

# ***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



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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- $\beta$ -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 <sub>2</sub> participation in cross-linking reactions and char formation during bio-oil pyrolysis<br>Farid Chejne<br>Universidad Nacional de Colombia, Colombia                               |
| 18:30 – 18:50 | Synergistic effects of bimetallic Mo-W carbide in hydrodeoxygenation of guaiacol<br>Serge Kaliaguine<br>Laval University, Canada   |
| 18:50 – 19:10 | Feedstock blending as a strategy for hydrothermal liquefaction: lipid-rich scum from primary sedimentation and wastewater sludge<br>Justin Billing<br>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)**

- 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**  
Stylios 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