

08:30 - 10:00

ORAL SESSION 1CO.1

Algae production parameters

Room: AUDITORIUM 10

CHAIRPERSONS:

Scott TURN, University of Hawaii, USA

Frédéric VOGEL, PSI - Paul Scherrer Institut, SWITZERLAND

1CO.1.1

THE INFLUENCE OF LIGHT INTENSITY AND PHOTOPERIOD ON THE GROWTH AND LIPID CONTENT OF MICROALGAE FROM THREE CLIMATES

Lylia HAMEL, MARBEC.IFREMER.University of Montpellier, Montpellier, FRANCE

Co-authors: C. Carre, E. Hatey, D. Grezbyk, UMR 9190 MARBEC Marine Biodiversity, Exploitation and Conservation, IFREMER, CNRS, IRD, Université Mo, Montpellier, France; D. Khelifi, Laboratory of Genetic Biochemistry and Plant Biotechnology, Faculty of Nature and Life Sciences, Uni, Constantine, Algeria

1CO.1.2

HETEROTROPHIC CULTIVATION OF CHLORELLA VULGARIS AT HIGH GLUCOSE CONCENTRATIONS FOR THE PRODUCTION OF HEALTH-PROMOTING FOOD ADDITIVES

Martin LESNIAK, Bioenergy2020+ , Bioconversion & Biogas Systems, AUSTRIA

Co-authors: L. Rachbauer, B. Drosch, Bioenergy2020+ , Tulln, Austria

1CO.1.3

MICROALGAL BIOMASS FROM PIG MANURE: INFLUENCE OF TEMPERATURE, LIGHT SUPPLY AND ORGANIC LOAD ON COMPOSITION

David HERNÁNDEZ, ITACyL, Treatment of Livestock and Agroindustrial Wastewater, SPAIN

Co-authors: B. Riaño, M.cruz García, ITACyL, Valladolid, Spain

1CO.1.4

DELINEATING THE HALOTOLERANCE MECHANISM OF SCENEDESMUS SP. BY INTEGRATED OMICS APPROACH: POTENTIAL IMPLICATIONS FOR BIOFUEL PRODUCTION

Neha ARORA, Indian Institute of Technology, Roorkee, Biotechnology, INDIA

Co-authors: P. Kumari, K.M. Poluri, V. Pruthi, Indian Institute of Technology, Roorkee, India

1CO.1.5

HOW TO SET UP SUSTAINABLE ALGAE BIOREFINERIES - LEARNING FROM ALGAE-BASED NUTRACEUTICALS

Guido REINHARDT, IFEU-Institut Heidelberg, Biomass & Food, GERMANY

Co-authors: H Keller, N Rettenmaier, IFEU - Institute for Energy and Environmental Research Heidelberg, Germany

08:30 - 10:00

ORAL SESSION 4CO.2

Market implementation and financing

Room: AUDITORIUM 11+12

CHAIRPERSONS:

Giuliano GRASSI, Secretary General, European Biomass Industry Association, BELGIUM

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

4CO.2.1

SUPPORT SCHEMES AND MEASURES ENABLING THE USE OF BIOMASS FOR ENERGY IN THE EU

Manjola BANJA, European Commission, Joint Research Centre, Renewable and Energy Efficiency, ITALY

Co-authors: M. Jegard, J.F. Dallemnad, Directorate C - Energy, Transport and Climate, Energy Efficiency and Renewables Unit, JRC, EC, Ispra, Italy; V. Motola, Italian National Agency for New Technologies, Energy and Sustainable Economic Development, Ispra, Italy; R. Sikkema, Former Joint Research Centre, European Commission, Netherland Antilles

4CO.2.2

ECONOMIC AND ENVIRONMENTAL PROSPECTS OF BIOFUELS IN THE EUROPEAN TRANSPORT SECTOR

Ralph-Uwe DIETRICH, German Aerospace Center, Institute of Engineering Thermodynamics, GERMANY

Co-authors: F.G. Albrecht, S. Adelung, S. Estelmann, Z. Béalu, S. Maier, German Aerospace Center, Stuttgart, Germany

4CO.2.3

FINDINGS FROM A MULTI-CRITERIA DECISION ANALYSIS OF BIOFUELS AND OTHER RENEWABLE FUELS FOR THE MARITIME SECTOR

Julia HANSSON, IVL Swedish Environmental Research Institute, Climate & Sustainable Cities, SWEDEN

Co-authors: S. Brynolf, M. Grahn, Chalmers University of Technology, Gothenburg, Sweden

4CO.2.4

ASSESSING THE RISK APPETITE OF EU BIOENERGY AND UNCONVENTIONAL GAS SHAREHOLDERS ON REGULATORY CHANGES

Dimitrios SIDIRAS, University of Piraeus, Industrial Management and Technology Dpt., GREECE

Co-author: I Gyparis, University of Piraeus, Greece

4CO.2.5

EXPORT OF REGULAR AND TORREFIED WOOD PELLETS FROM CHILE TO EUROPE AND ASIA

Tobias ZIMMER, Karlsruhe Institute of Technology (KIT), Institute for Industrial Production (IIP), GERMANY

Co-authors: L. Arteaga-Pérez, Wood Engineering Department - University of Bio-Bio, Concepción, Chile; C. Segura, Technological Development Unit (UDT) - University of Concepción (UdeC), Coronel, Chile; M. Walter, C. Mayer, F. Schultmann, Institute for Industrial Production (IIP) - Karlsruhe Institute of Technology (KIT), Germany

08:30 - 10:00

ORAL SESSION 3CO.3

Production of thermally treated solid biofuels

Room: 20

CHAIRPERSONS:

Jaap KIEL, ECN Energy Research Centre of the Netherlands, THE NETHERLANDS

Øyvind SKREIBERG, SINTEF Energy Research, NORWAY

3CO.3.1

TECHNO-ECONOMIC ASSESSMENT AND COMPARISON OF BIOMASS PRE-TREATMENT PROCESSES IN A BTL CHAIN. APPLICATION TO TORREFACTION AND PYROLYSIS

Guillaume BOISSONNET, Commissariat à l'Energie Atomique, Biomass Project, FRANCE

3CO.3.2

IMPROVING ENERGETIC AND MATERIAL EFFICIENCY BY HYDROTHERMAL CARBONISATION OF SEWAGE SLUDGE; A PARAMETRIC STUDY

Wolfgang WALDMÜLLER, Technical University of Munich, Associate Professorship of Regenerative Energy Systems, GERMANY

Co-author: M Gaderer, Technical University of Munich, Associate Professorship of Regenerative Energy Systems Technical Univ, Straubing, Germany

3CO.3.3

THE INFLUENCE OF METALS AND HETEROATOMS ON PROCESS CHEMISTRY DURING THE HYDROTHERMAL CARBONISATION OF BIOMASS

Aidan SMITH, University of Leeds, Energy Research Institute, UNITED KINGDOM

Co-author: A.B. Ross, University of Leeds, United Kingdom

3CO.3.4

HYDROTHERMAL CARBONIZATION AND ACTIVATION OF LIGNIN-RICH ETHANOL CO-PRODUCT

Edoardo MILIOTTI, University of Florence, CREAR/RE-CORD, ITALY

Co-authors: L. Bettucci, G. Lotti, A. M. Rizzo, RE-CORD, Firenze, Italy; S. Dell'Orco, CREAR/University of Florence, Firenze, Italy; D. Chiaramonti, RE-CORD - CREAR/University of Florence, Italy

**3CO.3.5****HOW TO CONVERT THE EUROPEAN UNDEREXPLOITED BIOMASS SIDE STREAMS INTO MARKETABLE PRODUCTS: AN EXTENSIVE STUDY OF SUITABILITY FEEDSTOCK/PROCESS/PRODUCT UP TO PILOT SCALE**

Capucine DUPONT, IHE Delft Institute for Water Education, THE NETHERLANDS

Co-authors: M Marchand, CEA, Grenoble, France; M Campargue, RAGT Energie, Albi, France; D Da Silva Perez, FCBA, Saint Martin d'Hères, France; A Källi, H Wikberg, T Tamminen, VTT Technical Research Centre of Finland, Espoo, Finland; S Larsson, Swedish University of Agricultural Sciences, Umea, Sweden; E Papadopoulou, CHIMAR HELLA S.A., Thessaloniki, Greece; K Rasa, Natural Resources Institute Finland Luke, Jokioinen, Finland

08:30 - 10:00

**ORAL SESSION 5CO.4****The role of biomass in energy management systems**

Room: 19

**CHAIRPERSONS:****Heinz A. OSSENBRINK**, Former European Commission, Joint Research Centre, ITALY**Jeffrey SKEER**, IRENA-International Renewable Energy Agency, GERMANY**5CO.4.1****BIOGAS POWER PLANTS FOR DETERMINISTIC POWER GENERATION**

Katharina BÄR, Technische Hochschule Ingolstadt, Institute of New Energy Systems, GERMANY

Co-authors: M. Sonnleitner, W. Zörner, Technische Hochschule Ingolstadt, Germany

**5CO.4.2****THE ROLE OF BIOMASS IN THE FUTURE DEVELOPMENT OF CSP IN SOUTHERN EUROPE: THE CASE OF SPAIN**

Pedro HARO, Universidad de Sevilla, Chemical and Environmental Engineering, SPAIN

Co-authors: D. Peñalver, M. Suárez-Almeida, Universidad de Sevilla, Spain; E. Larson, Princeton University, Princeton, New Jersey, Usa; A. F. Ghoniem, MIT, Cambridge, Massachusetts, Usa; A. Gomez-Barea, Universidad de Sevilla, Spain

**5CO.4.3****DEVELOPMENT OF OPERATION SCHEDULES FOR DEMAND-ORIENTATED POWER GENERATION OF BIOGAS CHP UNITS**

Josef WALCH, University of Applied Sciences Wiener Neustadt, AUSTRIA

Co-authors: F. Theuretzbacher, G. Kiffel, C. Schmidl, University of Applied Sciences Wiener Neustadt, Wieselburg, Austria; A. Bauer, University of Applied Life Sciences, Vienna, Austria; E. Saracevic, A. Miltner, University of Technology Vienna, Austria

**5CO.4.4****EVALUATION OF SUITABLE STORAGE DEVICES FOR FLEXIBLE BIOMASS COMBUSTION PLANTS**

Matthias STARK, Technische Hochschule Ingolstadt, Institute of new Energy Systems, GERMANY

Co-authors: M. Sonnleitner, Institute of new Energy Systems, Ingolstadt, Germany; W Zörner, Institute of new Energy Systems, Ingolstadt, Germany

**5CO.4.5****THE ROLE OF BIOMASS FOR SMALL DISTRICT HEATING GRIDS FOR SOUTH-EASTERN EUROPE - THE COOLHEATING PROJECT**

Dominik RUTZ, WIP Renewable Energies, Unit Bioenergy &amp; Bioeconomy, GERMANY

Co-authors: R. Mergner, R. Janssen, WIP Renewable Energies, Munich, Germany; L. Laurberg Jensen, PlanEnergi, Århus, Denmark; C. Doczekal, Güssing Energy Technologies, Austria; T. Puksec, B. Doracic, University of Zagreb, Croatia; R. Sunko, B. Sunko, Skupina fabrika d.o.o., Ljutomer, Slovenia Republic; N. Markovska, V. Bozhikaliev, International Centre for Sustainable Development of Energy, Water and Environment Systems - Macedoni, Skopje, Macedonia; N Rajkovic, I Batas Bjelic, University of Belgrade, School of Electrical Engineering and Computer Science, Serbia; A. Kazagic, E. Redzic, Elektroprivreda, Sarajevo, Bosnia And Herzegovina; S. Jerotic, B. Mladenovic, Municipality of of Sabac, Serbia; E. Fejzovic, M. Petrovic, Municipality of Visoko, Bosnia And Herzegovina; M. Kolbl, Municipality of Ljutomer, Slovenia Republic

08:30 - 10:00

**VISUAL PRESENTATIONS ICV.1****Experiences and environmental impact of biomass implementation***See page 74*

08:30 - 10:00

**VISUAL PRESENTATIONS 2CV.2****Biomass gasification for power generation***See page 75*

10:00 - 10:15

**BREAK**

10:15 - 12:35

**PLENARY SESSION CP.1****Innovation and Integration**

Room: AUDITORIUM 11+12

**CHAIRPERSONS:****David CHIARAMONTI**, RE-CORD and Department of Industrial Engineering, University of Florence, ITALY**Solange MUSSATTO**, Technical University of Denmark, DENMARK**CP.1.1****POTENTIAL YIELD OF DEDICATED ENERGY CROPS ACROSS THE USA: RESULTS AND OUTCOMES OF THE MULTI-YEAR SUN GRANT REGIONAL FEEDSTOCK PARTNERSHIP**

Vance OWENS, South Dakota State University, North Central Sun Grant Center, USA

Co-authors: B. Baldwin, Mississippi State University, Usa; J. Fike, Virginia Tech, Blacksburg, Usa; R. Karow, Oregon State University, Corvallis, Usa; D.K. Lee, T. Voigt, University of Illinois, Champaign, Usa; W. Rooney, Texas A&amp;M University, College Station, Usa

**CP.1.2****THE ROLE OF BIOENERGY IN FUTURE ENERGY SYSTEM**

Antti ARASTO, VTT Technical Research Centre of Finland, FINLAND

**CP.1.3****ZAMBEZI BIOREFINERY: A UNIQUE PROCESS TO PRODUCE PURE GLUCOSE, A MIXED SUGAR SYRUP AND LIGNIN**

Ed DE JONG, Avantium Chemicals BV, Vice President Development, THE NETHERLANDS

Co-authors: B. McKay, A. Smith, Avantium, Amsterdam, The Netherlands

**CP.1.4****LARGE SCALE BIO ENERGY LAB II: INTEGRATED BIOGAS AND HYDROGEN PRODUCTION, NOVEL PRODUCTS & ENERGY STORAGE FROM RENEWABLY GENERATED ELECTRICITY**

Lars JÜRGENSEN, Aalborg University Esbjerg, Energy Technology Dpt., DENMARK

Co-authors: EA Ehimen, Future Analytics Consulting, Dublin, Ireland; JB Holm-Nielsen, Aalborg University Denmark, Esbjerg, Denmark; J. Born, Flensburg University, Germany

**CP.1.5****WHY INTERMEDIATE PYROLYSIS WITH INTEGRATED REFORMING MAKES THE DIFFERENCE!**

Samir BINDER, Fraunhofer-Institut UMSICHT, GERMANY

Co-authors: N. Jäger, R. Daschner, A. Hornung, Fraunhofer UMSICHT, Sulzbach-Rosenberg, Germany

**CP.1.6****FROM BIOMASS RESIDUES TO DROP-IN DIESEL BY HYDROFACTION**

Steen Brummerstedt IVERSEN, Steeper Energy Aps, DENMARK

Co-author: P. Toms, Steeper Energy, Calgary, Canada

CP.1.7

**NEXT GENERATION FUEL FLEXIBLE RESIDENTIAL BIOMASS HEATING BASED ON AN EXTREME AIR STAGING TECHNOLOGY WITH ULTRA-LOW EMISSIONS**

Ingwald OBERNBERGER, Bios Bioenergiesysteme, AUSTRIA  
Co-authors: G. Thek, T. Brunner, P. Nowak, BIOS BIOENERGIESYSTEME, Graz, Austria; M. Kerschbaum, Windhager Zentralheizung Technik, Seekirchen, Austria; E. Borjabad, I. Mediavilla, D. Peña, J. Carrasco, CEDER-CIEMAT - Research Centre for Energy, Technology and Environment, Soria, Spain

12:30 - 13:30

LUNCH BREAK

13:30 - 15:00

**ORAL SESSION 1CO.5**

**Energy crops: improving knowledge**

Room: AUDITORIUM 10

**CHAIRPERSONS:**

**Paris A. FOKAIDES**, Frederick University, Sustainable Energy Research Group, CYPRUS  
**Stefano AMADUCCI**, Università Cattolica del Sacro Cuore, ITALY

**1CO.5.1**

**PENNYCRESS (THLASPI ARVENSE) A NEW NON-FOOD CROPS FOR OIL-BASED BIOFUEL PRODUCTION IN EUROPE AND USA**

Federica ZANETTI, Università degli Studi di Bologna, DIPSA, ITALY  
Co-authors: T. Isbell, R. Evangelista, ARS-USDA, PEORIA, Usa; E. Alexopoulou, CRES, ATHENS, Greece; R. Gesch, USDA-ARS-NCSCRL, MORRIS, Usa; A. Monti, DIPSA, Università degli Studi di Bologna, Italy

**1CO.5.2**

**COLD-TOLERANT FORAGE SORGHUM AS A POTENTIAL BIOENERGY FEEDSTOCK IN NORTH CENTRAL US**

Marisol BERTI, North Dakota State University, Plant Sciences Dpt., USA  
Co-authors: S. Podder, S. Cabello, B. Andersen, D.P. Samarappuli, A. Peterson, J. Anderson, North Dakota State University, Fargo, Usa

**1CO.5.3**

**SOWING DATES EFFECT ON CAMELINA GROWTH IN DIFFERENT EU CLIMATIC ZONES**

Myrsini CHRISTOU, Center for Renewable Energy Sources and Saving, Biomass Dpt., GREECE  
Co-authors: E. Alexopoulou, CRES, Pikerimi, Greece; F. Zanetti, D. Righini, A. Monti, UNIBO, Bologna, Italy; M. Krzyzaniak, M. Stolarski, UWM, Olztyń, Poland

**1CO.5.4**

**MISCANTHUS FOR BIOGAS PRODUCTION: OPTIMAL HARVEST DATE AND ENSILING**

Anja MANGOLD, University of Hohenheim, Biobased Products and Energy Crops, GERMANY  
Co-authors: I. Lewandowski, A. Kiesel, University of Hohenheim, Stuttgart, Germany; J. Clifton-Brown, JP. McCalmont, Aberystwyth University, United Kingdom; J. Krzyzak, M. Pogrzeba, Institute for Ecology of Industrial Areas, Katowice, Poland

**1CO.5.5**

**THE ENVIRONMENT, ENERGY AND ECONOMIC BENEFITS OF USING ENERGY CROPS AS A STRATEGY FOR REMEDIATING CONTAMINATED LANDS**

Andrew WELFLE, University of Manchester, UNITED KINGDOM  
Co-authors: M Röder, P Thornley, University of Manchester, United Kingdom

13:30 - 15:00

**ORAL SESSION 4CO.6**

**Assessing the role and impact of biobased applications**

Room: AUDITORIUM 11+12

**CHAIRPERSONS:**

**Ioanna MOURATIADOU**, Utrecht University, THE NETHERLANDS  
**Luc PELKMANS**, CAPREA Sustainable Solutions, BELGIUM

**4CO.6.1**

**THE CHALLENGE OF BIOMASS QUANTIFICATION FOR THE EMERGING BIO-BASED INDUSTRY**

Claudia PARISI, European Commission Joint Research Centre, D4 - Economics of Agriculture, SPAIN  
Co-authors: T. Ronzon, P. Gurriá Albusac, R. M'Barek, EC-JRC, Seville, Spain

**4CO.6.2**

**FROM STRATEGY TO PRACTICE: THE ROLE OF BIO-REFINERIES AND CASCADING IN REGIONAL BIOECONOMY CLUSTERS COMPARED TO STRATEGIES AND PROJECTIONS**

Paul STEGMANN, Utrecht University, Copernicus Institute for Sustainable Development, THE NETHERLANDS  
Co-authors: M. Junginger, M. Londo, Utrecht University, The Netherlands

**4CO.6.3**

**HOW WELL ARE THE EARLY-STAGE ENVIRONMENTAL ASSESSMENT METHODS IN DEVELOPING NOVEL BIO-BASED CHEMICALS?**

Li SHEN, Utrecht University, Copernicus Institute of Sustainable Development, THE NETHERLANDS  
Co-authors: C. Fernandez-Dacosta, Copernicus Institute of Sustainable Development, Group Energy and Resources, Utrecht University, The Netherlands; P. Wassenaar, M. Zijp, E. Heugens, National Institute for Public Health and the Environment, Bilthoven, The Netherlands; I. Dencic, A. Morao, Corbion B.V., Gorinchem, The Netherlands

**4CO.6.4**

**THE ROLE OF RENEWABLE JET FUEL IN THE BIO-ECONOMY: THE TECHNO-ECONOMIC FEASIBILITY OF RENEWABLE JET FUEL AND ITS POTENTIAL TO REDUCE THE CLIMATE IMPACTS OF AVIATION**

Martin JUNGINGER, Utrecht University, Copernicus Institute, THE NETHERLANDS  
Co-authors: S. de Jong, R Hoefnagels, Utrecht University, The Netherlands; A. Faaij, University of Groningen, The Netherlands

**4CO.6.5**

**OVERVIEW AND CURRENT STATUS OF EU FUNDED ACTIONS ON BIO-FUELLED HEATING AND COMBINED HEATING & POWER WITHIN THE ENERGY CHALLENGE OF HORIZON 2020**

Daniel MARAVER DE LEMUS, European Commission - INEA, H2020 Energy Research, BELGIUM

13:30 - 15:00

**ORAL SESSION 3CO.7**

**Pretreatment of lignocellulosic biomass for bio-alcohols**

Room: 20

**CHAIRPERSONS:**

**Ines DEL CAMPO**, CENER, SPAIN  
**Jan LINDSTEDT**, Lindab Sweden, SWEDEN

**3CO.7.1**

**EXPLOSIVE DECOMPRESSION PRETREATMENT - NITROGEN OR FLUE GAS?**

Merlin RAUD, Estonian University of Life Sciences, Institute of Technology, ESTONIA  
Co-authors: V. Rooni, T. Kikas, Estonian University of Life Sciences, Tartu, Estonia

**3CO.7.3**

**EXTRACTION OF ARABINOXYLANS FROM BREWER'S SPENT GRAIN THROUGH ALKALINE PRETREATMENT AT ATMOSPHERIC PRESSURE**

Lilia ROJAS, National University of Colombia, COLOMBIA

Co-authors: L. Rojas Lilia, P. Narváez Paulo, Universidad Nacional de Colombia, Bogotá; B. Quevedo Balkys, Pontificia Universidad Javeriana, Bogotá, Colombia

**3CO.7.4**

**ON THE ASSESSMENT OF PRETREATMENT-DEPENDENT PHYSICO-CHEMICAL PROPERTIES, AND THEIR LINK WITH ENZYMATIC DIGESTIBILITY: A MULTI-SCALE APPROACH**

Joël PASSICOUSSET, IFPEN, Physics and Analyses, FRANCE

Co-authors: S. Humbert, N. Charon, C. Loustau-Cazalet, D. Hudebine, N. Lopes-Ferreira, IFP Energies nouvelles, Solaize, France; M.-F. Devaux, F. Guillon, INRA, BIA UR 1268, Nantes, France

**3CO.7.5**

**IMPACT OF THE EXPLOSIVE DECOMPRESSION DURING STEAM EXPLOSION PRETREATMENT OF WHEAT STRAW**

Charlotte LOUSTAU CAZALET, IFP Energies nouvelles - établissement de Lyon, FRANCE

Co-authors: D. Hudebine, S. Humbert, IFP Energies Nouvelles, Solaize, France; A. Richel, Gembloux Agro-Bio Tech, Belgium; C. Chirat, Grenoble INP - LGP2, Grenoble, France

13:30 - 15:00

**ORAL SESSION ICO.8**

**An industrial approach to thermochemical biomass conversion**

Room: 19

**CHAIRPERSONS:**

**Björn FREDRIKSSON MÖLLER**, E.ON Gasification Development, SWEDEN

**Vann BUSH**, Gas Technology Institute, USA

**ICO.8.1**

**COMPACT GASIFICATION AND SYNTHESIS PROCESS FOR TRANSPORT FUELS**

Johanna KIHLMAN, VTT, FINLAND

Co-authors: P. Simell, S. Tuomi, E. Kurkela, C. Frilund, VTT, Espoo, Finland; T. Böltken, Inertaec, Kralstube, Germany; H. Balzer, GKN, RADEVORMWALD, Germany; J. Hasek, UniCRE, Litvinov, Czech Republic; U. Dietrich, DLR, Stuttgart, Germany; V. Tota, Wood, Milano, Italy; V. Hankalin, ÅF, Espoo, Finland

**ICO.8.2**

**THE DALL ENERGY BIOMASS GASIFIER**

Jens Dall BENTZEN, Dall Energy, R&D, DENMARK

**ICO.8.3**

**NUMERICAL ANALYSIS OF A COMBINED HEAT AND POWER GENERATION TECHNOLOGY FROM RESIDUAL BIOMASSES**

Carmine CAPUTO, Istituto Motori - Consiglio Nazionale delle Ricerche, ITALY

Co-authors: M. Costa, D. Piazzullo, Istituto Motori - CNR, Naples, Italy; C. Caputo, University of Rome "Tor Vergata", Rome, Italy; M. La Villetta, D. Cirillo, CMD, San Nicola La Strada, Italy

**ICO.8.4**

**AUTARKIC CONVERSION OF WOODY BIOMASS TO BIOCHAR VIA PYREG TECHNOLOGY**

Kevin FRIEDRICH, PYREG, GERMANY

Co-authors: S. Friedrich, H. Gerber, PYREG, Dörth, Germany

**ICO.8.5**

**EVALUATION OF UTILISING INGELIA HYDROCHAR PRODUCED FROM ORGANIC RESIDUES FOR BLAST FURNACES INJECTION - COMPARISON WITH ANTHRACITE AND BITUMINOUS COAL**

Andrea SALIMBENI, INGELIA SL, SPAIN

Co-authors: C. Wang, MEFOS, Lulea, Sweden; M. Hitzl, INGELIA S.L., M. Hernandez, INGELIA S.L., Valencia, Spain; G. Wang, University of Science and Technology Beijing, Beijing, P.R. China

13:30 - 15:00

**VISUAL PRESENTATIONS 3CV.3**

**Optimisation of pyrolysis processes and pyrolysis products**

See page 77

13:30 - 15:00

**VISUAL PRESENTATIONS 2CV.4**

**Progresses in gasification for synthesis gas production**

See page 79

13:30 - 16:45

**WORKSHOP**

**BIOENERGY TOWARDS 2030**

See page 110

15:00 - 15:15

**BREAK**

15:15 - 16:45

**ORAL SESSION 1CO.9**

**Energy crops production: challenges and opportunities**

Room: AUDITORIUM 10

**CHAIRPERSONS:**

**Myrsini CHRISTOU**, Center for Renewable Energy Sources and Saving, GREECE

**Marisol BERTI**, North Dakota State University, USA

**1CO.9.1**

**MARGINAL LAND FOR GROWING INDUSTRIAL CROPS: TURNING A BURDEN INTO AN OPPORTUNITY**

Efthymia ALEXOPOULOU, Center for Renewable Energy Sources, Biomass Dpt., GREECE

Co-authors: A. Monti, F. Zanetti, Università degli Studi di Bologna, Italy; M. Christou, CRES, PIKERMI, Greece

**1CO.9.2**

**PHYTOREMEDIATION POTENTIAL OF HEAVY METAL CONTAMINATED SOILS BY THE PERENNIAL ENERGY CROPS MISCANTHUS SPP. AND ARUNDO DONAX L. UNDER LOW IRRIGATION**

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

Co-authors: B. Barbosa, FCT NOVA and Universidade São Paulo, Brazil; S. Boléo, J. Costa, FCT NOVA, Caparica, Portugal; S. Sidella, S.L. Cosentino, Università di Catania, Italy

**1CO.9.3**

**SUMMER HARVESTS GREATLY INCREASE THE NITROGEN UPTAKE OF THE ENERGY GRASS GIANT REED**

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

Co-authors: S. Chianchetta, S. Galletti, CREA-AA, Bologna, Italy

**1CO.9.4****BELOWGROUND CARBON STORAGE OF PERENNIAL ENERGY CROPS: IMPLICATIONS FOR RE-CONVERSION TO ARABLE LAND**

Andrea FERRARINI, Università Cattolica del Sacro Cuore, Department of Sustainable Crop Production, ITALY  
Co-authors: E. Martani, P. Serra, S. Amaducci, Università Cattolica del Sacro Cuore, Piacenza, Italy

**1CO.9.5****JATROPHA CULTIVATION IN NORTH AFRICAN COUNTRIES: RESULTS OF JATROMED PROJECT**

Eleni G. PAPAZOGLU, Agricultural University of Athens, Crop Science Dpt., GREECE  
Co-authors: R. Ait Babahmad, A. Ouhammou, A. Outzourhit, Centre de Développement de la Région de Tensift, Marrakech, Morocco; M. Rashad, City for Scientific Research and Technology Applications, Borg El Arab, Egypt; A. Bouhdjar, A. Sadi, Centre de Développement des Energies Renouvelables, Algeria; K.G. Serelis, Agricultural University of Athens, Greece

15:15 - 16:45

**ORAL SESSION 4CO.10****Applied sustainability criteria in Europe**

Room: AUDITORIUM 11+12

**CHAIRPERSON:**

Francis X. JOHNSON, Stockholm Environment Institute, SWEDEN

**4CO.10.1****TOWARDS EU--WIDE HARMONISED SUSTAINABILITY REQUIREMENTS AND CERTIFICATION FOR ALL BIOENERGY SECTORS: TRANSPORT, ELECTRICITY AND HEAT**

Thuy MAI-MOULIN, Copernicus Institute of Sustainable Development, Energy & Resources, THE NETHERLANDS  
Co-authors: R. Hoefnagels, M. Londo, M. Junginger, Utrecht University, The Netherlands

**4CO.10.2****THE BABET REAL 5 PROJECT - SETTING THE SCENE FOR A REALLY SUSTAINABLE SECOND GENERATION (2G) BIOETHANOL PRODUCTION IN BAVARIA**

Ingo BALL, WIP Renewable Energies, Unit Bioenergy & Bioeconomy, GERMANY  
Co-authors: R. Janssen, D. Rutz, WIP Renewable Energies, Munich, Germany

**4CO.10.3****MULTI-CRITERIA ASSESSMENT OF SUSTAINABILITY ASPECTS OF BIOENERGY FROM CONTAMINATED LAND IN THE UK**

Patricia THORNLEY, SUPERGEN Bioenergy Hub, UNITED KINGDOM  
Co-authors: M. Röder, A. Welfle, Supergen Bioenergy Hub, Manchester, United Kingdom

**4CO.10.4****ON THE ENVIRONMENTAL IMPACTS OF FOOD WASTE: CASE STUDY RESULTS AND LCA METHODOLOGICAL CHALLENGES**

Davide TONINI, European Commission, Joint Research Centre, SPAIN  
Co-author: Thomas Astrup, DTU, Lyngby, Denmark

**4CO.10.5****GOVERNANCE OF SUSTAINABILITY DURING THE DIFFERENT MARKET PHASES OF GERMAN BIOGAS SECTOR DEVELOPMENT**

Thomas HORSCHIG, DBFZ-German Biomass Research Centre, Bioenergy Systems Dpt., GERMANY  
Co-author: D. Thrän, Helmholtz Centre for Environmental Research UFZ, Leipzig, Germany

15:15 - 16:45

**ORAL SESSION 3CO.11****Bioprocess design for bio-alcohols production**

Room: 20

**CHAIRPERSONS:**

Henning JORGENSEN, University of Copenhagen, DENMARK

Xin LU, Northwest A&amp;F University, P.R. CHINA

**3CO.11.1****DEVELOPMENT OF CHROMOGENIC TRUE-TO-NATURE BIOMASS SUBSTRATES FOR BIOCONVERSION PROCESS OPTIMIZATION**

Stjepan Kresimir KRACUN, GlycoSpot, R&amp;D, DENMARK

**3CO.11.2****SUSTAINABILITY ANALYSIS OF BIOREFINING SCHEMES FOR REVALORIZATION OF TEQUILA INDUSTRY RESIDUES AND WASTES**

Arturo SANCHEZ, Centro de Investigacion y de Estudios Avanzados del IPN, Bioenergy Futures Laboratory, MEXICO

Co-authors: S. Sanchez, P. Dueñas, Centro de Investigación y Estudios Avanzados (CINVESTAV), Zapopan, Mexico

**3CO.11.3****EFFECT OF BARK CONTENT ON ETHANOL PRODUCTION FROM SPRUCE FOREST RESIDUES - A COMPARATIVE TECHNO-ECONOMIC ANALYSIS**

Balazs FRANKO, Lund University, Department of Chemical Engineering, SWEDEN

Co-authors: M. Galbe, O. Wallberg, Lund University, Sweden

**3CO.11.4****IMPROVEMENT OF BREWER'S SPENT GRAIN FERMENTATION BY CLOSTRIDIUM BEIJERINKII DSM 6422 BY IN SITU PRODUCT RECOVERY**

Maria Teresa GARCIA-CUBERO, University of Valladolid, Chemical Engineering & Environmental Technology, SPAIN

Co-authors: E. Rochón, C. Lareo, University of La República, Montevideo, Uruguay; P.E. Plaza, M. Coca, S. Lucas, M.T. García-Cubero, University of Valladolid, Spain

**3CO.11.5****SCALING-UP LIGNOCELLULOSIC BUTANOL PRODUCTION (BUTANEXT)**

Ines DEL CAMPO, CENER, Biomass Energy Dpt., SPAIN

Co-authors: I. Alegria, M. Munarriz, CENER, Sarriguren, Spain; T. Davies, H. Smith, Greenbiologics, Oxford, United Kingdom; A. Pallares, C. Garcia, Tecnicas Reunidas, Madrid, Spain; P. Ihalainen, MetGen, Kaarina, Finland; H. De Wever, W. Van Hecke, VITO, Belgium; M. Lapuerta, D. Fernandez, UCLM, Ciudad Real, Spain; L. German, E4tech, London, United Kingdom; J. Etanxiz, CTECH, Chester, United Kingdom; J. Sancíñena, Zabala Innovation, Pamplona, Spain; G. Corradino, V. Mazzagatti, Greenovate, Brussels, Belgium

15:15 - 16:45

**ORAL SESSION ICO.12****Mobilizing biomass: removal, trade and impact**

Room: 19

**CHAIRPERSONS:**

Gustav MELIN, Managing Director, Svebio, SWEDEN

Krzystian BUTLEWSKI, Institute of Technology and Life Sciences, Biomass Processing Technologies Dpt., POLAND

**ICO.12.1****BRINGING AGRO-BIOMASS TO REALITY: KEYS FOR NEW SUSTAINABLE VALUE CHAINS BASED ON AGRICULTURAL PRUNING AND PLANTATION REMOVAL BIOMASS**

Emmanouil KARAMPINIS, Centre for Research and Technology Hellas, Chemical Process and Energy Resources Institute, GREECE

Co-authors: D. García-Galindo, A. Rezeau, CIRCE, Zaragoza, Spain; M. Kougioumtzis, CERTH, Athens, Greece

**ICO.12.2**

**A BIOMASS TRADE LOGISTIC CENTRE FOR BIOMASS FROM LANDSCAPE MANAGEMENT - A CASE STUDY IN THE TRASIMENO REGION (ITALY)**

Klaus LENZ, Syncom F&E Beratung, Research & Development Consulting, GERMANY  
Co-authors: F.D. Filippi, A. Mazzari, Sogesca, Rubano, Italy; L. Montagnoli, CMT, Magione, Italy

**ICO.12.3**

**UTILIZATION OF WOOD RESOURCES IN BIOMASS HEAT AND POWER PLANTS IN THE CONTEXT OF MARKET DEVELOPMENTS**

Udo MANTAU, INFRO, GERMANY  
Co-authors: C.B. Blanke, P.D. Döring, INFRO, Hamburg, Germany; S.G. Glasenapp, Thünen Institut, Hamburg, Germany

**ICO.12.4**

**MAXIMIZING UTILIZATION OF WESTERN NORWAY'S WASTE RESOURCES - ADDITION OF AQUACULTURE WASTE INTO THE ANAEROBIC DIGESTION OF MUNICIPAL SEWAGE SLUDGE**

Maria Magdalena ESTEVEZ, Aquateam COWI, NORWAY  
Co-authors: H.E. Hatland, K. Akervold, Bergen Municipality, Norway; R. Tomczak-Wandzel, Aquateam COWI, Oslo, Norway; O. Tornes, IVAR IKS, Stavanger, Norway

**ICO.12.5**

**INNOVATIVE DOUBLE LOOP BIOGAS DIGESTATE HANDLING**

Knud TYBIRK, Samsø Biogas, DENMARK  
Co-authors: G. Mikkelsen, Samsø Municipality, Denmark; G. Quinta, Århus University, Brazil

15:15 - 16:45

**VISUAL PRESENTATIONS 2CV.5**

**Anaerobic digestion and biogas production**

See page 81

15:15 - 16:45

**VISUAL PRESENTATIONS 3CV.6**

**Hydrothermal liquefaction of different biomass feedstocks**

See page 83

16:45 - 17:00

**BREAK**

17:00 - 18:30

**ORAL SESSION 2CO.13**

**Production and supply of solid biofuels**

Room: AUDITORIUM 10

**CHAIRPERSONS:**

**Juan Esteban CARRASCO**, CIEMAT, SPAIN  
**Janet WITT**, DBFZ-German Biomass Research Centre, GERMANY

**2CO.13.1**

**1D MODEL FOR INVESTIGATION OF ENERGY CONSUMPTION AND WEAR IN DIE DESIGNS USED FOR BIOMASS PELLETING**

Simon Klinge NIELSEN, Andritz Feed & Biofuel, DENMARK  
Co-authors: M. Mandø, Aalborg University, Esbjerg, Denmark; A.B. Rosenørn, Andritz Feed & Biofuel, Esbjerg, Denmark

**2CO.13.2**

**PREDICTION AND CONTROL OF BIOFUELS QUALITY USING A MATHEMATICAL MODELLING OF DENSIFICATION PROCESS**

Peter KRIŽAN, Slovak University of Technology in Bratislava, Faculty of Mechanical Engineering, Institute of Manufacturing Systems, Environmental Technology & Quality Management, SLOVAK REPUBLIC  
Co-authors: M. Matúš, M. Svátek, L. Šooš, J. Beniák, FME STU in Bratislava, Slovak Republic

**2CO.13.3**

**EUBCE STUDENT AWARDEE PRESENTATION**

**WET GRANULATION METHOD TO IMPROVE THE FLOWABILITY OF COHESIVE BIOMASS POWDERS**

Clement VANNESTE-IBARCO, CEA, Liten - Bioresources preparation laboratory, FRANCE  
Co-authors: T. Melkior, M. Gonzalez-Martinez, CEA, Grenoble, France; A. de Ryck, Ecole des Mines, Albi, France

**2CO.13.4**

**EFFECT OF MECHANICAL STRESS FROM THE GRINDING DEVICE ON BIOMASS POWDER PROPERTIES AND ON ENERGY CONSUMPTION**

Karine RAJAONARIVONY, FRANCE  
Co-authors: X. Rouau, F. Mabilie, C. Mayer-Laigle, INRA, Montpellier, France

**2CO.13.5**

**THE ROLE OF INORGANIC MATTER IN BIOMASS SELF-IGNITION**

Lars SCHWARZER, Technical University of Denmark, Chemical and Biochemical Engineering Dpt., DENMARK  
Co-authors: P.A. Jensen, P. Glarborg, K. Dam-Johansen, DTU Kemiteknik, Kongens Lyngby, Denmark; J.K. Holm, Ørsted, Fredericia, Denmark

17:00 - 18:30

**ORAL SESSION 4CO.14**

**Beyond sustainability criteria in bioenergy and bioeconomy**

Room: AUDITORIUM 11+12

**CHAIRPERSONS:**

**Alexa LUTZENBERGER**, ALRENE, GERMANY  
**Patricia THORNLEY**, SUPERGEN Bioenergy Hub, UNITED KINGDOM

**4CO.14.1**

**BIOENERGY AND THE UN SUSTAINABLE DEVELOPMENT GOALS**

Birka WICKE, Utrecht University, Copernicus Institute of Sustainable Development, THE NETHERLANDS  
Co-authors: J.D. van Leeuwen, Utrecht University, The Netherlands; V. Daioglou, Netherlands Environmental Assessment Agency, Den Haag, The Netherlands

**4CO.14.2**

**THE EFFECTIVENESS AND LEGITIMACY OF NOVEL REGIONAL AND LANDSCAPE-BASED APPROACHES TO GOVERN THE SUSTAINABILITY OF BIOENERGY AND BIOMATERIALS SUPPLY CHAINS**

Jinke VAN DAM, Jinke van Dam Consultancy, THE NETHERLANDS  
Co-authors: R. Diaz-Chavez, Stockholm Environmental Institute, Nairobi, Kenya; I. Stupak, University of Copenhagen, Denmark; T. Smith, University of Toronto, Canada

**4CO.14.3**

**GAPS AND RESEARCH DEMAND ANALYSIS FROM CURRENT CERTIFICATION AND STANDARDISATION IN A SUSTAINABLE BIOBASED ECONOMY**

Stefan MAJER, DBFZ-German Biomass Research Centre, Biofuels Dpt., GERMANY  
Co-authors: D.M. Moosmann, S.W. Wurster, L.L. Ladu, DBFZ, Leipzig, Germany; D.T. Thrän, UFZ, Leipzig, Germany

**4CO.14.4**

**BEYOND JOB CREATION. SOCIO-ECONOMIC ASSESSMENT IN THE BIOECONOMY**

Rocio DIAZ-CHAVEZ, Stockholm Environment Institute - Africa Centre c/o World Agroforestry Centre (ICRAF), Centre for Environmental Policy, KENYA

4CO.14.5

**BIOMASS SUPPLY CHAINS DEVELOPMENT IN RURAL AREAS: HOW TO TAKE PUBLIC STAKEHOLDERS' NEEDS AND EXPECTATIONS INTO ACCOUNT?**

Lucile GODARD, Agro-Transfert Ressources et Territoires, FRANCE  
Co-authors: M. Delesalle, H. Preudhomme, Agro-Transfert Ressources et Territoires, Estrées-Mons, France

17:00 - 18:30

**ORAL SESSION 3CO.15**

**Catalytic pyrolysis**

Room: 20

**CHAIRPERSONS:**

**Samir BINDER**, Fraunhofer-Institut UMSICHT, GERMANY  
**Thomas FOUST**, National Renewable Energy Laboratory, USA

3CO.15.1

**PRODUCING ADVANCED FAST PYROLYSIS BIO-OILS BY EX-SITU CATALYTIC VAPOUR REFORMING**

Tim SCHULZKE, Fraunhofer-Institut UMSICHT, Biorefinery and Biofuels Dpt., GERMANY  
Co-authors: S. Conrad, V. Heil, Fraunhofer UMSICHT, Oberhausen, Germany

3CO.15.2

**HYDROGEN ASSISTED CATALYTIC BIOMASS PYROLYSIS FOR GREEN FUELS**

Magnus Zingler STUMMANN, Technical University of Denmark, Department of Chemical and Biochemical Engineering, DENMARK  
Co-authors: M. Høj, P. Jensen, A. Jensen, DTU Chemical Engineering, Denmark; J. Gabrielsen, Haldor Topsøe A/S, Denmark

3CO.15.3

**INSIGHT INTO CATALYTIC IN-SITU CO/PYROLYSIS OF BIOMASS POWDER AND BIO-OIL AS HYDROGEN DONOR UNDER PY-GC/MS**

ISAAC YEBOAH, NTNU, 7049, NORWAY  
Co-authors: K.R Rout, Sintef, Trondheim, Norway; G Fan, C.G. Van der Wijst, De Chen, NTNU, Trondheim, Norway

3CO.15.4

**CATALYTIC CO-PYROLYSIS OF BIOMASS AND PLASTICS OVER MICROPOROUS AND MESOPOROUS CATALYSTS USING A TANDEM MICRO REACTOR-GC/MS**

Michael SOLL, Frontier Laboratories Europe, Business Development, GERMANY  
Co-authors: Y.K. Kim, Hallym University, Korea; I.W. Watanabe, Frontier Laboratories, Koriyama, Japan; Y-K. Park, University of Seoul, Korea

3CO.15.5

**EFFECT OF REFORMING CONDITIONS IN THE CATALYST DEACTIVATION IN THE PYROLYSIS-REFORMING OF BIOMASS FOR HYDROGEN PRODUCTION**

Aitor ARREGI, University of the Basque Country, Chemical Engineering Dpt., SPAIN  
Co-authors: M. Amutio, J. Alvarez, I. Barbarias, L. Santamaria, M. Cortazar, E. Fernandez, M. Olazar, University of the Basque Country (EHU/UPV), Bilbao, Spain

17:00 - 18:30

**ORAL SESSION ICO.16**

**Mobilizing biomass: quantities and quality assessment in practice**

Room: 19

**CHAIRPERSONS:**

**Remigijus LAPINSKAS**, World Bioenergy Association, SWEDEN  
**Jean-Michel LAVOIE**, Université de Sherbrooke, Chemical Engineering Dpt., CANADA

ICO.16.1

**CAN BIOMASS YIELD MODELS DEVELOPED IN EAST GERMANY PRODUCE RELIABLE ESTIMATIONS FOR COMMERCIAL WILLOW PLANTATIONS IN LITHUANIA?**

Edgaras LINKEVICIUS, Aleksandras Stulginskis University, Faculty of Forestry and Ecology, LITHUANIA  
Co-authors: J. Schröder, Brandenburg State Forestry Center of Excellence, Eberswalde, Germany; H. Röhle, Technische Universität Dresden, Tharandt, Germany; T. Nalivaika, JSC Klasmann-Deilmann Bioenergy, Traksedžiū km. Šilutes r., Lithuania

ICO.16.3

**REMOTE SENSING SYSTEMS FOR ESTIMATING WOOD ENERGY FROM CHESTNUT ORCHARDS**

Carla NATI, National Research Council, Ivalsa, ITALY  
Co-authors: S.F. Di Gennaro, A. Matese, CNR-Ibimet, Florence, Italy; A. Berton, CNR-Irc, Pisa, Italy; N. Brachetti Montorselli, CNR-Ivalsa, Sesto Fiorentino, Italy

ICO.16.4

**REDUCING UNCERTAINTY ON WATER CONTENT IN WOOD CHIPS BY NEW MEASUREMENTS METHODS**

Anne Mette FREY, Danish Technological Institute, Biomass and combustion technology, DENMARK  
Co-authors: M. Gottlieb Jespersen, J. Hinderskov Jensen, P. Friis Østergaard, J. Nielsen, H. Kjeldsen, Danish Technological Institute, Aarhus, Denmark

ICO.16.5

**NEW BIOMASS SAMPLING METHODOLOGY FOR OPTIMIZING THE COMBUSTION PROCESS AND ENSURING STABLE BIOASH QUALITY**

Henning HORN, Treteknisk, NORWAY  
Co-authors: R.S. Aanerød, Norwegian Institute of Wood Technology, Oslo, Norway; K.H. Esbensen, KHE Consulting, Copenhagen, Denmark; J. Dibdiakova, Norwegian Institute of Bioeconomy Research, Ås, Norway; H Omholt, Bergene Holm AS, Hof, Norway

17:00 - 18:30

**VISUAL PRESENTATIONS 2CV.7**

**Biogas treatment and upgrading**

See page 85

17:00 - 18:30

**VISUAL PRESENTATIONS 1CV.8**

**Evaluations of biomass potentials for the biobased economy**

See page 86

20:00

EUBCE Dinner