

Frontiers in Biorefining

*Biobased Products
from Renewable Carbon*

Annual International Conference

October 19-22, 2010

St. Simons Island, Georgia, USA



CRC

Center for Renewable Carbon
University of Tennessee Institute of Agriculture



Committee Members

Technical Committee Members

Bruce Dale – Michigan State University
Bob Fireovid - USDA Agricultural Research Service
Stephen Kelley – North Carolina State University
Leo Manzer – Catalytic Insights
Martin Patel – University of Utrecht
Gene Petersen – National Renewable Energy Laboratory
Pat Smith – Archer Daniels Midland

Scientific Committee Members

Timothy Rials – The University of Tennessee
Joseph Bozell – The University of Tennessee
Nicole Labbé – The University of Tennessee

Conference Schedule

Tuesday Evening

5:00-8:00 pm Registration/Social hour

Wednesday Morning

7:30-8:30 Breakfast and Welcome

Plenary Session: Biorefinery Concepts for Chemicals and Products

8:45-9:00 Welcome and opening remarks

Timothy Rials, University of Tennessee

9:00-9:30 **John Ralph, University of Wisconsin**

Altering plant cell wall biosynthesis to improve biomass processing

9:30-10:00 **Roberto Rinaldi, Max-Planck-Institut**

Recent efforts for depolymerization of cellulose in ionic liquids

10:00-10:30 **Maureen McCann, Purdue University**

Tailoring biomass to fit the biofuels pipeline

10:30-11:00 Coffee Break

11:00-11:30 **Richard Dixon, Samuel Roberts Noble Foundation**

Redesigning feedstocks for improved bioprocessing

11:30-12:00 **Mark Mascal, University of California Davis**

The efficient conversion of sugars, cellulose, and cellulosic biomass into furan- and levulinic-based chemicals

12-1:30 Lunch

Dave Crowe and Greg Letarte, Louisiana Pacific

A forest products industry member's view of biobased products

Wednesday Afternoon

Session 2A

From Pretreatment to Fractionation

1:30-2:00 Michael Ladisch, Purdue University

Pretreatment for biobased products

2:00-2:30 Robin Rogers, University of Alabama

How can we improve the dissolution and recovery of biopolymers from biomass in ionic liquids specifically for biofuels applications?

2:30-3:00 Adriaan van Heiningen, University of Maine

Which fractionation process can overcome techno-economic hurdles of a lignocellulosic biorefinery?

3:00-3:30 Coffee Break

3:30-4:00 Brad Holmes, JBEI

Advanced Biofuels - Research progress at the Joint BioEnergy Institute

4:00-4:30 John Collier, Florida State University

Enzymatic bioprocessing of cellulose in NMMO

4:30-5:00 Lew Christopher, South Dakota School of Mines & Technology

Chemicals and products from the integrated forest biorefineries

Session 2B

Chemicals from Carbohydrates

1:30-2:00 Jesse Bond, University of Wisconsin

Advances in lignocellulosic biorefining: strategies for the production and application of γ -valerolactone

2:00-2:30 Joe Bozell, University of Tennessee

Self-assembly of biobased bolaamphiphiles as sources of nanostructural materials

2:30-3:00 Kevin Edgar, Virginia Tech

Novel polysaccharide derivatives for advanced applications from biomass

3:00-3:30 Coffee Break

3:30-4:00 Steven Kelley, North Carolina State University

Integrated biorefinery development for carbohydrate production

3:30-4:00 Yasar Demirel, University of Nebraska

Process development for manufacturing propylene carbonate and poly(propylene carbonate) from propylene oxide and carbon dioxide

4:30-5:00 Bryan Bals, Michigan State University

Co-producing animal feed and fuel at regional biomass processing depots

Wednesday Evening

7:00-9:00 pm Poster Session/Reception

Thursday Morning

Session 3A

Catalysis in the Biorefinery

9:00-9:30 Ayusman Sen, Pennsylvania State University

One step catalytic conversion of biomass-derived carbohydrates to chemicals and transportation fuels

9:30-10:00 Susanne Zibek, Fraunhofer Institute

Biotechnological production of long chain α,ω -dicarboxylic acids and epoxy derivatives from plant oil

10:00-10:30 Brent Shanks, Iowa State University

Catalysis for biorenewable chemicals: creating a generalized production paradigm

10:30-11:00 Coffee Break

11:00-11:30 Andrew Held, Virent Energy Systems

Production of renewable aromatic chemicals using Virent's catalytic bioforming[®] process

11:30-12:00 Kenneth Nicholas, University of Oklahoma

Rhenium catalyzed deoxydehydration of polyols by sulfite

Session 3B

Advances in Analytical Techniques

9:00-9:30 David Johnson, National Renewable Energy Laboratory

Effect of pretreatment on biomass structure and cellulose properties

9:30-10:00 Brian Davison, Oak Ridge National Laboratory

Characterization of biomass for understanding recalcitrance: approaches from the Bioenergy Science Center

10:00-10:30 Barbara Evans, Oak Ridge National Laboratory

Real-time visualization of lignocellulose deconstruction by integration of neutron scattering, spectroscopy, microscopy, and computer simulation

10:30-11:00 Coffee Break

11:00-11:30 Nicole Labbé, University of Tennessee

High throughput technology in the bioenergy and biochemicals field

11:30-12:00 Orlando Rojas, North Carolina State University

Surface chemistry in profiling biomass conversion

Thursday Afternoon

Free Time

Thursday Evening

Conference Dinner and Keynote Presentation

7:00 -9:00 pm Kelly Tiller, Genera Energy, LLC

Growing a bio-based economy... from the ground up

Friday Morning

Session 4A

Session 4B

7:30-8:30 Breakfast

7:30-8:30 Breakfast

Chemicals From Lignin

9:00-9:30 John Holladay, Pacific Northwest National Laboratory

An overview of opportunities from lignin coupled in the mission of the U.S. Department of Energy

9:30-10:00 Fred Baker, Oak Ridge National Laboratory

Utilization of sustainable resources for production of carbon fiber materials for structural and energy efficiency applications

10:00-10:30 Paul Dauenhauer, University of Massachusetts

Particle pyrolysis for bio-renewable chemicals from lignocellulosic biomass

Developing the Industrial Biorefinery

9:00-9:30 John Briggs, The Dow Chemical Company

Greening the olefin chain: new technology for the conversion of renewable glycerol to commodity and specialty chemicals

9:30-10:00 Tang Wong/Maggie Cervin, Goodyear/Danisco

Why Bioisoprene™? Situation analysis, open innovation and technology development

10:00-10:30 Ed de Jong, Avantium Chemicals

Furanics: versatile molecules applicable for biopolymers and biofuels applications

10:30-11:00 Coffee Break

10:30-11:00 Coffee Break

11:00-11:30 Mario Eden, Auburn University

Co-production of high value oxygenates and olefins through integrated biomass fractionation, gasification and advanced catalytic conversion

11:30-12:00 Thomas Elder, USDA Forest Service

Gasification of woody biomass at the pilot-scale

11:00-11:30 Sudip Chowdhury, Virginia Tech

Application of small specimen rheology and ²H quadrupolar interaction in biomass analysis

11:30-12:00 Joe Schroeder, NatureWorks LLC

NatureWorks INGENEO™ biopolymers

12:00 - 1:00 Lunch

Thank you to all of our FIB sponsors for your support:

Perkin-Elmer Life Sciences

Louisiana-Pacific Corporation

North Central Sun Grant Center

North Carolina State University

UT Ag Research