

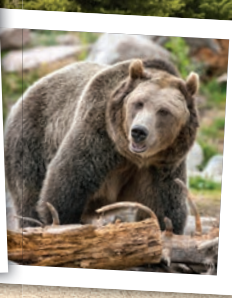


58th SWST International Convention

Renewable Materials and the Bio-Economy

June 7-12, 2015

Jackson Lake Lodge, Grand Teton National Park,
Jackson, Wyoming



Sunday, June 7

- 3:00-6:00 Registration & Packet Pickup (Outside Explorers Room)
- 6:00-8:00 Opening Ceremony and Reception - Explorers/Trappers Room

Monday, June 8

- 7:00-8:00 Registration & Packet Pickup (Outside Explorers Room)
- 8:00-8:15 Welcome - Eric Hansen, General Chair of Convention; Oregon State University, USA
(All sessions will be held in Explorers Room, unless otherwise noted.)

- 8:15 to 10:00 **Biomass Chemistry for a Greener Environment**
Session Moderator: Michael Wolcott, Washington State University, USA

- 8:15-8:35 Jing Luo, Beijing Forestry University, China
Soybean Meal-based Adhesive Enhanced by a Commercial Epoxy Resin and a Post Heat Treated Process
- 8:35-8:55 Junming Xu, West Virginia University, USA
Fractionation of the Liquefied Lignocellulosic Biomass for the Production of Platform Chemicals
- 8:55-9:15 Sheldon Shi, University of North Texas, USA
Nanoparticle Impregnation Treatment of Natural Fiber for Functional Biocomposites
- 9:15-9:35 Weixing Gan, Guangxi University, China
Synthesis and Characterization of Sucrose-Melamine-Formaldehyde Adhesives
- 9:35-9:55 Yuxiang Huang, Beijing Forestry University, China
Preparation and Characterization of Activated Carbon Fibers from Liquefied Wood by KOH Activation
- 10:00-10:15 COFFEE BREAK

- 10:15-12:00 **Design for Environment: Use of Renewable Materials**
Session Moderator: Andreja Kutnar, University of Primorska, Slovenia

- 10:15-10:35 Philipp Sommerhuber, Thünen Institute of Wood Research, Germany
Environmental Product Design of Wood-Plastic Composites
- 10:35-10:55 Bruce Lippke, University of Washington, USA
Carbon Policy Failures and the Opportunity for Better Uses of Wood
- 10:55-11:15 Richard Bergman, US Forest Products Laboratory, USA
Life-Cycle Inventory Analysis of Laminated Veneer Lumber Production in the United States

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Monday, June 8 *continued*

- 11:15–11:35 Dick Sandberg, Luleå University of Technology, Sweden
Modification, Product Properties, and Environmental Impacts in Thermal Wood Processing
- 11:35–11:55 Pablo Crespell, FPInnovations, Canada
Tall Buildings – An Approach to Modelling Economic, Carbon, and Employment Effects
- 12:00–1:00 LUNCH

1:00–2:45 **Wood-based Green Fuels and Chemicals**
Session Moderator: Patricia Townsend, Washington State University, USA

- 1:00–1:20 Kevin Zobrist, Washington State University, USA
Beyond Biofuels: Shifting from Hardwood-based Transportation Fuels to Biochemicals
- 1:20–1:40 Michel Delmas, University of Toulouse, France
Wood Residues as Feedstock for the 3G CIMV Biorefinery
- 1:40–2:00 Armando McDonald, University of Idaho, USA
Development of a New Nanocatalyst for Upgrading Wood Pyrolysis Bio-oil to Green Fuels
- 2:00–2:20 Stephen Kelley, North Carolina State University, USA
Effects of Feedstock Variations in Thermochemical Conversion
- 2:20–2:40 Sun Joseph Chang, Louisiana State University, USA
An Economic Analysis of Bagasse as a Bio-fuel Feedstock
- 2:45–3:00 COFFEE BREAK

3:00–4:45 **Biomass Energy: Innovations, Economic Realities, and Public Perception**
Session Moderator: Nikki Brown, Pennsylvania State University, USA

- 3:00–3:20 Omar Espinoza, University of Minnesota, USA
Overcoming Barriers to Biomass Cogeneration in the U.S. Wood Products Industry
- 3:20–3:40 Jeremy Withers, Virginia Technological University, USA
Internal and External Barriers Impacting Non-food Lignocellulosic Biofuel Projects in the United States
- 3:40–4:00 Changlei Xia, University of North Texas, USA
Self-Activation Process for Biomass Based Activated Carbon
- 4:00–4:20 Robert Rice, University of Maine, USA
Loss-on-Ignition Testing of Wood Ash
- 4:20–4:40 Nikki Brown, Pennsylvania State University, USA
Fuel Bricks from Lignin and Coal Fines
- 5:00–6:00 Business Meeting & Distinguished Service Award

Tuesday, June 9

8:15–10:00 **Early Stage Researcher Full Oral Slot (8 minutes)**
Session Moderators: David DeVallance, West Virginia University, USA and Tobias Keplinger, ETH Zurich, Switzerland

- 8:15–8:20 Introduction
- 8:20–8:28 Claire Monot, Grenoble INP-Pagora, France
Development of a Sulfur-free Delignification Process for Softwood Biorefineries



Tuesday, June 9 *continued*

- 8:30–8:38 Lufei Li, Beijing Forestry University, China
Activated Carbon Monolith Derived from Bio-char
- 8:40–8:48 Mubarak Adesina, Idaho State University, USA
Reliability Analysis of Wood Floor Vibrations Considering Sheathing Discontinuities
- 8:50–8:58 Peter Kessels Dadzie, Kumasi Polytechnic, Ghana
Predicting Bending Properties of Stem and Branch Wood of a Tropical Hardwood Species from Density and Moisture Content
- 9:00–9:08 Paige McKinley, Oregon State University, USA
Multi-scale Investigation of Adhesive Bond Durability
- 9:10–9:18 Oluwafemi Oluwadare, University of Ibadan, Nigeria
Potential of Seed Oil of *Hildegardia Barteri* (mast.) Kosterm for Biodiesel Production
- 9:20–9:28 Kojo Afrifah, Kwame Nkrumah University of Science and Technology, Ghana
Assessment of Factors Affecting the Quality of Sliced Veneer from Four Timber Species
- 9:30–9:38 Jussi Ruponen, Aalto University, Finland
Moisture Stability of Post-manufacture Thermally Modified Welded Birch (*Betula pendula L.*) Wood
- 9:40–10:00 Discussion
- 10:00–10:15 COFFEE BREAK
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- 10:15–12:00 **Early Stage Researcher Full Oral Slot (8 minutes)**
Session Moderators: Dick Sandberg, Luleå University of Technology, Sweden and Bonnie Yang, Mississippi State University, USA
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- 10:15–10:20 Introduction
- 10:20–10:28 Massih Nilforoushan, University of Utah, USA
Dimensional Optimization of Beetle Kill Pine Interlocking Cross Laminated Timber (ICLT).
- 10:30–10:38 Xuehua Wang, Nanjing Forestry University, China
Shearing Behavior of SIP Wall Shelled with Bamboo Scrimber Panel
- 10:40–10:48 Richard Bergman, US Forest Products Laboratory, USA
Life-Cycle Inventory Analysis of I-joist Production in the United States
- 10:50–10:58 Thanh Huynh, Oregon State University, USA
Modern Building Systems' 28' x 64' Modular Structure: SAP 2000 Wind Load Analysis
- 11:00–11:08 Jimmy Thomas, The Rubber Board, India
3D Visualisation of Spiral Grain and Compression Wood in *Pinus Radiata* with Fluorescence and Circular Polarised Light Imaging
- 11:10–11:18 Patrick Dixon, Massachusetts Institute of Technology, USA
Micro-compression of Solid Bamboo Fibers
- 11:20–11:28 Johann Trischler, Linnæus University, Sweden
Particleboards Made out of Reed Canary Grass Glued with an Acrylic Adhesive
- 11:30–11:38 Kunqian Zhang, University of British Columbia, Canada
Low Density Moso Bamboo Surface OSB
- 11:40–12:00 Discussion
- 12:00–1:00 LUNCH



Tuesday, June 9 *continued*

1:00–2:00	Early Stage Researcher Speed Slot (3 minutes) Session Moderator: Michael Burnard, University of Primorska, Slovenia
1:00–1:03	Mesut Uysal, Purdue University, USA Determining Tension and Compression Strength and Basic Manufacturing Feasibility of CNC Router-cut Joints
1:03–1:06	Zhengbin He, Beijing Forestry University, China Heat and Mass Transfer during Ultrasound-Assisted Vacuum Drying of Wood
1:06–1:09	Luyi Chen, University of Minnesota, USA Comparative Life Cycle Analysis of Fossil and Bio-based PET Bottles
1:09–1:12	Bonnie Yang, Mississippi State University, USA Development of Industrial Laminated Bridge Planks from Southern Pine Lumber
1:12–1:15	Kyle Sullivan, Oregon State University, USA Effect of Cross-Laminated Timber Floor Diaphragm Orientation on Shear Stiffness and Strength
1:15–1:18	Cagatay Tasdemir, Purdue University, USA Trends in U.S. Furniture Trade
1:18–1:21	Shupin Luo, Beijing Forestry University, China Investigation of Lignin as Additive on the Properties of Wood Flour/Polypropylene Composites
1:21–1:24	Zachary Miller, North Carolina State University, USA Influence of Lignin Modification on Microfibril Angle in Young Transgenic Black Cottonwood Trees
1:24–1:27	Mesut Uysal, Purdue University, USA Increasing Service Life of Wooden Chairs
1:27–1:30	Jaromir Milch, Mendel University in Brno, Czech Republic Analysis of Mechanical Behavior of All-wooden Dowel Joint Using FEM and DIC
1:30–1:33	Daniel Way, Oregon State University, USA Manufacturing and Mechanical Characterization of a 3D Molded Core Strand Panel
1:33–1:36	Jinxue Jiang, Washington State University, USA Multi-technique Characterization of Douglas-fir Cell Wall Deconstruction during Mechanical Milling Pretreatment
1:36–1:39	Kendall Conroy, Oregon State University, USA Gender Diversity Impacts on Firm Performance in Forest Sector Firms
1:39–2:00	Discussion
2:00–4:00	Mini Workshops (Wrangler and Prospector Rooms)
4:15–7:15	Poster Session and Student Poster Competition (with Cash Bar and Refreshments) Moderator: Frederick Kamke, Oregon State University, USA (Wapitii and Antelope Rooms)

Wednesday, June 10

Optional Tour Day - Not included in Registration



Thursday, June 11

8:15–10:00	Nano to Macro Scale Wooden Composites Session Moderator: Levente Dénes, University of West Hungary, Hungary
8:15–8:35	Armando McDonald, University of Idaho, USA Grafted α-cellulose - poly(3-hydroxybutyrate-co-3-hydroxyvalerate) Biocomposites
8:35–8:55	Changle Jiang, West Virginia University, USA Synthesis of TEMPO Cellulose Nanofibrils Stabilized Copper Nanoparticles and its Release from Antimicrobial Polyvinyl Alcohol Film
8:55–9:15	Levente Dénes, University of West Hungary, Hungary Hierarchical PLA Structures Used for Wooden Sandwich Panel's Core Fortification
9:15–9:35	Todd Shupe, Louisiana State University, USA Development of Wood Fiber-Polypropylene Laminates with Layer-By-Layer Assembly of Kraft Pulp Hand-Sheets and Polypropylene Films
9:35–9:55	Blake Larkin, Oregon State University, USA Effective Adhesive Systems and Optimal Bonding Parameters for Hybrid CLT
10:00–10:15	COFFEE BREAK
10:15 - 12:00	Nano to Macro Scale Wooden Composites Session Moderator: Levente Dénes, University of West Hungary, Hungary
10:15–10:35	Frederick Kamke, Oregon State University, USA Micro X-Ray Computed Tomography Study of Adhesive Bonds in Wood
10:35–10:55	Ilona Peszlen, North Carolina State University, USA Riverbank Erosion Analysis with Root Dendrochronology
10:55–11:15	Pamela Rebolledo-Valenzuela, Université Laval, Canada Gas Permeability and Porosity of Fiberboard Mats as a Function of Density
11:15–11:35	Min Niu, Fujian Agriculture and Forestry University, China Pyrolysis of Si-Al Compounds and Plant Fiber in Burned Ultra-low Density Fiberboard
11:35–11:55	Xiaomei Liu, Mississippi State University, USA Characterization of Polymerization of Isocyanate Resin and Phenolic Resins of Different Molecular Weights. Part I: Morphology and Structure Analysis
12:00–1:00	LUNCH
1:00–2:45	Timber Physics from 1 μm to 10 m Session Moderator: Samuel Zelinka, US Forest Products Laboratory, USA
1:00–1:20	Samuel Zelinka, US Forest Products Laboratory, USA Subcellular Electrical Measurements as a Function of Wood Moisture Content
1:20–1:40	Oliver Vay, Wood K Plus, Austria Thermal Conduction Behavior of Wood at Macroscopic and at Cell Wall Level
1:40–2:00	Hong-jian Zhang, Southwest Forestry University, China Mechanism and Regularity of Bending Creep Behavior of Solid Wood Beam in Varying Humidity
2:00–2:20	Guizhou Wang, North Carolina State University, USA Moisture and Heat Transfer in Cross Laminated Timber
2:20–2:40	Petr Cermak, Mendel University in Brno, Czech Republic Analysis of Dimensional Stability of Thermally Modified Wood Affected by Wetting-Drying Cycles

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Thursday, June 11 *continued*

2:45–3:00	COFFEE BREAK
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3:00–4:45	Novel Techniques for a New Era of Wood Construction Session Moderator: Arijit Sinha, Oregon State University, USA
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3:00–3:20	Jerome Johnson, University of Wisconsin-Stout, USA Analysis and Development of Green Roof Structures
3:20–3:40	Robert M. Knudson, FPInnovations, Canada Wood Solutions to Satisfy Energy Codes in Building Construction
3:40–4:00	Zahra Ghorbani, University of Utah, USA Easy Assembly Systems: Integration of Post-Tensioned Heavy Timber and Smart Architecture in Construction Practices
4:00–4:20	Arijit Sinha, Oregon State University, USA Design and Performance of Steel Energy Dissipators to be Used in Cross-Laminated Timber Self-Centering Systems
4:20–4:40	Kristopher Walker, Oregon State University, USA Use of Virtual Visual Sensors in Obtaining Natural Frequencies of Timber Structures

Friday, June 12
SWST Concurrent Session (Explorers Room)

8:15–10:00	Treatments and Durability Session Moderator: Dodi Nandika, Bogor Agricultural University, Indonesia
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8:15–8:35	Paul Frederik Laleicke, Oregon State University, USA Non-Destructive Detection and Monitoring of Durability Issues in Full-Scale Wall Envelopes under Accelerated Weathering
8:35–8:55	David Bueche, Hoover Treated Wood Products, USA What is Fire-Retardant-Treated Wood?
8:55–9:15	Charles Edmunds, North Carolina State University, USA Fungal Pretreatment of Genetically Modified Black Cottonwood - Merging Novel Low-input Fungal Pretreatment with Next-generation Lignocellulosic Feedstocks
9:15–9:35	Roger Rowell, University of Wisconsin, USA Understanding Decay Resistance, Dimensional Stability and Strength Changes in Acetylated Wood
9:35–9:55	H. Michael Barnes, Mississippi State University, USA Effect of Preservative Treatment on I-joint Bending Stiffness
10:00–10:15	COFFEE BREAK

10:15–12:00	Wood Quality and Improvement Session Moderator: Wayan Darmawan, Bogor Agricultural University, Indonesia
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10:15–10:35	Qi-Lan Fu, Université Laval, Canada Optimization of Thermo-hygro-mechanical Densification Process of Sugar Maple Wood
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Friday, June 12 - SWST Concurrent Session *continued*

- 10:35–10:55 Per Otto Flæte, Norwegian Institute of Wood Technology, Norway
Non-destructive Pre-harvest Measurement of Diameter Profiles of Standing Mature Pine Trees by Terrestrial Laser Scanning (TLS)
- 10:55–11:15 Brian Bond, Virginia Tech, USA
Properties of Plantation Grown KOA
- 11:15–11:35 Wayan Darmawan, Bogor Agricultural University, Indonesia
Wear Characteristics of Multilayer Coated Cutting Tools in Milling Wood and Wood-Based Composites
- 11:35–11:55 Victor Grubii, Luleå Tekniska Universitet, Sweden
Influence of Wetting Processes on Surface Quality during Scots Pine Planing
- 12:00–1:00 LUNCH

1:00–2:45 Fiber Properties Chain: From Cell Wall to End Products
Session Moderator: Jean-Michel Leban, INRA, France

- 1:00–1:20 Jean-Michel Leban, INRA, France
Assessing Timber MOE&MOR in the Forest Resources: What we have learned during the Last Twenty Years
- 1:20–1:40 Patrick Dixon, Massachusetts Institute of Technology, USA
Bending Properties of Clear Bamboo Culm Material from Three Species
- 1:40–2:00 Milan Sernek, University of Ljubljana, Slovenia
Tannin-based Foams from the Bark of Coniferous Species
- 2:00–2:20 Gloria Oporto, West Virginia University, USA
Drying Cellulose-Based Materials Containing Copper Nanoparticles
- 2:20–2:40 Zachary Miller, North Carolina State University, USA
Anatomical, Physical and Mechanical Properties of Transgenic Loblolly Pine
- 2:45–3:00 COFFEE BREAK

3:00–4:45 Fiber Properties Chain: From Cell Wall to End Products
Session Moderator: Jean-Michel Leban, INRA, France

- 3:00–3:20 Tuhua Zhong, West Virginia University, USA
Hybrids of TEMPO Nanofibrillated Cellulose and Copper Nanoparticles Embedded in Polyvinyl Alcohol Films for Antimicrobial Applications
- 3:20–3:40 Bonnie Yang, Mississippi State University, USA
Comparison of Nondestructive Testing Methods for Evaluating No.2 Southern Pine Lumber: Bending Stiffness
- 3:40–4:00 Bambang Suryoatmono, Parahyangan Catholic University, Indonesia
Distortion Energy Criterion for Estimating Dowel Bearing Strength of Timber Member Loaded at Angle
- 4:00–4:20 Kate Semple, University of British Columbia, Canada
Comparison of Stranding and Strand Quality of Two Giant Timber Bamboo Species; Moso (*Phyllostachys pubescens* Mazel) and Guadua (*Guadua angustifolia* Kunth) Using a CAE 6/36 Disk Flaker
- 4:20–4:40 Justin Crouse, University of Maine, USA
Temperature and Humidity Dependent Mechanical Performance of Nanocellulose and its Composites

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Friday, June 12

IUFRO 5.10 Forest Products Marketing and Business Concurrent Session (Homesteader Room)

8:15–10:00	IUFRO 5.10 Forest Products and Communities Session Moderator: Rajat Panwar, University of British Columbia, Canada
8:15–8:35	Rajat Panwar and Rob Kozak, University of British Columbia, Canada Business Management Research in the Forestry Sector: Past, Present and Future Directions
8:35–8:55	Anne Toppinen, University of Helsinki, Finland Challenges in Communicating Forest Industry Sustainability to the General Public: Results from a Four-country Comparison in Europe
8:55–9:15	Jianping Sun, Guangxi University, China Study on 1/f Features of Wood Texture Changes Based on Spectrum Analysis
9:15–9:35	Matti Stendahl, Swedish University of Agricultural Sciences, Sweden Operations Management, Cooperation and Negotiation in the Wood Supply Chain – The Relationship Between Sawmills and Sawlog Suppliers
9:35–9:55	E. M. (Ted) Bilek, USDA Forest Products Laboratory, USA Nanocellulose Market Volume Projections: A Derived Demand Analysis
10:00–10:15	COFFEE BREAK
10:15–12:00	IUFRO 5.10 Forest Products and Communities Session Moderator: Rajat Panwar, University of British Columbia, Canada
10:15–10:35	Henry Quesada-Pineda, Virginia Tech, USA A Demand-pricing Management Approach to Add Value in the U.S. Hardwood Industry
10:35–10:55	Kristian Bysheim, Norwegian Institute of Wood Technology, Norway Comparing Health, Emotional Well-being and Indoor Environment in Solid Wood and Brick Built Student Housing
10:55–11:15	Magnus Larsson, Swedish University of Agricultural Sciences, Sweden Mapping of Wood Supply Chains, a Case Study
11:15–11:35	Michael Burnard, University of Primorska, Slovenia Comparative Analysis of European Forest Sector Production 2008–2013
11:35–11:55	Eini Lowell, Pacific Northwest Research Station, USA Market Appeal of Hawaiian Koa Wood Product Characteristics: A Consumer Preference Study
12:00–1:00	LUNCH
1:00–2:45	IUFRO 5.10 Forest Products and Communities Session Moderator: Rajat Panwar, University of British Columbia, Canada
1:00–1:20	Jaana Korhonen, University of Helsinki, Finland To Own Forest or Not? Vertical Integration in Pulp and Paper Sector
1:20–1:40	Liina Häyrynen, University of Helsinki, Finland Exploring the Future Use of Forests in Finland: Perspectives from Sustainability Oriented Forest Owners
1:40–2:00	Ed Pepke, Dovetail Partners, France Impacts of Policies to Eliminate Illegal Timber Trade
2:00–2:20	Tobias Schauerte, Linnaeus University, Sweden Lean Thinking for Improving the Production and Material Flow: Increasing the Capacity and Profitability of a Swedish Wooden Single-Family House Producer

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Friday, June 12 - IUFRO 5.10 Concurrent Session *continued*

- 2:20–2:40** Sudipta Dasmohapatra, North Carolina State University, USA
Bio-Based Energy in the Southeast United States: A Stakeholder Perception Study
- 2:45–3:00** COFFEE BREAK
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- 3:00–4:45** **IUFRO 5.10 Forest Products and Communities**
Session Moderator: Rajat Panwar, University of British Columbia, Canada
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- 3:00–3:20** Wei-Yew Chang, University of British Columbia, Canada
Matching Market Signals to the Canadian Wood Products Value Chain: A Disaggregated Trade Flow Analysis
- 3:20–3:40** David DeVallance, West Virginia University, USA
Hotspot Markets and Specifier Perception for Wood-Based Materials in Appalachian LEED Building Projects
- 3:40–4:00** Iris Montague, USDA Forest Service, USA
The Forest Products in a Digital Age: The Use and Effectiveness of Social Media as a Marketing Tool
- 4:00–4:20** Manja Kitek Kuzman, University of Ljubljana, Slovenia
Demographic Changes and Challenges in the Woodworking Industry: Project W3B
- 4:20–4:40** Arsenio Ella, Forest Products Research and Development Institute, Philippines
Almaciga Resin and Wild Honey the Backbone of Indigenous Peoples in Palawan, the Philippines
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- 6:00–9:00** **Closing Ceremony and Barbecue Banquet - Pool Terrace Area**
(including Cowboy Music by Vince & Mindi)
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