

Pyroliq 2019: Pyrolysis and Liquefaction of Biomass and Wastes

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Editors:

Franco Berruti
Anthony Dufour

Wolter Prins
Manuel Garcia-Pérez

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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

Monday, June 17, 2019 (continued)

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|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 18:10 – 18:30 | CO ₂ participation in cross-linking reactions and char formation during bio-oil pyrolysis
Farid Chejne
Universidad Nacional de Colombia, Colombia |
| 18:30 – 18:50 | Synergistic effects of bimetallic Mo-W carbide in hydrodeoxygenation of guaiacol
Serge Kaliaguine
Laval University, Canada |
| 18:50 – 19:10 | Feedstock blending as a strategy for hydrothermal liquefaction: lipid-rich scum from primary sedimentation and wastewater sludge
Justin Billing
Pacific Northwest National Laboratory, USA |
| 19:30 – 21:00 | Dinner |
| 21:00 – 22:30 | Poster Session with Social Hour |

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)

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|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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

Poster Presentations

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