

71st FPS International Convention Program

(subject to change)

Sunday, June 25th

8:30 am - 3:00 pm FPS Board Meeting

10:30 am - 3:00 pm - Student Excursion to Dorman Lake Lodge (optional)

3:30 - 5:00 pm Wood Bowl

5:00 - 7:00 pm Welcome Reception

Monday, June 26th

8:30 am - 10:00 am

Plenary Session I

Introduction and Welcome

Dr. Rubin Shmulsky, Sustainable Bioproducts Department Head, Mississippi State University

Building a Greenfield OSB Production Facility

Roy O. Martin, President, CEO & CFO, Roy O. Martin

Establishing a Culture of Innovation Excellence for the Future Bioeconomy

Trevor Raymond Stuthridge, Executive V-P, FP Innovations

Welcome Forest Products Industry

Phil Bryant, Governor of Mississippi

10:00 am - 10:30 am Break

10:30 am - 12:00 pm

1.1 Forest Products Education and Strategic Development

Session Chair: **Richard Vlosky**, *Louisiana Forest Products Development Center*

Co-Session Chair: **Byung-Dae Park**, *Kyungpook National University*

1.1.1 Successes and Failures in Restructuring Forest Products Programs to Enhance Their Appeal to Undergraduate Students

Xinfeng Xie, Michigan Technological University

1.1.2 The UBC Wood Products Processing Program – Past, Present and Future

Simon Ellis, University of British Columbia

1.1.3 Chinese Forest Products Education

Xiaojian Zhou, Southwest Forestry University

2.1 Forest Products Marketing

Session Chair: **Changyou Sun**, *Mississippi State University*

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- 2.1.1** Stock Market Responses to Antidumping and Countervailing Duties on Forest Products Imports in the United States
Changyou Sun, *Mississippi State University*
- 2.1.2** A Mid-Recession and Post-Recession Comparison of Chain-of-Custody Certification in the U.S. Value-Added Wood Product Manufacturing Sector
Cagatay Tasdemir, *Purdue University*
- 2.1.3** Survey Response Rates in the Forest Products Industry: What is the Norm?
Iris Montague, *US Forest Service*
- 2.1.4** Marketing a new undergraduate curriculum at Auburn University, “Sustainable Biomaterials and Packaging”
Brian Via, *Auburn University*

3.1 Wood Quality and Management

Session Chair: **Joseph Dahlen**, *University of Georgia*

- 3.1.1** Screening Elite Loblolly Pine Families for Structural Integrity with Near Infrared-Based Chemometric Models
Brian Via, *Auburn University*
- 3.1.2** Modeling Within-Tree and Regional Variation in Loblolly Pine Fiber Properties
Joseph Dahlen, *University of Georgia*
- 3.1.3** Variability in Southern Pine Wood Quality Data Determined by X-ray Densitometry: Considerations Related to Species, Tree Age, and Technique
Thomas Eberhardt, *USDA Forest Service*
- 3.1.4** Multivariate Modeling of Acousto-mechanical Response of Fourteen Year Old Loblolly Pine (*Pinus taeda*) to Variation in Wood Chemistry, Microfibril Angle and Density
Charles Essien, *Auburn University*

12:30 pm - 1:30 pm Student Luncheon

1:30 pm - 3:00 pm

1.2 Workforce Development and Gap

Session Chair: **Bill Martin**, *Franklin Furniture Institute, Mississippi State University*

Session Co-chair: **Paige McKinley**, *Boise Cascade Western Oregon*

- 1.2.1** The Mississippi Furniture Industry and Workforce Gap
Bill Martin, *Franklin Furniture Institute, Mississippi State University*
- 1.2.2** Logging Accident Database in Louisiana
Cornelis F. de Hoop, *Louisiana State University Agricultural Center*
- 1.2.3** How Young Professionals Can Impact the Forest Products Industry
Paige McKinley, *Boise Cascade Western Oregon*

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- 1.2.4** Current Health of the Logging Sector in the U.S. South
Richard Vlosky, *Louisiana Forest Products Development Center*

2.2 Lumber Research and Harvesting

Session Chair: **Grace Laurie**, *Mississippi State University*

Session Co-Chair: **Brian Via**, *Auburn University*

- 2.2.1** Wood Quality Evaluation of Mangium (*Acacia mangium* Willd) at 4-, 6-, and 8-year-old (Philippine Sites)

Marina Alipon, *Dept. of Science and Technology, Forest Products Research and Development Institute*

- 2.2.2** Effects of Knots on Longitudinal Shear Strength of Southern Pine

Yawei Cao, *Mississippi State University*

- 2.2.3** Loblolly Pine Logs Can be Segregated Using Acoustics for Lumber Modulus of Elasticity, Not for Modulus of Rupture

Joseph Dahlen, *University of Georgia*

- 2.2.4** Hardwood Log Grading: Refined Visual Grading Rules and Combined Scanning/Acoustic Systems

David DeVallance, **Rafael Azambuja**, *West Virginia University*, **Xiping Wang**, **Ed Thomas**, **Robert Ross**, *USDA Forest Service*, **Curt Hassler**, *Weyerhaeuser*

3.2 Bioenergy and Biorefining

Session Chair: **Jason Street**, *Mississippi State University*

Session Co-Chair: **Qi Li**, *College of Forestry, Shandong Agricultural University*

- 3.2.1** Dynamic Response and Damping Properties of Southern Yellow Pine Composites using High-Strain Rate Compressive Loading and Cantilever Beam Vibration Techniques

Jason Street, *Mississippi State University*

- 3.2.2** Synthesis and Characterization of Bio-oil-based Self-curing Epoxy Resin

Yusuf Celikbag, *Auburn University*

- 3.2.3** Effect of Biomass Chemical Composition on Bio-oil Production from Fast Pyrolysis

Qi Li, *College of Forestry, Shandong Agricultural University*

- 3.2.4** Thermally Modified Engineered Wood Products Durability

Mike Barnes, *Mississippi State University*

3:00 pm 3:30 pm Break

3:30-5:00 pm - MSU Department of Sustainable Bioproducts Tour

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5:00 pm - 7:00 pm

Poster Session

Session Chair: **Dr. Iris Montague**, *USDA Forest Service*

- 1 Overview of the Forest Sector in Kenya
Gilbert Ototo, *Louisiana Forest Products Center*
- 2 Wood Protection by β -cyclodextrin Complexes
Lili Cai, *Mississippi State University*
- 3 Nano-Chitosan Wood Treatment
Laya KhademiBami, *Mississippi State University*
- 4 Thermal Stability of Polyurethane Foams Made from Liquefied Yaupon Holly Wood
Xingyan Huang, *Louisiana State University*
- 5 Probable Zones of Destruction of Glued Laminated Timber in Bending
Ainur Otarbayeva, *L.N.Gumilyov Eurasian National University*
- 6 Sustainable Development – International Framework – Overview and Analysis in the Context of Forests and Forest Products – Green Business
Annika Hyytiä, *University of Helsinki*
- 7 Effect of Extrusion Cycles and Coupling Agent on the Properties of Wood Fiber/PP Composites
Birm-June Kim, *Kookmin University*
- 8 Modelling Wood Gluelam For New Cross Laminated Timber Development
Guangmei Cao, *Mississippi State University (Sustainable Bioproducts)*
- 9 Integrated Log Grading/Scanning
David DeVallance, *West Virginia University*
- 10 Nanocomposite from Modified Cellulose Nanocrystals (CNCs) and Polylactic Acid (PLA) for Packaging Films
Nicole Stark, *USDA FS, Forest Products Laboratory*
- 11 Wood Cell Wall-Derived Carbon with Nano-channels for Next Generation Electrochemical Energy Storage Devices
Xinfeng Xie, *Michigan Technological University*
- 12 Developing a Method for Direct DNA Analysis of Protists from Termite Hindgut
Juliet Tang, *USDA Forest Service, Forest Products Laboratory*
- 13 Influence of Hygrothermal Performance on Wood-frame Wall Due to Insulation Position and Thickness
Seong Jin Chang, *Soongsil University*
- 14 Defects or Asset? Using Non-Typical Wood to Create Niche Forest Product Markets
Shaneka Lawson, *USDA Forest Service*
- 15 Modeling Within-Tree and Regional Variation in Loblolly Pine Fiber Properties
Joseph Dahlen, *University of Georgia*

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- Modeling the Impact of Knot Size on the Mechanical Properties of Loblolly Pine Lumber Tested in Static
16 Bending
Joseph Dahlen, *University of Georgia*
- 17 Preparation of Highly Porous Activated Carbon from Biochar for CO₂ Capture
El Barbary Hassan, *Mississippi State University*
- 18 Synthesize and Characterization of Graphene Nanomaterials from Kraft Lignin
Xuefeng Zhang, *Mississippi State University*
- 19 Curing Behavior of Phenol Formaldehyde and Isoynate based Hybrid Resins: The Effect of Acetone
Xiaomei Liu, *Mississippi State University*
- 20 Cottonseed Meal Modified Urea Formaldehyde (UF) Resin for Wood Composites
Ming Liu, *Mississippi State University*
- 21 Experimental and Numerical Study of Moisture Transfer in Large Cross-Section Glulam
Rongrong Li, *Nanjing Forestry University*
- 22 Automated Lumber Grading
Logan Wells, *Purdue University*
- 23 Analysis of Bending Strength of CLT with Plywood Using Korean Larch
Kyoung-jung Kim, *Chungnam National University*
- 24 Additives in Biomass Pellets for Improvements in Physical Properties
Cody Blake, *Mississippi State University*
- Performance of Soy and Phenol Formaldehyde OSB Exposed to High Temperature and Relative
25 Humidity and Coupled with NIR Modeling
George Cheng, *Auburn University*
- 26 Mechanical Properties of Poplar Wood Cell Walls by in situ Imaging Nanoindentation
An Mao, *College of Forestry, Shandong Agricultural University*
- Incorporating Lean and Green: Evolving into a more Efficient and Responsible Manufacturing and
27 Logistics State
Cagatay Tasdemir, *Purdue University*
- Formaldehyde-Free Wood Adhesive Prepared from Rice Powder Solution and Polymeric Methylene
28 Diphenyl Diisocyanate
Sang-Min Lee, *National Institute of Forest Science*
- 29 Combustion Properties of Domestic Wood in Korea
Dong Won Son, *National Institute of Forest Science*
- 30 Soy Protein Substitution in Methylene Diphenyl Diisocyanate Adhesive used in Oriented Strand Board
William Hand, *Auburn University*

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- 31 Quantifying the Impacts of Elevated CO₂ and N Fertilization on Wood Density in Loblolly Pine
Yann Cochet, *INRA, Bordeaux Sciences Agro, Université Laval*
- 32 Stock Market Responses to Antidumping and Countervailing Duties on Forest Products Imports in the United States
Xufang Zhang, Changyou Sun, *Mississippi State University*
- 33 Effect of Chitosan on the Protist Hindgut Community in Reticulitermes Virginicus
Telmah Telmadarrehei, *Mississippi State University*
- 34 Environmental Impacts of Producing Wood Pallets in the United States
Richard Bergman, *USDA FS FPL*
- 35 Development of Spray Foam Insulation from Microwave Liquefaction of Woody Underbrush: Laboratory and Pilot-Scale Experiments
Jiulong Xie, *Louisiana State University*

7:00 pm - 10:00 pm Starkville Pub Crawl (Students)

Tuesday, June 27

8:00 am - 10:00 am

Plenary Session II

Session Chair: **Richard Vlosky**, *Louisiana Forest Products Development Center*

Reinventing and Reshoring Forest Products Manufacturing in America

Will Hill, *Mayor of Louisville, Winston County, Mississippi*

Paradigm Shifts in the North American Sawmill Industry

Steve Singleton, President, *Southern Pine Inspection Bureau*

Experiences with Development of International Markets for Industrial Products

Ms. Pat Thomasson, CEO, *Thomasson Company*

The International Supply Chain for Wood Pellets

Richard Peberdy, Vice President, *Sustainability for Drax Biomass, Inc, USA*

10:00 am - 10:30 am Break

10:30 am - 12:00 pm

1.3 Furniture Research and Related Topics

Session Chair: **Jilei Zhang**, *Mississippi State University*

1.3.1 Application of Vertical Force During the Process of Screw Driving Torques in Particleboard
Onder Tor, *Kastamonu University*

1.3.2 Bending Properties of Particleboard and Impact Factor Study
Yan Wang, *Mississippi State University*

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- 1.3.2** Effects of Test Indenter Size When Determining Load-Deflection Behavior of Cushions for Upholstery Furniture

Lingling Hu, *Department of Industrial Design, Zhejiang A&F University, Hangzhou, China*

- 1.3.3** Structure and Properties of Flexible Polyurethane Foams with Multi-Layer Graphene Fillers

Guangyao Li, *Zhejiang A&F University*, **Arif C. Konukcu** and **Jilei Zhang**, *Mississippi State University*

2.3 Adhesive Research

Session Chair: **Mao An**, *College of Forestry, Shandong Agricultural University*

Co-Session Chair: **Mark Clark**, *Hexion*

- 2.3.1** Sequential Addition of Soy Flour to Blender for Oriented Strand Board Production

Brian Via, *Auburn University Forest Products Development Center*

- 2.3.2** Development of DF Resins and DUF and DMF Copolymer Resins

Moon Kim, *Mississippi State University*

- 2.3.3** Influence of Synthesis Methods to Molecular Weights of Melamine-Urea-Formaldehyde Resins and Performance of Medium Density Fiberboards

Byung-Dae Park, *Kyungpook National University*

- 2.3.4** Identification and analysis of key odor compounds from alkyd resin enamel coating boards by Gas Chromatography–Mass Spectroscopy Olfactometry

Wang Qifan, *Northeast Forestry University*

3.3 Wood Tall Building Design

Session Chair: **Jacob Gines**, *Mississippi State University*

- 3.3.1** Fire Safety for High Rise Timber Buildings - Challenges and Solutions

David Barber, *Arup*

- 3.3.2** Tall Wood Buildings in the US – A Codes and Standards Update

Lori Koch, *PE, American Wood Council*

- 3.3.3** Wood Grain Direction Measurement from Spatial Reflection

Patrick Pan, *University of British Columbia*

- 3.3.4** Speculations for Mass Timber in Mississippi

Jacob Gines, *Mississippi State University*

12:00 pm - 1:30 pm Awards Luncheon & Business Meeting

1:30 pm - 3:00 pm

1.4 Wood Chemicals and Biomaterials

Session Chair: **El Barbary Hassan**, *Mississippi State University*

- 1.4.1** Preparation and Application of Chitin/TEMPO-Oxidized Cellulose Nanofibers Based Hydrogels for Heavy Metals Removal

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El Barbary Hassan, *Mississippi State University*

- 1.4.2** Conversion of Glucose to 5-Hydroxymethylfurfural Catalyzed by a Core-shell Fe₃O₄@SiO₂-SO₃H Magnetic Nanoparticles

Islam Elsayed and **El Barbary Hassan**, *Mississippi State University*

- 1.4.3** Activated Carbon from Bioenergy Crops for Adsorption of Pharmaceutical Compounds
Oluwatosin Oginni, *West Virginia University*

- 1.4.4** Effect of Chitosan on the Protist Hindgut Community in *Reticulitermes Virginicus*
Telmah Telmadarrehei, *Mississippi State University*

2.4 Nanomaterial Development and Testing

Session Chair: **Nicole Stark**, *USDA FS, Forest Products Laboratory*

Session Co-Chair: **Yujie Meng**, *Nanomechanics, Inc.*

- 2.4.1** Dyed Cellulose Nanofibril Coating as Paint
Vesa Kunnari, *VTT Technical Research Centre of Finland*

- 2.4.2** Nanocellulose for water-based polymer reinforcement
George Cheng, *Auburn University*

- 2.4.3** Mapping the Mechanical Properties of Biopolymer Composite using Advanced Instrumented Indentation
Yujie Meng, *Nanomechanics, Inc.*

3.4 CLT Research

Session Chair: **Daniel Hindman**, *Virginia Tech*

- 3.4.1** Utilization of Low-value Lumber from Small-diameter Logs Harvested in Pacific Northwest Forest Restoration Programs in Hybrid Cross Laminated Timber (CLT) Core Layers
Christina Lawrence, *Oregon State University*

- 3.4.2** Lateral and Withdrawal Capacity of One Screw Type on Hybrid Cross Laminated Timber Panels Application
Arjit Sinha, *Oregon State University*

- 3.4.3** Cross Laminated Timbers Produced with Low Grade Appalachian Hardwoods
Rafael Azambuja, *West Virginia University*

- 3.4.4** Experimental Investigation of Lateral Load Behavior of Post-Tensioned Rocking CLT Walls
Sriram Aaleti, *University of Alabama*

3:00 pm - 3:30 pm Break

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3:30 pm - 5:00 pm

1.5 New Bioproducts Development

Session Chair: **Xiaolin Cai**, *FPInnovations*

Session Co-Chair: **Zhongqi He**, *USDA-ARS*

- 1.5.1 Effects of the Particle Size on the Adhesive Strength of Washed Cottonseed Meal with White Oak
Zhongqi He, *USDA-ARS*
- 1.5.2 Recycling Particleboard, MDF and OSB P: Panels Process Parameter Impacts on Particleboard and MDF Performance
Hui Wan, *Mississippi State University, USA* and **Xiang-Ming Wang**, *FPInnovations, Canada*
- 1.5.3 Preparation and Properties of Protein Adhesives Derived from Cottonseed Meal for Plywood
An Mao, *College of Forestry, Shandong Agricultural University*
- 1.5.4 Cellulose Filaments Foamed Materials
Xiaolin Cai, *FPInnovations*

2.5 Wood Protection

Session Chair: **Futong Cui**, *Fire Retardant Chemical Technologies*

- 2.5.1 Copper and Boron Leaching from Copper Boron Azole Treated Poles into Soil
Dragica Jeremic, *Sustainable Bioproduct, Mississippi State Univ*
- 2.5.2 Long Term Durability of ACA and CCA Treated Solid Lumber and Plywood Composed of Refractory Wood Species
Mark Mankowski, *USDA Forest Products Laboratory*
- 2.5.3 Fire Retardants for Wood Products – A Review
Futong Cui, *Fire Retardant Chemical Technologies*
- 2.5.4 Termiticide Efficacy Testing for Candidate Termiticides by the USDA Forest Service
Thomas G. Shelton, *Forest Products Laboratory*

3.5 Green Building

Session Chair: **Pierre Blanchet**, *Université Laval*

Session Co-Chair: **Bonnie Yang**, *BlueLinx Corporation*

- 3.5.1 Mid-Rise Wood Frame Construction: A Good Idea or Are We Asking for Trouble?
Derek Hodgin, *Construction Science and Engineering, Inc.*
- 3.5.2 Just How “Green” are Timber Buildings? Assessing the Climate Change Mitigation Potential of a Mid-rise Timber Building Through Dynamic Life Cycle Assessment
Charles Breton, *Université Laval*
- 3.5.3 Analysis on Thermal Properties of Laminate Flooring with the Modified PE Underlay Foam to Improve Thermal Energy Efficiency
Seong Jin Chang, *Soongsil University*

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- 3.5.4** Environmental, Economic and Social Impacts Assessment on CLT Buildings in North America
Hongmei Gu, *USDA Forest Products Laboratory*

6:30 pm - 10:00 pm Paul Bunyan Reception

Wednesday, June 28

8:00 am - 10:00 am Q

Plenary Session III

Session Chair: **David DeVallance**, *West Virginia University*

Bioeconomy- An Exciting Future for Forest Products

World Nieh, *National Program Leader for Forest Products and Utilization, USDA Forest Service*

The Growth of the Global Veneer Based Plywood and Engineered Lumber Industry

Richard (Dick) Baldwin, *Managing Partner, Oak Creek Investments LLC*

Declaration of Interdependence

Dr. Steve Bullard, *Provost and Vice President of Academic Affairs, Stephen F. Austin State University*

10:00 am - 10:30 am Break

10:30 am - 12:00 pm

1.6 Environment

Session Chair: **Beth Stokes**, *Mississippi State University*

Session Co-Chair: **Hamid Borazjani**, *Mississippi State University*

1.6.1 Remediation of Pentachlorophenol in Contaminated Soil

Hamid Borazjani, *Mississippi State University*

1.6.2 Bacterial Degradation of Pentachlorophenol Within In-situ Remediated Groundwater

Beth Stokes, *Mississippi State University*

1.6.3 Application of a Novel Microextraction Method to Pentachlorophenol Contaminated Groundwater Undergoing Long Term Remediation

Julianna Stratton, *Mississippi State University*

1.6.4 Differentiation of Wood Decay Fungi Type and Stage by Solid-phase Microextraction Coupled with GC/MS

Nasim Maafi and **Dragica Jeremic**, *Mississippi State University*

2.6 Structural Panel Research

Session Chair: **Pascal Theberge**, *J.M. Huber Corporation*

Session Co-Chair: **Hyungsuk Thomas Lim**, *Mississippi State University*

2.6.1 R&D to Address Regulations Impacting the Structural Panel Industry

Steve Zylkowski, *APA*

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2.6.2 Effect of Material Choices on Building Life Cycle Environmental Impacts: Critical Assessment of LEED v4 Certification

Ben Amor, *University of Sherbrooke*

2.6.3 Alternative Sheathing Approach to Meeting New Energy Code Requirements

Jianhua Pu, *Huber Engineered Woods*

2.6.4 Comparison of Beam Application on Stick Built Roof: Engineered Lumber versus Solid Sawn Lumber

Bonnie Yang, *BlueLinx Corporation*

3.6 Composite Products Research

Session Chair: **George Cheng**, *Auburn University*

3.6.1 Preparation and Photocatalytic Properties of Visible-light Responded Metal-doped TiO₂ on Carbonized Board

Min Lee, *National Institute of Forest Science*

3.6.2 The Effect of Feedstock Type and Particle Size on the Electrical Conductivity and Piezoresistive Behavior of Polyvinyl Alcohol/Biochar Composite Films

David DeVallance, *West Virginia University*

3.6.3 Soy Protein Substitution in Phenol Formaldehyde Adhesive used in Oriented Strand Board

William Hand, *Auburn University*

3.6.4 Improving Biomass Pellet Properties Using Agricultural Waste as Additives

Phong Ly, *Mississippi State University*

12:00 pm - 1:30 pm Lunch on Your Own

12:30 pm - 6:00 pm

Biewer Lumber Sawmill Tour or Winston Plywood Tour (optional)