The Global Future of Bioenergy

September 19-21, 2017
Radisson Blu Aqua, Chicago, IL
Dear colleagues,

Welcome to the fifth international conference on thermochemical conversion science: tcbiomass2017. At this event, we celebrate the determination, innovation, and collaboration of researchers, investors, and governments worldwide, united in the pursuit of sustainable energy solutions. Together we will continue making progress toward environmentally sound, renewable energy for all.

At tcbiomass2015, we introduced simultaneous tracks in order to allow for more technical presentations, and to give attendees the opportunity to focus more closely on one or more of our topic areas. This year, tcbiomass2017 also features simultaneous tracks during each afternoon session so participants can select those breakouts that are most relevant to them.

Thanks to the success of our panel discussion in 2015, we have also included another panel of invited speakers to explore global biofuels policy and how it impacts research and development, funding, and other elements of the bioenergy world.

Our outstanding lineup of oral and poster presentations, excellent set of keynote speakers, and unique networking events—including our gala dinner at the Art Institute of Chicago—will ensure that your experience at tcbiomass2017 will be an interesting and valuable one.

Enjoy your stay in the dynamic city of Chicago, where scientific and engineering creativity abound, and you can discover world-class attractions just a few steps away from the conference venue.

Sincerely,

Vann Bush and Kyriakos Maniatis
Conference Co-Chairs, tcbiomass2017
Conference App

Get the App

1. **Go the right store.** Access the App Store on iOS devices and the Play Store on Android.

   If you’re using a Blackberry or Windows phone, skip these steps. You’ll need to use the web version of the app found here: https://crowd.co/tcbiomass2017.

2. Install the app. Search for CrowdCompass AttendeeHub. Once you’ve found the app, tap either Download or Install.

   After installing, a new icon will appear on the homescreen.

Find tcbiomass2017

1. Once downloaded, open the AttendeeHub app and tap the search bar that says “Search by event name.” Enter this password: tcbio17

2. Open your event. Once you have entered the event password, the tcbiomass2017 app should appear below the search bar. Tap the name of the event to open it. You will see a splash screen as the event loads, and then you will see a list of icons labelled “Schedule,” “Maps,” “Speakers,” etc. Tap any of these icons to access the event content.

   For help with using the app, tap the “About” icon, then “App help & resources,” or ask one of our event organizers via email or onsite at the conference.
## Mon Sept 18

**Atlantic Foyer**

- **3:00-8:00 PM**
  - Registration Open
  - Exhibit Set-Up

**Atlantic E**

- **3:00-8:00 PM**
  - Poster Set-Up

**7th Floor Terrace**

- **6:00-8:00 PM**
  - Welcome Reception

## Tue Sept 19

**Atlantic Foyer**

- **7:00 AM-5:30 PM**
  - Registration Open

- **7:00-8:00 AM**
  - Breakfast

**Atlantic C&D**

- **8:00-8:15 AM**
  - Opening Remarks
  - Keynote Speaker: Vincent Chornet

- **8:45-10:30 AM**
  - Plenary Session

- **10:30-10:45 AM**
  - Break

- **10:45 AM-12:00 PM**
  - Global Panel Discussion

- **12:00-12:15 PM**
  - Don Klass Award Presentation

**Pacific Ballroom**

- **12:15-1:45 PM**
  - Lunch

**Atlantic C**

- **2:00-5:00 PM**
  - Gasification Session

**Atlantic D**

- **2:00-5:00 PM**
  - Pyrolysis Session

**Atlantic Foyer**

- **5:00-7:00 PM**
  - Posters & Exhibits

## Wed Sept 20

**Atlantic Foyer**

- **7:00 AM-5:30 PM**
  - Registration Open

- **7:00-8:00 AM**
  - Breakfast

**Atlantic C&D**

- **8:00-8:10 AM**
  - Opening Remarks

- **8:40-10:30 AM**
  - Plenary Session

- **10:30-10:45 AM**
  - Break

- **10:45 AM-11:30 AM**
  - Plenary Session

- **11:30 AM - 12:00 PM**
  - Keynote Speaker: Ingvar Landalv

**Pacific Ballroom**

- **12:00-1:30 PM**
  - Lunch

**Atlantic C**

- **1:30-4:30 PM**
  - Pyrolysis Session

**Atlantic D**

- **1:30-4:30 PM**
  - Upgrading Session

**Atlantic Foyer**

- **4:30-5:30 PM**
  - Posters & Exhibits

**Atlantic E**

- **4:30-5:30 PM**
  - Posters & Exhibits

**Art Institute of Chicago**

- **6:00-9:30 PM**
  - Gala Dinner

## Thu Sept 21

**Atlantic Foyer**

- **7:00 AM-5:30 PM**
  - Registration Open

- **7:00-8:00 AM**
  - Breakfast

**Atlantic C&D**

- **8:00-8:10 AM**
  - Opening Remarks

- **8:40-10:10 AM**
  - Plenary Session

- **10:10-10:25 AM**
  - Break

- **10:25 AM -12:00 PM**
  - Plenary Session

- **12:00 -12:20 PM**
  - Student Poster Challenge Awards Ceremony

**Pacific Ballroom**

- **12:20-1:30 PM**
  - Lunch

**Atlantic C**

- **1:30-4:30 PM**
  - Bioproducts Session

**Atlantic D**

- **1:30-4:30 PM**
  - Upgrading Session

**Atlantic C&D**

- **4:30-5:00 PM**
  - Closing Remarks

- **6:00-9:30 PM**
  - Gala Dinner
### Conference Sponsors

#### Platinum Sponsors

<table>
<thead>
<tr>
<th>Sponsor</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRI Catalyst Company</td>
<td>CRI Catalyst Company is part of CRI/Criterion Inc., which supplies advanced catalysts, services, and technology solutions to the global refining, petrochemical and renewable fuel communities. CRI operates research laboratories, development facilities, manufacturing plants and business units globally. CRI Renewables group shares the goal of serving a global customer base with high performance, cost-effective catalysts and process technologies specific to the renewable fuels arena. CRI Renewables’ focus is on thermochemical routes to production of (ligno)cellulosic hydrocarbon fuels. CRI’s range of products focuses on environmental applications, hydrogen separation and recovery, selective oxidation and hydrogenation and the production of renewable fuels.</td>
</tr>
<tr>
<td>GTI</td>
<td>Gas Technology Institute (GTI) is a leading research, development and training organization addressing energy and environmental challenges to enable a secure, abundant, and affordable energy future. For more than 75 years, we have been providing economic value by developing technology-based solutions for industry, government, and consumers. GTI has unique capabilities in alternative energy development, including extensive experience in the design and operation of thermochemical conversion systems. Our programs focus on reducing market and technology risks through innovations and applied research and development.</td>
</tr>
</tbody>
</table>

#### Silver Sponsors

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<thead>
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<tbody>
<tr>
<td>KBR</td>
<td>KBR is a global provider of differentiated professional services and technologies across the asset and program life cycle within the Government Services and Hydrocarbons sectors. KBR employs approximately 34,000 people worldwide (including our joint ventures), with customers in more than 80 countries, and operations in 40 countries, across three synergistic global businesses Government Services, Technology &amp; Consulting and Engineering &amp; Construction.</td>
</tr>
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#### Bronze Sponsors

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<tr>
<td>Iowa State University Bioeconomy Institute</td>
<td>Bioeconomy Institute (BEI) at Iowa State University seeks to advance the use of biorenewable resources for the production of fuels, energy, chemicals, and materials. The Institute builds upon a five-year initiative at ISU that has brought the university to national prominence in the field of biofuels and bioenergy.</td>
</tr>
<tr>
<td>Clextal</td>
<td>Clextal was founded in 1956, with the acquisition of a license to manufacture co-rotating twin screw extruders for the plastics and chemical industries. Today, Clextal has a corporate presence in 11 countries on five continents, and serves hundreds of customers in 93 countries.</td>
</tr>
<tr>
<td>SMUD</td>
<td>SMUD is the nation’s sixth-largest community-owned electric service provider, SMUD has been providing low-cost, reliable electricity for more than 65 years to Sacramento County (and small adjoining portions of Placer and Yolo Counties).</td>
</tr>
</tbody>
</table>
Activated Research Company

Activated Research Company was founded in 2014 with a mission to make the world a better place using their expertise in catalysis. ARC’s first product, the Polyarc® system, is a breakthrough innovation that combines catalysis with chemical analysis to revolutionize 60 year old GC/FID technology.

Frontier Laboratories

Frontier Laboratories Ltd. was founded in 1991 with a goal to develop and manufacture creative and innovative products and to compete in the world of leading edge analytical chemistry. We are located in Japan (HQ and Tokyo marketing center), China, Germany, USA, and Singapore with 52 employees.

Zeton

Zeton is the world’s leading designer and builder of innovative lab scale systems, pilot plants, demonstration plants and small modular production plants. Zeton helps its customers bring their new technology and processes to market, faster, with less risk and lower cost.

The American Chemical Society (ACS)

The American Chemical Society serves more than 157,000 members globally, providing educational and career development programs, products, and services. As the largest scientific society in the world, we are a leading and authoritative source of scientific information.

Biomass Magazine

Biomass Magazine is a monthly trade publication tailored to serve companies and organizations engaged in producing or utilizing biomass power and heat, advanced biofuels, biogas, wood pellets and biobased chemicals.

Canadian Biomass

Canadian Biomass Magazine is Canada’s premiere business media providing comprehensive coverage of the emerging Canadian biomass, bioenergy and bio-products markets. We reach this growing sector in print, online, via weekly enews, through our growing Twitter community (@canadianbiomass), Facebook, and via live events.

Exhibitors

Iowa State University
Bioeconomy Institute

ChemCatBio
Chemical Cogents for Energy

NREL
National Renewable Energy Laboratory

Cleantech Institute

GRI

U.S. Department of Energy
Energy Efficiency & Renewable Energy

SMUD
Sacramento Municipal Utility District

TEXCEL
Corporation USA

Frontier Labs

Zeton

gti

KBR

tcbiomass2017
Keynote Speakers

Vincent Chornet
Chief Executive Officer, Enerkem, Inc.

Vincent Chornet holds a Bachelor of Business Administration, concentration in finance, from HEC Montréal (Québec). He has been the guiding force behind Enerkem’s development since the company’s inception in 2000. His vision and leadership ushered Enerkem during the transition towards the commercialization of its proprietary technology. Under his expert guidance, Enerkem has established itself as an entrepreneurial leader in the field of advanced biofuels and green chemicals. Prior to heading Enerkem, he was strongly involved in the development and funding of industrial projects and start-up companies in the energy and specialty chemicals sectors. He is a Director of the Advanced Biofuels Business Council in the United States, and was a member of the Cleantech Advisory Board to the Canadian Foreign Affairs and International Trade Ministry from 2012 to 2014.

Jonathan Male
Director, Bioenergy Technologies Office, U.S. Department of Energy

Dr. Jonathan Male is the Director for the Bioenergy Technologies Office (BETO) in the Office of Energy Efficiency and Renewable Energy (EERE). In this role, he leads the Office’s work to lower costs, reduce technical risk, and accelerate deployment of bioenergy and renewable chemicals technologies. He oversees research and development across the entire supply chain—from sustainable biomass growth and collection to biomass conversion technologies that include biochemical, catalytic, and thermochemical pathways to produce economically viable biofuels and bioproducts.

Ingvar Landälv
Senior Project Manager, Luleå University of Technology

Mr. Ingvar Landälv holds an MS degree in Physics and Chemistry. At the Luleå University of Technology as Senior Project Manager in the LTU Bioenergy Program, focusing on continued R&D and commercialization of biomass derived gasification technologies. He is also Vice Chair of the European Biofuels Technology Platform. From 1997-2012, he served as CTO of Chemrec, fully engaged in the development and commercialization of their black liquor gasification technology. Ingvar has more than 38 years experience of process R&D, design, engineering, construction and operation of gasification based process plants based on oil, coal and biomass, and holds a number of patents.

Teemu Lindberg
Director of Refining, UPM

Teemu Lindberg is a Director of UPM-Kymmene Corporation, one of the world’s largest forestry companies, headquartered in Helsinki, Finland. The company combines bio and forest industries in an innovative and sustainable way. Teemu is a graduate of The Lappeenranta University of Technology where he gained an MSc in chemical engineering. After graduation Teemu launched his career in Porvoo, Finland, where he worked in oil refining and petrochemical projects. He continued his career working for the chemical industry – in fertilisers, mining and inorganic acids – in Europe’s leading fertiliser company. After spending six years in various operations and management positions Teemu joined UPM Biofuels to take responsibility for the scale-up of UPM’s first commercial renewable diesel plant in Lappeenranta, Finland. After this was commissioned he became responsible for production and technology in UPM Biofuels SBU. Currently he heads the Refining team in UPM Biofuels’ Development group.
Dr. Ilkka Hannula is a senior scientist and principal investigator at VTT Technical Research Centre of Finland Ltd. His work involves engineering, economic and environmental modeling of advanced energy conversion systems that produce fuels, electricity and heat from sustainable feedstocks. His specific technology interests include synthetic biofuels, technical change in the energy sector, and the role of bioenergy in a low-emission energy system. He is an alumnus of the Energy Systems Analysis Group of Princeton University and Energy Policy Research Group of the University of Cambridge.

Dr. Valentino Tiangco has over 30 years of broad experience in engineering, program & project management, energy specialist, designer, test engineer, professor and researcher. He is currently the Biomass Program Manager at Sacramento Municipal Utility District (SMUD), Energy Research & Development Department. He leads, plans, and coordinates the biomass activities that include research, development, demonstration, deployment and commercial applications of biomass for power and with co-production of value-added products.

Liz Moore is a Technology Manager and Technical Project Officer in the Conversion Program at the U.S. Department of Energy’s Office of Energy Efficiency and Renewable Energy’s Bioenergy Technologies Office (BETO). Liz’s role includes project implementation efforts on thermochemical conversion technologies to make renewable fuels and chemicals from biomass. Liz received a Bachelor’s of Science degree in Chemical Engineering from Colorado School of Mines.

Thank you to our Technical Program Committee:

- Robert Baldwin, NREL
- Serge Biollaz, Paul Scherrer Institut
- Melissa Klembara, U.S. Department of Energy (U.S. DOE)
- Tony Bridgwater, Aston University
- Robert Brown, Iowa State University
- Vann Bush, GTI
- Doug Elliott, PNNL
- Pedro Ortiz-Toral, GTI
- Stanley Frey, Honeywell
- Liz Moore, U.S. DOE
- Pekka Jokela, UPM-Kymmene Corporation, Biofuels
- Jonathan Male, U.S. DOE
- Kyriakos Maniatis, DG ENER
- Terry Marker, GTI
- Yrjo Solantausta, VTT Technical Research Centre of Finland
- Fernando Preto, NRCAN
- David Dayton, RTI
- Pradeep Agrawal, Georgia Tech
- Brian Jenkins, UC Davis
- ValTiangco, Sacramento Municipal Utility District (SMUD)
- Olivier Guerrini, ENGIE
- Lars Waldheim, Waldheim Consulting
- Ingvar Landälv, Luleå University of Technology
- Nicolaus Dahmen, Karlsruhe Institute of Technology
- Madhusudhan Rao, Shell
- László Domokos, CRI Catalyst Company
- Jill Jensen, Honeywell UOP
- Eric Jacobs, KBR
Dr. Del Paggio received his Bachelor of Science in Chemistry from Purdue University in 1982 and his PhD in Inorganic Chemistry from the University of California Berkeley in 1986. Since joining Shell Research in Houston, Dr. Del Paggio has led a number of small global business units prior to being tasked with the creation of new ones for CRI Catalyst Company. The most recent business unit, created in September of 2006, is Upstream & Renewables which is turning out to be both challenging and rewarding.

Benjamin Bronson
Research Engineer
CanmetENERGY-Ottawa (NRCAN)

Benjamin Bronson is a research engineer working in the area of Bioenergy Systems at CanmetENERGY-Ottawa (Natural Resources Canada). He has been a team member and leader for the design, construction, and operation of pilot-scale research facilities for the combustion, fast pyrolysis, and gasification of biomass.

Doug Elliott spent over 41 years at Pacific Northwest National Laboratory doing research and development with a focus on development of fuels and chemicals from biomass and waste and is now retired to a part-time status. His research has involved such subject areas as biomass liquefaction and hydroprocessing of product oils, catalytic hydrothermal gasification of wet biomass and wastewaters, and chemicals production from renewable sources.

Andrea Gutierrez
Senior Researcher,
Biofuels Development
UPM

Andrea Gutierrez obtained a Master’s degree in Science (Technology) in 2005 and the degree of Doctor of Science in Technology in 2013, both from Aalto University, Finland. She has experience in catalytic and non-catalytic processes such as pyrolysis, hydrotreatment and hydrogen production. She has been working for UPM-Kymmene Corporation since 2011 and she is currently working for UPM Biofuels Development as Senior Researcher, in Finland.

Dr. Nimlos has lead and worked on a number of biomass conversion projects at NREL during his 28 year career there. The main focus of his work has been on using physical chemistry to understand the chemical reaction kinetics and mechanisms for thermal conversion and catalytic upgrading. Currently, Dr. Nimlos is involved in research into catalytic fast pyrolysis for both fuels and chemicals, with an emphasis on producing biomass-based products that can enable the production of renewable biofuels. Dr. Nimlos is also involved in studies of the combustion and soot formation of biofuels as part of the Department of Energy’s Co-Optima program.

Dr. Jill R. Jensen is a Specialist in the Renewables Development group at Honeywell UOP. She received her PhD in chemical engineering from Michigan Technological University and completed a Postdoc at the Idaho National Laboratory prior to joining Honeywell UOP.
## Conference Schedule

### Mon September 18

<table>
<thead>
<tr>
<th>Time</th>
<th>Location</th>
<th>Event</th>
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<tbody>
<tr>
<td>3:00 - 8:00 PM</td>
<td>ATLANTIC FOYER</td>
<td>Registration Open</td>
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<tr>
<td>3:00 - 8:00 PM</td>
<td>ATLANTIC E</td>
<td>Exhibit Set-Up</td>
</tr>
<tr>
<td>6:00 - 8:00 PM</td>
<td>ATLANTIC FOYER</td>
<td>Welcome Reception</td>
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### Tue September 19

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<thead>
<tr>
<th>Time</th>
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<th>Event</th>
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<tbody>
<tr>
<td>7:00 - 8:00 AM</td>
<td>ATLANTIC FOYER</td>
<td>Breakfast</td>
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<tr>
<td>8:00 - 8:15 AM</td>
<td>ATLANTIC C&amp;D</td>
<td>Opening Remarks</td>
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<td>Conference Co-Chair</td>
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<td>Vann Bush, GTI</td>
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<tr>
<td>8:15 - 10:30 AM</td>
<td>ATLANTIC C&amp;D</td>
<td>Keynote Speaker</td>
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<td>Vincent Chornet</td>
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<td>Chief Executive Officer, Enerkem</td>
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<tr>
<td>8:45 - 10:30 AM</td>
<td>ATLANTIC C&amp;D</td>
<td>Plenary Session</td>
</tr>
<tr>
<td>10:45 AM - 12:00 PM</td>
<td>PACIFIC BALLROOM</td>
<td>Global Panel Discussion: International Biofuel Regulatory Environment Moderated by Adam Brown International Energy Agency (IEA)</td>
</tr>
<tr>
<td>12:00 - 12:15 PM</td>
<td>PACIFIC BALLROOM</td>
<td>Don Klass Award Presentation</td>
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<tr>
<td>12:15 - 1:45 PM</td>
<td>ATLANTIC C</td>
<td>Lunch</td>
</tr>
<tr>
<td>1:45 - 5:00 PM</td>
<td>ATLANTIC C</td>
<td>Gasification Track</td>
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<td></td>
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<td>Alkali Enhanced Entrained Flow Gasification of Woody Biomass Erik Furusjö, Swedish Environmental Research Institute</td>
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<td>Methanol Production via Catalytic Biomass Gasification with In Situ Sulfur Capture: A Techno-Economic Analysis Joakim Lundgren, Luleå University of Technology</td>
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<td>Secondary Material Loops for Efficient Biomass Gasification Martin Seemann, Chalmers</td>
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<td>Black Liquor Gasification Ready for Commercialization Ingvar Landälv, Lulea University</td>
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<td>Numerical Model for Biomass Gasification in Supercritical Water: Predicting the Char Formation Behaviour Riza Yukananto, University of Twente</td>
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<td>Load Following Operation of a Small-Scale Gasification System: Consequences on Gas Quality Roberto Mussi, Yanmar R&amp;D Europe</td>
</tr>
<tr>
<td>10:30 - 10:45 AM</td>
<td>ATLANTIC C</td>
<td>Break</td>
</tr>
</tbody>
</table>
Towards the Commercialization of the ESME Technology for Bio-SNG Production—The AMBIGO Project
Berend Vreugdenhil, ECN

Small Scale Rotary Gasification of Municipal Solid Waste
Stephen Cosper, U.S. Army Construction Engineers

ATLANTIC D
1:45 - 5:00 PM
Pyrolysis Track

Mesoscale Modeling of Fast Pyrolysis, Catalytic Upgrading, and Catalyst Deactivation
Peter Ciesielski, NREL

Demonstrating Autothermal Pyrolysis for Production of Sugars, Lignocelol and Bio-methane from Corn Stover
Robert Brown, Iowa State University

Deposition of biomass inorganic elements on red mud catalyst during in situ catalytic pyrolysis of biomass
Foster Agblevor, USTAR Bioenergy Center, Biological Engineering, Utah State University

Supporting Biomass to Biofuels Platform via Hydrogen Sourcing from Waste and with Simultaneous Deoxygenation
Abhijeet Borole, ORNL

Process Variable Studies for the Hydropyrolysis Step of IH2 for the Direct Conversion of Biomass to Drop In Fuels
Martin Linck, GTI

Biochar Passivation Strategy
Tim Dunning, NREL

Increasing Production and Isolation of Phenols via Pyrolysis of Lignocellulosic Biomass
Charles Mullen, USDA

Thermochemical Methylation of Lignin to Produce High Value Aromatic Compounds
Patrick Johnston, Iowa State University

ATLANTIC E
5:00 - 7:00 PM
Poster Session

ATLANTIC FOYER
5:00 - 7:00 PM
Exhibits

Wed September 20

ATLANTIC FOYER
7:00 - 8:00 AM
Breakfast

ATLANTIC C&D
8:00 - 8:10 AM
Opening Remarks
Conference Co-Chair
Vann Bush, GTI

8:10 - 8:40 AM
Keynote Speaker

Jonathan Male
Director, Bioenergy Technologies Office, U.S. Department of Energy

8:40 - 11:30 AM
Plenary Session

Steam-Blown Dual Fluidized-Bed Gasification of Biomass Residues for Intermediate-Scale Production of Transportation Fuels and Heat
Sanna Tuomi, VTT

Converting Municipal Solid Wastes to Drop-In Hydrocarbon Fuels: Extending the Feedstock Choices for the IH2(R) Process
Dhairya Mehta, Shell

Advanced Biofuels and Bio-Products from Catalytic Biomass Pyrolysis
David Dayton, RTI

Co-Processing Biointermediates in a FCC to Produce Renewable Fuels
Jill Jensen, Honeywell UOP

10:30 - 10:45 AM
Break

Upgrading Biomass Pyrolysis Vapors to Fungible Hydrocarbon Intermediates
Kim Magrini, NREL

Improving the Fuel Properties of Hydrotreated Bio-oils via Ring-Contraction/Opening
Karl Albrecht, PNNL
Keynote Speaker

Ingvard Landalv
Senior Project Manager, Luleå University of Technology

PACIFIC BALLROOM
12:00 - 1:30 PM
Lunch

ATLANTIC C
1:30 - 4:30 PM
Pyrolysis Track

A Cascade Biomass Catalytic Pyrolysis Process Towards Production of High Quality Bio-Oil Over Novel ZSM-5 Based Catalysts
Angelos Lappas, CPERI/CERTH

Converting Low Quality Forestry Residues to Useable Liquid Biofuels through Fast Pyrolysis
Benjamin Bronson, CanmetENERGY–NRCan

How Fast is Fast Pyrolysis? — Reaction Rates in a Cyclonic TGA
Alexander Louwes, University of Twente

Temperature-Dependent Vapor and Liquid Aerosol Separation—Comparison Between Bubbling Fluidized Bed and Ablative Fast Pyrolysis Reactor Systems
Stefan Conrad, Fraunhofer UMSICHT

Factor 50 — A Combined Experimental and Theoretical Evaluation of Fast Pyrolysis Scale Up
Axel Funke, Karlsruhe Institute of Technology

Computational Study on Biomass Fast Pyrolysis Oil Yield: Bubble Effects in the Bubbling-to-Slugging Transition in a Laboratory-Scale Fluidized Bed
Emilio Ramirez, ORNL

Validated Hydrodynamic CFD Model for Catalytic Fast Pyrolysis
Neeti Kapur, Inaeris Technologies

ATLANTIC D
1:30 - 4:30 PM
Upgrading Track

Separation of Sugars and Phenolics in the Heavy Fraction of Bio-Oil
John Stanford, Iowa State University

Lessons Learned from a Solvent Liquefaction Pilot Plant
Lysle Whitmer, Iowa State University

Integration of Fast Pyrolysis and Electrolyzer for Deoxygenation of Biomass
Daniel Miki Santosa, PNNL

FCC of Upgraded Pyrolysis Liquids Mixed with Crude Oil Distillates: Combined Strategies for Improving Bio-Fuels Yields and Quality
Claude Mirodatos, IRCEL YON, UCBL, CNRS

Analysis of Upgraded Water-Soluble Fraction from Hydrothermal Liquefaction of Lignocellulosic Biomass Using Metallic Iron
Yoshiaki Hirano, Kobe University

Unlocking the Potentials of Pyrolysis Liquids in an Existing Refinery
Robbie Venderbosch, BTG

Fuels from Reliable Bio-Based Refinery Intermediates — BioMates
Tim Schulzke, Fraunhofer UMSICHT

ATLANTIC E
4:30 - 5:30 PM
Poster Session

ART INSTITUTE OF CHICAGO
6:00 - 9:30 PM
Gala Dinner & Impressionist Exhibit Viewing

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7:00 - 8:00 AM
Breakfast

ATLANTIC C&D
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Conference Co-Chair
Vann Bush, GTI

8:10 - 8:40 AM
Keynote Speaker
Teemu Lindberg
Director of Refining, UPM

8:40 AM - 12:00 PM
Plenary Session

Status of the Bioliq-Entrained Flow Gasification Project
Thomas Kolb, KIT

Modifying a Davidson Circulating Riser to Accommodate Biomass-Derived Feedstocks
Jessica Olstad, NREL

Biomass Liquefaction with Ash Removal: The BiAR Process
Gian Claudio Faussone, INSER Energia

10:10 - 10:20 AM
Break

Development of Catalytic Processes for the Upgrading of Aqueous Biomass-Derived Carboxylic Acids into Fuels and Chemicals
Karl Albrecht, PNNL

Making Sense of Cost and Performance Estimates for Thermochemical Biofuel Plants
Ilkka Hannula, VTT

Conversion of C2+ Oxygenates to Jet Fuel via ZnxZryOz Mixed Oxide Catalyst
Johnny Saavedra Lopez, PNNL
Biochars from Various Biomass Types for Use in Sodium-Ion Batteries
Capucine Dupont, CEA
12:00 - 12:20 PM
Student Poster Challenge Awards Ceremony
PACIFIC BALLROOM
12:20 - 1:30 PM
Lunch
ATLANTIC C
1:30 - 4:30 PM
Bioproducts Track
Co-Products from Catalytic Fast Pyrolysis Improve the Economics of Biofuels
Mark Nimlos, NREL
Simultaneous Compound Identification and Quantification for Efficient GC Analysis of Bioproducts
Charles Spanjers, Activated Research Company
Impact of Pyrolysis Heating Characteristics on Leachability of Biochar Minerals
Cedric Louis Briens, ICFAR
Catalytic Fast Pyrolysis Aqueous Steam Valorization through Co-Products
Nolan Wilson, NREL
Fermentable Sugar Production from Biomass Using THF/Water and Dilute Acid Catalyst
Arpa Ghosh, Iowa State University
Nutrient Removal and Energy Production from Aqueous Phase of Bio-Oil Generated During Thermochemical Liquefaction of Algae
Sushil Adhikari, Auburn University
Techno-Economic Evaluation of Renewable Propane Production Strategies
Avantika Singh, NREL
Insights into the Catalytic Hydrotreatment of Technical Lignins in the Refinery of the Future for Biobased Chemicals and Fuels
Idoia Hita, University of Groningen
ATLANTIC D
1:30 - 4:30 PM
Upgrading Track
Conversion of Blended Primary and Secondary Sewage Sludge into Biofuels by Hydrothermal Liquefaction and Catalytic Hydrotreatment
Karl Albrecht, PNNL
Atomistic Understanding of the Role of Gallium during Catalytic Fast Pyrolysis over Ga-ZSM5
David Robichaud, NREL
From Black Liquor to 2G-Transportation Fuels
Claude Mirodatos, IRCELYON, UCBL, CNRS
Upgradation of Biocrude Oil using BioPd/C Catalyst
Brajendra Sharma, University of Illinois
Continuous Hydrotreatment of Hydrofaction™ Oil to Drop-In Diesel
Claus Uhrenholt Jensen, Steeper Energy ApS
Co-Production of Clean Solid Biomass Fuel and Biogas from Food Industry Residues by means of Hydrothermal Processing (TORWASH)
Pavlina Nanou, ECN
Hydroconversion of Fast Pyrolysis Bio-Oil: Understanding and Limiting Macromolecules Formation
Alain Quignard, IFPEN
Bio-Oil: An Introduction to the Next Opportunity Feed for FCC
Siyi Lai, TechnipFMC
ATLANTIC C
4:30 - 5:00 PM
Closing Remarks

The Don Klass Award for Excellence in Thermochemical Conversion Science is presented at each tcbiomass conference to recognize pre-eminent leaders whose careers have shaped the field of thermochemical biomass conversion and made outstanding technical contributions to the bioenergy community.

At tcbiomass2017, on September 19, we recognize the accomplishments of Ingvar Landälv, current chair of the European Technology and Innovation Platform Bioenergy (ETIP - Bioenergy). Ingvar has over 40 years of experience in process development, design, engineering, and management of gasification-based technologies, and holds a number of patents in the fields of gasification and energy management.

The award was established in memory of Donald L. Klass, whose distinguished career includes management of biomass, natural gas, and petroleum research and educational programs for the Institute of Gas Technology (now GTI) and the petroleum industry.
At the dedicated poster sessions during the conference, you’ll have opportunities to engage in one-on-one technology discussions with our poster presenters, and learn about the work they’re doing to develop innovative solutions. Posters will be located in Atlantic Ballroom E, adjacent to Atlantic C and D, where the main sessions and breakouts will be held.

Student Poster Challenge entries are highlighted in **blue**.

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