainability Assessment of Hydrothermal Liquefaction of Algae for the Production of Refined Bio-crude: Effects of CO2 Sourcing****4AV.2.12**

A. Hahn, N. Szarka

DBFZ, Leipzig, Germany

M. Uglík

UFZ, Leipzig, Germany

D. Thrän

DBFZ, UFZ, Leipzig, Germany

**Retrofitting bioenergy Plants with Carbon Capture: Assessing the Near-term Potential for Biogenic CO2 in Germany****4AV.2.13**



M. Aalto, O.J. Korpinen, T. Ranta  
LUT-University, Mikkeli, Finland

**Modeling Passenger Travels in a Low-Carbon Transportation System with an Agent-Based Simulation Approach**

**4AV.2.14**

V. Larnaudie, M.D. Ferrari, C. Lareo  
Depto. Bioingeniería, Facultad de Ingeniería, Universidad de la República, Montevideo, Uruguay  
**Impact Of Electricity Credits in the Life Cycle Inventory Analysis of Bioethanol Produced in a Biorefinery**

**4AV.2.15**

C. Moretti, H.M. Junginger, L. Shen  
Utrecht University, The Netherlands  
A. López-Contreras, T. de Vrije  
Wageningen University & Research, The Netherlands  
A. Kraft  
Fraunhofer Institute, Oberhausen, Germany

**Techno-Economic Analysis and Life-Cycle Greenhouse Gas Emissions of a Novel Aviation Fuel from Residue Streams from the Potato Processing Industry**

**4AV.2.16**

C.M. Sastre, J. Carrasco, R. Barro  
CIEMAT, Madrid, Spain  
J. Cabanillas, L. Royano, A. Parralejo, J. González  
CICYTEX, Guadajira, Spain  
P. Ciria  
CIEMAT, Guadajira, Spain  
L.E. Pascual  
CIEMAT, Guadajira, Spain  
**Life Cycle Assessment of Kenaf Grown as Feedstock for Bio-Products and Power Generation Within a Crop Rotation With Food Crops in South-West Spain.**

**4AV.2.17**

K. Nemoto, T. Nakata  
Tohoku University, Sendai, Japan  
S. Nakamura, M. Ooba  
National Institute for Environmental Studies, Mihar, Japan  
Y. Mori  
National Institute for Environmental Studies, Tsukuba, Japan  
**Comparison of Carbon Emissions Utilizing Different Residential Heating Systems in Mountainous Areas**

**4AV.2.18**

A. Poluzzi, G. Guandalini, M. C. Romano  
Politecnico di Milano, Italy  
**Potential Carbon Efficiency as a New Index to Track the Performance of Biofuel Production Processes**

**Networking & Exhibition Visiting Time 16:10 - 16:20**

**VISUAL PRESENTATIONS 5AV.3**

**16:20 - 17:20**

**Deployment of Biomass and Alternate Fuels in Evolving Modern Energy Systems**

*The poster session addresses some options concerning technology integration and flexible feed-ins for energy grid stability, including energy storage using the products of biomass conversion. Also addressed are alternative fuels and their most important building blocks: CO<sub>2</sub> and H<sub>2</sub>, as well as market perspectives for biomass production, the value chain, market and how to reduce financing risks.*

**CHAIR & MODERATOR:**

**Kees KWANT**

Netherlands Enterprise Agency, Ministry of Economic Affairs, THE NETHERLANDS

**Liang WANG**

SINTEF Energy Research, NORWAY

**5AV.3.1**

E. Middelhoff, N. Florin  
Institute for Sustainable Futures, University of Technology Sydney, Sydney, Australia  
L. Andrade Furtado, J. Reis Parise  
Pontifical Catholic University of Rio de Janeiro, Rio de Janeiro, Brazil  
F. Ximenes  
Forest Science, New South Wales Department of Primary Industries, Sydney, Australia  
**Concentrated Solar-Biomass Hybrid Plant for Electricity Generation in New South Wales, Australia**

**5AV.3.2**

R. Gutiérrez, P. Haro, M. Suárez-Almeida, K. Guerra, A. Gómez-Barea  
Universidad de Sevilla, Spain  
Integration of Solar and Biomass for the Production of Electricity: Contributions to Face the Challenge of **Flexible Operation in Thermochemical Biorefineries**

**5AV.3.3**

D. Rutz, R. Mergner, R. Janssen  
WIP Renewable Energies, Munich, Germany  
C. Winterscheid  
Solites, Stuttgart, Germany  
V. Lukoševicius, E. Cepulis  
Lithuanian District Heating Association, Vilnius, Lithuania  
A. Danulevic  
4Salcininku Silumos Tinklai, Šalčininkai, Lithuania  
A. Kazagic, A. Merzic, D. Tresnjo  
Elektroprivreda, Sarajevo, Bosnia And Herzegovina  
S. Grimm  
AGFW, Frankfurt, Germany  
B Doracic, T. Pukšec  
University of Zagreb, Zagreb, Croatia  
R. Hummelshøj  
COWI, Copenhagen, Denmark  
M. Pozzi, S. Morgione  
OPTIT, Bologna, Italy  
A. Krasatsenka

Euroheat & Power, Brussels, Belgium

S. Rossi

Gruppo Hera, Imola, Italy

**Upgrading District Heating: The Upgrade DH Project**

**5AV.3.4**

M. Steubing

Helmoltz-Centre for Environmental Research - UFZ, Leipzig, Germany

Ö Can

Helmoltz-Centre for Environmental Research - UFZ  
Helmoltz-Centre for Environmental Research - UFZ  
Leipzig, Germany

M Dotzauer

DBFZ - Deutsches Biomasseforschungszentrum gGmbH, Leipzig, Germany

**Concepts for the Promotion of Demand-Oriented Electricity Feed-In through Bioenergy Plants**

**5AV.3.5**

M. Akbari, A. Kumar

University of Alberta, Edmonton, Canada

**Comparative Techno-Economic Assessment of Renewable Natural Gas (RNG) Production Pathways from Various Biomass Feedstocks**

**5AV.3.6**

T. Green, A. Ross, R. Crook

University of Leeds, United Kingdom

**A Solar - Driven Thermochemical Process for the Production of Biofuel: With Application to Rural Uganda**

**5AV.3.7**

R. Daschner, A. Apfelbacher, A. Hornung

Fraunhofer UMSICHT, Sulzbach-Rosenberg, Germany

**Biobattery Concept: Integration of Biomass and Waste for Fuels, Heat and Power on Demand**

**5AV.3.8**

**EUBCE Student Awardee Presentation**

A. Poluzzi, G. Guandalini, S. Guffanti, S. Moioli, C. Elsidio, E. Martelli, G. Groppi, M.C. Romano

Politecnico di Milano, Italy

**Techno-Economic Analysis of Flexible Power&biomass-to-Methanol Plants**

**5AV.3.9**

R. Maier, B. Thomas

Reutlingen University, Germany

**Flexible and Robust Control Algorithm for Intelligent Control of Biogas CHP Units for Stabilising the Power Grid**

**5AV.3.10**

M. Veress, A. Bartik, F. Benedikt, M. Hammerschmid, J. Fuchs, S. Müller, H. Hofbauer

TU Wien, Vienna, Austria

**Development and Techno-Economic Evaluation of an Optimized Concept For Industrial Bio-SNG Production from Sewage Sludge**

**5AV.3.12**

C. Perakis, L. Gavriil, I. Papamichail, K. Tsiotas, M. Christou

Centre for Renewable Energy Sources and Saving, Pikermi, Greece

**Crop Residues in the Post-Coal Era - The Case of Amyntaio in Western Macedonia.**

**5AV.3.13**

A. Pfeiffer, A. Mertens

Deutsches Biomasse Forschungszentrum gGmbH, Leipzig, Germany

D. Thrän

Deutsches Biomasse Forschungszentrum gGmbH and Helmholtz Centre for Environmental Research - UFZ, Leipzig, Germany

**Supply Chain Management for Intermediate Bioenergy Carriers - Analysis of Four European Case Studies**

**5AV.3.14**

M. Donner, I. Radic

INRA, Montpellier, France

T. Yatribi

ENA Meknès, Meknès, Morocco

Y. Erraach

INAT, Tunis, Tunisia

F. López-i-Gelats

UVIC, Vic, Barcelona, Spain

**Collective Marketing Strategies and Circular Business Models for Valorising Local Food, Agro-Waste and By-Products: Example of the Olive Oil Chain**

**5AV.3.15**

N.R. Mosteanu

American University of Malta, Bormla, Malta

**Financial and Economic Policies for a Sustainable Development through Green Circular Economy and Artificial Intelligence**

**5AV.3.16**

N.R. Mosteanu

American University of Malta, Bormla, Malta

**Risk Assessment of Financing Bioeconomy Projects to Develop a Healthy Social and Business Environment**

**5AV.3.17**

N.R. Mosteanu

American University of Malta, Bormla, Malta

**Education, Qualification Awareness and Social Civism to Build and Sustain a Healthy and Developed Society**

**5AV.3.19**

D. Rutz, I. Ball, R. Janssen

WIP Renewable Energies, Munich, Germany

H. Tretter, K. Knaus

Austrian Energy Agency, Vienna, Austria

S. Drexelmeier, C. Baumann

Civiv Foundation Energiewende Oberland, Penzberg, Germany

F. Puente

Escan, Madrid, Spain

V. Segon

Regionalna Energetska Agencija Sjeverozapadne Hrvatske, Zagreb, Croatia

D. Balic  
Energy Institute Hrvoje Pozar, Zagreb, Croatia  
F. Silajdzic  
ENOVA, Sarajevo, Bosnia And Herzegovina  
A. Nikolaev  
Black Sea Energy Research Centre, Sofia, Bulgaria  
S. Jerotic  
City of Sabac, Serbia  
G. Stegnar  
Institut Jozef Stefan, Ljubljana, Slovenia Republic  
N. Markovska  
SDEWES Skopje, Skopje, Macedonia  
R. Ayuste Cupido  
Regional Energy Agency of Castilla y León, Leon, Spain  
P. Mazzucchelli  
EUREC, Brussels, Belgium  
M. Colla  
Bioenergy Europe, Brussels, Belgium  
Ø. Skreiberg  
SINTEF, Trondheim, Norway

**An Urgent Call for the Phase-Out of Fossil Space Heating Systems and for the Support of Renewables in the Heating Sector**

**5AV.3.20**

M. Wojcieszuk, Y. Kroyan, O. Kaario, M. Larmi  
Aalto University, Espoo, Finland

**Impact of Alternative Transport Fuel Properties on Engine Performance**

**5AV.3.29**

P. Karka, S. Papadokonstantakis, F. Johnsson  
Chalmers University of Technology, Göteborg, Sweden  
C. Panoutsou  
Imperial College, London, United Kingdom

**Key Challenges and Opportunities on the Development of Liquid Transport-Biofuel Technologies in Short- And Long-Term Timeframes**

**Networking & Exhibition Visiting Time 17:20 - 18:30**

**VISUAL PRESENTATIONS IBV.1**

**09:00 - 10:00**

**Strategies for and Deployment of Biomass in Energy Systems and in Industrial Process Chains**

*Posters in this session cover various feedstocks converted to a variety of intermediate and final products from biomass, Operation experiences and next steps for developments towards industrialization are the main focus. In addition, examples of dedicated feedstock bioenergy plants, innovative algal biorefineries, tools for feedstock supply decision making, as well as successful strategies and policies for the industrialization of renewable energy generation are presented.*

**CHAIR & MODERATOR:**

**Philippe MARCHAND**  
Expert, FRANCE

**Bert VAN DE BELD**

BTG Biomass Technology Group, THE NETHERLANDS

**IBV.1.1**

A.J. Grootjes, B.J. Vreugdenhil  
TNO Energy Transition, Petten, The Netherlands  
F.R. Groeneveld  
TNO CBRN Protection, Rijswijk, The Netherlands  
R.J.J. Zwart, A. van der Drift  
Synova Renewable Technology, Maassluis, The Netherlands  
E. Boymans  
TNO Energy Transition, The Netherlands

**Cyanide Removal for Synthesis Gases**

**IBV.1.2**

F.M. Baena-Moreno, M. Rodríguez-Galán, B. Navarrete  
University of Seville, Spain  
**Definition of a New CO2 Capture and Utilization Process from Biogas and Waste Valorization.**

**IBV.1.3**

I. Ball, R. Janssen, D. Rutz  
WIP Renewable Energies, Munich, Germany  
S. Berger-Ruiz  
Solagro, Toulouse, France  
G. Descamps, P.-E. Rollet  
APYGEC, Juillan, France  
Ch. Triquenaux  
Interis, Champs Sur Marne, France  
**The BABET-REAL 5 Project - Perspectives for a Second Generation (2G) Bioethanol Production Plant in Bavaria**

**IBV.1.4**

F. Schäfer, L. Janke, J. Pröter  
DBFZ, Leipzig, Germany  
F. Niebling  
GICON, Cottbus, Germany  
A. Himmelstoss  
AEV, Dresden, Germany  
**NovoHTK - A Novel Process for Anaerobic Digestion of Chicken Manure**

**IBV.1.5**

C. Richard, G. Karakachian, F. Fallot, L. Thonat  
ENGIE, Saint-Denis, France  
C. Charnier, J. Budin, C. Marcilhac, L. Teuma, F. Novellis, J. Miroux  
BioEnTech, Narbonne, France  
G. Accarion, E. Baudu  
Akajoule, Saint-Nazaire, France  
E. Latrille  
INRA-LBE, Narbonne, France  
F. Beline  
IRSTEA, Rennes, France  
S. Houot  
INRA-ECOSYS, Thivernal-Grignon, France  
E. Le Cadre Loret  
ENGIE, La Défense, France

**Mapped: Digital Tools to Boost and Optimize the Biogas Production at Local And Territory Scales**

**IBV.1.6**

A. Arjun, B. Patel, S.M.A. Biollaz  
PSI, Villigen PSI, Switzerland  
Chr. Ludwig  
EPFL, Lausanne, Switzerland

**Manure to Biomethane: A Techno-Economic Assessment of Small and Medium Scale Value Chains**

**IBV.1.8**

L. Pari, V. Alfano, A. Suardi, N. Palmieri, S. Lazar  
CREA, Rome, Italy  
M. Karampinis  
CERTH, Thessaloniki, Greece  
M. Piccinni  
FIUSIS, Lecce, Italy

**FIUSIS, the First Biomass Power Plant in the World Powered Exclusively by Olive Tree Prunings. A Case Study in the AGROinLOG H2020 Project**

**IBV.1.9**

I. Khozin-Goldberg, B. Zorin, S. Leu, S. Boussiba  
Ben-Gurion University of the Negev, Sede-Boqer campus, Israel  
T. Andreou, M. Andriellou, D. Kalias  
VIO Chemicals, Zurich, Switzerland

**Selection, Optimization and Implementation of "Biorefinery-Ready" Microalgae for the Production of Omega-3 Fatty Acids and Additional High-Value Functional Ingredients**

**IBV.1.10**

F. Colmorgen, C. Khawaja, D. Rutz, R. Janssen  
WIP Renewable Energies, Munich, Germany

**Bio-Based Strategies and Roadmaps for Enhanced Rural and Regional Development in the EU - the Be-Rural Project**

**IBV.1.11**

C.A. García-Velásquez, Y. van der Meer  
Maastricht University, The Netherlands  
S. Leduc

International Institute for Applied Science Analysis (IIASA), Laxenburg, Austria

**Use of Optimization Tools for Decision-Making: Accounting for Externalities in the Production of Biobased Plastics**

**IBV.1.13**

S. Arsenijevic  
Provincial Secretariat for Energy, Construction, and Transport (Assistant Secretary), Novisad, Serbia  
D. Berg  
E3 International (Senior Advisor), Belgrade, Serbia  
L. Bratic  
Balkan Energy and Forest Trends (President), Belgrade, Serbia  
D. Jovic  
Republic of Serbia, Ministry of Agriculture, Forestry, and Water Management (Senior Advisor), Belgrade, Serbia  
S. Karalic  
Kovan International (CEO), Belgrade, Serbia  
B. Norman  
E3 International (President), Washington, DC, Usa  
R. Russo  
E3 International (CEO), Washington, DC, Usa

**Recovery of Government-Owned Abandoned Land Using Short Rotation Wood Biomass Plantations to Achieve U.N. Sustainable Development Goals, Paris Climate Goals, and Bioeconomy Goals**

**IBV.1.17**

R.A.J. Verlinden  
Bioprocess Pilot Facility, Delft, The Netherlands

**The Scale-Up Route for Fuels and Chemicals from Second Generation Biomass**

**IBV.1.19**

L. Hongshen, L. Shizhong  
Tsinghua University, Beijing, P.R. China  
C. Liping  
BBCA Group, Anhui, P.R. China

**Continuous Solid-State Distillation Technology for Cost-Effective Bioethanol Production**

**IBV.1.23**

C. khawaja, R. Janssen, D. Rutz  
WIP, Munich, Germany  
M. Colangeli, L. Traverso, M.M. Morese  
FAO, Rome, Italy  
M. Hirschmugl, C. Sobe  
JR, Graz, Austria  
A. Calera, D. Cifuentes, A. Simon  
UCLM, Albacete, Spain

**Promoting Sustainable Use of Underutilised Lands for Bioenergy Production through a Web-Based Platform for Europe**

**IBV.1.25**

T. Habas, C. Richard, E. Le Cadre, G. Karakachian  
ENGIE, Paris, France  
G. Postec, D. Bouniol  
OpenForêt, Brioux sur Boutonne, France  
S. Silvestri, L. Tomasi, G. Antonio Battisel  
Fondazione Edmund Mach, San Michele, Italy

**WEBio: the Web Platform to Identify Bioresources on your Territory**

**IBV.1.33**M. Van Der Merwe  
Newcarbon, South Africa**New Carbon Innovation for the Production and Application of Biochar, Wood Vinegar and Energy****Networking & Exhibition Visiting Time 10:00 - 10:10****VISUAL PRESENTATIONS 2BV.2****14:00 - 15:00****Solid Biofuels and Innovative Approaches for Biomass Use in Small to Large Scale Combustion Systems**

*The application of new challenging solid fuels and liquid fuels is addressed. Moreover, new methods to improve process control and combustion performance as well as novel approaches for combustion-based CHP technologies are outlined. This session also deals with measures aimed at increasing systems efficiency, fuel flexibility and reliability. In addition, relevant aspects regarding the energy chains of solid biofuels, from the characterization of fuel properties and analysis of factors affecting the biofuels quality and of fuel properties relevant to logistics and conversion behaviour are covered.*

**CHAIR & MODERATOR:****Hannariina HONKANEN**

JAMK University of Applied Sciences, FINLAND

**Thomas Andreas SCHLEKER**

European Commission DG RTD, EU

**2BV.2.1**

S. Link, A. Trikkel

Tallinn University of Technology, Tallinn, Estonia

P. Yrjas

Åbo Akademi University, Turku, Finland

D. Lindberg

Aalto University, Espoo, Finland

**Determination and Comparison of Ash Melting Temperature of a Biomass Blend by Using Laboratory Methods and Thermodynamic Modeling****2BV.2.2**

C. Moliner, D. Bove, E. Arato

UNIGE, Genoa, Italy

R. Teruel, A. Ribes

UPV, Valencia, Spain

**Incineration of Rice Straw Pellets in the Framework of LIFE LIBERNITRATE Project****2BV.2.3**

G. Katsaros, S. Tassou

Brunel University, London, United Kingdom

D. Pandey

Anglia Ruskin University, London, United Kingdom

S. Retschitzegger

BEST, Graz, Austria

**Modeling of Combined Heat and Power Production Unit Based on Experimental Findings of Poultry Litter Combustion in a Pilot Scale Plant.****2BV.2.5**

P. Weimer, F. Kuehl, M. Pfeil, D. Denfeld, S. Pohl

Technische Hochschule Mittelhessen - University of Applied Science, Giessen, Germany

**Process Performance Analysis of a Fuel Flexible Power Supply from Biogenic Residues by an Atmospheric Gas Turbine (IBC)**

**2BV.2.6**

D. Buechner, S. Theurich, Ö. Mutlu, Th. Zeng  
Deutsches Biomasseforschungszentrum, Leipzig, Germany

**Renewables-Based Drying Technology for Cost-Effective Valorization of Waste from the Food Processing Industry****2BV.2.7**

F. de Aquino Ximenes  
NSW DPI, Sydney, Australia  
W. Strauss  
FutureMetrics, Bethel, Usa

**Opportunities for Increased Biomass Co-firing in New South Wales, Australia****2BV.2.8**

J.R. Reichelt  
IBR, Bruchsal, Germany  
G. Pfrang-Stotz, B. Bergfeldt  
KIT/ITC, Eggenstein-Leopoldshafen, Germany

**Increasing the Efficiency of Energy Production in Biomass Power Plants by Technical Application of a Biofuel Catalog: First Test Results****2BV.2.9**

B. Bergfeldt, G. Pfrang-Stotz  
Karlsruhe Institute for Technology, Eggenstein-Leopoldshafen, Germany  
J. Reichelt  
IBR, Bruchsal, Germany

**A New Approach to Predict Slagging and Fouling During Biomass Combustion****2BV.2.10**

C. Zemann, M. Göllés  
BEST - Bioenergy and Sustainable Technologies GmbH, Graz, Austria  
F. Hammer  
LAMTEC Meß- und Regeltechnik für Feuerungen GmbH & Co. KG, Walldorf, Germany  
M. Horn  
Graz University of Technology, Austria

**Long Term Validation of a New Modular Approach for CO-Lambda-Optimization****2BV.2.11**

J. Föhr, T. Ranta, R. KC  
Lappeenranta-Lahti University of Technology LUT, Mikkeli, Finland

**Tests for Truck's Hydraulically Powered Woodchip Blower****2BV.2.14**

R. KC, J. Föhr, T. Ranta  
Lappeenranta-Lahti university of technology LUT, Mikkeli, Finland

**Cost Analysis of Forest Chips Transportation with Biomass Blowing Container Truck****2BV.2.15**

F. Gallucci, E. Paris, A. Palma, A. Scarfone, A. Del Giudice, V. Civitarese, V. Di Stefano  
Crea, Monterotondo, Italy  
L. Bianchini, A. Colantoni  
Tuscia, Viterbo, Italy

**Different Pellet Mixtures Obtained from Spent Coffee Grounds: Energetic Characterization****2BV.2.16**

V. Civitarese, A. Acampora, G. Sperandio, A. Assirelli  
CREA-Center for engineering and agro-food processing, Monterotondo, Italy  
G. Caracciolo  
CREA-Center for olive, citrus and tree fruitengineering and agro-food processing, Forlì, Italy  
**Pellet From 9-years-old Poplar. Characterization of the Raw Material and the Pellets Produced.**

**2BV.2.17**

A. Acampora, V. Civitarese, G. Sperandio, A. Assirelli  
CREA-Center for engineering and agro-food processing, Monterotondo, Italy  
G. Caracciolo  
CREA-Center for olive, citrus and tree fruitengineering and agro-food processing, Forlì, Italy  
G. Rocuzzo  
CREA-Center for olive, citrus and tree fruit, Forlì, Italy  
**Pellets from Hazel and Olive Groves Pruning Residues. Characterization of the Product Obtained.**

**2BV.2.18**

F.R. Charvet, D. Neves, L. Tarelho, A. Matos, J. Silva, D. Silva  
Universidade de Aveiro, Portugal  
**Charcoal Production from Alternative Agroforestry Woody Residues Typical of Southern Europe**

**2BV.2.20**

L. van de Beld  
BTG Biomass technology Group, Enschede, The Netherlands  
**Smart And Flexible Heat & Power from Biomass Derived Liquids for Small-Scale CHP Application**

**2BV.2.21**

P. Abelha, J. Pels  
ECN part of TNO, Petten, The Netherlands  
J. Spaan  
Yilkins, Groningen, The Netherlands  
**Biocoal Pellets Use in Small Scale Boilers**

**Networking & Exhibition Visiting Time 15:00 - 15:10**

## VISUAL PRESENTATIONS 3BV.3

15:10 - 16:10

**Processes and Products of Pyrolysis  
and Hydrothermal Processing**

*Within the poster session analytical pyrolysis and catalytical upgrade technologies are presented. In addition, biochar and its application as fertilizer or soil conditioner are addressed. Molten salt pyrolysis is also presented along with coupling of pyrolysis to biological biomass conversion. The session also deals with effects of HTL process parameters on process efficiencies and products, process kinetics and modeling. The session addresses many different wet substrates and integration with solar energy.*

**CHAIR & MODERATOR:****Ralph P. OVEREND**

Biomass &amp; Bioenergy Journal, CANADA

**Lasse ROSENDAHL**

Aalborg University, DENMARK

**3BV.3.1**

C. Baehr, K. Raffelt, N. Dahmen

Institute for Catalysis Research and Technology, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen, Germany

**Carbon Dioxide Solubilities in Pyrolysis Oil and Related Single Components****3BV.3.3**

A.F. Ruy

Mechanical Engineering Dpt., Federal University of Santa Catarina, Florianopolis, Brazil

M. Puglia, N. Morselli, G. Allesina

BEELab, University of Modena and Reggio Emilia, Modena, Italy

**An Explicit Finite-Differences Heat Conduction Model for Slow Pyrolysis Time Calculation****3BV.3.4**M. Carnevale, E. Santangelo, E. Paris, A. Palma, M. Salerno, V. Di Stefano, F. Gallucci  
CREA, Monterotondo, Italy

A. Colantoni

Università della Tuscia, Viterbo, Italy

V. Paolini, F. Petracchini

CNR, Montelibretti, Italy

**Thermogravimetric Analysis of Olive Tree Pruning as Pyrolysis Feedstock****3BV.3.6**

M. Briand, G. Haarlemmer, A. Roubaud, M. Peyrot, A. Pitoy, P. Fongarland

CEA, Grenoble, France

**Kinetic Model for Hydrothermal Decomposition of Food Residues and Distribution of Reaction Products into Different Phases****3BV.3.7**

M.S. Haider, M.A. Isik, D. Castello, T.H. Pedersen, L.A. Rosendahl

Aalborg University, Denmark

**Demetallization of Nitrogen Rich Biocrudes from Hydrothermal Liquefaction and the Deleterious Effect of Basic Nitrogen Containing Compounds: A Real Challenge is Ahead****3BV.3.8**

P. Nanou, J.R. Pels, F. Sebastiani, C.M. van der Meijden

TNO, Petten, The Netherlands

H. Kuipers

Waterschap Zuiderzeeland, Lelystad, The Netherlands

W. Driessen, J. Vogelaar

Paques, Balk, The Netherlands

**Demonstration of a Continuous TORWASH® Pilot Plant for Sewage Sludge Dewatering****3BV.3.9**

H. Curmi

Université Grenoble Alpes, CNRS, Grenoble INP, LGP2, Grenoble, France

B. Lacaze

CEA LITEN, Université Grenoble Alpes, Grenoble, France

C. Chirat, D. Lachenal

Université Grenoble Alpes, CNRS, Grenoble INP, LGP2, France

G. Haarlemmer

CEA LITEN, Université Grenoble Alpes, France

**Hydrothermal Treatment of the Black Liquor: Study of the Degradation of Organic Components to Produce Interesting Phenolic Compounds****3BV.3.10**

A. Cascioli

Free University of Bozen-Bolzano, Faculty of Science and Technology, Italy

**Exploitation of Lignocellulosic Biomass from Para-Pharmaceutical and Herbal Medicine Production****3BV.3.11**

T. Green, A. Ross, R. Crook

University of Leeds, United Kingdom

**Low Temperature Hydrothermal Carbonization of Water Hyacinth: A Justification for Solar Thermal - Thermochemical Integration.****3BV.3.13**

W. Waldmüller, M. Gaderer

Technical University of Munich, Straubing, Germany

**Hydrothermal Carbonisation and Mono-Incineration of Sewage Sludge - An Energetic Evaluation****3BV.3.15**

A.D.S. Nunes, K-Q. Tran

Norwegian University of Science and Technology, Trondheim, Norway

J. Sierra-Pallares

University of Valladolid, Spain

**Critical Review on Engineering Aspects of Fast Hydrothermal Liquefaction****3BV.3.16**

M. Vassou, A.A. Lappas, E. Heracleous

Chemical Process &amp; Energy Institute, Thessaloniki, Greece

S.C. Chiaberge, D. Bianchi

ENI, Novara, Italy

T.H. Pedersen, L.A. Rosenhdal

Aalborg University, Denmark

**Advanced Characterization of Supercritical HTL Biocrude from Digested Sewage Sludge****3BV.3.18**

D. Salionov, S. Bjelic

Paul Scherrer Institut, Villigen, Switzerland

**Investigation of the Bio-Crude Composition Derived from the Hydrothermal Liquefaction of Spirulina, Miscanthus and Sewage Sludge by Liquid Chromatography - High-Resolution Mass Spectrometry****3BV.3.19**

K.G.R.M Jayathilake, S Rudra  
University of Agder, Grimstad, Norway  
J.A Godwin  
Universitat Rovira I Virgili, Reus, Spain

**Char Phase Behavior of Hydrothermal Conversion of Alkali Lignin in Subcritical Temperatures****3BV.3.20**

S. Iannello, D. Macri, M. Materazzi  
University College, London, United Kingdom  
Z. Bond  
University of Cambridge, United Kingdom

**Dynamic Behaviour of a Single Biomass Particle in Bubbling Fluidised Bed Reactors****3BV.3.25**

M. Elmously, J. Neidel, A. Apfelbacher, R. Daschner, A. Hornung  
Fraunhofer Institute for Environmental, Safety, and Energy Technology, Sulzbach-Rosenberg, Germany

**Thermo-Catalytic Reforming of Biological and Woody Biomass Wastes****3BV.3.28**

S. Dell'Orco  
University of Florence, Department of Industrial Engineering, Italy  
E. Miliotti, A.M. Rizzo, D. Chiaramonti  
RE-CORD, Scarperia e San Piero, Italy  
L. Rosi  
University of Florence, Chemistry Department, Sesto Fiorentino, Italy

**Hydrothermal Liquefaction of Ethanol Biorefinery Lignin Cake Co-product: Effect of Process Conditions and Additives****3BV.3.35**

D. Basso  
HBI, Italy

**Hydrothermal Carbonization of Digestate: Semi-Continuous Analysis of Liquid Compounds****3BV.3.36**

J. Eimontas  
Lithuanian Energy Institute, Lithuania

**Investigation of Seaweed Thermostability and Basic Parameters****3BV.3.40**

F. Patuzzi  
Free University of Bolzano, Faculty of Science and Technology, Italy

**Apple Pomace Hydrothermal Carbonization for Downstream Valorization of Residues After Subcritical Water Extraction****3BV.3.43**

L. Todaro, V. Lo Giudice, N. Moretti  
University of Basilicata, Potenza, Italy  
P. Cetera, L. Pari  
Council for Agricultural Research and Economics - Research Centre for Engineering and Agro-Food Proc,  
Monterotondo, Italy  
G. Boichichio  
National Research Council of Italy - Institute of BioEconomy (CNR-IBE), San Michele all'Adige, Italy

**High Calorific Value and Ash Content of Lignin Derived from Turkey Oak Wood: Combined Effect of Steaming and Thermal Treatment****3BV.3.44**

B. Wirth, M. Pohl  
DBFZ, Leipzig, Germany

**Anaerobic Treatment of Various Process Waters from Hydrothermal Carbonization (HTC): Challenges and Opportunities**

Networking & Exhibition Visiting Time 16:10 - 16:20



## VISUAL PRESENTATIONS 3BV.4

16:20 - 17:20

## Biorefinery Development and Assessment

Biorefinery process innovations and developments and assessments are the theme of this session, based on a wide range of mainly biomass process residues and including algae, for a range of bio-based products.

**CHAIR & MODERATOR:****Yukihiko MATSUMURA**

Hiroshima University, JAPAN

**Andreas APFELBACHER**

Fraunhofer-Institut UMSICHT, GERMANY

**3BV.4.1**

A. Van Zomeren

ECN part of TNO, Bio-Energy Dpt., The Netherlands

**Production of Bio-Based Building Materials from Lignin of Lignocellulosic Biomass Residues****3BV.4.2**

G.P. Nogueira, C.K.N. Cavaliero

University of Campinas, Brazil

M.O.S. Dias

Federal University of São Paulo, São José dos Campos, Brazil

**Eucalyptus Forest Residues as Feedstock for Biorefineries: Process Design and Simulation****3BV.4.3**

G. Van Rensburg, S. Marx, R. Kruger, L. Pieterse

North-West University, Potchefstroom, South Africa

**Increasing the Phenolic Content of the Aqueous Phase from Hydrothermal Liquefaction for Ease of Downstream Recovery****3BV.4.4**

G. Rapp, R. Trethowan

The University of Sydney, Plant Breeding Institute, I.A. Watson International Grains Research Centre, Sydney, Australia

V. Garcia-Montoto, B. Bouyssiere

CNRS / UNIV Pau &amp; Pays de l'Adour, Institut des Sciences Analytiques et de Physico-Chimie pour l'Env, Pau, France

S. Thiebaud-Roux

Université de Toulouse, INP-ENSIACET, LCA (Laboratoire de Chimie Agro-Industrielle), F-31030 Toulouse, Toulouse, France

A. Montoya

School of Chemical and Biomolecular Engineering, The University of Sydney, NSW 2006, Sydney, Australia

P. Pratt

Valtris Enterprises France, Z.I. Baleycoourt CS 10095, 55103 Verdun Cedex, Verdun, France

K. Mozet, A. Dufour, L. Coniglio

Université de Lorraine - Ecole Nationale Supérieure des Industries Chimiques de Nancy, Laboratoire R, Nancy, France

**Dry-Purification by Natural Adsorbents of Indian Mustard Seed Oil Ethyl Biodiesel and Biolubricants: Towards a Low-Cost and Environmentally-Friendly Production Route****3BV.4.5**

C. Carriel Schmitt, K. Raffelt, N. Dahmen

Karlsruhe Institute of Technology, Germany

**Sequential Hydrotreatment of Beech Wood Fast Pyrolysis Bio-Oil With Nickel Catalysts****3BV.4.6**

S.Y. Lee, H.N. Fitriana, J. Lee, S.M. Lee, Y.R. Lee, J.S. Lee

Korea Institute of Energy Research, Gwangju, South Korea

**Electrotrophic CO<sub>2</sub> Conversion with Rhodobacter Sphaeroides****3BV.4.7**

C.A. Salman

Mälardalen University, Västerås, Sweden

**How Can Future CHP Plants also Produce Jet Biofuels?****3BV.4.8**

N Detsios, K Atsonios, P Grammelis

CERTH, Athens, Greece

P Dieringer, C Heinze, J Ströhle

TUDA, Darmstadt, Germany

A.M. Kougioumtzis

CERTH, Greece

**Advanced Fischer-Tropsch biofuels production from syngas derived from Chemical Looping Gasification: A preliminary process simulation study****3BV.4.9**

R. Van Coller

North-West University, School of Chemical and Minerals Engineering, South Africa

**Establishing a Techno-Economic Base Case for a Second-Generation Bio-Refinery: A South African Perspective****3BV.4.20**

A. Sánchez, S. Martínez-Victoria

Unidad Guadalajara de Ingeniería Avanzada, Centro de Investigación y Estudios Avanzados (CINVESTAV), Zapopan, Jalisco, Mexico

**Continuous Versus Batch Acid Pretreatment in 2G Bioethanol Production. What is Best?****Networking & Exhibition Visiting Time 17:20 - 18:30**

## VISUAL PRESENTATIONS 3CV.1

09:00 - 10:00

**Biotechnological Approaches and Conversion Routes to Biobased Materials and Chemicals**

*This session covers a wide range of primarily biotechnological conversion routes for biomass to chemicals and materials, and also a wide range of chemical approaches to conversion of biomass to chemicals and materials.*

**CHAIR & MODERATOR:****Solange MUSSATTO**

Technical University of Denmark, DENMARK

**Tanja BARTH**

University of Bergen, NORWAY

**3CV.1.1**

G. Penloglou, A. Pavlou

CERTH/CPERI, Thessaloniki, Greece

C. Kiparissides

CERTH/CPERI &amp; AUTH, Thessaloniki, Greece

**Biodegradable Plastics from Food Industry Wastes****3CV.1.2**

S. Morin, A. Richel

University of Liege Gembloux Agro Bio-Tech, Belgium

**Critical Insight of the Cellulose Fibres Modification: A Study Case with Laccase Assisted Ferulic Acid Modifications****3CV.1.3**

L. Blaesing, A. Jahn, M. Bertau

Technical University Bergakademie Freiberg, , Germany

**Comparison of Laccase and Peroxidase to Depolymerize Lignin****3CV.1.4**

B. Hocevar, M. Grilc, B. Likozar

National Institute of Chemistry, Ljubljana, Slovenia Republic

M. Zula

Faculty of Chemistry and Chemical Technology, Ljubljana, Slovenia Republic

**Selective Biobased Adipic Acid Synthesis from C6 Sugars****3CV.1.5**

S. Pedrazzi, G. Allesina, P.E. Santangelo, M. Romagnoli, P. Tartarini

University of Modena and Reggio Emilia, Modena, Italy

**Char as a Material for Fuel Cell Manufacturing****3CV.1.7**

S. Selivanovskaya, N. Danilova, K. Karamova, P. Galitskaya

Kazan Federal University, Russian Federation

**Composting of Chicken Manure with Biochar as a Tool to Reduce Antibiotic Resistance Genes Pollution of the Environment****3CV.1.8**

A. Kovalcik

Brno University of Technology, Czech Republic

**How Can Food Waste Oils Contribute to the Circular Economy?****3CV.1.9**

M. Longis, A. Lemoine, P. Neubauer, S. Junne

Technische Universität Berlin, Germany

**Parallel Cultivation Method for Standardized Measurements of Metabolic Activity and Acid Potential in Dark Fermentation with Biogenic Residues****3CV.1.10**

D. Klüh, M. Gaderer

TU Munich, Straubing, Germany

**Simulation of Renewable n-Hexane Production via Kolbe Electrolysis of Butyric Acid****3CV.1.11**

D. Politi, D. Sidiras

University of Piraeus, Greece

**Modified Wheat Straw For Adsorptive Removal of Hexavalent Chromium from Various Water Sources****3CV.1.12**

K. Carbone, A. De Angelis

Consiglio per la ricerca e l'analisi dell'economia agraria (CREA), Roma, Italy

E. Santangelo

Consiglio per la ricerca e l'analisi dell'economia agraria (CREA), Monterotondo, Italy

L. Micheli

Università degli Studi di Roma "Tor Vergata", Roma, Italy

R. Frosinini, E. Gargani

Consiglio per la ricerca e l'analisi dell'economia agraria (CREA), Firenze, Italy

C.A. Migliori

Consiglio per la ricerca e l'analisi dell'economia agraria (CREA), Torino, Italy

A. Mazzucato

Università degli Studi della Tuscia, Viterbo, Italy

**Green Synthesis of Silver Nanoparticles from Hyperpigmented Tomato Skins and Preliminary Evaluation of the Insecticidal Activity****3CV.1.14**

A. Normand, A.M. Charrier

CINaM, Marseille, France

R.H. Farahi, A. Passian

ORNL, Oak Ridge, Usa

A.L. Lereu

Institut Fresnel, Marseille, France

**Investigate Wood Morphogenesis Using Correlative Measurements at the Nanoscale****3CV.1.15**

E. Montet

LGP2 and ADEME, Grenoble, France

C. Chirat, D. Lachenal

LGP2, Grenoble, France

**Production of High Quality Cellulose by a Chlorine-Free Process**

**3CV.1.16**

B. Hocevar, A. Prašnikar, M. Grilc, B. Likozar  
National Institute of Chemistry, Ljubljana, Slovenia Republic  
S. Gyergyek  
Jožef Stefan Institute, Ljubljana, Slovenia Republic

**Oxidation State of Rhenium and Related Catalyst Activity for the Dehydroxylation of Aldaric Acids to Adipic Acid****3CV.1.19**

E. Vági, Á. Kolay Kovács, M. Tolner, M. Molnár, E. Székely  
Budapest University of Technology and Economics, Hungary

**Optimization of Extraction of Bioactives from Different Wastes and By-Products of Agro- and Food Industry****3CV.1.22**

J. Boon, H.A.J. van Dijk, J. van Kampen, B.J. Vreugdenhil  
TNO, Petten, The Netherlands

**Biofuels and Biochemicals by Separation Enhanced Reactions Maximising Carbon and Energy Efficiency****3CV.1.24**

A. Zareihassangheshlaghi, D. Enke  
Institute of Chemical Technology, Leipzig University, Linnéstr. 3, 04103 Leipzig, Germany, Leipzig, Germany  
H. Beidaghy Dizaji, T. Zeng  
DBFZ Deutsches Biomasseforschungszentrum gemeinnützige GmbH, Department Thermo-chemical Conversion, Leipzig, Germany  
P. Huth, T. Ruf, R. Denecke  
Wilhelm-Ostwald Institute for Physical and Theoretical Chemistry, Leipzig University, Linnéstr. 2, 0, Leipzig, Germany

**Evolution of Metal Impurities on Surface and in Bulk of Biogenic Silica from Rice Husk During Combustion****3CV.1.25**

J.R.A. Pires, V.G.L. Souza, G. Kougkoulos, M.H. Godinho, I.M. Coelho, A.L. Fernando  
FCT/UNL, Lisbon, Portugal

**Bionanocomposites of Chitosan Reinforced with Nanocellulose from Giant Reed Residues: Development and Physical Characterization****3CV.1.27**

C. Jarauta-Córdoba, M. Gómez, J. Marcos, C. Bartolomé  
CIRCE, Zaragoza, Spain  
J.L. Pinilla, I. Suelves

Instituto de Carboquímica, Zaragoza, Spain

**Agrobiomass-Derived Activated Carbons as Potential Materials for Supercapacitors: Wheat Straw and Corn Stalk Case Studies****3CV.1.28**

J. Marcos  
CIRCE Technological Center, Zaragoza, Spain  
C. Jarauta-Córdoba, C. Bartolomé  
CIRCE Technological Center RCE Technological Center, Zaragoza, Spain  
M. Gómez  
CIRCE Technological Center CIRCE Technological Center, Zaragoza, Spain

**Use of Natural Fibers for Enhancing Polymeric Materials****3CV.1.31**

R. Picchio, R. Venanzi  
Tuscia University, Viterbo, Italy  
L. Pari, F. Latterini, A. Suardi, V. Alfano, S. Bergonzoli  
CREA, Monterotondo, Italy

**A New Mobile Kiln Prototype for Charcoal Production****3CV.1.35**

S. Hassan  
Technological University Dublin, Ireland

**Production and Purification of Pectinase and Xylanase from Fermentation of Brewers' Spent Grain by Mucor Sp.****3CV.1.43**

G. Singh, P. Hariprasad, S. Sharma  
Indian Institute of Technology, New Delhi, India

**Valorization of Paddy Straw for Synthesis of Nanosilica using Sapindus Mukorossi and its potential application as Biopesticide****3CV.1.46**

D. J. González-SERRANO  
Universidad de Castilla-La Mancha, Organic Chemistry Dpt., Spain

**A green approach to the esterification of biomass-derived levulinic acid under microwave irradiation, a way to obtain alkyl levulinates as high value-added chemicals.****3CV.1.55**

B. Koo  
Korea Institute of Industrial Technology, Republic of Korea

**Antioxidant and Whitening Evaluation of Natural Products in Jeju Island and a Development of Hybrid Extraction Process****3CV.1.56**

B.Koo  
Korea Institute of Industrial Technology, Republic of Korea

**Enhancement of Mechanical Properties of Biopolyethylene Using Hydrophobized of Cellulose Nanofibers**

**Networking & Exhibition Visiting Time 10:00 - 10:10**

## VISUAL PRESENTATIONS 3CV.2

14:00 - 15:00

**Biomass Energy Carriers, Renewable Hydrocarbons  
4Production and Processes for Advanced Biofuels**

*This visual presentation session concerns innovations in biochemical conversion of biomass, including feedstock pre-treatments, enzymatic hydrolysis, fermentation systems and downstream processing. Also covered are tradeable intermediate bioenergy carriers derived from forestry, agricultural biomass (residues) and organic wastes used for biochemicals/-materials and bioenergy applications. In addition, this session also deals with renewable hydrocarbons and transesterification for biofuels production.*

**CHAIR & MODERATOR:****Dimitrios SIDIRAS**

University of Piraeus, GREECE

**Guillaume BOISSONNET**

Commissariat à l'Energie Atomique, FRANCE

**3CV.2.2**L. Amaya-Delgado, E. Reyes-Jacitno  
CIATEJ AC, Guadalajara, Mexico

A. Sanchez

CINVESTAV-Gdl, Guadalajara, Mexico

**Butanol Production from Corn Stover Ethanol Vinasse by Clostridium Saccharobutylicum BAA-117****3CV.2.3**

F. Pires, V. Van-Dunem, L. Sanfins, L.C. Duarte, F. Girio, F. Carvalheiro

LNEG, Lisbon, Portugal

**Optimization of a Mild Organosolv Ethanol-Based Process for the Selective Fraction of Eucalyptus Globulus Residues****3CV.2.4**

A.M. Raspolli Galletti, S. Gori

Dip. di Chimica e Chimica Industriale - Università di Pisa, Italy

G. Caposciutti, G. Pasini, M. Antonelli, S. Frigo

Dip. di Ingegneria dell'Energia, dei Sistemi, del Territorio e delle Costruzioni, Univ. Pisa, Italy

**Advanced Biofuel n-Butyl Levulinate and its Utilisation in CI Internal Combustion Engine****3CV.2.5**

E.A. Silveira, M.S. Santanna, A. Caldeira-Pires

Mechanical Engineering Dpt., University of Brasilia, Brazil

S.M. Luz, R.M. Leão

Engineering Materials Integrity Program, University of Brasilia, Brazil

P. Rousset

French Agriculture Research Centre for International Development, Montpellier, France

**Thermal Upgrading of Sustainable Woody Material: Experimental and Numerical Torrefaction Assessment****3CV.2.7**

M. Puglia, J. Tioli, P. Tartarini

Università degli Studi di Modena e Reggio Emilia, Modena, Italy

V. Marchesini, G. Tassoni

WAMGROUP, Modena, Italy

**Temperature and Residence Time Influence on the Cattle Manure Separated Solid Phase Carbonization****3CV.2.10**

L. Macedo, I.A. Sá, L.G.O. Galvão, B.S. Chaves

Forest Products Laboratory, Brazilian Forest Service, Brasilia, Brazil

N.P.B. Souto

Faculty of Gama, University of Brasilia, Brasilia, Brazil

E.A. Silveira

Mechanical Engineering Dpt., University of Brasilia, Brazil

**Effect of Torrefaction Treatment Temperature on the Quality of Amazonian Wood Pellets for Energy Purposes****3CV.2.11**

T. Marker, M. Linck, P. Ortiz-Toral, J. Wangerow

Gas Technology Institute, Chicago, Usa

**Cool GTL® A New Process for Direct Biogas Conversion to Liquid Fuels****3CV.2.12**

M.C. Vivas-Cuellar

UUniversidad Nacional de Ingenieria, Lima, Peru

E. A. Collado Dominguez, M. Pérez Bravo

Universidad Nacional de Ingenieria, Lima, Peru

O.G. Marin Flores

Washington State University, Pullman, Usa

**Transesterification of Jatropha Curcas Oil in Peru: Variables Affecting the Yields of Fatty Esters****3CV.2.33**

L. Wang, M. Olsen, Ø. Skreiberg

SINTEF Energy Research, Trondheim, Norway

A. Budai, S. Weldon, D. Rasse

Norwegian Institute of Bioeconomy Research, Ås, Norway

**Effect of Pyrolysis Conditions on Biochar Production from Spruce Wood and Bark****3CV.2.34**

L. Wang, Ø Skreiberg

SINTEF Energy Research, Trondheim, Norway

L. Riva, H.K. Nielsen

University of Agder, Grimstad, Norway

P. Bartocci, F. Fantozzi

University of Perugia, Italy

**Effect of Pyrolysis Conditions and Use of Condensates as Binder on Densification of Biocarbon****Networking & Exhibition Visiting Time 15:00 - 15:15**

## VISUAL PRESENTATIONS 2CV.3

15:10 - 16:10

**Innovations in Feedstock and Modeling Towards Enhanced Implementation of Gasification**

*This session covers both integrated gasification and CHP systems as well as fuel characterization and emissions. In addition, posters also focus on various gasification feedstocks, the influence on different gasification agents, modeling and process condition. Gas cleaning and upgrading of syngas are discussed as well as techno-economical aspects.*

**CHAIR & MODERATOR:****David BAXTER**

Former European Commission, Joint Research Centre, EU

**Wiebren DE JONG**

Delft University of Technology, THE NETHERLANDS

**2CV.3.1**F. Ottani, N. Morselli, M. Puglia, G. Allesina  
Beelab, University of Modena and Reggio Emilia, Modena, Italy**Implementation of Engine Exhaust Gas Recirculation in a Fixed Bed Gasification Reactor****2CV.3.2**D. Basso, E. Cordioli, F. Patuzzi, M. Baratieri  
Free University of Bolzano, Italy  
S. Dal Savio

NOI Spa, Bolzano, Italy

**Analysis on the Possible Strategies to Improve Woody Biomass Gasification in South Tyrol: Results from the Wood-UP project****2CV.3.3**M. Puglia, N. Morselli, F. Ottani, P. Tartarini  
Università degli Studi di Modena e Reggio Emilia, Modena, Italy**Implementation of a Portable Petrol - Powered Generator Fueled through a Tabletop Biomass Gasifier****2CV.3.6**F. el Abdellaoui  
HEIG-vd/ IGT, TIN Dpt., Switzerland**Thermogravimetric Analysis and Kinetics of Woody Biomass Pyrolysis in an Oxidative Atmosphere****2CV.3.11**D. Antolini, F. Patuzzi, M. Baratieri  
Unibz, Bolzano, Italy  
T.S. Tanoh, F.J. Escudero Sanz  
IMT-mines Albi, Albi, France**Fuel Flexibility of a Pilot Plant Gasifier Using Torrefied Pellet as Feedstock****2CV.3.12**R. Borooah  
Free University of Bozen-Bolzano, Italy**Energy Valorization of Forestry Residues Through a Small-Scale Open Top Gasifier****2CV.3.13**H. Honkanen  
JAMK University of Applied Sciences, Jyväskylä, Finland  
K. Puolamäki  
JAMK University of Applied Sciences, Saarijärvi, Finland**Demonstration of Poultry Manure Combustion and Gasification in Small-Scale Applications****2CV.3.14**P. Kumar  
IIT, Delhi, India**Experimental and Numerical Analysis of Heat Dissipation from a Cylindrical Biomass Pellet for Gasification****2CV.3.16**M.J. Hermoso-Orzáez  
University of Jaén, Spain  
R. Mota-Panizio, L. Carmo-Calado, P. Brito  
VALORIZA-IPP Portalegre, Portalegre, Portugal**Gasification of Biomass and Plastic Waste from The Disassembly of Public Lighting Luminaires for Energy Valorization. Case Study of Circular Economy Applied to the Alentejo Region in Portugal****2CV.3.17**D.S. Pandey  
Anglia Ruskin University, Chelmsford, United Kingdom  
G. Katsaros, S.A. Tassou  
Brunel University, London, United Kingdom  
S. Tuomi

Technical Research Centre of Finland, Espoo, Finland

**Air-Steam Gasification of Poultry Litter in a Bubbling Fluidised Bed Reactor****2CV.3.18**P. Brito  
IPP, Portalegre, Portugal  
L. Calado, R. Panizio  
Valoriza, Portalegre, Portugal  
A. Rodrigues  
INIAV, I.P., Oeiras, Portugal  
L. Nunes  
UA, Aveiro, Portugal**Overall Comparison of Maritime Pine Biomass Chips Gasification with and without Pre-Torrefaction****2CV.3.19**S. Piazzi, L. Menin, D. Antolini, F. Patuzzi, M. Baratieri  
Free University of Bozen-Bolzano, Italy**Studies on Conversion of Biomass-Residues to Syngas for Biofuels through Steam Gasification****2CV.3.20**P. Kumar  
IIT Delhi, India**Thermo-Physical Properties of Agricultural Residues for Syngas Production Using Thermo-**

**Gravimetric Analysis**

**2CV.3.22**

S. Pedrazzi, N. Morselli, M. Puglia, M. Parenti, F. Ottani  
University of Modena and Reggio Emilia, Modena, Italy  
**Equilibrium Modeling of Hemp Hurd Gasification**

**2CV.3.23**

L. Carmo-Calado, R. Mota-Panizio, P. Brito  
VALORIZA -IPP Portalegre, Portalegre, Portugal  
M.J. Hermoso-Orzáez  
University of Jaén, Spain  
**Biomass Gasification - A Comparison of Syngas Yield Between a Commercial Downdraft Gasifier and a Prototype Downdraft Gasifier**

**2CV.3.24**

P. Leuter, P. Johne, S. Fendt, H. Spliethoff  
Technical University Munich, Germany  
**Conception And Design of a Modular Facility for Synthesis Gas Purification from the Entrained Flow Gasification of Biogenic Residues for the Fermentative Production of Basic Chemicals**

**2CV.3.25**

D. Barisano, L. Bianco, E. D'Amico, F. Nanna, A. Villone  
ENEA, Rotondella, Italy  
**Syngas Cleaning Via Wet Scrubbing and Bioremediation of Produced Wastewater - Integrated Approach**

**2CV.3.46**

M. Szul  
Instytut Chemicznej Przeróbki Węgla, Poland  
**Use of CO<sub>2</sub> in Pressurized, Fluidized Bed Gasification of Waste Biomasse**

**Networking & Exhibition Visiting Time 16:10 - 16:20**

**VISUAL PRESENTATIONS 1CV.4**

**16:20 - 17:20**

**Biomass Potentials and Integrated Biomass Production for Energy Purposes**

*This session presents case studies and methodologies for biomass resource assessment in different countries and regions of the world and also covers a wide range of innovative applications of agricultural and forestry residues for energy use; among others, these include rice husks, artichoke, vine prunings in the wine production process, vinasse, and miscanthus.*

**CHAIR & MODERATOR:**

**Ana Luisa FERNANDO**  
Universidade Nova de Lisboa, PORTUGAL

**1CV.4.1**

E. Garbolino  
MINES ParisTech, Sophia Antipolis, France  
G. Hinojos Mendoza  
ASES Ecological & Sustainable Services, Aubenas, France  
D. Heredia Corral, C. Gutierrez  
ASES Inteligencia geoespacial, Mexico, Mexico  
R. Soto  
ASES Ediciones & Ingeniería ecológica, Chihuahua, Mexico  
W. Daniel  
University of Antwerp, Wilrijk, Belgium  
**Expected Net Primary Productivity Evolution towards 2100 in Mexico Country: Implications for Wood Energy Supply Chain**

**1CV.4.3**

S. Pedrazzi, N. Morselli, M. Puglia, G. Santunione, E. Turi, M. Parenti, F. Ottani  
University of Modena and Reggio Emilia, Modena, Italy  
**Hemp By-Products Valorization**

**1CV.4.5**

S.T. Coelho, V.P. Garcilasso, M.M. Santos, D. Perecin  
GBIO/IEE/USP, São Paulo, Brazil  
**Brazilian Sugar/alcohol Sector: Biomass Residues for Efficient Energy Conversion Pathways**

**1CV.4.6**

V. Voltr, M. Hruska  
IAEI, Prague, Czech Republic  
L. Nobilis  
ECO Trend Research Centre, Prague, Czech Republic  
P. Fuksa  
University of Life Sciences, Prague, Czech Republic  
**Procedure Of Economic, Energy and Environmental Evaluation of Crop Production in the Czech Republic**

**1CV.4.7**

M. Pfeil, S. Konradi, S. Pohl  
Technische Hochschule Mittelhessen - University of Applied Science, Giessen, Germany  
D. Denfeld  
Technische Hochschule Mittelhessen - University of Applied Science, Gissen, Germany  
**Potentials of Biogenic Resources for Sustainable and Environmentally Friendly Energy Use in Cuba (BioReSCu)**

**1CV.4.8**

S. Chan, R. Ogoshi, S. Turn  
University of Hawaii, Honolulu, Usa  
**Feedstocks for Sustainable Jet Fuel Production: An Assessment of Land Suitability in Hawaii**

**1CV.4.9**

G. Ferrari, F. Marinello, A. Pezzuolo  
University of Padova, Legnaro, Italy  
**Valorisation of Agricultural By-Products in Different Agro-Energy Districts: A Case Study in Northeast Italy**

**1CV.4.10**

M. Christou  
CRES, Pikermi, Greece  
J. Carrasco, C. Martin, P. Perez  
CIEMAT, Madrid, Spain  
**Agricultural/forest Residues for Advanced Biofuels**

**1CV.4.11**

R. Picchio, R. Venanzi  
Tuscia University, Viterbo, Italy  
L. Pari, F. Latterini, A. Suardi, S. Bergonzoli, V. Alfano  
CREA, Monterotondo, Italy  
**Analysis of Woody Biomass Obtainable from Abruzzo Forests**

**1CV.4.12**

R. Picchio, R. Venanzi  
Tuscia University, Viterbo, Italy  
L. Pari  
CREA, Monterotondo, Ivory Coast  
F. Latterini, A. Suardi, W. Stefanoni, N. Palmieri  
CREA, Monterotondo, Italy  
**Italian Coppices and Their Economic Income**

**1CV.4.14**

V. Schnorf, V. Burg, G. Bowman  
WSL, Birmensdorf, Switzerland  
E. Trutnevyte  
Université de Genève, Genève, Switzerland  
**Biomass Transport for Energy: The Analysis of Cost, Energy Requirements and CO2 Emissions for Manure and Forest Wood Transport**

**1CV.4.15**

K. Bao, R. Padsala, C. Kesnar, V. Coors, B. Schroeter  
University of Applied Sciences Stuttgart, Germany  
**GIS-Based Assessment of Regional Biomass Potentials for Heat and Power Generation at the Example of Ludwigsburg County, Germany**

**1CV.4.16**

C. Gunnarsson, J. Lund, J. Casimir, Å. Myrbeck  
RISE, Uppsala, Sweden  
**Sustainable Straw Potential In Sweden - A Case Study to Supply Straw for Ethanol Production**

**1CV.4.17**

R. Gaudel, M. Aalto, T. Ranta  
LUT University, Mikkeli, Finland  
**Sustainable Promotion of Wood Supply Through Digitalization and Networking**

**1CV.4.18**

F. Salamut  
University of Mauritius, Reduit, Mauritius  
**Assessing the Potential of Developing Energy Crops on Marginal Lands in Mauritius**

**1CV.4.19**

M. Puglia, G. Torri, V. Martinelli, P. Tartarini  
Università degli Studi di Modena e Reggio Emilia, Modena, Italy  
**Vine Prunings Agro- Energetic Chain: Experimental and Economical Assessment of Vine Pellets Use in Gasification Power Plants**

**1CV.4.20**

M. Von Cossel, I. Lewandowski  
Department of Biobased Products and Energy Crops (340b), Institute of Crop Science, University of Ho, Stuttgart, Germany  
Y. Iqbal  
College of Bioscience and Biotechnology, Hunan Agricultural University, Changsha, P.R. China  
**Intercropping miscanthus with flower-rich biennial wild plant species**

**1CV.4.21**

M.M.R. Poveda, S.T. Coelho  
GBIO/IEE/USP, São Paulo, Brazil  
**Integration of Vinasse Biogas in the Energy Matrix of Ribeirão Preto, State of São Paulo**

**1CV.4.22**

A.P.S. Silva  
IPT and IEE/USP, São Paulo, Brazil  
S.T. Coelho  
IEE/USP, São Paulo, Brazil  
**Biomass Residues from Sustainable Forest Management in Brazil.**

**1CV.4.23**

M. Bachilava  
Agricultural University of Georgia, Tbilisi, Italy  
N. Goginashvili  
Scientific-Research Center of Agriculture, Tbilisi, Georgia  
F. Bertaina  
Biopoplar, Cuneo, Italy  
**Early Growth Performance of New Poplar Clones for Georgia**

## VISUAL PRESENTATIONS 2CV.5

16:20 - 17:20

**Anaerobic Digestion Optimization for Biogas and Biomethane Production**

*This poster session addresses a wide range of biomass substrates for biogas production, biomass pretreatment methods, co-digestion, gas cleaning and technologies for biogas upgrading to biomethane for pipeline injection. Also addressed are biogas process performance optimization, enhanced methane yield as a function of biomass substrate and integration of anaerobic digestion with other process wastes and residues.*

**CHAIR & MODERATOR:****Ioana IONEL**

Politehnica University of Timisoara, ROMANIA

**Bernhard DROSG**

BEST - Bioenergy and Sustainable Technologies, AUSTRIA

**2CV.5.1**

C. Vasmara, R. Marchetti

CREA-ZA, San Cesario Sul Panaro (Modena), Italy

S. Cianchetta, S. Galletti, E. Ceotto

CREA-AA, Bologna, Italy

**Enhancing Methane yield from Giant Reed (*Arundo donax* L.) through Pre-treatment and Co-digestion with Pig Slurry****2CV.5.2**

D. Arias, C. Veluchamy, B. Gilroyed

University of Guelph, Ridgetown, Canada

**Biogas Production and Process Performance of a Plug Flow Reactor Co-Digesting Swine Manure and Corn Stover****2CV.5.3**

Ie. Morozova, H. Oechsner, B. Hülsemann, A. Lemmer

University of Hohenheim, Stuttgart, Germany

**Assessment of Biogas Potential from Energy Crops in Ukraine****2CV.5.4**

V. Dubrovskis, I. Plume, I. Straume

Latvia University of Life Sciences and Technologies, Jelgava, Latvia

**Degradation Of Colored Papers By Anaerobic Fermentation****2CV.5.6**

V. Dubrovskis, A. Adamovics, I. Plume, M. Valko

Latvia University of Life Sciences and Technologies, Jelgava, Latvia

**Anaerobic Co-Digestion of Cows Manure, Maizes Silage, Grass Silage and Flour, Theoretical, Laboratory Scale and Biogas Plant Yields****2CV.5.9**

Y.M. Gu, S.Y. Park, J.H. Lee

Korea Institute of Ceramic Engineering and Technology, Cheongju, South Korea

B. Sang

Hanyang University, Seoul, South Korea

T.H. KIM

Hanyang University, South Korea

**Improved Bioavailability of Foodwastes Using Attrition Ball Mill Pretreatment: From Laboratory Scale to Pilot Scale****2CV.5.10**

S. Mlinar, R. Freitag

Chair for Process Biotechnology, University of Bayreuth, Germany

**Mixing Intensity as a Key Parameter for the Kinetics Control of Anaerobic Digestion****2CV.5.14**

J.C.B.B. Ferrarese, A.A. Tagima, C.A. D'Aquino, S.C. Santos, I.L. Sauer

IEE/ USP, São Paulo, Brazil

B.A. Pereira, T.F. Sawatani, R.C. Contrera

EP/ USP, São Paulo, Brazil

**Evaluation of Using Slaughterhouse's Waste In Biogas Production for Energy Recovery****2CV.5.15**

K. Dinh, K. Crippen, R. Bora

GTI, Des Plaines, Usa

**Developing an On-Line Analyzer to Monitor Trace Constituents in Biomethane for Pipeline Injection****2CV.5.16**

S. O'Connor, E. Ehimen, S.C. Pillai, J. Bartlett

Institute of Technology Sligo, Ireland

G. Lyons, C. Johnson

Agri-Food and Biosciences Institute, Hillsborough, United Kingdom

**Guaranteeing Steady Energy Outputs from a Farm-Scale Anaerobic Digestion Plant Despite Seasonal Environmental Factors and Feedstock Supply Variability****2CV.5.17**

R. Bora, K. Dinh, K. Crippen

GTI, Des Plaines, Usa

**ASTM D8230-19 - A Standardized Testing Method for Siloxanes in Biomethane****2CV.5.19**

R. Bora, A. Harmon

GTI, Des Plaines, Usa

M. Deshusses, T. Dupnock

Duke University, Durham, Usa

**Evaluating Biogas Cleaning Technologies: Bio-trickling Filter Application for Removal of Siloxanes in Biogas****2CV.5.21**

F.L. Kakar, E.E. Elbeshbishy

Ryerson University, Toronto, Canada

**Anaerobic Digestion of Thickened Waste Activated Sludge; Hydrothermal Pretreatment Impact****2CV.5.23**

L.A. Souza, A. Tagima, J.B. Borba, S.C. Santos, C.A. D'Aquino, I.L. Sauer, R.C. Contrera, T.S.O. Souza

Institute of Energy and Environment, University of São Paulo, Brazil

**Domestic Wastewater Valorization Analyses and the Challenging Energy Recovery Potential in Terms of Biological Methane Production: A Case Study for a Northeastern Brazilian State**



**2CV.5.24**

C. Ding, Z.W. Zhang, L.Y. Wang, Z.Y. Luo, C.J. Yu  
 Zhejiang University, Hangzhou, P.R. China  
 S Ulf, W.N. Zhang  
 Mid Sweden University, Sundsvall, Sweden

**Biomethanation from Pyrolysis- Anaerobic Fermentation of Biomass****16:20 - 18:20****Algae Industry Workshop****Networking & Exhibition Visiting Time 17:20 - 18:30****VISUAL PRESENTATIONS 1DV.1****09:00 - 10:00****Agroforestry Residues, Aquatic Biomass and Valorization of Wastewater for the Bioeconomy**

*This poster session covers a range of topics, including agroforestry residues, harvesting methods and properties of the biomass for subsequent conversion to energy, and includes a number of cases for the production, quality and use of biochar. In addition, the contribution of aquatic biomass to the societal change towards a bio-based economy are presented. Finally, this session addresses a range of research projects focused on the recovery and the valorization of municipal and industrial waste in terms of both materials and energy recovery.*

**CHAIR & MODERATOR:****Emmanuel GARBOLINO**

ASES France R &amp; D / Climpact Data Science, FRANCE

**Raphael SLADE**

Imperial College London, UNITED KINGDOM

**1DV.1.1**

L. Pari, A. Suardi, V. Alfano, N. Palmieri, W. Stefanoni, P. Mattei  
 Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria, Italy  
 S. Bergonzoli  
 Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria, Italy  
**Recovery of Crop By-Product: Harvesting of Wheat Chaff**

**1DV.1.2**

S. Sánchez Villasclaras  
 University of Jaén, Chemical Engineering, Environmental and Materials Dpt., Spain  
**Use of Olive Mill Wastewaters and Urban Wastewater as Nutrient Medium and CO2 Biofixation for Biomass Production of Microalgae**

**1DV.1.3**

G. Santunione  
 University of Modena and Reggio Emilia, Modena, Italy  
 E. Turi  
 University of Modena and Reggio Emilia, Modena, Italy  
 R. Paris  
 Centro di ricerca per l'Agricoltura e le Coltive Industriali, Bologna, Italy  
 G. Grassi  
 Centro di ricerca per l'Agricoltura e le Coltive Industriali, Rovigo, Italy  
**Production and Use of Co-Composted Biochar as Soil Amendment for Cannabis Sativa SP. Growth**

**1DV.1.4**

G. Hodaifa, A. Malvís  
 University of Pablo de Olavide, Seville, Spain  
 M. Maaitah, S. Sánchez  
 University of Jaén, Spain  
**Chlorella Pyrenoidosa Culture in Flocculated Olive Oil Mill Wastewater with the Double Benefit of Biomass Generation and Wastewater Treatment**

**1DV.1.5**

F. Gallucci, B. Vincenti, E. Paris, A. Palma, M. Carnevale, M. Salerno  
CREA, Monterotondo, Italy  
E. Guerriero  
CNR, Montelibretti, Italy  
A. Proto  
Università Mediterranea di Reggio Calabria, Reggio Calabria, Italy  
**Chemical and Physical Characterization of Pellet Composed by Biomass of Different Essences.**

**1DV.1.7**

C. Driemeier, D.R. Negrão, L.Y. Ling, C.A. Oliveira Filho  
CNPEN, Campinas, Brazil  
**Multi-Scale Understanding of Mineral Impurities in Agroindustry Residues: The Cases of Sugarcane Bagasse and Straw**

**1DV.1.9**

A. Del Giudice, A. Scarfone, E. Paris, F. Gallucci, E. Santangelo  
CREA, Monterotondo (RM), Italy  
**Qualitative Assessment of Residual Biomass from Turkey Oak (Quercus Cerris, L.) Coppicing in Central Italy**

**1DV.1.10**

A. Assirelli, M. Pagano, E. Santangelo, C. Cedrola, R. Tomasone  
CREA-Research center for engineering and agro-food processing, Monterotondo (Rm), Italy  
**Residues from Mechanized Nut Harvesting: Preliminary Tests to Valorize Walnut Husks for Biochar Production and Possible Use as Soil Amendment**

**1DV.1.11**

M.-A. Kougioumtzis, I.-P. Kanaveli, E. Karampinis, P. Grammelis, E. Kakaras  
CERTH, Athens, Greece  
**Monitoring Feedstock Losses Over 6 Months Storage of Harvested Olive Tree Prunings in Piles. Comparison of Piles with or without Coverage**

**1DV.1.12**

R. Picchio, R. Venanzi  
Tuscia University, Viterbo, Italy  
L. Pari, F. Latterini, A. Suardi, P. Mattei, S. Lazar  
CREA, Monterotondo, Italy  
**Thinning: Working Times, Productivities and Utilization Costs in a Pine Forest**

**1DV.1.13**

L. Pari, A. Suardi, S. Bergonzoli, W. Stefanoni, S. Lazar  
CREA, Monterotondo, Italy  
M. Sundberg, C. Gunnarson, N. Jonsson  
RISE, Uppsala, Sweden  
**Chaff and Straw Harvesting Test in Sweden: Machine Performance and Quality of the Work**

**1DV.1.14**

L. Pari, A. Suardi, V. Alfano, S. Bergonzoli, F. Latterini, S. Lazar  
CREA, Monterotondo, Italy  
M. Karampinis, M. Kougioumtzis  
CERTH, Thermo, Greece  
**Olive Tree's Pruning Harvesting Using the Greek Modified Mulcher Fotopoulos FSR2000, Machine Performances and Biomass Quality Evaluation**

**1DV.1.15**

C. Howard, V.C. Griess  
University of British Columbia, Vancouver, Canada  
**Potential for Climate Change Mitigation in B.C.: Utilizing Harvest Residues for the Production of Regional Heat and Liquid Biofuels**

**1DV.1.18**

A. Assirelli  
CREA-Center for engineering and agro-food processing, Monterotondo (Rm), Italy  
F. Stagno, G. Rocuzzo  
CREA-Center for olive, citrus and tree fruit, Forli, Italy  
R. Roberti  
Agromillora, Subirats, Spain  
L. Catalano  
Agrimeca, Turi, Italy  
**A Novel Approach to Direct Field Separation of Almond Hulls**

**1DV.1.20**

S. Hassan  
TU Dublin, Ireland  
**Optimization of Process Conditions Using Response Surface Methodology for Fermentable Sugars Release from Ultrasound Pretreated Brewers' Spent Grain**

**1DV.1.23**

S. Bergonzoli  
CREA, Italy  
R. Leal  
LNBR/CNPEN, São Paulo, Brazil  
**Innovative Solution for Sugarcane Straw Recovery**

**1DV.1.24**

P. Cetera, L. Pari  
Council for Agricultural Research and Economics -Research Centre for Engineering and Agro-Food Proce,  
Monterotondo, Italy  
M. Bruno, L. Milella, L. Todaro  
University of Basilicata, Potenza, Italy  
M. Fioravanti  
University of Florence, Italy  
**From Biomass of Poplar Utilizations to Byproducts**

**1DV.1.25**

J. Tallec  
Capacites, Saint Nazaire, France

**Integrated Approach to Microalgae Cultivation as an Urban Wastewater Treatment Step**

**1DV.1.26**

B. Ievina, F. Romagnoli  
Institute of Energy systems and environment, Riga Technical university, Riga, Latvia

**Effect of Light Intensity on the Growth of Three Microalgae in Laboratory Batch Cultures**

**1DV.1.27**

M.D. Curt, P.L. Aguardo, M.I. Martin-Girela, A. Martinez, J. Fernandez  
Universidad Politecnica de Madrid, Spain

M. Zapatero  
COMRA, El Arenal, Spain

**The Resilience of Typha Domingensis Pers. To Nutrient-Depleted Water in a Floating Biomass Production System**

**1DV.1.28**

J Walter, I Aubel, M Bertau  
Freiberg University of Mining and Technology, Freiberg, Germany

**Valorisation of Industrial Wastewater Streams Containing Metal-Organic Residues**

**1DV.1.29**

A. Ronda, P. Haro, S. Nilsson, D. Fuentes-Cano, A. Gómez-Barea  
Universidad de Sevilla, Seville, Spain

**Techno-Economic and Environmental Analysis of Pyrolysis, Gasification and Incineration Waste-to-Energy Technologies: Application to Mediterranean Regions**

**1DV.1.30**

Md. S. Islam, R.M. Sebastian, V. Kurian, A. Kumar  
University of Alberta, Edmonton, Canada

**An Integrated GIS-based Framework for Optimal Siting of Biorefineries**

**1DV.1.31**

I. Ionel  
Politehnica University of Timisoara, Romania

**Bio-Energy from Municipal Waste - A Potential Economic and Friendly Environmental Solution in Romania**

**1DV.1.34**

M.S. Santanna  
Mechanical Engineering Dpt., University of Brasilia, Brazil  
E.A. Silveira  
Mechanical Engineering Department, University of Brasilia, Brazil  
L. Macedo  
Forest Products Laboratory, Brazilian Forest Service, Brasilia, Brazil  
L.G.O. Galvão  
Forest Products Laboratory, Brazilian Forest Service, Brazil

A. Caldeira-Pires  
Mechanical Engineering Department, University of Brasilia, Brasilia, Brazil

**Torrefaction of Lignocellulosic Municipal Solid Waste: Thermal Upgrade for Energy Use**

**1DV.1.35**

A. Brown  
University of Leeds, School of Chemical and Process Engineering, United Kingdom  
**BEFWAM-Bioenergy, Fertiliser And Clean Water from Invasive Aquatic Macrophytes**

**1DV.1.38**

J. Cencerrero  
UCLM, Organic, Spain  
**Biofuel precursors from microwave catalytic conversion of lignocellulosic agri-food industrial wastes.**

**1DV.1.45**

M. Altunoz, M. Puglia, N. Morselli, J. Tioli, G. Allesina, S. Pedrazzi, L. Arru  
University of Modena and Reggio Emilia, Modena, Italy  
**Gas Consumption and Growth Performance of N. Oleoabundans in the 30 L Photobioscrubber**

**Networking & Exhibition Visiting Time 10:00 - 10:10**

## VISUAL PRESENTATIONS 1DV.2

10:10 - 11:10

**Decarbonising the Economy with Biomass Crops**

*This poster session brings together agronomic, physiologic and environmental research on biomass crops to support a decarbonised economy.*

**CHAIR & MODERATOR:****Myrsini CHRISTOU**

Center for Renewable Energy Sources and Saving, GREECE

**1DV.2.1**

B. Valpradinhos, L. Gomes, C. Rodrigues, M. Gonçalves, A.L. Fernando  
FCT NOVA, Lisboa, Portugal  
J. Costa  
FCT NOVA/ISEC, Lisboa, Portugal

**Combining Camelina Sativa Production with Phytodepuration of Contaminated Effluents Obtained in Hydrothermal Carbonization Processes - An Opportunistic Approach****1DV.2.2**

L. Pari, A. Suardi, V. Alfano, N. Palmieri, W. Stefanoni, P. Mattei  
Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria, Italy  
S. Bergonzoli  
Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria, Italy

**Effect of Wood Debranching on Eucalyptus Storage Performance****1DV.2.3**

L. Pari, A. Suardi, V. Alfano, N. Palmieri, W. Stefanoni, P. Mattei  
Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria, Italy  
S. Bergonzoli  
Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria, Italy

**Giant Reed Storage, Assessment of Comminuted Biomass Behaviour****1DV.2.4**

L. Pari, V. Alfano  
CREA, Rome, Italy  
G. Magagnini, G. Grassi  
CREA, Rovigo, Italy

**Seed Losses Evaluation during Hemp Harvesting with a Modified Combine Header****1DV.2.5**

M. Krzyzaniak, M.J. Stolarski  
3B, Olsztyn, Poland

**Camelina: The Multipurpose Oil Crop Cultivated on Marginal Land in the North-Eastern Poland****1DV.2.6**

J. Lund, C. Gunnarsson  
RISE, Uppsala, Sweden

**Broadening of the Raw Material Base for Straw Based Ethanol Production by Adding Ley in the Crop Rotation****1DV.2.7**

L. Gomes, A.L. Fernando  
Universidade Nova de Lisboa, Almada, Portugal  
J. Costa  
Instituto Superior de Educação Científica, Lisboa, Portugal  
F. A. Santos  
Universidade Estadual do Rio Grande do Sul, Porto Alegre, Brazil  
F. Zanetti, A. Monti  
Università di Bologna, Bologna, Italy

**Switchgrass Cultivation Potential in Soils Contaminated with Heavy Metals****1DV.2.11**

S. Marsac, C. Quod, E.A. Sanner  
Arvalis, Baziège, France  
T. Habas, C. Richard, C. Flamin  
ENGIE, Paris, France

**Towards Regional Recommendations for Energy Cover Crops in Double Cropping Systems A New Stakeholder Collaboration****1DV.2.12**

B. Cumbane, L. Gomes, C. Rodrigues, A.L. Fernando  
FCT NOVA, Caparica, Portugal  
J. Costa  
FCT NOVA/ISEC, Caparica/Lisboa, Portugal  
F. Zanetti  
UNIBO, Bologna, Italy  
A. Monti  
UNIBO, Caparica, Italy  
E. Alexopoulou  
CRES, Pikermi, Greece

**Comparing the Growth and Yield of Kenaf (Hibiscus Cannabinus L.) Produced in Two Different Climatic Types in Soils Contaminated by Zinc, Copper, Chromium and Lead****1DV.2.14**

M.J. Stolarski, M. Krzyzaniak  
3B, Olsztyn, Poland

**Selected Non-Food Crops Cultivated For Industrial and Energy Purposes in Poland****1DV.2.15**

M. Von Cossel, A. Mangold, I. Lewandowski  
Department of Biobased Products and Energy Crops (340b), Institute of Crop Science, University of Ho, Stuttgart, Germany  
Y. Iqbal  
College of Bioscience and Biotechnology, Hunan Agricultural University, Changsha, P.R. China

**Methane Yield Potential of Miscanthus Established under Maize****1DV.2.16**

M. Von Cossel  
Department of Biobased Products and Energy Crops (340b), Institute of Crop Science, University of Ho, Stuttgart, Germany

**Biomass from Perennial Wild Plant Mixtures - Lessons from 10 Years of Research and Practice**

**1DV.2.17**

M. Von Cossel  
Department of Biobased Products and Energy Crops (340b), Institute of Crop Science, University of Ho,  
Stuttgart, Germany

**Methane Yield Performance of Perennial Wild Plant Species Common Tansy,  
Common Knapweed and Mugwort**

**1DV.2.18**

N. Rezaie  
CREA, Rome, Italy  
E. D'Andrea, G. Matteucci  
ISAFoM, Ercolano, Italy

**How Different Forest Management Options Affect Woody Biomass Quality?**

**1DV.2.20**

E. Santangelo, C. Beni, E. Paris, A. Del Giudice, F. Gallucci  
Consiglio per la ricerca e l'analisi dell'economia agraria (CREA), Monterotondo, Italy  
M. Zacchini, F. Pietrini

Consiglio Nazionale delle Ricerche (CNR), Monterotondo, Italy  
**Effect of Groundwater Level on Giant Reed (*Arundo Donax*, L.) Plants Grown in Mesocosms**

**1DV.2.21**

L. Pari, W. Stefanoni, A. Suardi, N. Palmieri, S. Bergonzoli, V. Alfano, S. Lazar  
CREA, Monterotondo, Italy

**Cultivation Of Castor in Romania: A Case of Study**

**1DV.2.31**

M. Sanz, J.E. Carrasco, J. Pérez, P. Pilar Ciria  
CIEMAT, Madrid, Spain

**Biomass Yield of Siberian Elm Under Different Crop Conditions on Marginal Agricultural Land**

**Networking & Exhibition Visiting Time 11:10 - 11:20**



# e-EUBCE 2020

## 28<sup>th</sup> European Biomass Conference & Exhibition

*Bioeconomy's role in the  
post-pandemic economic recovery*

VIRTUAL | 6 - 9 JULY

# EXHIBITION

# Live Stage agenda

## Monday 6 July 2020

- 12.40 – 13.00 **LECO**, The Netherlands  
**Moisture/Ash and Volatiles determination in Solid fuels and biofuels. With a Macro TGA System.**  
 Speaker: Michael Jakob
- 17.20 – 17.40 **BRISK2**  
**BRISK2, enhance your research with Transnational Access**  
 Speaker: Alanna Boden

## Tuesday 7 July 2020

- 11.00 – 12.00 **BIOCOGEN 2030 stories of innovation from the cogeneration world**  
 Speakers: Giulio Poggiaroni, Dr. Jan Van Herle, Dr. Wang Ligang, Mr. Egbert Freiherr von Cramm, Dr. Burghard Knolle, Dr. Daniella Johansson, Dr. Marta Gandiglio
- 12.10 – 13:00 **ETIP Project**  
 Speakers: Dina Bacovsky, Philippe Marchand, Uwe Fritsche, Calliope Panoutsou, Patrik Klintbom
- 17.20 – 18.20 **Getting your Bioenergy research published in top journals biomass & bioenergy MDPI Energies, EUBCE**
- For the special edition of "Biomass & Bioenergy":**  
 Patricia Thornley, Supergen Bioenergy Hub, Birmingham, UK  
 Adam Fraser, Senior Publisher, Renewable and Sustainable Energy Journals, ELSEVIER  
 Wiebren de Jong, Delft University of Technology, Process & Energy Dpt., The Netherlands
- For the special edition of "Energies":**  
 David Baxter, Former European Commission, Joint Research Centre

## Wednesday 8 July 2020

- 11.00 – 11.20 **Idea-biotech**, Italy  
**Innovative technologies and bioreactors for lab experiments and process optimization**  
 Speaker: Aronne Teli
- 11.40 – 12.00 **Marcopolo Green Energy CO., LTD**, Taiwan  
**We can do more! The high performance techniques of bioenergy manufacture and application**  
 Speakers: Marco Benedetti, Tammy Chang, Daniel Ku
- 12.10 – 12.30 **BIOFIT Project**  
**BIOFIT INDUSTRY FORUM – Bioenergy Retrofits for Europe's Industry**  
 Speaker: Patrick Reumerman
- 12.40 – 13.00 **BlueSens gas sensor GmbH**, Germany  
**Professional off-gas analysis for biogas and residual gas applications**  
 Speaker: Dr. Holger Müller
- 16.20 – 18.20 **Algae Industry Workshop**  
 Speakers: Daniel Fishman, Nuno Coelho, Vitor Verdelho, Ramesh Bhujade, Frank Rogalla, Craig Behnke, Jean-François Sassi, Rebecca White, Philippe Potin, Edgar Santos

## Thursday 9 July 2020

- 9:30 – 9:50 **ADVANCEFUEL Visual Journey**  
**Removing Barriers to Advanced Renewable Fuels**  
 Speaker: Vanessa Vivian Wabitsch
- 10:00 – 10:20 **TNO – your partner for biofuels R&D**, The Netherlands  
 Speaker: Stephan Janbroers
- 10.30 – 10.50 **Vanguard Initiative – Bioeconomy Pilot**, EU  
 Speaker: Maurizio Bettiga
- 11.00 – 11.20 **SYNCRAFT**, Austria  
**The world's first climate positive power plant**  
 Speaker: Marcel Huber

# Exhibitors

(Status of 4 July 2020)

Advancefuel	EU project
Anaero Technology	UK
BEES - Bioenergy Events and Services	France
BECOOOL Project	EU project
BEST – Bioenergy and Sustainable Technologies GmbH	Austria
BIOBRIDGES Project	EU project
Bioprocess Control	Sweden
BlueSens gas sensor GmbH	Germany
BRISK2	Sweden
CELEBIO Project	EU project
ETA FLORENCE RENEWABLE ENERGIES	Italy
EUBIA	Belgium
idea-biotech	Italy
LECO	The Netherlands
Marcopolo Green Energy CO., LTD	Taiwan
MDPI – Energies	Switzerland
Netherlands Lounge (The Netherlands Pavilion)	The Netherlands
NextGenRoadFuels Project	EU project
Ritter Apparatebau	Germany
SYNCRAFT	Austria
TNO Energy Transition (The Netherlands Pavilion)	The Netherlands
TOSYNFUEL Project	EU project
Vanguard Initiative – Bioeconomy Pilot	EU
Wageningen-UR; Knowledge base program Circular and Climate Neutral (The Netherlands Pavilion)	The Netherlands
Weber Entec	Germany



ADVANCEFUEL

# Removing barriers to renewable transport fuels

## Discover the project's final results!

Since 2017, ADVANCEFUEL has been exploring the barriers to uptake of advanced renewable fuels, covering the full value chain from biomass availability, through conversion technologies, sustainability criteria, market analysis and end-use, to provide stakeholders with recommendations, tools and knowledge to support market roll-out.

Visit our booth and project website to find out more!

[www.advancefuel.eu](http://www.advancefuel.eu)  
@ADVANCEFUEL



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N.°764799



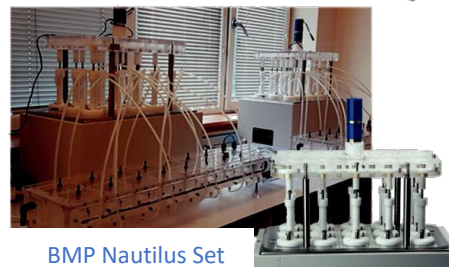
anaero technology

## Automatic Anaerobic Digesters and Fermentation Research Systems

### Biomethane potential (BMP)



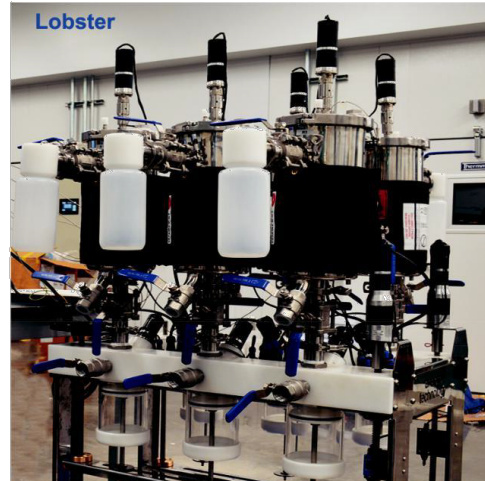
Phoenix



BMP Nautilus Set

Model	Price	N° Reactors
Nautilus	£8900	15 x 1L
Pegasus	£8600	3 x 5L
Phoenix	£11000	6 x 2L

### Auto-fed research digesters



Lobster

Model	Prices from	N° Reactors
Lobster	£25500	6 x 2/5L
Ray	£17800	2 x 5/10L
Caterpillar	£31200	10 x 1L
Black Swan	£32550	2/4/6 x 1/2/5L

### Our story

- Anaero Technology designs originate from over **20 years R&D experience** in Food Waste AD and Wastewater Treatment in the UK.
- Currently our machines have been installed in **17 countries**
- Our Cambridge Lab has **90 operational auto-fed digesters and 120 BMP reactors** being used to develop advanced research on AD & Fermentation through own and collaborative research.

### What is special about our equipment

- High quality **replication of full-scale AD plants** (validated for several years).
- **Automatic fed lab reactors** capable of feeding real fluid thick feed in continuous pumping mode.

Range of customised multi-staged reactors available

- **Hybrid digesters** for low cost basic semi continuous research. **Standard BMP** for biogas potential evaluation.



Anaero Technology Ltd., Cambridge, UK  
edgar.blanco@anaero.co.uk / rashmi.patil@anaero.co.uk  
[www.anaerotech.com](http://www.anaerotech.com)





Save the date!

**3-4 february** 2021  
 expo **Nantes** FR  
 the home of bioenergy

**Bioenergy is...  
 taking care**



biogas – biomass – waste-to-x

[linkedin.com/company/bio360-expo](https://www.linkedin.com/company/bio360-expo)  
 LinkedIn page

[youtube.com/c/bio360expo](https://www.youtube.com/c/bio360expo)  
 Youtube channel

[www.bio-360.com](http://www.bio-360.com)  
 Event website

PARALLEL EVENTS



ORGANISER



# SUSTAINABLE VALUE CHAINS FOR LIGNOCELLULOSIC ADVANCED BIOFUELS



**BECOOOL**

Brazil-EU Cooperation for Development of Advanced Lignocellulosic Biofuels



[www.becoolproject.eu](http://www.becoolproject.eu)

@PROJECTBECOOOL



International Institute for Applied Systems Analysis



This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under grant agreement No. 744821.



Funded within the Austrian COMET programme BEST - Bioenergy and Sustainable Technologies GmbH closes the gap between academic research and industrial technology development by undertaking industry-driven applied research and development in the fields of bioenergy, the sustainable bio-based economy, and future-proof energy systems.



### Our Expertise: Research & Development

- Combustion, gasification and pyrolysis
- Green gas and green fuels
- Green chemicals for industry
- Algal biorefineries
- Gas fermentation
- Biogas
- Resource recovery from residues and waste
- CO<sub>2</sub>-neutral and CO<sub>2</sub>-negative energy supply technologies
- Simulation-based process and technology development
- Sustainable supply and value chains
- Planning and control of smart and microgrids
- Modern energy management systems
- Automation and control
- Fuel and ash analysis



BEST - Bioenergy and Sustainable Technologies GmbH; Inffeldgasse 21b; A-8010 Graz;  
E-mail: [office@best-research.eu](mailto:office@best-research.eu); Phone +43 5 02378 9201; [www.best-research.eu](http://www.best-research.eu)

(Fotos: Wolf, ecoplus/Hinterramskogler, SMS group)

# Need to connect with feedstock owners, brand owners or bio-based industries?

## Join Biobridges co-creation workshop!

“Overcoming collaboration challenges between feedstock owners and bio-based industries”

9 July 2020  
09:00 - 11:00

For more information visit  
[www.biobridges-project.eu](http://www.biobridges-project.eu)  
or contact us at  
[info@biobridges-project.eu](mailto:info@biobridges-project.eu)



# bioprocess CONTROL

We believe that having the right tools is essential to optimise the production of biogas. We have therefore developed a unique lineup of award-winning, easy-to-use products that save time and provide the accurate data you need for the best results in your field.

Bioprocess Control's flagship product the **Automatic Methane Potential Test System II (AMPTS II)** has quickly become the preferred analytical instrument around the world for conducting biochemical methane potential (BMP) tests. It is used by both academic and industrial actors in the biogas industry.

Bioprocess Control also offers a portfolio of exciting products in the areas of **substrate analysis**, **process simulation**, **gas flow measurement**, as well as a series of **bioreactors**.

[www.bioprocesscontrol.com](http://www.bioprocesscontrol.com)

BlueSens

understanding bioprocesses



## Professional tools for biogas production and more

Your work is worth it!



### Yieldmaster

automated BMP determination –  
for people who like to do it right



### BlueVCount

gas volume measurement –  
highest accuracy also for low flows



# Biofuels Research Infrastructure for Sharing Knowledge

Are you interested in:

Biofuels?

Biomass conversion by biological, chemical and thermal processing?

Using the facilities of leading European laboratories?

BRISK2 provides a variety of research opportunities via Transnational Access, allowing researchers from academia and industry to conduct experiments in our partners' laboratories and utilise unique biofuels equipment.

Find out about some of the transnational activities that have been taking place across Europe by exploring our case studies page.

### Funding Organisation

BRISK2 has received funding from the European Union's Horizon 2020 Research and Innovation Programme under grant agreement number 731101.



Our 15 research partners have 55 installations

[www.brisk2.eu](http://www.brisk2.eu)

# CELEBio

## Central European Leaders of Bioeconomy Network

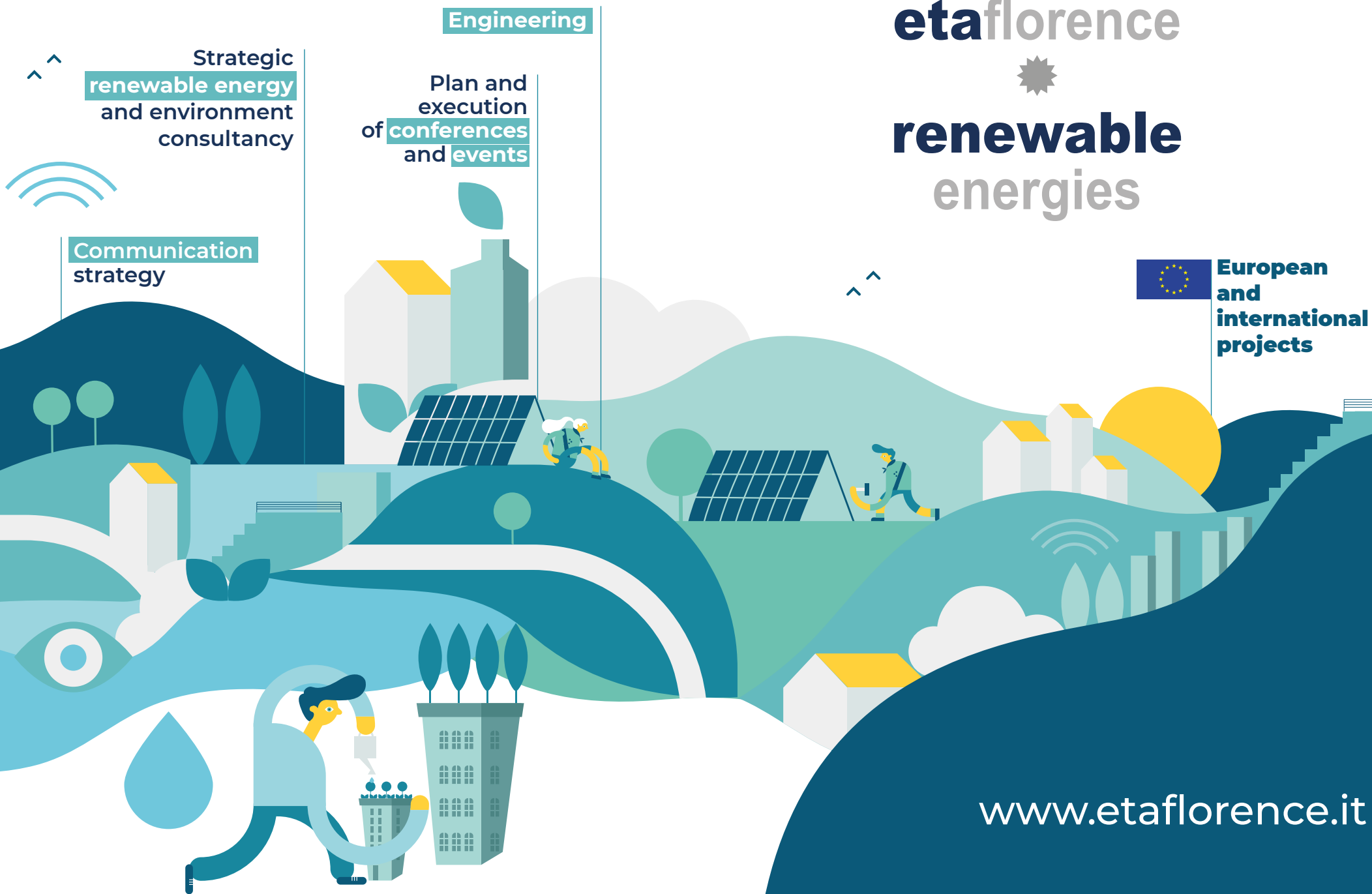
CELEBio provides networking opportunities and fact based information on the potentials of bio-based activities available in Central Europe and its benefits for the local economies, environment and society.



### THE PARTNERSHIP



[www.celebio.eu](http://www.celebio.eu)  
[info@celebio.eu](mailto:info@celebio.eu)



Strategic  
**renewable energy**  
and environment  
consultancy

**Engineering**

Plan and  
execution  
of **conferences**  
and **events**

**Communication**  
strategy

 **European  
and  
international  
projects**

**etafloreance**  
  
**renewable  
energies**

[www.etafloreance.it](http://www.etafloreance.it)



# European Biomass Industry Association



[www.eubia.org](http://www.eubia.org)



[communication@eubia.org](mailto:communication@eubia.org)



+32 022828440

Follow us #EUBIA



**Policy monitoring and outreach**  
EUBIA closely monitors and informs its members on the evolution of EU policy. We actively support initiatives to promote the development of the biomass sector.

## EU Projects

EUBIA is actively involved in several EU projects promoting sustainable use of biomass in the bio-based economy, including agri-food and bioenergy sectors.



**Communication and events**  
EUBIA disseminates all the relevant information about the biomass sector in the EU. We support and co-organize networking events and workshops in our meeting rooms in Brussels, always at the disposal of our members.

# idea

BIOPROCESS TECHNOLOGY

modular equipment for lab testing  
in biotechnology related applications



we make the complex simple

modular and expandable,  
shipped pre-assembled, easy start-up

**strength**

multiple uses with one device,  
speed-up of data processing

BMP, BIOGAS testing unit, FOS/TAC,  
microflow gas measurement, CH4 on-line  
monitoring, fermenters, bioreactors, BOD,  
COD fractionation...

**products**

respirometers, fermentation/anammox/  
nitro/de-nitro testing, jar/leaching test,  
photo-bioreactors, algal-respirometers,  
light equipment, PAR meters...

LIVE STAGE

Wednesday, 8 July, 11:00-11:20



[www.idea-biotech.com](http://www.idea-biotech.com)



[idea-biotech](https://www.idea-biotech.com)



[info@idea-biotech.com](mailto:info@idea-biotech.com)

Idea bioprocess technology srls - via Pasubio 5 - 24044 - Dalmine (ITALY) - IT04129390169

## PERFECT SOLUTIONS FOR BIOFUELS

# LECO

EMPOWERING RESULTS

MOISTURE / VOLATILES / ASH  
CHNOS ELEMENTAL ANALYSIS  
ASH FUSION, CALORIMETRY



**PROFESSIONALS IN FUELS ANALYSIS.**

We are proud to be at eEUBCE 2020  
and present our product portfolio.

**[EU.LECO.COM](http://EU.LECO.COM)**

**SEE US AT eEUBCE 2020**

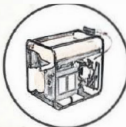


**AGV36**  
Alps Green Vehicle

**AGV Moped**  
Put "O" into your bicycle  
Make you "Directly" use  
**No purified biogas,**  
**bio-hythane, bio-alcohol,**  
**bio-diesel.**  
Enable you "Effectively"  
use **CNG, LNG, LPG,**  
**ethanol...etc.**

**Our product :**

Generator



Lawn mower



Agricultural  
machinery



Ship



AGV36 Moped  
Black Swan  
36cc 3-stroke CHEN Engine  
50 km/h, 120 kg Max Load,  
EURO 6 (21gCO<sub>2</sub>/km),  
75 km/L LPG,  
95% of recyclable materials  
10 years engine guarantee

**MARCOPOLO G<sup>+</sup>**

MARCOPOLO GREEN ENERGY CO., LTD.  
No. 1281, Zhongping Rd., Xitun Dist.,  
Taichung City 40781, Taiwan  
www.marcopolo-green.com  
Tel:+886 4 24253075 Fax:+886 4 24253076



**energies**

IMPACT  
FACTOR  
2.707

an Open Access Journal by MDPI



**Editor-in-Chief**

**Prof. Dr. Enrico Sciabba**  
Room 32, Department of Mechanical  
and Aerospace Engineering, University  
of Roma Sapienza, Via Eudossiana 18,  
00184 Roma, Italy

**Message from the Editorial Board**

*Energies* is an international, open access journal in energy engineering and research. The journal publishes original papers, review articles, technical notes, and letters. Authors are encouraged to submit manuscripts which bridge the gaps between research, development and implementation. The journal provides a forum for information on research, innovation, and demonstration in the areas of energy conversion and conservation, the optimal use of energy resources, optimization of energy processes, mitigation of environmental pollutants, and sustainable energy systems.

**Author Benefits**

- ∞ **Open Access** Unlimited and free access for readers
- © **No Copyright Constraints** Retain copyright of your work and free use of your article
- IF **Impact Factor 2.707** (2018 Journal Citation Reports®)
- PR **Thorough Peer-Review**
- AI **Coverage by Leading Indexing Services** SCIE-Science Citation Index Expanded (Clarivate Analytics), Ei Compendex (Elsevier), Scopus (Elsevier)
- ⌚ **Rapid Publication** Submission to 1st decision within 17.1 days, acceptance to publication within 2.9 days (median values for papers published in this journal in 2019)
- ✂ **No Space Constraints, No Extra Space or Color Charges**  
No restriction on the length of the papers, number of figures or colors
- 💰 **Discounts on Article Processing Charges (APC)** If you belong to an institute that participates with the MDPI Institutional Open Access Program
- © **No Copyright Constraints** Retain copyright of your work and free use of your article

*Energies*  
Editorial Office  
energies@mdpi.com

MDPI, St. Alban-Anlage 66  
4052 Basel, Switzerland  
Tel: +41 61 683 77 34  
Fax: +41 61 302 89 18

### ABOUT

The Netherlands provides many opportunities for collaboration in the bio-economy:

- It has an active bio-based sector comprising of over 1000 companies
- Home to 19 of the top 25 leading chemical companies
- Over 10 bio-economy public private research partnerships
- Top class universities, R&D-, pilot- and demo facilities
- The bio-economy is a key element in realizing the Dutch ambitions on CO<sub>2</sub>-emissions reduction and circularity



Looking for more information about the biomass and bioeconomy sector in the Netherlands? And would you like to meet with Dutch organisations and experts?

Come meet us at the

## Netherlands Lounge

in the exhibition area!



**NextGenRoadFuels is an Horizon 2020 project to develop a competitive European technology platform for sustainable drop-in transport fuel production from low value urban feedstocks.**

The project will prove the Hydrothermal Liquefaction pathway (HTL) as an efficient route to produce high-volume, cost-competitive, drop-in synthetic gasoline and diesel fuels, as well as other hydrocarbon compounds. The process consists of different combinations of thermo-catalytic, electro-catalytic and biochemical technologies, for a full scalable and flexible model.

### NextGenRoadFuels partners



[www.nextgenroadfuels.eu](http://www.nextgenroadfuels.eu)  
[info@nextgenroadfuels.eu](mailto:info@nextgenroadfuels.eu)



This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No. 818413



# The new RITTER Biogas Batch Fermentation System

with automatic data logging in real time



*„Worldwide -  
with the precision  
of the original!“*

- › Batches of up to **18 fermentation bottles** (1 ltr) in all new and redesigned heating oven
- › Up to **18 RITTER MilliGascounters** in two all new MilliGascounter x9 Block units with individual calibration certificate
- › Automated data acquisition of gas volume and flow rate through real time data logging with Windows® software »RIGAMO«
- › Optional CO<sub>2</sub> absorption system with absorption rate better than 99%
- › No absorption limit indicator necessary



**DISCOVER**  
THE MOST ADVANCED  
LABORATORY BIOGAS  
BATCH-FERMENTATION  
SYSTEM AT  
E-EUBCE 2020

Incl.  
magnetic  
coupling for  
absolute gas  
tightness of  
fermentation  
bottle

Dr.-Ing. Ritter Apparatebau GmbH & Co. KG  
Coloniastr. 19-23 · D-44892 Bochum · Germany  
Tel +49-234-92293-0 · Fax +49-234-92293-50 · mailbox@ritter.de

[www.ritter.de](http://www.ritter.de)



# ENERGY IS A CIRCLE.

we close it.

 **SYNCRAFT**<sup>®</sup>  
Das Holzkraftwerk.

[en.syncraft.at](http://en.syncraft.at)

Your reliable R&D partner for the transition towards a  
circular bio-based economy

The *Biomass to Fuels and Feedstock* program of TNO Energy Transition is developing knowledge and technology for efficient and cost-effective thermochemical processing of biomass, biogenic residues and waste into biofuels, 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 Transition provides R&D support and bio-based 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
- Resource-efficient residues utilisation

Would you like to know more? Visit [our website!](http://www.tosynfuel.eu)

# THE DEMONSTRATION OF WASTE BIOMASS TO SYNTHETIC FUELS AND GREEN HYDROGEN

# 2synfuel

[www.tosynfuel.eu](http://www.tosynfuel.eu)

 @TOSYNFUEL



This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant agreement No 745749.



# Bioeconomy Pilot

Interregional cooperation on innovative use of non-food biomass

The “Bioeconomy Pilot” brings together all European regions interested in the creation of a bioeconomy strategy: the purpose is to boost innovation in the bio-based sector.

For actors interested in the biobased business, the Bioeconomy Pilot can:

- Support the creation of **new integrated bio-based value chains** between the chemistry, agrofood and bioenergy sectors
- Promote **new business opportunities**
- Encourage project upgrading and **business exploitation**
- Supporting the establishment of **private-public investment pipelines** based on industry-driven business cases

We are currently developing new projects within the areas of **Liquified Biomethane, Lignocellulose Biorefinery, Bioaromatics and Biopolymers.**

The next business case can be yours!



## CONTACT

Lombardy Green Chemistry Association  
Via Gaudenzio Fantoli, 16/15  
20138 Milan, Italy

Ilaria Re E-mail [ilaria.re@italbiotec.it](mailto:ilaria.re@italbiotec.it) | [segreteria@chimicaverdelombardia.it](mailto:segreteria@chimicaverdelombardia.it)



# Circular and Climate Neutral



Wageningen University & Research is working on solutions to make the circular, biobased economy a reality.

Wageningen participation in the field of biobased economy and circularity.

Come and visit our booth and learn more about research in Wageningen. We will show you what projects we do within the research program 'Towards a circular and climate-positive society'.

You will also get an overview of EU research projects with



*'We want our research to contribute to an environmentally friendly society in 2030, founded on closed-cycle biobased systems that are beneficial to humans, animals and the world. Translating research to practice, that is what drives me.'*

**Saskia Visser**  
programme manager 'Circular and climate-neutral society'



**WEBER  
ENTEC**

## **TROUBLES WITH HIGH VISCOSITY AND MECHANICAL BREAKDOWNS?**

**BENEFITS THROUGH OUR ULTRASOUND  
DISINTEGRATION TECHNOLOGY**



- ▶ Substrate in digester more liquid
- ▶ Improved flow properties
- ▶ Overall operational and biological improvement
- ▶ Decrease of energy consumption (pumping, stirring)
- ▶ Usage of difficult cosubstrates possible

## **SUFFERING FROM LOW BIOGAS YIELD?**

## **NEED TO SAVE MONEY ON FEEDSTOCK COSTS?**

- ▶ Our ultrasound disintegration technology will increase your overall plant efficiency
- ▶ Return-on-Investment less than 3 years
- ▶ Maintenance free ultrasound cell
- ▶ Proven and tested in more than 100 plants



**MORE THAN  
100 REFERENCES  
WORLDWIDE!**



[www.weber-entec.com](http://www.weber-entec.com)