Program

BioEnergy IV:

Innovations in Biomass Conversion for Heat & Power, Fuels and Chemicals

June 9-14, 2013
Basiliani Resort, Otranto, ITALY

Conference Co-Chairs:

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Engineering Conferences International (ECI) is a not-for-profit global engineering conferences program, originally established in 1962, that provides opportunities for the exploration of problems and issues of concern to engineers and scientists from many disciplines.

Sunday, June 9, 2013

16:00 – 18:00	Conference check-in
17:00 – 18:00	Organizing Committee Meeting
18:00 – 19:30	Welcome Reception
20:00 – 21:30	Opening Remarks and Dinner

NOTES

- *Audiotaping, videotaping and photography of presentations are prohibited.*
- *Speakers – Please have your presentation loaded onto the conference computer prior to the session start (preferably the day before).*
- *Speakers – Please leave at least 5 minutes for questions and discussion.*
- *Please do not smoke at any conference functions.*
- *Turn your cellular telephones to vibrate or off during technical sessions.*
- *Technical and poster sessions will be in the Conference Center.*
- *Meals will be in the restaurant. If weather permits, lunches and coffee breaks may be outside.*
- *Be sure to check your contact information on the Participant List in this program and make any corrections to your name/contact information online. A corrected copy will be sent to all participants after the conference.*
- *There will be organized excursions by bus to visit interesting sites along the cost of the Salento, as well as to visit olive oil and wine production facilities in the region.*

Monday, June 10, 2013

07:30 – 08:30	Breakfast
08:30 – 08:45	Welcome and Conference Overview
08:45 – 09:15	**PLENARY** – **Intermediate Pyrolysis as an Alternative to Fast Pyrolysis** Andreas Hornung, Aston University (EBRI and Fraunhofer)

PYROLYSIS

09:15 – 09:30	**Catalytic pyrolysis of forest thinnings in a circulating fluidized bed reactor** Ville Paasikallio, VTT
09:30 – 09:45	**Improved oil properties by pyrolysis of demineralized biomass for the production of sugars and fuels** Roel Westerhof, Western University (ICFAR)
09:45 – 10:00	**Secondary vapor phase reactions of lignin derived oligomers obtained by fast pyrolysis of pine wood** Manuel Garcia-Perez, Washington State University
10:00 – 10:15	**Experimental and modeling study of the gasification of char from millimetric wood chips pyrolysis** Santiago Septien Stringel, CNRS
10:15 – 10:45	Coffee Break
10:45 – 11:00	**Optimization of the pyrolysis operating conditions to produce value-added compounds at high yield from coffee bean residue** Mohammad M. Hossain, Western University (ICFAR)
11:00 – 11:15	**Fast pyrolysis of four Canadian waste biomass using a mobile unit at different temperatures and characterization of pyrolysis products** Ajay Dalai, University of Saskatchewan
11:15 – 11:30	**Novel ICFAR solids feeder for pyrolysis and other applications - Experimental results, characterization, sequential modelling and optimization** Federico Matthew Berruti, Western University (ICFAR)
11:30 – 11:45	**A CFD study of gas-solid separation in a downer pyrolysis reactor: An eulerian-eulerian approach** Xi Yu, Aston University
11:45 – 12:00	**A strategy for kinetic parameter estimation in the pyrolysis of lignin** Raffaella Ocone, Heriot-Watt University
12:00 – 12:15	**Evaluation of tucumã endocarp (astrocaryum aculeatum) as a new biomass resource for application in thermal conversion processes** Katia Tannous, University of Campinas
12:15 – 12:30	**Mixing and operability characteristics of mechanically fluidized reactors for the pyrolysis of biomass** Valentina Lago, Western University (ICFAR)

Monday, June 10, 2013 (continued)

13:00 – 14:00	Lunch
14:00 – 17:30	Free time /*ad hoc* sessions
17:30 – 18:00	Afternoon Refreshments
18:00 – 18:15	**Low temperature co-pyrolysis of polypropylene and coffee wastes to fuels** Paolo Canu, University of Padua
18:15 – 18:30	**Biomass liquefaction for the production of transportation fuels** Guus van Rossum, University of Twente
18:30 – 18:45	**Production of biocoal from fast pyrolysis char** Anastasia Colomba, Western University (ICFAR)
18:45 – 19:00	**Effects of secondary char formation during biomass pyrolysis on properties of biochar** Ondrej Masek, University of Edinburgh
19:00 – 19:15	**Distributed Microwave Pyrolysis of Domestic Organic Waste** Jamal Chaouki, Ecole Polytechnique
19:15 – 19:30	**Torrefaction of wood and its constituents: Experiments and modelling of co-products for green chemistry application** Elvira Rodriguez, CEA
20:00 – 21:15	Dinner
21:15 – 22:30	Poster Session with Social Hour (Poster presentations of Monday's talks)

Tuesday, June 11, 2013

07:30 – 08:30	Breakfast
08:30 – 09:00	**PLENARY – A Review of Microwave Pyrolysis of Biomass and Waste for the Production of Energy and Fuels** Jamal Chaouki, Polytechnique Montreal

COMBUSTION AND GASIFICATION

09:00 – 09:15	**Gasification of a municipal solid waste in a pilot scale bubbling fluidized bed reactor** Umberto Arena, Second University of Naples
09:15 – 09:30	**Biomass self-gasification,** Guus van Rossum, University of Twente
09:30 – 09:45	**Modeling and simulation of biomass thermal conversion to hydrogen-rich gas in a short circulating fluidized bed riser** Yassir Makkawi, Aston University
09:45 – 10:00	**Clean hydrogen rich gas from catalytic steam gasification of biomass** Sergio Rapagnà, University of Teramo
10:00 – 10:30	Coffee Break
10:30 – 10:45	**Supercritical water gasification of aqueous biomass and waste for the production of CH4 and H2** Izad Behnia, Western University (ICFAR)
10:45 – 11:00	**Development of fluidized bed TGA: Application on biomass gasification** Jamal Chaouki, Polytechnique Montreal
11:00 – 11:15	**External superheating in biomass power plants with pebble bed regenerators** Robert Daschner, Fraunhofer UMSICHT
11:15 – 11:30	**Fuel staging in biomass heating systems – A primary measure to reduce NOx emissions** Martin Meiller, Fraunhofer UMSICHT
11:30 – 11:45	**A new inductively heated mini reactor for biomass pyrolysis and gasification tests** Cedric Briens, University of Western Ontario, Canada
11:45 – 12:00	**Effect of the spatial and fluidization velocities on the performance of a fluidized bed reactor for the catalytic steam reforming of bio-oil** Javier Remón, University of Zaragoza
12:00 – 12:15	**Kinetic behaviour of biomass mixtures during torrefaction and steam gasification** Elvira Rodriguez, CEA
12:30 – 13:30	Lunch

<u>Tuesday, June 11, 2013</u> (continued)

13:30 – 17:45	Free time /*ad hoc* sessions
17:45 – 18:00	Afternoon Refreshments

UPGRADING

18:00 – 18:15	**Upgrading fast pyrolysis oil to biofuels via low temperature alcohol stabilization and hydrodeoxygenation** Charles Xu, Western University (ICFAR)
18:15 – 18:30	**Combined pyrolysis and hydrodeoxygenation pathways to produce bio-fuels soluble in (bio) diesel: diesel engine testing** Roel Westerhof, Western University (ICFAR)
18:30 – 18:45	**Hydrodeoxygenation of biofuel-precursors on Ni-promoted catalysts** José F. Cambra, Escuela Tecnica Superior De Ingenieria
18:45 – 19:00	**Green aromatic bulk-chemicals from lignin pyrolysis vapours** Binod Shrestha, CNRS
19:00 – 19:15	**Distillation of bio-oil using heavy crude oil as stabilizer** Alfredo Martinez-Iglesias, Western University (ICFAR)
19:15 – 19:30	**Novel Ni-based catalysts for the hydrotreatment of fast pyrolysis oil** Agnes Ardiyanti, University of Groningen
20:00 – 21:15	Dinner
21:15 – 22:30	Poster Session with Social Hour (Poster presentations of Tuesday's talks)

Wednesday, June 12, 2013

07:30 – 08:30	Breakfast
08:30 – 09:00	**PLENARY – The best approach for the conversion job; biological, thermochemical or both?** David Bressler, University of Alberta

BIOREFINERY AND SUSTAINABILITY

09:00 – 09:15	**Toward the development of green integrated forest biorefinery complex** Tatiana Rafione, Polytechnique Montréal
09:15 – 09:30	**Integration of pyrolysis, char upgrading and anaerobic digestion in a novel bio-refinery concept** Mathew Smith, Washington State University
09:30 – 09:45	**Bioproducts from the Canadian forest** Franco Berruti, Western University (ICFAR)
09:45 – 10:00	**Process optimization for the production of bio-based PF resins using de-polymerized lignin** Homaira Siddiqui, Western University (ICFAR)
10:00 – 10:30	Coffee break
10:30 – 10:45	**Estimation of biomass supply and diesel fuel requirement for co-feeding a bitumen upgrader through 3-stage hauling and pre-processing of biomass** Murlidhar Gupta, CanmetEnergy Natural Resources Canada
10:45 – 11:00	**Sustainability issues regarding bamboo as a renewable feedstock for fuels and materials** Claudia Mercedes Daza Montaño, Energy Research Centre of the Netherlands ECN
11:00 – 11:15	**Lignin rich residues from biomass to chemicals and fuels** Alessandra Bogliano, Chemtex Spa
11:15 – 11:30	**Detoxification of hemicelluloses hydrolysates from kraft mills by membrane extraction** Mariya Marinova, Polytechnique de Montreal
11:30 – 11:45	**In situ synchrotron-based X-ray diffraction and micro-raman study of biomass at hydrothermal conditions** Ajay Dalai, University of Saskatchewan
12:00 – 19:30	Boxed Lunch and All Afternoon Excursion
20:00 – 21:15	Dinner
21:15 – 22:30	Poster Session with Social Hour (Poster presentations of Wednesday's talks and poster-only presentations numbers 1 - 12)

Thursday, June 13, 2013

07:30 – 08:30	Breakfast
08:30 – 09:00	**PLENARY - New biochemical pathways for production of drop-in biofuels** Brigitte Ahring, Washington State University
	BIOCHEMICAL CONVERSION
09:00 – 09:15	**Bioconversion of lignocellulosic hydrolysates: Strategies to overcome the inhibitory effects at high gravity processes** Charilaos Xiros, Chalmers University of Technology
09:15 – 09:30	**Alcohol production from pyrolytic sugars obtained from selective fast pyrolysis of pretreated wood** Luis Luque, Western University (ICFAR)
09:30 – 09:45	**Fermentation performance and proteomic analysis of high local cell density fermentation by encapsulated Saccharomyces Cerevisiae** Carl Johan Franzén, Chalmers University of Technology
09:45 – 10:00	**Utilization of acetic acid-rich pyrolytic bio-oil by microalga chlamydomonas reinhardtii: Reducing bio-oil toxicity and enhancing algal toxicity tolerance** Laura Jarboe, Iowa State University
10:00 – 10:30	Coffee Break
10:30 – 10:45	**Biobutanol production from high sugar content wastewaters** Giuseppe Olivieri, Università degli Studi di Napoli Federico II
10:45 – 11:00	**Preliminary assessments of microalgae direct transesterification for biodiesel production** Giuseppe Olivieri, Università degli Studi di Napoli Federico II
11:00 – 11:15	**Metabolic engineering of clostridium cellulolyticum for advanced biofuel production** Andrea Liedtke, Fraunhofer IME
11:15 – 11:30	**Effect of particle size on enzymatic hydrolysis of pretreated miscanthus** Vijay Singh, University of Illinois
11:30 – 11:45	**Anaerobic digestion of light carboxylic acids derived from the pyrolysis of lignocellulosic materials for methane production** Shi-Shen Liaw, Washington State University
11:45 – 12:00	**Optimizing biomethane production processes through trace elements supplementation** Nwagbo Christpeace Ezebuiro, Hamburg University of Technology
12:00 – 12:15	**Energy efficient biogas upgrading by anaerobic hydrolysis** Samir Binder, Fraunhofer UMSICHT Sulzbach-Rosenberg
13:00 – 14:00	Lunch
14:00 – 18:30	Free time/*ad hoc* sessions

Thursday, June 13, 2013 (continued)

18:30 – 20:00	Poster Session and Social Hour (Poster presentations of Thursday's talks and poster-only presentations numbers 13 - 23)
20:00 – 22:30	Banquet

Friday, June 14, 2013

07:30 – 08:30	Breakfast
	BIODIESEL, VEGETABLE OILS
08:30 – 08:45	**Production of renewable drop-in fuels and chemicals from thermal conversion of non-edible lipids** David Bressler, University of Alberta
08:45 – 09:00	**Biodiesel via catalytic gas phase transestrification in a fluidized bed** Gregory Patience, Polytechnique Montreal
09:00 – 09:15	**A commercial demonstration of biodiesel production with lipase as catalyst** Dehua Liu, Tsinghua University
09:15 – 09:30	**An alternative biodiesel production hidroesterification route from raw macauba (acrocomia aculeata) pulp oil using heterogeneous catalysis** Darlis Varón, Federal University of Rio de Janeiro
09:30 – 09:45	**Ionic liquid based extraction of lipids from micro-algae** Lars Rehmann, Western University (ICFAR)
09:45 – 10:00	**Thermal visbreaking of vegetable oils into non-toxic, renewable lamp oil** Jamie A. Gregory, Western University (ICFAR)
10:00 – 10:30	Coffee Break
10:30 – 10:45	**Ni-functionalized carbon nano-filaments as biodiesel steam reforming catalyst** Nicolas Abatzoglou, Université de Sherbrooke
10:45 – 11:00	**An alternative heterogeneous catalyst method for transesterification of jatropha oil** Eduardo Cavalcanti, National Institute of Technology (INT)
11:00 – 12:00	Poster Session (Posters presentations from Friday's talks)
12:00 – 12:30	**OVERALL DISCUSSION, FEEDBACK, WHAT IS NEXT?** **CONCLUDING REMARKS AND CLOSING OF CONFERENCE**
12:30 – 13:30	Lunch and Departure

Poster List

(5/20/13)

1. **Deacidification process of oils for biodiesel production using ultrasound and microwaves**
   Daria Camilla Boffito, Università degli Studi di Milano

2. **Slow pyrolysis of canola meal: Characterization of bio-char, bio-oil, and syngas produced at different pyrolysis temperatures**
   Ajay Dalai, University of Saskatchewan

3. **Wood pellets treatment through microwave pyrolysis**
   Marco Frediani, University of Florence

4. **Surface chemical composition of oxidized biochars**
   Manuel Garcia-Perez, Washington State University

5. **Effect of sulfuric acid addition on the yield and composition of lignin derived oligomers obtained by the auger and fast pyrolysis of douglas-fir wood**
   Manuel Garcia-Perez, Washington State University

6. **PY-GC/MS studies to evaluate the effect of pyrolysis temperature on the selectivity of thermochemical reactions towards the production of chemicals**
   Manuel Garcia-Perez, Washington State University

7. **Anaerobic digestion of light carboxylic acids derived from the pyrolysis of lignocellulosic materials for methane production**
   Manuel Garcia-Perez, Washington State University

8. **Effect of cellulose crystallinity on the formation of a liquid intermediate and on product distribution during pyrolysis**
   Manuel Garcia-Perez, Washington State University

9. **Effect of particle size on the yield and composition of lignin derived oligomers obtained by fast pyrolysis of beech wood**
   Manuel Garcia-Perez, Washington State University

10. **Effect of crystallinity on cellulose secondary reactions in solid phase**
    Manuel Garcia-Perez, Washington State University

11. **Effect of pyrolysis temperature on the yield and composition of lignin derived oligomers**
    Manuel Garcia-Perez, Washington State University

12. **A novel approach for modeling biomass torrefaction for system integration**
    Murlidhar Gupta, CanmetENERGY-Natural Resources Canada

13. **Cellulose shell encapsulated phase change materials**
    Rafail Khalfin, Technion- Israel Institute of Technology

14. **Synthesis of higher alcohols from biomass syngas: Catalyst-based reaction kinetics**
    Ajay Dalai, York University

15. **A techno-economic analysis of biodiesel production by transesterification of microalgal lipids**
    Giuseppe Olivieri, Università degli Studi di Napoli Federico II

16. **Natural abundance 13C NMR study on the effects of thermochemical treatments on the lignocellulosic structure of wheat straw**
    Ernst RH van Eck, Radboud University Nijmegen

17. **Solid biofuel conditioning by mechanical pre-treatment of brewer's spent grain**
    Samir Binder, Fraunhofer UMSICHT Sulzbach-Rosenberg

18. **Lignin pyrolysis for value-added biorefinery products**
    Paul de Wild, Energy research Centre of the Netherland (ECN)

19. **Technical and economic evaluation of the production of monomeric and oligomeric phenols via different thermochemical processes**
    Claudia Daza Montano, Energy research Centre of the Netherland (ECN)

20. **On-line process control and operation of anaerobic digesters**
    Andreas Hornung, Fraunhofer UMSICHT Sulzbach-Rosenberg

21. **Characterization of products from hydrothermal carbonization (HTC) of water hyacinth (eichhornia crassipes)**
    Dietrich Meier, Thunen Institute of Wood Research

22. **Solid biofuel conditioning by mechanical pre-treatment of brewer's spent grain**
    Rolf Jung, Fraunhofer UMSICHT Sulzbach-Rosenberg

23. **On-line process control and operation of anaerobic digesters**
    Fabian Stenzel, Fraunhofer UMSICHT Sulzbach-Rosenberg