6-16-2019

Conference Program

Franco Berruti  
ICFAR, Western University, Canada

Anthony Dufour  
CNRS Nancy, France

Wolter Prins  
University of Ghent, Belgium

Manuel Garcia-Pérez  
Washington State University, USA

Follow this and additional works at: https://dc.engconfintl.org/pyroliq_2019

Recommended Citation  

This Article is brought to you for free and open access by the Proceedings at ECI Digital Archives. It has been accepted for inclusion in Pyroliq 2019: Pyrolysis and Liquefaction of Biomass and Wastes by an authorized administrator of ECI Digital Archives. For more information, please contact franco@bepress.com.
Program

Pyroliq 2019:
Pyrolysis and Liquefaction of Biomass and Wastes

June 16-20, 2019
Maryborough Hotel
Cork, Ireland

Conference Co-Chairs:
Franco Berruti, ICFAR, Western University, Canada
Anthony Dufour, CNRS Nancy, France
Wolter Prins, University of Ghent, Belgium
Manuel Garcia-Pérez, Washington State University, USA

Engineering Conferences International
32 Broadway, Suite 314 - New York, NY 10004, USA
Phone: 1 - 212 - 514 - 6760, Fax: 1 - 212 - 514 - 6030
www.engconfintl.org – info@engconfintl.org
Maryborough Hotel and Spa
Maryborough Hill
Douglas, Cork, Ireland, T12 XR12
Tel: +353 21 436 5555
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.

ECI BOARD MEMBERS

Barry C. Buckland, President
Mike Betenbaugh
Joye Bramble
Nick Clesceri
Peter Gray
Michael King
Raymond McCabe
Eugene Schaefer
P. Somasundaran

Chair of ECI Conferences Committee: Nick Clesceri

ECI Technical Liaison for this conference: Franco Berruti

ECI Executive Director: Barbara K. Hickernell

ECI Associate Director: Kevin M. Korpics

©Engineering Conferences International
Scientific Committee

Franco Berruti, ICFAR, Western University, Canada
David Chiaramonti, RE-CORD and University of Firenze, Italy
Nicolaus Dahmen, Karlsruhe Institute of Technology, Germany
Anthony Dufour, CNRS, Nancy, France
Axel Funke, Karlsruhe Institute of Technology, Germany
Wolter Prins, University of Ghent, Belgium
Manuel Garcia-Perez, Washington State University, USA
Paola Giudicianni, CNR, Napoli, Italy
Sasha Kersten, University of Twente, The Netherlands
Will Meredith, University of Nottingham, UK
Anja Oasmaa, VTT, Finland
Wolter Prins, University of Ghent, Belgium
Frederik Ronsse, University of Ghent, Belgium
Joshua Schaidle, NREL, USA
Paul de Wild, TNO, The Netherlands
Heiping Yang, Huazhong University, China
**Sunday, June 16, 2019**

16:00 – 18:00  Registration (Sherrard Foyer)
17:00 – 18:00  Organizing Committee Meeting
18:00 – 19:00  Welcome Reception with live Irish music and dancers (Orangery)
19:00 – 20:30  Dinner (Bellini’s Restaurant)

**NOTES**

- **Technical sessions will be in Sherrard Suite B. Poster sessions will be in Sherrard Suite A.**
- **Audio, still photo and video recording by any device (e.g., cameras, cell phones, laptops, PDAs, watches) are strictly prohibited during the technical sessions, unless the author and ECI have granted prior permission.**
- **Speakers – Please have your presentation loaded onto the conference computer prior to the session start (preferably the day before).**
- **Speakers – Please leave at least 3-5 minutes for questions and discussion.**
- **All breakfasts and lunches, as well as dinners on Sunday and Monday, will be in Bellini’s Restaurant.**
- **Dinner on Tuesday is “on your own”.**
- **The conference banquet on Wednesday will be in the Orangery.**
- **Coffee breaks will be in Sherrard Suite A.**
- **The ECI Office is in the Cedar Room.**
- **Please do not smoke at any conference functions.**
- **Turn your mobile telephones to vibrate or off during technical sessions.**
- **Please write your name on your program so that it can be returned to you if lost or misplaced.**
- **After the conference, ECI will send an updated participant list to all participants. Please check your listing now and if it needs updating, you may correct it at any time by logging into your ECI account.**
- **Emergency Contact Information: Because of privacy concerns, ECI does not collect or maintain emergency contact information for conference participants. If you would like to have this information available in case of emergency, please place your emergency contact information on the reverse side of your name badge.**
Monday, June 17, 2019

07:00 – 08:30  Breakfast

08:30 – 08:45  Welcome and Conference Overview

08:45 – 09:20  PLENARY 1: PRIMA - Pyrolysis Recycle Initiatives for Materials
Paul de Wild
ECN, TNO, the Netherlands

SESSION 1: FUNDAMENTALS

09:20 – 09:40  A surrogate model construction strategy for bio-oil using ReaxFF molecular dynamics
Xiaoxia Li
University of Chinese Academy of Sciences, China

09:40 – 10:00  The influence of lipids on the fate of nitrogen during hydrothermal liquefaction of protein-containing biomass
Yujie Fan
Karlsruhe Institute of Technology (KIT), Germany

10:00 – 10:20  Challenges and progresses made on the microkinetic description of lignin liquefaction: Application of group contribution methods
Manuel Garcia-Perez
Washington State University, USA

10:20 – 10:50  Coffee Break

10:50 – 11:10  Kinetic study of tire carbon black and biomass soot steam activation used for the removal of phenol and chlorine from drinking water
Anna Trubetskaya
National University of Ireland Galway, Ireland

11:10 – 11:30  Heat of reaction of hydrothermal liquefaction reactions
Morgane Briand
CEA-LITEN, France

11:30 – 11:50  Kinetic of biobased bitumen synthesis from microalgae biomass by hydrothermal liquefaction
Antoine Rolland
GEPEA, France

11:50 – 12:10  Production of ethyl acetate from pyrolysis of lignin model compound guaiacylglycerol-β-guaiacyl using TGA-MS
Mark J. Kelly
Trinity College Dublin, Ireland

12:30 – 14:00  Lunch

14:00 – 17:30  Free time for networking / ad hoc sessions

17:30 – 17:50  Afternoon refreshments

17:50 – 18:10  Manipulation of product distributions in biomass fast pyrolysis using molten polymers
Hsi-Wu Wong
University of Massachusetts Lowell, USA
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Presenter</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>18:10 – 18:30</td>
<td>CO₂ participation in cross-linking reactions and char formation during bio-oil pyrolysis</td>
<td>Farid Chejne</td>
<td>Universidad Nacional de Colombia, Colombia</td>
</tr>
<tr>
<td>18:30 – 18:50</td>
<td>Synergistic effects of bimetallic Mo-W carbide in hydrodeoxygenation of guaiacol</td>
<td>Serge Kaliaguine</td>
<td>Laval University, Canada</td>
</tr>
<tr>
<td>18:50 – 19:10</td>
<td>Feedstock blending as a strategy for hydrothermal liquefaction: lipid-rich scum from primary sedimentation and wastewater sludge</td>
<td>Justin Billing</td>
<td>Pacific Northwest National Laboratory, USA</td>
</tr>
<tr>
<td>19:30 – 21:00</td>
<td>Dinner</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21:00 – 22:30</td>
<td>Poster Session with Social Hour</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Tuesday, June 18, 2019

07:00 – 08:30  Breakfast

08:30 – 09:05  **PLENARY 2**: Pyrolysis of plastic waste: opportunities and challenges
Anja Oasmaa
VVT, Finland

**SESSION 2: PYROLYSIS OF PLASTICS AND FOSSIL FUELS**

09:05 – 09:25  Pyrolysis of polyethylene-lined waste paper cups
Franco Berruti
ICFAR, Western University, Canada

09:25 – 09:45  Thermolysis of plastic waste: Reactor comparison
Muhammad Saad Qureshi
VTT, Finland

**SESSION 3: PROCESS DEVELOPMENT AND INTEGRATION**

09:45 – 10:05  Comparison among technical and milled wood lignins through principal component analysis of FTIR spectra
Manuel Garcia-Perez
Washington State University, USA

10:05 – 10:25  Hydrothermal liquefaction of organic waste streams on a continuous pilot scale reactor
Patrick Biller
Aarhus University, Denmark

10:25 – 10:55  Coffee Break

10:55 – 11:15  EN-fuels from solid waste biomass by thermo-catalytic reforming
Andreas Hornung
Fraunhofer Institute for Environmental, Safety, and Energy Technology UMSICHT, Germany

11:15 – 11:35  Cellulose valorization in biorefinery: integration of fast pyrolysis and fermentation for building blocks production
Felipe Buendia-Kandia
CNRS, University of Lorraine, France

**SESSION 4: SCALE UP: PILOTS, DEMOS AND COMMERCIAL**

11:35 – 11:55  Ablative fast pyrolysis of biomass: A new demonstration project in California, USA
Dietrich Meier
Thermophil International, Germany

11:55 – 12:15  Fast pyrolysis bio-oil production in an entrained flow reactor pilot
Marine Peyrot
CEA LITEN, France

12:30 – 14:00  Lunch

14:00 – 17:00  Free time for networking *ad hoc* sessions

17:00 – 17:20  Afternoon refreshments
Tuesday, June 18, 2019 (continued)

17:20 – 17:40  Lambiotte, Premery, France: An industrial pyrolysis biorefinery operated during 120 years  
Anthony Dufour  
CNRS, University of Lorraine, France

17:40 – 18:00  Parametric study of lab-scale and pilot-scale biomass torrefaction for the production of woodstove briquettes  
Anna Trubetskaya  
National University of Ireland Galway, Ireland

18:00 – 19:30  Poster Session with Aperitif

19:30  Dinner in Cork “on your own” and free evening
Wednesday, June 19, 2019

07:00 – 08:30  Breakfast

08:30 – 09:05 **PLENARY 3:** Catalytic Pyrolysis
Sasha R.A. Kersten
University of Twente, the Netherlands

**SESSION 5: PRODUCTS CHARACTERIZATION, SEPARATION AND UPGRADING**

09:05 – 09:25 Scalable processing concepts for microwave pyrolysis
John Ryan
University of Nottingham, UK

09:25 – 09:45 Ternary system of pyrolytic lignin, mixed solvent, and water: phase diagram and implications
Mingyang Li
Curtin University, Australia

09:45 – 10:05 Proposal of a representative chemical composition for fast pyrolysis lignocellulosic bio-oil and estimation of the thermodynamic properties of the bio-oil compounds
Isabel Fonts
Thermochemical Processes Group - Universidad Zaragoza, Spain

10:05 – 10:25 Upgrading of wheat/barley and miscanthus bio-oil over a sulphided catalyst
Bogdan Shumeiko
University of Chemistry and Technology, Czech Republic

10:25 – 10:55 Coffee Break

10:55 – 11:15 Depolymerization of fractionated wood by hydrothermal liquefaction
Felipe Buendia-Kandia
CNRS, University of Lorraine, France

11:15 – 11:35 Characterization of hydroprocessed fast pyrolysis oil fractions
Mariefel V. Olarte
Pacific Northwest National Laboratory, USA

11:35 – 11:55 Electrochemical upgrading of bio-oil: A proof-of-principle investigation
Mehmet Pala
Ghent University, Belgium

12:00 – 13:30 Lunch

13:30 – 16:00 Free time for networking / ad hoc sessions

16:00 – 17:20 **WORKSHOP: BIOMASS LIQUEFACTION: CHALLENGES AND PERSPECTIVES**
(Refreshments available from 17:00)

**SESSION 6: TECHNO-ECONOMICS AND ENVIRONMENTAL**

17:20 – 17:40 Challenges and opportunities for the synthesis of novel pyrolysis oil refineries
Manuel Garcia-Perez
Washington State University, USA
Wednesday, June 19, 2019 (continued)

17:40 – 18:00  Cost estimation of a biorefining network for forest residues in Ireland
Ashutosh Rai
National University of Ireland Galway, Ireland

18:00 – 18:20  Environmental assessment of pyrolysis in biorefineries based on palm oil wastes
Electo Eduardo Silva Lora
Federal University of Itajubá, Brazil

18:20 – 18:40  Influence of reactor type on production cost of fast pyrolysis bio-oil
Nicolaus Dahmen
Karlsruhe Institute of Technology, Germany

18:40 – 19:00  Pyrolysis of aerobic sewage sludge, green wastes and refuse derived fuels at high temperatures in bubbling fluidized bed reactor
Sid Ahmed Kessas
INP-LGC, France

20:00 – 22:00  Conference Banquet
Thursday, June 20, 2019

07:00 – 08:30  Breakfast

SESSION 7: VALUE-ADDED PRODUCTS

08:30 – 08:50  Slow pyrolysis of lignin rich residue from lignocellulosic biorefining operations
Paola Giudicianni
Research Institute on Combustion, CNR, Naples, Italy

08:50 – 09:10  The application of pyrolysis biochar for wastewater treatment
Serge Kaliaguine
Laval University, Canada

09:10 – 09:30  Hydrothermal conversion of micro-algae as new biomaterials for pavement
Clemence Queffelec
Ceisam laboratory, University of Nantes, France

09:30 – 09:50  Polymer from pyrolysis products
John Ryan
University of Nottingham, UK

09:50 – 10:10  Evaluation of the antifungal activity of cattle manure bio-oil
Matheus Pinheiro Carvalho
Federal University of Sergipe, Brazil

10:10 – 10:30  Hydrothermal recycling of activated biochar
Christian Wurzer
University of Edinburgh, UK

10:30 – 10:50  Anaerobic digestion of the aqueous pyrolysis condensate
Franco Berruti
ICFAR, Western University, Canada

10:50 – 13:00  Coffee Break and Poster Session for Wednesday and Thursday

13:00  Lunch and Departures
1. **Hydrothermal liquefaction process of food waste in batch and continuous lab scale reactors**  
   Morgane Briand, CEA, France

2. **Agriculture waste, a great opportunity to produce energy and high value products: experience in Colombia.**  
   Farid Chejne, Universidad Nacional de Colombia, Colombia

3. **Two Steps Upgrading of Beech Wood Fast Pyrolysis Bio-oil with Nickel-based Catalysts**  
   Nicolaus Dahmen, Karlsruhe Institute of Technology, Germany

4. **Biofuels from waste to road transport**  
   Marine Peyrot, CEA LITEN, France

5. **Synthesis of tailored hierarchical ZSM-5 zeolites and aggregates for the catalytic pyrolysis of biomass**  
   Stylianos Stefanidis, Aston University, United Kingdom

6. **Kinetic Study of Tire Carbon Black and Biomass Soot Steam Activation used for the Removal of Phenol and Chlorine from Drinking Water**  
   Anna Trubetskaya, NUIG, Ireland

7. **Preliminary activity on the pyrolysis of a plastic based solid recovered fuel**  
   Massimo Urciuolo, Istituto Di Ricerche Sulla Combustione - CNR, Italy

8. **Biomass pyrolysis in a Bubbling Fluidized Bed: Effect of biomass composition and reactor temperature**  
   Thomas Esteves, INPT-LGC, France