

# IBBC 2015

International  
Bioenergy &  
Bioproducts  
Conference

October 28-30, 2015 • Atlanta, Georgia

Co-Located with:



## ***Leveraging Forest Biomass for Next Generation Fuels and Chemicals***



### **NEW FOR 2015:**

- **Biorefinery Tour**
- **Student Poster Session**

Featuring speakers representing these  
companies and organizations:





**TAPPI's International Bioenergy and Bioproducts Conference is dedicated to advancing biorefineries in the forest products industry.**

## Why Attend IBBC?

IBBC is a must-attend event for companies that are invested in exploring the unique benefits possessed by the pulp and paper industry to produce fuel, energy, and chemicals from biomass.

IBBC's highly-focused program includes technical presentations, expert panels, case studies, and reports from projects that offer you a deeper analysis of technology and economics in commercializing biofineries.

## Co-Location with



This year IBBC will be co-located with the TAPPI PEERS Conference creating a full week of valuable education and learning on topics that apply directly to your job. Make the most of your experience by attending both conferences to enhance your knowledge, gain valuable insights for your company, and network with individuals who share your same day-to-day issues. **Visit [tappipeers.org](http://tappipeers.org) for more information.**

## Conference Schedule

### Wednesday, October 28

8:00am – 12:15pm	Tour of American Process Inc.'s Biorefinery* made possible by Valmet
8:30am – 10:00am	PEERS Bridge Session: Extracting Value From Bioproducts
10:30am – 12:00pm	PEERS Bridge Session: Black Liquor & Biofuel Corrosion
12:30pm – 1:30pm	Valmet Lunch Seminar
1:45pm – 3:00pm	IBBC Opening Session
3:00pm – 3:30pm	Break in TAPPI Central/Exhibit Area
3:30pm – 5:00pm	IBBC Technical Sessions
5:00pm – 5:30pm	Biorefinery Committee Meeting
5:00pm – 7:00pm	Reception in TAPPI Central/Exhibit Area
5:00pm – 7:00pm	Student Poster Session

### Thursday, October 29

7:00am – 5:00pm	Registration Open
8:30am – 10:00am	IBBC Technical Sessions
10:00am – 10:30am	Coffee Break in TAPPI Central/Exhibit Area
10:30am – 12:00pm	IBBC Technical Sessions
12:00pm – 1:30pm	Lunch in TAPPI Central/Exhibit Area
1:30pm – 3:00pm	IBBC Technical Sessions
3:00pm – 3:30pm	Break in TAPPI Central/Exhibit Area
3:30pm – 5:00pm	IBBC Technical Sessions
5:00pm – 5:30pm	Subcommittee Meetings
5:00pm – 7:00pm	Reception in TAPPI Central/Exhibit Area
7:30pm – 10:00pm	IBBC Conference Dinner* sponsored by Andritz Pulp & Paper

### Friday, October 30

7:00am – 11:00am	Registration Open
8:30am – 10:00am	IBBC Technical Sessions
9:30am – 10:00am	Coffee Break in TAPPI Central/Exhibit Area
10:30am – 12:30pm	IBBC Technical Sessions
12:00pm – 6:00pm	2015 TAPPI Biorefinery Course (through Nov. 1)*

\*Separate registration and additional fee required

## Program Highlights

### Keynote Presentation:

#### "Carbon Recycling: How Waste Resources Will Frame a Carbon Smart Future"

1:45pm; Wednesday, October 28



*Derek Griffin, Senior Development Engineer, LanzaTech Freedom Pines Biorefinery LLC*

Derek Griffin is a Senior Development Engineer with LanzaTech; a biofuel company with a novel gas fermentation technology that converts industrial gases to fuel and chemicals. His role is focused on the design and scale-up of LanzaTech's proprietary gas fermentation process and is active in the build-out of the LanzaTech Freedom Pines Biorefinery in Soperton, Georgia.

### TOUR

#### American Process Inc.'s Biorefinery Thomaston, Georgia

8:00am - 12:15pm; Wednesday, October 28



Hosted by American Process Inc. (API), this tour will feature their Thomaston Biorefinery (3.5 dry tons/day biomass throughput) produces nanocellulose, pulp, cellulosic sugars,

cellulosic ethanol, and native lignin from a variety of biomass feedstocks (HW, SW, agricultural residues, etc) using their patented AVAP® technology. The plant's new nanocellulose demonstration line produces cellulose nanofibrils, cellulose nanocrystals, and lignin-coated, hydrophobic varieties of each directly from biomass. \$25 to participate. Space is limited to 50 and pre-registration is required. Buses Depart at 8:00am.

Made possible by **Valmet**

### Valmet Lunch Seminar **Valmet**

12:30 - 1:30pm; Wednesday, October 28

To help you remain current on the latest Valmet technology, please don't miss attending the free Technology seminar in conjunction with IBBC. For complete information, visit [Valmet.com](http://Valmet.com)

### Exhibits and Networking

IBBC's Exhibit Area is a great place to network and learn more about the latest in products and services available to the marketplace. Since IBBC is being co-located with the TAPPI PEERS Conference, you'll benefit by seeing more companies and expanding your knowledge base of solutions.

### IBBC Gala Dinner **ANDRITZ**

7:30pm; Thursday, October 29

Sponsored by Andritz Pulp & Paper

Join your fellow IBBC participants for great conversation, food and networking at this special event at the famous Rays In the City restaurant, conveniently located walking distance from the hotel. Dinner is \$65 per person, must register to attend; cash bar will be available.

### 2015 TAPPI Biorefinery Course

Friday-Monday; October 30-November 1



*Paul Stuart, Consultant and Professor, Ecole Polytechnique*

This is a critical time for the biorefinery development in the forestry sector as companies are at different points in setting their strategies, and any number of biorefinery product-process options are being considered. This three-day biorefinery course targets forestry company decision-making, and will address a wide range of key issues for biorefinery strategy and design. Separate registration and fee required.



## IBBC Technical Program

### Wednesday, October 28

8:00 – 12:15PM	<b>American Process Inc.'s Biorefinery Tour in Thomaston, GA</b> (Bus departs at 8:00am. Bus will arrive at the facility at 9:15am. The tour is from 9:30–11:00. Bus will return to the hotel by approximately 12:15PM.) Additional Registration Fee Required: \$25
<b>PEERS Conference Biorefinery Bridge Sessions – open to IBBC attendees</b>	
8:30 – 10:00 AM	<b>Session 37: Extracting Value From Bioproducts</b> <i>Session Chair: Proserfina Bennett, University of Maine</i>
8:30–9:00	<b>Important lessons learned during the commercialisation of the LignoBoost process</b> <i>Presenter: Gene Christiansen, Valmet</i>
9:00–9:30	<b>A LignoForce™ Lignin Recovery System at Hinton Pulp</b> <i>Presenter: Jon Foan, NORAM Engineering</i>
9:30–10:00	<b>Treating Kraft Mill Extract Using Bipolar Membrane Electrodialysis</b> <i>Presenter: Joe Genco, University of Maine</i>
10:00 – 10:30 AM	<b>Break</b>
10:30 – 12:00 PM	<b>Session 43: Black Liquor &amp; Biofuel Corrosion</b> <i>Session Chair: Chris Thompson, FPIInnovations</i>
10:30–11:00	<b>Corrosion Monitoring and Root Cause Identification in High Solids Concentrators</b> <i>Presenter: Jarmo Kahala, Savcor Oy</i>
11:00–11:30	<b>Flow Induced Accelerated Corrosion in Pulping Liquors</b> <i>Presenter: Preet Singh, Georgia Tech</i>
11:30–12:00	<b>Materials Compatibility Issues With Biomass-Derived Oils</b> <i>Presenter: James Keiser, Oak Ridge National Laboratory</i>
<b>IBBC PROGRAM</b>	
1:45 – 3:00 PM	<b>Session 1: Welcome, Opening Remarks &amp; Keynote Presentation</b> <i>Session Chair: Bob Hurter, HurterConsult Inc.</i>
1:45–2:00	<b>Welcome &amp; Opening Remarks</b> <i>Bob Hurter, Biorefinery Committee Chair</i>
2:00–3:00	<b>Keynote Presentation: Carbon Recycling: How waste resources will frame a carbon smart future.</b> <i>Presenter: Derek Griffin, Lanzatech</i>
3:00 – 3:30 PM	<b>Break</b>
3:30 – 5:00 PM	<b>Session 2: Biomass</b> <i>Session Chair: William S. Fuller, FRM Consulting</i>
3:30–4:00	<b>U.S. South's biomass availability, prices, and market trends</b> <i>Presenter: Jacek Siry, University of Georgia</i>
4:00–4:30	<b>An overview the potentials for NanoClay Technology</b> <i>Presenter: Dr. John E. Woods, Cellulose Systems and Desert Control Institute</i>
4:30–5:00	<b>The role of Carbon Dioxide Removal Techniques to counteract anthropogenic climate change: BECCS vs. afforestation</b> <i>Presenter: Alice Favero, Georgia Tech</i>
5:00 – 5:30 PM	<b>Biorefinery Committee Meeting</b>
5:00 – 7:00 PM	<b>Reception</b>
5:00 – 7:00 PM	<b>Student Poster Session</b>

## IBBC Technical Program

### Thursday, October 29

8:30 – 10:00 AM	<b>Session 3: Conversion Pathways – Biochemical 1</b> <i>Session Chair: Mark Eiteman, University of Georgia</i>
8:30-9:00	<b>Bioethanol Production from Sweet Sorghum with Mechanical Pulping</b> <i>Presenter: Mikhail Levit, Valmet</i>
9:00-9:30	<b>Quality Evaluation of Dissolving Pulp Fabricated from Banana Plant Stem and Its Potential for Biorefinery</b> <i>Presenter: Atanu Kumar Das, Asian Institute of Technology</i>
9:30-10:00	<b>The Main Findings on LIGNODECO Project: Optimized Pre-Treatment of Fast Growing Woody and Nonwoody Brazilian Crops by Detailed Characterization of Chemical Changes Produced in the Lignin-Carbohydrate Matrix</b> <i>Presenter: Jorge Luiz Colodette, Universidade Federal de Vicosa</i>
8:30 – 10:00 AM	<b>Session 4: Biomass – Thermo</b> <i>Session Chair: Chris Dietel, DTE Energy Services</i>
8:30-9:00	<b>Fuel and Bulk Flow Properties of Coal and Torrefied Wood Mixtures for Co-Firing Applications</b> <i>Presenter: Sudhagar Mani, University of Georgia</i>
9:00-9:30	<b>Environmental Assessment of Aviation Biofuel: Gasification with Fischer Tropsch Using Forest Biomass from the US Southeast</b> <i>Presenter: Valerie Thomas, Georgia Tech</i>
10:00 – 10:30AM	<b>Break</b>
10:30 – 12:00 PM	<b>Session 5: Conversion Pathways – Biochemical 2</b> <i>Session Chair: Jean-Pierre Bousquet, Valmet</i>
10:30-11:00	<b>Engineered Microbial Consortia for the Conversion of Lignocellulosic Hydrolysates</b> <i>Presenter: Mark Eiteman, University of Georgia</i>
11:00-11:30	<b>Drystill's Low Temperature Low Energy Distillation</b> <i>Presenter: Ian McGregor, Drystill Technologies</i>
11:30-12:00	<b>Hybrid Opportunities for Biocellulosic Projects in the Pulp and Paper Industry</b> <i>Presenter: Marc Sabourin, Leaf Resources Limited</i>
10:30 – 12:00 PM	<b>Session 6: Pellet Utilization for Bioenergy Panel</b> <i>Session Chair: Sudhagar Mani, University of Georgia</i>
10:35 – 10:55	<b>Forest Biomass: DOE's Perspective</b> <i>Presenter: Dr. Stokes, Bryce, DOE</i>
10:55 – 11:15	<b>Wood Pellet Market Perspective</b> <i>Presenter: Harold L. Arnold, Fram Renewable Fuels</i>
11:15 – 11:35	<b>CAWES: Realizing the Commercialization of Sustainable Torrefaction Technologies</b> <i>Presenter: Linoj Kumar, Herty Advanced Material Development</i>
11:35 – 12:00	<b>Panel Discussion &amp; Q/A</b>
12:00 – 1:30 PM	<b>Lunch</b>



## IBBC Technical Program

### Thursday, October 29 (cont.)

1:30 – 3:00 PM	<b>Session 7: Conversion Pathways I</b> <i>Session Chair: Chris Dietel, DTE Energy Services</i>
1:30–2:00	<b>Options and Economics For Fluidized Bed Combustion of Pulp and Paper Mill Sludge and Residuals</b> <i>Presenter: Mike Grimm, Outotec Energy Products</i>
2:00–2:30	<b>Impact of Nitrogen Removal on Biomethane Production from Algae</b> <i>Presenter: Naga Sirisha Parimi, University Of Georgia</i>
2:30- 3:00	<b>High Titer Ethanol and Lignosulfonate Production From SPORL, Pretreated: Process Optimization and Pilot-Scale Demonstration</b> <i>Presenter: J.Y Zhu, US Forest Products Lab</i>
3:00 – 3:30 PM	<b>Break</b>
3:30 – 5:00 PM	<b>Session 8: Conversion Pathways - Pretreatments</b> <i>Session Chair: J.Y. Zhu, US Forest Products Lab</i>
3:30–4:00	<b>Hot Water and Alkaline Pretreatments for Wheat Straw</b> <i>Presenter: Danny Haynes, Akzo Nobel</i>
4:00–4:30	<b>AVAP® Fractionation Process – The Excellent Platform for Biorefineries</b> <i>Presenter: Mikhail Iakovlev, American Process Inc.</i>
4:30–5:00	<b>Hot Water Pre-Extraction of Bagasse at Low Liquid to Solid Ratio at 190 °C</b> <i>Presenter: Mehmet Sefik Tunc, American Process Inc.</i>
5:00 – 5:30 PM	<b>Thermochemical Subcommittee</b>
5:00 – 5:30 PM	<b>Biomass Supply Subcommittee</b>
5:00 – 5:30 PM	<b>Biochemical Subcommittee</b>
5:00 – 7:00 PM	<b>Reception</b>
7:30–10:00 PM	<b>IBBC Conference Dinner at Ray's in the City.</b> <i>Additional Registration Fee Required. \$65</i>

### Friday, October 30

8:30 – 10:00 AM	<b>Session 9: Bioproducts</b> <i>Session Chair: Danny Haynes, Akzonobel</i>
8:30–9:00	<b>Formulating Green Chemicals: Reinventing Value for Downstream Markets</b> <i>Presenter: Timothy Staub, Green Biologics</i>
9:00–9:30	<b>Water Slurry</b> <i>Presenter: J.Y. Zhu, US Forest Products Lab</i>
9:30–10:00	<b>Cellulose Filaments Reinforced Low Density Polyethylene</b> <i>Presenter: Abdou Khadri Diall, Université du Québec a Trois Rivières</i>
10:00 – 10:30 AM	<b>Break</b>
10:30 – 12:30PM	<b>Session 10: Projects and Case Studies</b> <i>Session Chair: Virginie Chambost, Envertis</i>
10:30–11:00	<b>Exploring Strategies for the Lignin-Based Biorefinery</b> <i>Presenter: Paul R. Stuart, Envertis</i>
11:00–11:30	<b>CAPM and ROCE Modeling of Forestry for Biomass, Biofuels and Biochemicals</b> <i>Presenter: Lawrence Sullivan, Lawrence D. Sullivan &amp; Company Inc.</i>
11:30–12:00	<b>Techno-Economic Analyses of a Co-Located Succinic Acid Plant with a Kraft Pulp Mill</b> <i>Presenter: Charles Culbertson, North Carolina State University</i>
12:00–12:30	<b>How Brazilian Pulp Mills Will Look Like in the Future</b> <i>Presenter: Adriano Mariano, University of Campinas</i>

**Register before Sept. 25  
for best rates!**

## **IBBC Bookstore**

Order these books and pick them up when you're at IBBC.

### ***Integrated Biorefineries: Design, Analysis and Optimization***

Special Conference Price: \$120  
Order Code: 12INTBIO

### ***Introduction to Biofuels***

Special Conference Price: \$100  
Order Code: 11INTBIO

### ***Biomass to Renewable Energy Processes***

Member: \$100  
Non-member: \$130  
Order code: 09BIOMASS

### ***Biomass to Biofuels: Strategies for Global Industries***

Member: \$83  
Non-member: \$90  
Order Code: 11BIOFUELS

### ***Biocatalysis and Bioenergy***

Member: \$140  
Non-member: \$150  
Order Code: 11BIOCAT

### ***Biomass and Alternate Fuel Systems: An Engineering and Economic Guide***

Member: \$70  
Non-member: \$89  
Order Code: 10BIOALT

### ***Biomass Gasification and Pyrolysis***

Member: \$125  
Non-member: \$135  
Order Code: 11PYROL

## **Registration**

### **Two Ways to Register:**

1. Online at [tappi-ibbc.org](http://tappi-ibbc.org)
2. By phone: call 1.800.332.8686 (US), 1.800.446.9431 (CAN)  
+1.770.446.1400 (Worldwide)

### **Registration Fees and Meals**

Full IBBC Conference registration includes access to all IBBC functions and PEERS Bridge Sessions on Wednesday. Some meals are included in the cost of your registration, in addition the hotel and surrounding areas provide additional dining choices and great networking opportunities.

### **Hotel Information**

IBBC, along with the 2015 TAPPI PEERS Conference will take place at:

#### **Hyatt Regency Atlanta**

265 Peachtree Street | Atlanta, GA 30303  
1-888-591-1234

Rates for PEERS/IBBC participants are \$159\* single/double occupancy.

(\*Nightly rate listed does not include Ga. state tax of 8%, an occupancy tax of 8% and a \$5 transportation improvement fee.)

Government per diem rates are available within the TAPPI block. Please contact Hyatt Central Reservations at 1-888-421-1442 and refer to 2015 TAPPI PEERS/IBBC Conference.

To make reservations, go online to [tappi-ibbc.org](http://tappi-ibbc.org) or call 1-888-591-1234. Cut-off date for discounted hotel reservations is October 5, 2015.

Suites are available at a special discount price. Please contact Ed Robie at [erobie@tappi.org](mailto:erobie@tappi.org) for more information.

*Please note: TAPPI has negotiated complimentary internet service in all guest rooms for all attendees booked under the conference rate over the event dates of October 23 -30, 2015. Valet parking rates are \$32 per night for all attendees booked under the conference rate over the event dates of October 23 -30, 2015.*

### **Car Rental**

Avis offers special rates to IBBC participants.  
Call 1.800.831.8000 and refer to code AWD: #U226600.



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