

08:30 - 10:00

ORAL SESSION 1BO.1

Supply of residues and by-products from agriculture

Room: AUDITORIUM 10

CHAIRPERSONS:

Tapio RANTA, Lappeenranta University of Technology, FINLAND

Rainer JANSSEN, WIP, GERMANY

1BO.1.1

BEST AVAILABLE TECHNOLOGIES FOR PRUNING HARVESTING

Luigi PARI, CREA- Council for Agricultural Research and Economics, Centro di ricerca Ingegneria e Trasformazioni agroalimentari, ITALY

Co-authors: A. Suardi, S. Bergonzoli, V. Alfano, A. Scarfone, CREA, Monterotondo (RM), Italy; D. Garcia Galindo, CIRCE, Zaragoza, Spain

1BO.1.2

FIELD PERFORMANCE OF FORAGE HARVESTERS AND A MOWER-CHIPPER FOR HARVEST OF SHORT ROTATION COPPICES

Ralf PECENKA, Leibniz Institute for Agricultural Engineering and Bioeconomy (ATB), Post Harvest Dpt., GERMANY

Co-authors: D. Ehlert, H. Lenz, T. Hoffmann, Leibniz Institute for Agricultural Engineering and Bioeconomy, Potsdam, Germany

1BO.1.3

ADAPTIONS OF HARVESTING METHODS AND CONCEPTS IN ORDER TO REDUCE WEEDS ON AGRICULTURAL FIELDS AND TO GAIN POTENTIALLY A SO FAR UNEXPLOITED BIOMASS FEEDSTOCK

Christoph GLASNER, Fraunhofer UMSICHT, Biomass and Residues Utilization, GERMANY

Co-authors: C. Andreasen, University of Copenhagen, Department of Plant and Environmental Sciences, Crop Sciences, Taastrup, Denmark; C. Vieregge, CLAAS Selbstfahrende Erntemaschinen, Harsewinkel, Germany; A. Dikiy, Norwegian University of Science and Technology, Department of Biotechnology, Trondheim, Norway

1BO.1.4

VALORIZING NUTRIENTS FROM POME DIGESTATE

Julien VOOGT, Wageningen Food and Biobased Research, THE NETHERLANDS

Co-authors: H.W. Elbersen, K.P.H. Meesters, Wageningen Food and Biobased Research, The Netherlands; S. Blankenborg, Enki Energy, Nijmegen, The Netherlands; H. Langeveld, Biomass Research, Wageningen, The Netherlands; F. Quist-Wessel, AgriQuest, Wageningen, The Netherlands

1BO.1.5

HORSE MANURE AS FEEDSTOCK FOR RENEWABLE ENERGY AND RECYCLING OF NUTRIENTS - BIO-GAS FROM HORSE MANURE

Åsa HADIN, University of Gävle, Department of Building, Energy and Environmental Engineering,, SWEDEN

08:30 - 10:00

ORAL SESSION 2BO.2

Pilot gasification and demonstration scale studies

Room: AUDITORIUM 11+12

CHAIRPERSONS:

Maria PUIG-ARNAVAT, Technical University of Denmark, Chemical Engineering Dpt., DENMARK

Jaap KOPPEJAN, Procede Biomass, THE NETHERLANDS

2BO.2.1

USE OF GASIFICATION CHAR FOR HOT GAS FILTRATION IN MICRO-SCALE POWER PLANTS

Giulio ALLESINA, BEELab (Bio Energy Efficiency Laboratory), Enzo Ferrari Engineering Dpt., ITALY

Co-authors: N. Morselli, S. Pedrazzi, M. Puglia, P. Tartarini, BEELab, Department of engineering "Enzo Ferrari", University of Modena and Reggio Emilia, Italy

2BO.2.2

ENHANCING THE GAS QUALITY AND HYDROGEN YIELD FROM AIR GASIFICATION OF CORN STRAW PRETREATED BY ANAEROBIC DIGESTION PROCESS

Xiang GUO, Tianjin University, Environmental engineering Dpt., P.R. CHINA

Co-authors: G. Chen, B.Yan, Tianjin University, P.R. China

2BO.2.3

NOVEL EXTENSION OF BIOMASS POLY-GENERATION TO SMALL SCALE GASIFICATION SYSTEMS IN SOUTH-TYROL

Marco BARATIERI, Free University of Bolzano, Faculty of Science and Technology, ITALY

Co-authors: D. Basso, F. Patuzzi, D. Antolini, S.S. Ail, E. Cordioli, V. Benedetti, A. Gasparella, Free University of Bolzano, Italy; W. Tirler, EcoResearch, Bolzano, Italy; S. Dal Savio, IDM-Südtirol, Bolzano, Italy; A. Rizzo, D. Chiaramonti, RE-CORD Consortium, Firenze, Italy

2BO.2.4

ONE MONTH DAILY START AND STOP SUPERCRITICAL WATER GASIFICATION TEST PLAN FOR RESIDUE OF SHOCHU (JAPANESE DISTILLED LIQUOR) TO CREATE RENEWABLE ENERGY

Yasutaka WADA, The Chugoku Electric Power, Energia Economic & Technical Research Institute, JAPAN

Co-authors: H. Tanigawa, Chugoku Electric Power, Higashi-hiroshima, Japan; Y. Matsumura, Hiroshima University, Japan; T. Noguchi, Toyo Koatsu, Hiroshima, Japan; T. Inoue, Fukken, Hiroshima, Japan; Y. Kawai, Chuden Plant, Hiroshima, Japan

2BO.2.5

DEVELOPMENT OF A NEW HIGHLY EFFICIENT AND FUEL FLEXIBLE MEDIUM-SCALE CHP TECHNOLOGY BASED ON FIXED-BED UPDRAFT BIOMASS GASIFICATION AND A SOFC

Thomas GOETZ, Wuppertal Institute, GERMANY

Co-authors: T. Brunner, F. Biedermann, I. Obernberger, BIOS Bioenergiesysteme, Graz, Austria; S. Hirscher, C. Milito, Viessmann Holzfeuerungsanlagen, Hard, Austria; H. Leibold, KIT - Karlsruher Institut für Technologie, Germany; J. Sitzmann, Calida Cleantech, Schwabach, Germany; S. Megel, Fraunhofer Institut für Keramische Technologien und Systeme, Dresden, Germany; M. Hauth, AVL LIST, Graz, Austria; Y. de Vos, BOSAL emission control systems NV, Lummen, Belgium; L. Shen, B. Corona, Utrecht University, The Netherlands

08:30 - 10:00

ORAL SESSION 3BO.3

Biorefineries, resource valorisation

Room: 20

CHAIRPERSONS:

Wouter HUIJGEN, Royal COSUN, THE NETHERLANDS

Barry HEDLEY, Nova Pangaea Technologies Limited, UNITED KINGDOM

3BO.3.1

VALORIZATION OF CHAR FROM BIOMASS GASIFICATION AS CATALYST SUPPORT: PRELIMINARY RESULTS OF FISCHER-TROPSCH TESTS

Vittoria BENEDETTI, Free University of Bolzano, Faculty of Science and Technology, ITALY

Co-authors: S. Ail, F. Patuzzi, M. Baratieri, Free University of Bolzano, Italy; R. Rauch, Karlsruhe Institute of Technology, Germany

3BO.3.2

LIGNIN DEPOLYMERIZATION TO MONOPHENOLIC COMPOUNDS IN A FLOW-THROUGH SYSTEM

Maxim GALKIN, Stockholms Universitet, Organic Chemistry Dpt., SWEDEN

Co-authors: I. Kumaniaev, E. Subbotina, J. S. M. Samec, Stockholm University, Sweden; J. Sävmarker, M. Larhed, Uppsala University, Sweden

3BO.3.3

CO-PRODUCTION SCHEMES IN THE BIO-SNG PROCESS: BTX PRODUCTION AND HARVESTING

Carlos Filipe MOURÃO VILELA, ECN, THE NETHERLANDS

Co-authors: G. Aranda Almansa, B.J. Vreugdenhil, ECN, Petten, The Netherlands

3BO.3.4**DEVELOPMENT OF COST CO-PROCESSING OF BIO-OIL AND CRUDE OIL IN A CONVENTIONAL REFINERY**

Ali ALIZADEH, University of Alberta, Mechanical engineering department, Mechanical engineering department, CANADA

Co-authors: A.O. Oyedun, A. Kumar, University of Alberta, Edmonton, Canada

3BO.3.5**THE COST DRIVERS OF SEAWEED BASED FUEL PRODUCTION**

Jaap VAN HAL, Energy Research Center of the Netherlands, Innovation Manager Biorefinery, THE NETHERLANDS

Co-authors: J-W. Dijkstra, ECN, Petten, The Netherlands; A-B. Bjerre, DTI, Taastrup, Denmark

08:30 - 10:00

ORAL SESSION 5BO.4**Biomass integration into energy systems**

Room: 19

CHAIRPERSONS:

Andreas HORNING, University of Birmingham Fraunhofer, UNITED KINGDOM

Daniela THRÄN, DBFZ-German Biomass Research Centre, GERMANY

5BO.4.1**EUBCE STUDENT AWARDEE PRESENTATION****TOWARDS A SUSTAINABLE FUTURE - THE ROLE OF BIOMASS IN FUTURE RENEWABLE-BASED ENERGY SYSTEMS**

Rasmus BRAMSTOFT, Technical University of Denmark, DTU Management Engineering, DENMARK

Co-authors: A. Pizarro Alonso, I. Græsted Jensen, M. Münster, Technical University of Denmark, Kgs. Lyngby, Denmark; H. Ravn, RAM-løse edb, Smørum, Denmark

5BO.4.2**IDENTIFYING THE OPTIMAL USE OF BIOMASS WITHIN A LIMITED RESOURCE BASE: A CASE STUDY OF THE UK**

Oliver BROAD, University College London, Institute for Sustainable Resources, UNITED KINGDOM

Co-authors: I. Butnar, P. Dodds, UCL Institute for Sustainable Resources, London, United Kingdom; R. Holland, University of Southampton, United Kingdom

5BO.4.3**INTELLIGENT CONTROLLING OF POWER DRIVEN SOLID BIOMASS CHP PLANTS IN FLEXIBLE DISTRICT HEATING WITH A SEASONAL HEAT STORAGE AND A POWER-TO-HEAT COMPONENT**

Katharina KOCH, Technical University of Munich, Associate Professorship of Regenerative Energy Systems, GERMANY

5BO.4.4**BIOENERGY INTEGRATION AND OPTIMISATION BY THERMAL NETWORK ANALYSIS "THENA"**

Thomas NUSSBAUMER, Verenum Research and Lucerne University of Applied Sciences, SWITZERLAND

Co-author: S Thalmann, Verenum, Zurich, Switzerland

5BO.4.5**EXERGY ANALYSIS OF THE INTEGRATION OF POWER-TO-GAS SYSTEMS TO BRAZILIAN SUGARCANE BIOREFINERIES: MOVING TOWARDS MAXIMUM ENERGY CONVERSION, MINIMUM WASTE AND ZERO CO₂ EMISSIONS**

PABLO SILVA ORTIZ, UNICAMP, CHEMICAL ENG., BRAZIL

Co-authors: L. De Souza Noel Simas Barbosa, Luiz de Queiroz College of Agriculture, University of São Paulo, Piracicaba, Brazil; E. Hytonen, VTT Technical Research Centre of Finland, Espoo, Finland; P. Vainikka, VTT Technical Research Centre of Finland, Lappeenranta, Finland; J. POSADA, Department of Biotechnology, Delft University of Technology, The Netherlands; R. Maciel Filho, School of Chemical Engineering, University of Campinas, Brazil

08:30 - 10:00

VISUAL PRESENTATIONS IBV.1**Analysis of industrial approaches to biomass conversion**

See page 60

08:30 - 10:00

VISUAL PRESENTATIONS 3BV.2**Production and application of biobased chemicals from biomass - Part 2**

See page 61

10:00 - 10:15

BREAK

10:15 - 12:35

PLENARY SESSION BP.1**Climate and Sustainability**

Room: AUDITORIUM 11+12

CHAIRPERSONS:

Uwe R. FRITSCH, IINAS, GERMANY

Ana Luisa FERNANDO, Universidade Nova de Lisboa, Ciências e Tecnologia Biomassa Dpt., PORTUGAL

BP.1.1**LIFE CYCLE ASSESSMENT OF BIOENERGY SYSTEMS: LESSONS LEARNED IN A HEATED DECADE**

Jacopo GIUNTOLI, European Commission, JRC, Directorate C: Energy, Transport and Climate, ITALY

Co-authors: A. Agostini, ENEA-Italian National Agency for New Technologies, Energy and the Environment, Roma, Italy; S. Sala, L. Marelli, Joint Research Centre of the European Commission, Ispra, Italy

BP.1.2**THE USE OF SOLID BIOMASS FOR ENERGY PURPOSES – RECOMMENDATIONS TO THE DANISH GOVERNMENT REGARDING REGULATION AND SUSTAINABILITY**

Peter Birch SØRENSEN, Chair of the Danish Council on Climate Change, DENMARK

BP.1.3**GOVERNING SUSTAINABILITY OF BIOMASS PRODUCING LANDSCAPES AND BIOMASS-BASED SUPPLY CHAINS - STATE OF THE ART AND FUTURE PROSPECTS**

Inge STUPAK, University of Copenhagen, Department of Geosciences and Natural Resource Management, DENMARK

BP.1.4**RENOVABIO - A NEW APPROACH TO IMPROVE EFFICIENCY AND COMPETITIVENESS IN BIOFUELS.**

Plinio NASTARI, DATAGRO, BRAZIL

BP.1.5**ASSESSING AND MITIGATING ILUC IMPACTS OF 2G BIOFUEL TECHNOLOGIES AT PROJECT LEVEL**

Lorenzo DI LUCIA, Imperial College, Centre for environmental policy, UNITED KINGDOM

Co-authors: E. Sevigne, A. Bauen, R. Slade, Imperial College London, United Kingdom

BP.1.6**CLIMATE BENEFITS FROM BIOENERGY: AGRICULTURE**

Olivier DUBOIS, UN Food and Agriculture Organisation, Natural Resource Management and Environment Department; ITALY

BP.1.7**CLIMATE BENEFITS FROM BIOENERGY: FORESTRY**

Robert MATTHEWS, Forestry Commission, UNITED KINGDOM

12:30 - 13:30

LUNCH BREAK

12:30 - 15:30

PARALLEL EVENT

SUSTAINABILITY AND GOVERNANCE OF BIOENERGY SUPPLY CHAINS

See page 102

13:15 - 18:30

WORKSHOP

SEEMLA - SUSTAINABLE EXPLOITATION OF BIOMASS FOR BIOENERGY FROM MARGINAL LANDS IN EUROPE

See page 106

13:30 - 15:00

ORAL SESSION 1BO.5

Biomass feedstock and harvesting studies

Room: AUDITORIUM 10

CHAIRPERSONS:

Enrico CEOTTO, CREA- Council for Agricultural Research and Economics, ITALY

Vance OWENS, South Dakota State University, USA

1BO.5.1

BEST AVAILABLE TECHNOLOGIES TO HARVEST CEREAL CHAFF

Vincenzo ALFANO, CREA - Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria, ITALY

Co-authors: L. Pari, A. Scarfone, S. Bergonzoli, A. Suardi, CREA - Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria, Monterotondo (RM), Italy

1BO.5.2

ENERGY RECOVERY ALTERNATIVES OF THE OLIVE OIL INDUSTRY BYPRODUCTS

Paris A. FOKAIDES, Frederick University, Sustainable Energy Research Group, CYPRUS

1BO.5.3

EFFECT OF HARVEST TIME ON THE COMPOSITION OF TALL WHEATGRASS BIOMASS UNDER MEDITERRANEAN CONDITIONS

Ruth BARRO, CIEMAT, Biomass Unit - Dpt. of Energy, SPAIN

Co-authors: R. Cortés, J. Pérez, C.S. Ciria, P. Ciria, M.J. Fernández, J.E. Carrasco, CIEMAT, Soria, Spain

1BO.5.4

IMPACT OF SAMPLING AND MEASUREMENT SYSTEM ON THE FEEDSTOCK RECEIVING CAPACITY OF A BIOMASS POWER PLANT

Mika AALTO, Lappeenranta University of Technology, Laboratory of Bioenergy, FINLAND

Co-authors: O.-J. Korpinen, T. Ranta, Lappeenranta University of Technology, Mikkeli, Finland

1BO.5.5

BIOMASS FOR FARMING USE FROM ORCHARD PRUNING AND SRC IN SICILY

Gianni FACCIOTTO, CREA- Council for Agricultural Research & Economics, Foreste e Legno, ITALY

Co-author: D. Coaloa, Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria, Centro di Ricerca Forest, Casale Monferrato, Italy

13:30 - 15:00

ORAL SESSION 2BO.6

Gasification laboratory scale and desktop process system studies

Room: AUDITORIUM 11+12

CHAIRPERSONS:

Kyriakos PANOPOULOS, Centre for Research & Technology Hellas, GREECE

Wolter PRINS, Ghent University, BELGIUM

2BO.6.1

COMPARED ANALYSIS OF SULFUR, NITROGEN AND HEAVY METAL COMPOUNDS OF SOLID RECOVERED FUELS AIR GASIFICATION AT PILOT SCALE

Gwendal VONK, Cirad, BioWooEB, FRANCE

Co-authors: G. Vaïtilingom, B. Piriou, BioWooEB, Montpellier, France; D. Wolbert, CIP - ISCR, Rennes, France; C. Cammarano, ICGM, Montpellier, France; J-P. Houée, Enerxyl, Landébia, France

2BO.6.2

INFLUENCE OF PHOSPHOROUS AND ITS FATE DURING THERMO-CHEMICAL CONVERSION OF BIOMASS IN A FLUIDISED BED

Matthias KUBA, Bioenergy 2020+, AUSTRIA

Co-authors: K. Wagner, Bioenergy 2020+ ; Institute of Chemical, Environmental & Biological Engineering, TU Wien, Güssing; Wien, Austria; H. Hofbauer, Institute of Chemical, Environmental & Biological Engineering, TU Wien, Austria

2BO.6.3

ADSORPTION OF H₂S ON RESIDUAL BIOMASS GASIFICATION CHAR

Filippo MARCHELLI, Free University of Bolzano, Faculty of Sciences and Technology, ITALY

Co-authors: F. Patuzzi, E. Cordioli, M. Baratieri, Free University of Bolzano, Italy; E. Sisani, L. Barelli, University of Perugia, Italy; B. Bosio, E. Arato, University of Genova, Italy

2BO.6.4

GLYCEROL LOW TEMPERATURE STEAM REFORMING FOR BIO-SNG

Robert WHITE, University of Leeds, UNITED KINGDOM

Co-authors: V Dupont, T Cockerill, University of Leeds, United Kingdom

2BO.6.5

A MODELLING BASED STUDY ON THE INTEGRATION OF INDIRECT BIOMASS GASIFICATION, METHANOL AND POWER PRODUCTION

Balaji SRIDHARAN, Technical University of Delft, Process and Energy Laboratory, THE NETHERLANDS

Co-authors: M. Del Grosso, C. Tsekos, W. de Jong, S. Klein, Technical University of Delft, The Netherlands

13:30 - 15:00

ORAL SESSION 3BO.7

New processes and strategies for the production of valuable chemicals from biomass

Room: 20

CHAIRPERSONS:

Giuliano DRAGONE, DTU, DENMARK

Tomasz CALIKOWSKI, European Commission, Research and Innovation, Bioeconomy, BELGIUM

3BO.7.1

NATURAL DEEP EUTECTIC SOLVENTS (DES) FOR FRACTIONATION OF WASTE LIGNOCELLULOSIC BIOMASS AND ITS CASCADE CONVERSION TO VALUE-ADDED BIO-BASED CHEMICALS

Jhansi MAMILLA, National Institute of Chemistry, SLOVENIA REPUBLIC

Co-authors: U. Novak, M. Grilc, B. Likozar, National Institute of Chemistry, Slovenia Republic

3BO.7.2**SIMULTANEOUS PRODUCTION OF FURFURAL AND LEVULINIC ACID FROM PINE SAWDUST VIA ACID-CATALYSED MECHANICAL DEPOLYMERIZATION AND MICROWAVE HEATING**

Katja LAPPALAINEN, Kokkola University Consortium Chydenius, Applied Chemistry, FINLAND
Co-authors: Y. Dong, Centria University of Applied Sciences, Kokkola, Finland; U. Lassi, University of Oulu, Finland

3BO.7.3**ENHANCING CARBOXYLIC ACID YIELDS FROM DUCKWEED BY ACIDOGENIC DIGESTION**

Ozgul CALICIOGLU, The Pennsylvania State University, Civil and Environmental Engineering Dpt., USA
Co-authors: M.J. Shreve, R.A. Brennan, The Pennsylvania State University, Department of Civil and Environmental Engineering, University Park, Usa; T.L. Richard, The Pennsylvania State University, Department of Agricultural and Biological Engineering, University Park, Usa

3BO.7.4**PRODUCTION OF ADVANCED HYDROCHAR WITHOUT PHYTOTOXIC PROPERTIES**

Michael RENZ, Universitat Politècnica de Valencia, Institute of Chemical Technology, SPAIN
Co-authors: M. Hitzl, Ingelia SL, Valencia, Spain; A. Méndez, Universidad Politécnica de Madrid, Spain; M. Owsianiak, Technical University of Denmark, Lyngby (Copenhagen), Denmark

3BO.7.5**BIOCONVERSION OF WHEAT STRAW INTO VALUE-ADDED PRODUCTS BY EVOLVED KLUYVE-ROMYCES MARXIANUS STRAIN**

Celina YAMAKAWA, DTU, Biosustain, DENMARK
Co-author: Solange Mussatto, DTU Biosustain, Kogens Lyngby, Denmark

13:30 - 15:00

ORAL SESSION IBO.8**Policies for biobased products and energy**

Room: 19

CHAIRPERSONS:

Nathalie DEVRIENDT, In den Roden Schilt Consulting, BELGIUM
Sari MANNONEN, UPM Biofuels, FINLAND

IBO.8.1**ALTERNATIVE AVIATION FUELS: ASSESSMENT OF SUPPLY POTENTIAL IN THE EU**

Matteo PRUSSI, European Commission, Joint Research Centre-Ispra, Unit C.4, ITALY
Co-authors: A. O'Connell, L. Lonza, JRS-Ispra, Ispra, Italy

IBO.8.2**BIOENERGY'S ADDITIONAL VALUES**

Bengt- Erik LOFGREN, Swedish Pellet Association, SWEDEN

IBO.8.3**THE FUTURE ROLE OF BIOGAS ENERGY IN AN INTEGRATED RENEWABLE ENERGY DOMINATED ENERGY SYSTEM**

Jens BORN, Jahr, Chemical Technology, GERMANY
Co-author: M. Agunyo, Flensburg University of Applied Sciences, Germany

IBO.8.4**BIOFUELS FOR SWEDEN 2030**

Anton FAGERSTRÖM, Energiforsk, Transport and fuels, SWEDEN

IBO.8.5**THE AGRANA STARCH BIOREFINERY COPRODUCING HIGHLY SUSTAINABLE BIOETHANOL, FOOD, FEED AND CHEMICALS FOR THE BIOECONOMY**

Gerfried JUNGMEIER, Joanneum Research Centre, Research Centre for Climate, Energy and Environment, AUSTRIA
Co-authors: L. Canella, Joanneum Research, Graz, Austria; E. Haimer, AGRANA Staerke, Pischelsdorf, Austria; J. Eisenschenk, AGRANA Staerke, Pischelsdorf, Austria; D. Gruell, AGRANA Zuckerrforschung, Tulln, Austria

13:30 - 15:00

VISUAL PRESENTATIONS 5BV.3**Bioenergy integration in energy systems**

See page 62

13:30 - 15:00

VISUAL PRESENTATIONS 2BV.4**Towards new combustion technologies and emission reduction**

See page 63

17:00 - 18:30

PARALLEL EVENT**SINO-EUROPE LOW-CARBON INTEGRATED WASTE MANAGEMENT SEMINAR**

See page 103

14:30 - 18:30

BUSINESS MEETINGS

Room: Treehouse nord

15:00 - 15:15

BREAK

15:15 - 16:45

ORAL SESSION IBO.9**Integrated biomass production for energy purposes**

Room: AUDITORIUM 10

CHAIRPERSONS:

Floor VAN DER HILST, Utrecht University, THE NETHERLANDS
Karl MOOSMANN, GIZ, G 500, GERMANY

IBO.9.1**DESIGNING AND ASSESSING BIOECONOMY ORIENTED CROPPING SYSTEMS**

Hélène PREUDHOMME, Agro-Transfert, FRANCE
Co-authors: C. Journel, H.W. Zub-Preudhomme, Agro-Transfert Ressources et Territoire, Estrées-Mons, France; B. Detot, UniLaSalle Terre & Sciences, Beauvais, France; N. Jullier, Chambre d'agriculture de l'Aisne, Laon, France; M. Preudhomme, Chambre d'agriculture de la Somme, Estrées-Mons, France; C. Loyce, UMR Agronomie INRA/AgroParisTech, Grignon, France

IBO.9.2**INNOVATIVE AND SUSTAINABLE INTENSIFICATION OF INTEGRATED FOOD AND NON-FOOD SYSTEMS TO DEVELOP CLIMATE-RESILIENT AGRO-ECOSYSTEMS IN EUROPE AND BEYOND (SUSTAINFARM)**

BB GHALEY, University of Copenhagen, Department of Plant and Environmental Sciences, DENMARK
Co-authors: J. Smith, S. Westaway, The Organic Research Centre, Newbury, United Kingdom; A. Pisanelli, M. Lauteri, National Research Council, Institute of Agro-environmental and Forest Biology, Porano, Italy; E. Fereres, R. Calderón, Department of Agronomy, University of Cordoba, Spain; R. Borek, R. Wawer, Institute of Soil Science and Plant Cultivation – State Research Institute, Pulawy, Poland; M. Sandor, A. Gliga, University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, Romania; M. Hassler, T. Roesler, Philipps-University, Marburg, Germany

1BO.9.3**BIOMASS FOR HEAT GENERATION AND WASTEWATER MANAGEMENT IN THE AGRI-FOOD SECTOR - ARE CIRCULAR ECONOMY BENEFITS REALISED?**

Beatrice . M. SMYTH, Queen's University Belfast, School of Mechanical & Aerospace Engineering, UNITED KINGDOM

Co-authors: M. Wolsey, Queen's University Belfast, United Kingdom; C. Johnston, Agri-Food and Biosciences Institute, Hillsborough, United Kingdom

1BO.9.4**BIOGAS PRODUCTION IN INTEGRATED 1ST AND 2ND GENERATION SUGARCANE BIOREFINERIES: ENERGY AND ECONOMIC PROSPECTS**

Bruna MORAES, University of Campinas - Unicamp, Interdisciplinary Center of Energy Planning - NIPE, BRAZIL
Co-authors: C. Manochio, R.P. Rodriguez, Laboratório de Biotecnologia Anaeróbia (Biotech), Instituto de Ciência e Tecnologia, Universidade F. Poços de Caldas - MG, Brazil

1BO.9.5**THE EFFECT OF SUSTAINABLE INTENSIFICATION ON CROP RESIDUE ENERGY POTENTIALS**

Ioanna MOURATIADOU, Utrecht University, Copernicus Institute of Sustainable Development, THE NETHERLANDS
Co-authors: T. Stella, C. Nendel, F. Ewert, Leibniz Centre for Agricultural Landscape Research, Müncheberg, Germany; T. Gaiser, Y. Zhang, T. Heckelei, University of Bonn, Germany; F. van der Hilst, B. Wicke, Utrecht University, The Netherlands

15:15 - 16:45

ORAL SESSION 2BO.10**Progress in design and operation of gasification reactors for synthesis gas production**

Room: AUDITORIUM 11+12

CHAIRPERSONS:

Serge BIOLLAZ, PSI - Paul Scherrer Institut, SWITZERLAND

Jesper AHRENFELDT, Technical University of Denmark, DTU Chemical Engineering, DENMARK

2BO.10.1**DESIGN AND ANALYSIS OF UPSCALED TWOSTAGE BIOMASS GASIFIERS**

Rasmus Østergaard GADSBØLL, Technical University of Denmark, Chemical Engineering Dpt., DENMARK
Co-authors: L.R. Clausen, J. Ahrenfeldt, U.B. Henriksen, Technical university of Denmark, Roskilde, Denmark

2BO.10.2**BIOGAS PRODUCTION FROM BIOLOGICAL METHANATION OF SYNGAS**

Kristina GÖRANSSON, Mid Sweden University, Department of Chemical Engineering, SWEDEN
Co-authors: U. Söderlind, W. Zhang, Mid Sweden University, Sundsvall, Sweden

2BO.10.3**ENTRAINED FLOW GASIFICATION OF BIOMASS IN A PILOT-SCALE TEST RIG: LOAD- AND FUEL-FLEXIBLE OPERATIONS AND APPLICATIONS**

Philipp JOHNE, Institute for Energy Systems, Technical University of Munich, GERMANY
Co-authors: S. Fendt, H. Spliethoff, Institute of Energy Systems, TU München, Germany

2BO.10.4**TAR REDUCTION IN PRODUCER GAS BY USE OF OXYGEN TRANSPORT MEMBRANES**

Maria PUIG-ARNAVAT, Technical University of Denmark, Chemical Engineering Dpt., DENMARK
Co-authors: L. Martínez Aguilera, S. Otvar, Z. Sárosy, A. Bjørnetun Haugen, W. Ragnar Kiebach, J. Ahrenfeldt, U. Birk Henriksen, P. Vang Hendriksen, Technical University of Denmark, Roskilde, Denmark

2BO.10.5**ROBUST INSTRUMENTATION AND CONTROL SYSTEMS FOR GASIFICATION OF BIOMASS**

Prashant KAMBLE, University of Glasgow, School of Engineering, UNITED KINGDOM
Co-authors: Z. Khan, I. Watson, University of Glasgow, United Kingdom

15:15 - 16:45

ORAL SESSION 3BO.11**Renewable chemicals from biomass**

Room: 20

CHAIRPERSONS:

Tanja BARTH, University of Bergen, NORWAY

Liang WANG, SINTEF Energy Research, NORWAY

3BO.11.1**BISPHENOL REPLACEMENTS FROM LIGNIN: ON THE INTERSECTION OF RENEWABILITY, SAFETY, AND FUNCTIONALITY**

Steven-Friso KOELEWIJN, BELGIUM

Co-authors: S. Van den Bosch, T. Renders, B.F. Sels, KU Leuven, Belgium; H. Witters, VITO, Belgium

3BO.11.2**SUSTAINABLE PRODUCTION OF ITACONIC ACID USING LIGNOCELLULOSIC BIOMASS AS CARBON SOURCE**

Solange MUSSATTO, Technical University of Denmark, Novo Nordisk Foundation Center for Biosustainability, DENMARK

Co-authors: M. Cassano, C.K. Yamakawa, Novo Nordisk Foundation Center for Biosustainability, Technical University of Denmark, Kongens Lyngby, Denmark

3BO.11.3**POLYESTERS AND -AMIDES FROM WOOD: SUGAR CONVERSION TO FURAN DICARBOXYLIC ACID AND TO MUCONIC ACID**

Mona ARNOLD, VTT, FINLAND

Co-authors: J.A. Linnekoski, D. Thomas, M. Asikainen, A. Harlin, VTT, Espoo, Finland

3BO.11.4**WHY POLYPHENOLS PRESENT IN SPENT COFFEE GROUNDS INHIBIT THE GROWTH OF BACTERIA PRODUCING POLYHYDROXYALKANOATES?**

Adriana KOVALCIK, Brno University of Technology, Department of Food Chemistry and Biotechnology, CZECH REPUBLIC

Co-authors: P. Matouskova, D. Kucera, S. Obruca, I. Marova, Brno University of Technology, Brno, Czech Republic

3BO.11.5

Invited

15:15 - 16:45

ORAL SESSION IBO.12**On the way to industrial biorefineries**

Room: 19

CHAIRPERSONS:

Géraldine KUTAS, UNICA - Brazilian Sugarcane Industry Association, BRAZIL

George PHILIPPIDIS, University of South Florida, Patel College of Global Sustainability, USA

IBO.12.1**CRUDE TALL OIL-BASED RENEWABLE DIESEL REDUCES CO2 AND TAILPIPE EMISSIONS SIGNIFICANTLY**

Ville VAUHKONEN, UPM, Biofuels, FINLAND

Co-author: S. Mannonen, UPM Biofuels, Lappeenranta, Finland

IBO.12.2**BRINGING CELLULOSIC ETHANOL TO SCALE**

Paolo CORVO, Clariant, Biofuels & Derivatives, GERMANY

Co-authors: M. Rarbach, P. Popescu, Clariant, Munich, Germany

IBO.12.3**THE DEVELOPMENT AND COMMERCIALISATION OF NOVA PANGAEA TECHNOLOGIES' REFNOVA PROCESS FOR THE CONTINUOUS FRACTIONATION OF LIGNOCELLULOSIC BIOMASS TO SUGARS AND CHEMICAL PRECURSORS**

Barry HEDLEY, Nova Pangaea Technologies Limited, Gonville & Caius College, Cambridge University, UNITED KINGDOM

Co-author: M. Holm, Nova Pangaea Technologies, Middlesbrough, United Kingdom

IBO.12.4**BIOFOREVER**

Anton ROBEK, Bio Refinery Development BV, THE NETHERLANDS

IBO.12.5**BIO-PLASTICS FROM LIGNIN IS A KEY ENABLER OF A BIOREFINERY IMPLEMENTATION**

Eric SINGSAAS, University of Minnesota, Natural Resources Research Institute, USA

Co-authors: D. Winsness, Advanced Lignin Biocomposites, Atlanta, GA, Usa; M. Alkasrawi, University of Wisconsin Stevens Point, Usa

15:15 - 16:45**VISUAL PRESENTATIONS 3BV.5****Biorefineries: assessments and innovative technologies***See page 65***15:15 - 16:45****VISUAL PRESENTATIONS 4BV.6****Environmental impacts of bioenergy: new analyses***See page 67***15:15 - 18:30****WORKSHOP****GETTING (SOME) NUMBERS RIGHT – DERIVED ECONOMIC INDICATORS FOR THE BIOECONOMY***See page 108***15:30 - 17:00****WORKSHOP****BIOECONOMY TRENDS IN DEVELOPING COUNTRIES***See page 109***16:45 - 17:00****BREAK****17:00 - 18:30****ORAL SESSION 1BO.13****New routes to waste valorisation**

Room: AUDITORIUM 10

CHAIRPERSONS:**Peter KUIKMAN**, Alterra Wageningen UR, THE NETHERLANDS**Francisco GARCIA CARRO**, Magna Dea, SPAIN**1BO.13.1****ANAEROBIC IMMOBILIZED BIOLOGICAL METHOD FOR WASTEWATER MANAGEMENT**

Cheng-Fang LIN, National Taiwan University, Graduate Institute of Environmental Engr, TAIWAN

Co-authors: Andy HONG, University of Utah, Salt Lake City, Usa; Ping-Yi YANG, University of Hawaii, Manoa, Usa

1BO.13.2**THE VALORIZATION OF THE ORGANIC FRACTION OF MUNICIPAL SOLID WASTE IN A BIOREFINERY CONCEPT**

Anna CONTE, University of Salerno, Civil Engineering Department, ITALY

Co-authors: A. Cesaro, V. Belgiorno, University of Salerno, Italy

1BO.13.3**POLYHYDROXYALKANOATES (PHA) PRODUCTION FROM URBAN BIOWASTE MIXTURE AT PILOT SCALE**

Giulia MORETTO, University Ca' Foscari Venice, Environmental Sciences, ITALY

Co-authors: F. Valentino, M. Majone, "La Sapienza" University of Rome, Italy; S Piovesan, G. Moretto, P. Pavan, "Ca Foscari" University of Venice, Italy; D. Bolzonella, University of Verona, Italy

1BO.13.4**A COMPARATIVE ANALYSIS OF BIOWASTE MANAGEMENT IN FIVE EUROPEAN CLUSTERS**

Alessio BOLDRIN, Technical University of Denmark, Environmental Engineering, DENMARK

Co-authors: M.E. Edjabou, T.F. Astrup, Technical University of Denmark, Kgs. Lyngby, Denmark

1BO.13.5**PROCESS DESIGN AND PRELIMINARY LCA OF BUTANOL AND HYDROGEN PRODUCTION FROM AUTOCLAVED MUNICIPAL SOLID WASTE FEEDSTOCK**

Fanran MENG, University of Nottingham, Department of Mechanical, Materials and Manufacturing Engineering, UNITED KINGDOM

Co-author: J. McKechnie, University of Nottingham, United Kingdom

17:00 - 18:30**ORAL SESSION 2BO.14****Gas cleaning and processing to obtain high quality synthesis gas**

Room: AUDITORIUM 11+12

CHAIRPERSONS:**Nikolaos BOUKIS**, Karlsruhe Institute of Technology, GERMANY**Matthias KUBA**, Bioenergy 2020+, AUSTRIA**2BO.14.1****THE EFFECT OF BIOMASS DRYING ON THE OVERALL EFFICIENCY AND ECONOMICS OF COMBINED PRODUCTION OF TRANSPORTATION FUELS AND HEAT BY STEAM GASIFICATION AND FT-SYNTHESIS**

Sanna TUOMI, VTT, FINLAND

Co-authors: E. Kurkela, I. Hannula, VTT, Espoo, Finland; C. Berg, Kumera, Riihimaki, Finland

2BO.14.2**ULTRAPURE HYDROGEN FROM BIOMASS SYNGAS BY PD/AG MEMBRANE REACTOR**

Nadia CERONE, ENEA Research Centre, Technical Unit for Trisaia Technologies, ITALY

Co-authors: F. Zimbardi, L. Contuzzi, O. Carnevale, M. Martino, Enea, Rotondella, Italy

2BO.14.3**THE OXIDATION OF ETHYLENE GLYCOL - A PYROLYSIS OIL SURROGATE**

Niranjan FERNANDO, German Aerospace Center (DLR), Chemical Kinetics, GERMANY

Co-authors: T. Kathrotia, Q. Fradet, M. Braun-Unkhoff, U. Riedel, German Aerospace Center, Stuttgart, Germany

2BO.14.4**ANALYSIS OF SYNGAS PRODUCTION VIA SORPTION ENHANCED CHEMICAL LOOPING BIOMASS GASIFICATION**

Reiyu CHEIN, TAIWAN

Co-authors: K.T. Wu, W.H. Hsu, S.C. Lin, National Chung Hsing University, Taichung, Taiwan; Y.P. Chyow, P.C. Chen, Institute of Nuclear Energy Research, Taoyuan, Taiwan

2BO.14.5**RESIDUAL CHAR FROM GASIFICATION INTEGRATED IN A TAR REMOVAL SYSTEM**

Giulia RAVENNI, Technical University of Denmark, Chemical Engineering Dpt., DENMARK

Co-authors: Z. Sárosy, J. Ahrenfeldt, U.B. Henriksen, DTU, Roskilde, Denmark

17:00 - 18:30**ORAL SESSION 4BO.15****Biomass strategies and policies**

Room: 20

CHAIRPERSONS:**Martin JUNGINGER**, Utrecht University, THE NETHERLANDS**Birger KERCKOW**, FNR - Agency for Renewable Resources, GERMANY**4BO.15.1****BUILDING THE PERFECT BEAST: DESIGNING ALTERNATIVE FUEL POLICY TO WORK**

Chris MALINS, Cerulogy - Ideas for a sustainable future, UNITED KINGDOM

4BO.15.2**EU BIOENERGY POLICY: A WICKED PROBLEM?**

Alessandro AGOSTINI, ENEA Research Centre, DTE-BBC-BBE, ITALY

Co-authors: J. Giuntoli, L. Marelli, F. Monforti, Joint Research Centre of the European Commission, Ispra, Italy

4BO.15.3**ARE NEW POLICIES REALLY NEEDED TO EXPLOIT MARGINAL LAND IN THE EU? THE CASE OF BIO-CHAR IN DRY EU MED AREAS**

David CHIARAMONTI, RE-CORD and Department of Industrial Engineering, University of Florence, Industrial Engineering Dpt., ITALY

Co-author: C. Panoutsou, Imperial College London, United Kingdom

4BO.15.4**MODELLING LEAST-COST DEPLOYMENT OF BIOFUELS FOR ACHIEVING CLIMATE TARGETS IN GERMANY UNDER THE RENEWABLE ENERGY DIRECTIVE II-PROPOSAL**

Daniela THRÄN, DBFZ-German Biomass Research Centre, Bioenergy Systems Dpt., GERMANY

Co-authors: M. Millinger, UFZ, Leipzig, Germany; K. Meisel, DBFZ, Leipzig, Germany

4BO.15.5**THE ROLE OF INDUSTRIAL BIOREFINERIES IN A LOW-CARBON ECONOMY**

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

Co-authors: L. Pelkmans, IEA Bioenergy TCP, Mol, Belgium; R. van Ree, Wageningen University, The Netherlands; T. Berntsson, University of Gothenburg, Sweden

17:00 - 18:30**ORAL SESSION IBO.16****Operating conditions and emissions in small to large scale biomass combustion**

Room: 19

CHAIRPERSONS:**David BAXTER**, Former European Commission, Joint Research Centre, UNITED KINGDOM**Thomas NUSSBAUMER**, Verenum Research and Lucerne University of Applied Sciences, SWITZERLAND**IBO.16.1****TEST METHODS FOR FIREWOOD STOVES - A TECHNICAL REVIEW**

Christoph SCHMIDL, Bioenergy 2020+, Biomass Combustion Dpt., AUSTRIA

Co-authors: G. Reichert, W. Haslinger, Bioenergy2020+, Wieselburg-Land, Austria

IBO.16.2**EXPERIMENTAL STUDY OF PM EMISSIONS FROM WOOD PELLET STOVES WITH INNOVATIVE BURNING POTS**

Luigi POLONINI, University of Brescia, Mechanical engineering Dpt., ITALY

Co-authors: D Petrocelli, S Parmigiani, AICO SpA, Palazzolo sull'Oglio (Bs), Italy; A Lezzi, Università degli Studi di Brescia, Brescia, Italy

IBO.16.3**EXPERIMENTAL INVESTIGATION ON HOW NOX FORMATION DEPENDS ON BOILER LOAD IN A LARGE UTILITY BUBBLING FLUIDIZED-BED BOILER**

Henrik HOFGREN, Babcock & Wilcox Vølund A/S, DENMARK

Co-author: M.S.J Sørensen, Babcock & Wilcox Vølund a/s, Glostrup, Denmark

IBO.16.4**THE EFFECTS OF OPERATIONAL CONDITIONS ON AGGLOMERATION IN A FLUIDIZED BED COMBUSTOR USING BIOMASS**

Jonathan MORRIS, University of Sheffield, Energy 2050, UNITED KINGDOM

Co-authors: S.S. Daood, W. Nimmo, Energy 2050, University of Sheffield, United Kingdom; S. Chilton, Sembcorp Utilities UK, Middlesbrough, United Kingdom; B.J. Ng, Department of Mechanical Engineering, University of Sheffield, United Kingdom

IBO.16.5**NUMERICAL PARAMETRIC INVESTIGATION OF A FLEXIBLE LIGNITE-FIRED BOILER OPERATING WITH PRE-DRIED LIGNITE OR BIOMASS AS SUPPORTING FUEL**

Panagiotis DROSATOS, GREECE

Co-authors: N. Nikolopoulos, E. Karampinis, C. Papapavlou, P. Grammelis, E. Kakaras, CERTH, Athens, Greece

17:00 - 18:30**VISUAL PRESENTATIONS 3BV.7****Biorefineries: trends, business models and processing***See page 69***17:00 - 18:30****VISUAL PRESENTATIONS 1BV.8****Experiences on algae cultivation and benefits from an integrated biomass production***See page 70*