Final Agenda

Sunday, October 7th, 2018

4:00-6:00. Registration (Registration Desk). Cookies and Drink

Monday, October 8th, 2018

7:00-9:00. Registration (Boardroom).

7:30-9:00. Continental Breakfast (Grand II+Annex)

9:00-9:15. Welcome. Sushil Adhikari, Auburn University. TCS 2018 Coordinator.


9:30-10:15. Advances in the Characterization and Analysis of Pyrolysis and Upgraded Oils. Art Ragauskas, UT Knoxville


11:00-11:30. Challenges and Opportunities for Advanced Biofuels and Bioproducts. David Dayton, RTI International

11:30-1:00 Lunch (Grand Ballroom II)

1:00-3:05. Technical Sessions

1.1 Pyrolysis and Upgrading (Legacy Ballroom)

Moderator: Charles Mullen, USDA-ARS.


Optimization of the thermal deoxygenation of biomass pyrolysis vapors via tail gas reactive pyrolysis, Charles Mullen, USDA-ARS.

1.2 Pyrolysis Modeling (Oak Room)

Moderator: Manuel Garcia-Perez, Washington State University.

Computational Modeling of Biomass Hydrous Pyrolysis with In-situ Hydrogen Generation to Produce Refinery-Ready Bio-crude Oil. Ross Houston, University of Tennessee Knoxville

Computational and experimental tools for the development of a microkinetic model in support of lignin utilization through thermochemical conversion. Manuel Garcia-Perez, Washington State University.
Performance of mesoporous ZSM-5 in deoxygenation of straw derived pyrolysis vapors. Andreas Eschenbacher, Technical University of Denmark, Denmark.

Kinetic Modeling of Autothermal Pyrolysis, Chad Peterson, Iowa State University.


Catalytic fast pyrolysis of biomass: understanding the process by extensive catalyst characterization. Federik Ronsee, Ghent University, Belgium.

Mechanism and Kinetics of Levoglucosan Formation from Cellulose Pyrolysis. Vineet Maloekkal, University of Minnesota.

3:05-3:25. Coffee Break (Prefunction Foyer)

3:25-5:30. Technical Sessions

1.3 Pyrolysis and Upgrading (Legacy Ballroom)

- The commercial viability of auger pyrolyzers: from theory to pilot demonstration production of fuels and char. Tannon Daugaard, Iowa State University.

- Mobile-scale power generation from MSW and switchgrass: Gasification, engine power generation and engine emission performance. Ajay Kumar, Oklahoma State University.

1.4 Biomass Gasification and Clean-up (Oak Room)


- Comparison of Fixed and Fluidized Bed Reactors for the Methanation of Biogenic Syngas. Felix Fischer, Technical University of Munich, Germany.

- Aromatics from biomass: yield improvements using novel co-feeding strategies. André Heeres, BioBTX, The Netherlands

- Effect of the Biomass particle size on syngas quality at different fluidized bed scales. Abolhasan Hashemisohi, North Carolina A & T State University.


- Eggshell as a potential CO2 sorbent in chemical looping gasification of biomass: calcination, carbonation and characterization studies. Animesh Dutta, University of Guelph, Canada.

- Structural and chemical changes in biomass during fast pyrolysis prior to devolatilization, Jake Lindstrom, Iowa State University.

- A CFD-DEM model for predicting NH3 and HCN formation during biomass gasification. Oluwafemi Oyedeji, University of Tennessee Knoxville.

5:30-6:00. Poster Set-up (Grand Ballroom II)

**List of posters are provided at the end.**

6:00-7:30. Opening Reception/Poster Presentation (Grand Ballroom II)
7:30-9:00. Reception Dinner (Grand Ballroom I+Annex)
Tuesday, October 9th, 2018

7:30-9:00. Continental Breakfast and Poster Presentation (Grand Ballroom II)

9:00-9:45. Unlocking the potential of pyrolysis liquids in existing refineries. Robbie Venderbosch, BTG, The Netherlands
9:45-10.15. Presentation: Characterization and hydrotreating of wood based biocrudes from pyrolysis. Jostein Gabrielsen, Haldor Topsøe, Denmark.

10.15-10:30. Coffee Break (Prefunction Foyer)

10:30-12:10. Technical Sessions

<table>
<thead>
<tr>
<th>2.1 Solvent Liquefaction (Legacy Ballroom)</th>
<th>2.2 Biomass Preprocessing and Pretreatment (Oak Room)</th>
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<tbody>
<tr>
<td><strong>Moderator:</strong> Chris Saffron, Michigan State University.</td>
<td><strong>Moderator:</strong> Ajay Shah, Ohio State University.</td>
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<tr>
<td>Biomass Conversion into Distillate Fuel Precursors by Supercritical Methanol Depolymerization and Hydrodeoxygenation over Copper/Magnesium/Aluminum Mixed Metal Oxide. Peter Galebach, University of Wisconsin.</td>
<td>Effect of L/D ratio of the pellet die and moisture content on the quality of the pellets made from blends of southern yellow pine residue and switchgrass. Jaya Shankar Tumuluru, Idaho National Laboratory.</td>
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12:10-1:10 Lunch (Grand Ballroom II)

1:10-3:15. Technical Sessions
### 2.3 Pyrolysis and Upgrading (Legacy Ballroom)
**Moderator:** Bob Baldwin, National Renewable Energy Laboratory.

- Value added product from waste biomass. Bishnu Acharya, University of Prince Edward Island, Canada.
- Bioproducts from biowaste: A circular economy concept. Animesh Dutta, University of Guelph, Canada.
- Characterization and Conversion of Guar Bagasse. Catherine Brewer, New Mexico State University.
- Quantitative Carbon Detector for Calibration-Free Quantification of Bio-Oil. Gregory Facas, University of Minnesota.
- Fast catalytic co-pyrolysis of lignin and waste plastics in presence of low-cost red mud catalyst. Vivek Patil, Auburn University.
- Enhanced Levoglucosan Yields during the Co-pyrolysis of Cellulose and High-Density Polyethylene. Hsi Wu Wong, University of Massachusetts Lowell.

### 2.4 Waste, Lignin and Arid Biomass Utilization (Oak Room)
**Moderator:** Catherine Brewer, New Mexico State University

- Investigating the role of chelation/complexation in the corrosivity of biomass-derived oils. Raynella Connatser, Oak Ridge National Laboratory.
- Comparison of Heavy-Ends Bio-Oil Collected from Nitrogen-blown and Air-blown Pyrolysis of Corn Stover and Red Oak. Marjorie Rover, Iowa State University.

### 3:15-3:30. Coffee Break (Prefunction Foyer)

### 3:30-5:35. Technical Sessions

#### 2.5 Bio-oil Upgrading and Co-Products (Legacy Ballroom)
**Moderator:** Dave Dayton, RTI International

- Toward understanding bio-oil distillation: Role of oxygenates on residue formation. Ofei Mante, RTI International
- Continuous processing of fast pyrolysis oils by separation and calcination. Yaseen El Kasabi, USDA ARS.
- Investigating the role of chelation/complexation in the corrosivity of biomass-derived oils. Raynella Connatser, Oak Ridge National Laboratory.

#### 2.6 Lignin Utilization (Oak Room)
**Moderator:** William DeSisto, University of Maine

- Antioxidant potential of depolymerized black liquor obtained from semichemical pulping of straw. Jose Luis Sanchez, Universidad Zaragoza, Spain.
- Transparent and Homogenous Cellulose Nanocrystal-Lignin UV Protection films. Mahesh Parit, Auburn University.
- Batch hydrothermal liquefaction of lignin-rich digested stillage from advanced lignocellulosic ethanol process. Andrea Maria Rizzo, University of Florence, Italy.

### 5:35-6:00. Snack Break (Prefunction Foyer)
6:00-7:00. Raptor Show (Auditorium)

7:00-8:30. Dinner Banquet/Career Achievement Award Presentation (Grand Ballroom II+Annex)

**Wednesday, October 10th, 2018**

7:30-9:00. Continental Breakfast/Registration (Grand Ballroom II+Annex)


9:00-9:45. TBA Kevin Craig, BETO

9:45-10.00. Coffee Break (Prefunction Foyer)

10:00-11:40. Technical Sessions

<table>
<thead>
<tr>
<th>3.1 Pyrolysis and Upgrading (Legacy Room)</th>
<th>3.2 Deconstruction of Cellulosic Biomass (Oak Room)</th>
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<tbody>
<tr>
<td><strong>Moderator:</strong> Calvin Mukarakate, National Renewable Energy Laboratory.</td>
<td><strong>Moderator:</strong> Foster Agblevor, Utah State University</td>
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<tr>
<td>FPU125/Denmark Hydrogen assisted catalytic biomass pyrolysis for green fuels. Effect of catalyst in the fluid bed. Martin Hoj, Technical University of Denmark, Denmark.</td>
<td>Aqueous phase synthesis of biobased hydrocarbon fuels and chemicals. Foster Agblevor, Utah State University</td>
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</tbody>
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11:45-1:00 Poster Awards Presentation/Lunch (Grand Ballroom II +Annex)
1:00-1:15. Conference Wrap-up (*Grand Ballroom II +Annex*)

2:00-5:00. Optional Tour (Gasification and Gas to Liquid Laboratories)

**Exhibitors**

*Auburn University Center for Bioenergy and Bioproducts*

*Frontier Lab*

*Idaho National Laboratory*

*Iowa State University Bioeconomy Institute*

*National Renewable Energy Laboratory*

*RTI International*

*University of Tennessee-Knoxville, Center for Renewable Carbon*

**Sponsors**

*Auburn University Samuel Ginn College of Engineering*

*Alabama Agricultural Experiment Station*

*Iowa State University Bioeconomy Institute*

*University of Tennessee-Knoxville, Center for Renewable Carbon*

*Frontier Lab*

*RTI International*

**Media Sponsor**

*Advanced Biofuels USA*

**List of Posters** [poster that are in blue fonts are presented by the students]
Biomass Gasification, Gas Cleanup and Gas to Liquid

1. Manuel Garcia-Perez. Washington State University. Identification and quantification of trace oxygenated compounds in alternative jet fuels: fluorescence quenching method for fast detection of phenolic compounds in operational field conditions.

Pyrolysis and Upgrading


Solvent Liquefaction


Co-Products Upgrading and Lignin Utilization


16. **Javier Abrego.** *Universidad de Zaragoza, Spain.* Physical activation of sewage sludge char with oxygen.

17. **Manuel Garcia-Perez.** *Washington State University.* Modeling study to estimate crop yield increases when using bio-char as a soil amendment.


20. **Ankit Kumar.** *Indian Institute of Technology-BHU, India.* Sustainable hydrogen production from catalytic steam reforming of Acetic acid as model oxygenate of bio-oil using MOF derived nano Ni/ALC catalyst

**Lignin Utilization**

21. **Archana Bansode.** *Auburn University.* Electrospun and wetspun lignin derived carbon fiber precursors for conductivity applications

22. **Parinaz Hafezisefat.** *Iowa State University.* Increasing lignin monomer production by oxidative pretreatment of biomass.

23. **BK Sharma.** *Illinois Sustainable Technology Center.* Catalytic depolymerization of lignin over hydrotalcite-based CuNiAl mixed oxides with microwave heating.

**Biomass Preprocessing and Pretreatment**

24. **Sean Rollag.** *Iowa State University.* Observations on physical changes occurring during pyrolysis of acid-pretreated biomass.


27. **Arnab Bose.** *North Carolina State University.* Understanding the pyrolysis kinetics of xylan and D-xylose.

28. **Feng Cheng.** *New Mexico State University.* Characterization and conversion of guayule bagasse.

29. **Preston Gable.** *Iowa State University.* Overcoming char agglomeration during pyrolytic sugar production.

**Bioprocess TEA and LCA Modeling**


31. **Sabyasachi Das.** *Michigan State University.* Life cycle assessment of biofuels production via localized fast pyrolysis and electrocatalytic upgrading.

33. **Pimphan Aye Meyer.** *Pacific Northwest National Laboratory.* Efficient and economic fuels and chemicals: hybrid processing coupling LanzaTech and PNNL technology.

**Others**

34. **Nima Alizadeh.** *Auburn University.* Cross-linkable hydrogels for 3D printing.

35. **Mahesh Parit.** *Auburn University.* Towards standardization of laboratory preparation procedure for uniform cellulose nanopapers.

36. **Prutha Joshi.** *Auburn University.* Synthesis of UV-curable poly (ethylene glycol) diacrylate macromere-based double-network hydrogel with polysaccharides.

37. **Marina Hornus.** *Auburn University.* OSB from softwood: a biorefinery approach.

38. **Pixiang Wang.** *Auburn University.* Efficient isopropanol-butanol-ethanol (IBE) production from lignocellulosic biomass by acetic acid thermal pretreatment with *Clostridium saccharoperbutylacetonicum* N1-4

39. **Conner Pope,** *Auburn University.* Influence of Noble Metal Catalysts on the Hydroprocessing of Hexane-Extracted *Brassica carinata* Bio-oil