2018 FPS International Convention Program

(subject to change)

Monday, June 11th

8:00 am - 3:15 pm - Intro to Wood Science Short Course and FPL Tour

4:00 pm - 5:30 pm

Opening Keynote

Driving the Automotive Industry Using Sustainable Materials — **Alper Kiziltas,** *Ford Motor Company*

5:30 pm - 6:30 pm - Welcome Reception (Joint with TAPPI Nano)

Tuesday, June 12th

8:30 am - 10:00 am

1 - Education Plenary Session

Session Chair: **Hui Wan,** *Mississippi State University*

1.1	Enrollment in Natural Resources Degree Programs in the U.S.: Trends, Drivers, and Implications for the Future of the Natural Resource Professions	**Terry Sharik,** *Michigan Technological University*
1.2	Capturing the Future of Wood Science and Forest Products Education in the United States	**Bob Smith,** *Virginia Tech*

10:00 am - 10:30 am Coffee Break

10:30 am - 12:00 pm

2.1 Wood Fundamentals

Session Chair: **Bob Ross,** *USDA Forest Products Laboratory*

2.1.1	Statistical Distribution Models for MOE and MOR in Three Mill Run Lumber Populations	**Frank Owens,** *Mississippi State University*
2.1.2	Southern Pine Wood Variability: Extending Wood Quality Assessments Beyond Determinations of Specific Gravity	**Thomas Eberhardt,** *USDA Forest Products Laboratory*
2.1.3	Non-Destructive Techniques as Tools for Wood Quality Evaluation on Genetic Breeding Programs of Loblolly Pine in Brazil	**Jorge Luis Monteiro de Matos,** *Federal University of Paranã*
2.1.4	Influence of Thermal Modification on Selected Properties of Yellow-poplar	**Brian Bond,** *Virginia Tech*
2.1.5	Effect of Rotation Age and Thinning Regime on Visual and Structural Lumber Grades of Douglas-fir Logs	**Eini Lowell,** *USDA Forest Service PNW Research Station*

2.2 Social Influences

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

2.2.1	Social Media Use in the Forest Products Industry: the Impact on the Consumer Purchasing Process	**Iris Montague,** *USDA Forest Service*
2.2.2	Executive Perceptions of Factors Influencing Pulp and Paper Industry Change	**Alice Palmer,** *University of British Columbia*
2.2.3	Attitudes and Perceptions of the Millennial Generation Surrounding Wood Products and the Wood Products Industry	**Kassandra Stout,** *Mississippi State University*
2.2.4	Identifying Market Mobility Barriers for Wooden Single-family House Producers to Enter the Multi-family Segment	**Fredrik Lindblad,** *Linnaeus University*

2.3 Bioenergy

Session Chair: **Xinfeng Xie,** *Michigan Tech University*

2.3.1	Advances in Biochar Products, Systems, and Processes	**Thomas Miles,** *US Biochar Initiative*
2.3.2	The Carbon Impacts of Heating with wood at Harvest Forest	**Maureen Puettmann,** *WoodLife Environmental Consultants*
2.3.3	Theoretical Estimation of Silo Design Parameters for Loblolly Pine Grinds – Moisture Content and Particle Size Effects	**Oluwatosin Oginni,** *West Virginia University*
2.3.4	Economic Analysis of Forest Residues Logistics Options to Produce Quality Feedstocks	**Kamalakanta Sahoo,** *USDA Forest Products Laboratory*
2.3.5	Increasing the Economic and Operational Efficiencies of Forest Restoration and Biomass Utilization in Southwestern US Forests	**Jeffrey Halbrook,** *Ecological Restoration Institute*

12:30 pm - 2:00 pm - Lunch and Wood Bowl

2:00 pm - 3:30 pm

3.1 Cross Laminated Timber

Session Chair: **Dave DeVallance,** *West Virgina University*

3.1.1	Performance of CLT at Material Level: Mechanical Properties, Moisture Diffusion, and Creep Behavior	**Kobir Hossain,** *University of Alabama*
3.1.2	Structural Grade System for Yellow-poplar Classification to Produce CLT Panels	**Rafael Azambuja,** *West Virginia University*
3.1.3	Measurement of Shear Properties of Eastern Hemlock Using Two-Plate Shear Test	**Alireza Bahmanzad,** *University of Massachusetts*
3.1.4	Bonding Properties of Cross-Laminated Timber Made from Mixed Species	**Munkaila Musah,** *Michigan Tech University*

3.2 Wood Modifications

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

3.2.1	Effect of Alkali Treatment on Aspect Ratio and Tensile Properties of Grape Cane Fibers	**Balkis Balkar,** *Oregon State University*
3.2.2	TBD	
3.2.3	TBD	
3.2.4	Cellulose-Based Lateral Flow Devices for Low-Cost Point-of-Care Blood Coagulation Monitoring	**Hua Li,** *University of Cincinnati*

3.3 Poster Presentations (non-Students)

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

3.3.1	Analyses of a Hydrophobin Protein, Hyd2, as a Wood Protection Agent	**Lakshmi Narayanan,** *Mississippi State University*
3.3.2	Lateral Force Resistances of CLT Wall Panels Made of Small Square Timber Core and Plywood Crossband	Sang Sik Jang, *Chungnam National University*
3.3.3	Effects of Resin Content on Insulation Performance of Wood Fiber Insulation Boards	**Jaehyuk Jang,** *National Institute of Forest Science*
3.3.4	Characteristics of Wood Fiber Insulation Boards Manufactured by Melamine-Urea-Formaldehyde Adhesives with Different Panel Densities	**Jaehyuk Jang,** *National Institute of Forest Science*
3.3.5	Water Based Esterification of Cellulose Nanofibril for Wet Compounding with PLA	**Ruth Lafia-Araga,** *Federal University of Technology*
3.3.6	Outdoor Above-ground Wood Moisture Modeling in Relation to Microclimate	**Patricia Lebow,** *USDA Forest Service*
3.3.7	Seasonal Changes in Critical Thermal Minimum and Supercooling Point in Eastern Subterranean Termites (Reticulitermes flavipes (Kollar)) in Wisconsin	**Rachel Arango,** *USDA Forest Products Laboratory*
3.3.8	Investigation of Volatile Pyrolysis Products from SixTtropical woods of Southeast Nigeria	**Nkechi Okoye,** *NnamdiAzikiwe University*
3.3.9	Biomass Derived Activated Carbon for Energy Storage Applications	**Changle Jiang,** *West Virginia University*
3.3.10	Flexural Properties of Visually Graded Southern Pine Structural Lumber	**Tâmara Suely Filgueira Amorim Franca,** *Mississippi State University*
3.3.11	Studies of Carbon Dioxide Activated Eastern White Pine Carbon Used in Double-layer Supercapacitors	**Nan Nan,** *West Virginia University*
3.3.12	Sound Absorption Rate of CLT Wall Panels Composed of Larch Square Timber Core and Plywood Cross Band	**Chun Won Kang,** *Chonbuk National University*
3.3.13	High-Lignin-Content Rigid Polyurethane Foam from Unmodified Kraft Lignin Prepolymerized with Isocyantes	**Xuefeng Zhang,** *Mississippi State University*

3:30 pm - 4:00 pm Coffee Break

4:00 pm - 5:30 pm

4.1 Wood Properties

Session Chair: **Joseph Jakes,** *USDA Forest Products Laboratory*

4.1.1	Mechanical Properties of Bamboo from Atoms to Culms	**Joseph Jakes,** *USDA Forest Products Laboratory*
4.1.2	Mussel-inspired Polydopamine Modification of Bamboo Fiber and its Effect on the Properties of Bamboo Fiber/Polybutylene Succinate Composites	**Wei Song,** *Beijing Forestry University*
4.1.3	Wood Species Verification Using Anatomy, Physical Properties, and Mass Spectrometry	**Michael Wiemann,** *USDA Forest Products Laboratory*
4.1.4	Determination of Proportion of Juvenile Wood and Wood Quality in Loblolly pine (Pinus taeda L.) Grown in Southern Brazil	**Jorge Luis Monteiro de Matos,** *Federal University of Parana*

4.2 Wood Durability

Session Chair: **Glenn Larkin,** *Michigan Technological University*

4.2.1	Comparison of ACA and CCA Treated Solid Lumber and Plywood Composed of Refractory Wood Species at Field Sites in Mississippi and Wisconsin	**Grant Kirker,** *USDA Forest Products Laboratory*
4.2.2	Decay Resistance Performance of Recycled Creosote for Wood Preservations	**Luxi Wang,** *Michigan Technological University*
4.2.3	Non-pressure Preservative Options for Military Applications	**Stan Lebow,** *USDA Forest Products Laboratory*
4.2.4	Does Acetylation Stop Decay By Inibiting Diffusion?	**Christopher Hunt,** *USDA Forest Products Laboratory*

4.3 Innovations in Building

Session Chair: **Paige McKinley,** *Boise Cascade*

4.3.1	Production and Evaluation of Strength and Dimensional Properties of Bamboo - Cement Composites for Use as Low-Cost Building Component	**Adeyinka Saheed Adesope,** *Forestry Research Institute of Nigeria*
4.3.2	Evaluation of the Potential of White Birch Wood in Structures Assembled with Metal-Plate Connectors	**Leandro Passarini,** *Université du Québec en Abitibi-Témiscamingue*
4.3.3	Double Shear Connection of Shorea Compression Member Using Double Adhesive Tapes and Lag Screws	**Bambang Suryoatmono,** *Parahyangan Catholic University*
4.3.4	The Emergence of New Mass Timber Products in Oregon: Mass Plywood Panels	**Byrne Miyamoto,** *Oregon State University*

5:30 pm - 7:30 pm

Poster Session and Student Poster Competition - Joint with Nano

Poster Competition Chair: **Iris Montague**, *USDA Forest Service*

7:30 pm - TBD Student Pub Crawl

Wednesday, June 13th

8:30 am - 10:00 am

5 - Forest Bioeconomy Plenary

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

5.1	NAFTA: the Stakes for Globalization and American Leadership	**Matthew Rooney,** *George W. Bush Institute*
5.2	The Emerging Forestry Bioeconomy: Fuels, Chemicals, Advanced Materials, and Carbon Management	**Brendan Jordan,** *Bioeconomy Coalition of Minnesota (Great Plains Institute)*

10:00 am - 10:30 am Coffee Break

10:30 am - 12:00 pm

6.1 CORRIM

Session Chair: **Maureen Puettmann,** *WoodLife Environmental Constultants*

6.1.1	Production and Availability of Mill Residues for Use in a Biorefinery	**Maureen Puettmann,** *WoodLife Environmental Constultants*
6.1.2	Regional Variations in the Lifecycle Assessment of Softwood Residue Recovery for Biofuel Production for the Pacific Northwest and Northeast Regions of the USA	**Elaine Oneil,** *CORRIM*
6.1.3	LCA of Poplar to Ethanol Production Using Short Rotation Coppice Silviculture	**Rodrigo Morales-Vera,** *University of Washington & Catholic University of Maule*
6.1.4	Effects of Biomass Composition on the Economics and Life Cycle Impacts of Bio-oil Biorefinery	**Steve Kelley,** *North Carolina State University*

6.2 Understanding Lignocellulose through Novel Methods

Session Chair: **Chris Hunt,** *USDA Forest Products Laboratory*

6.2.1	Cellulose-Based Material for Removal of Microcystin from Contaminated Water Sources	**Diego Gómez Maldonado,** *Auburn University*
6.2.2	Measurement of Moisture-Dependent Ion Diffusion Constants in Wood Cell Walls Using Time-Lapse Micro X-Ray Fluorescence Microscopy	**Joseph Jakes,** *USDA Forest Products Laboratory*
6.2.3	Using Neutron Scattering to Study Nanoscale – Wood-Water Interactions	**Nayomi Plaza,** *USDA Forest Products Laboratory*
6.2.4	Application of Spin-coated Masterbatch Approach for Improving Dispersion of Cellulose Nanocrystals and Mechanical Properties of Poly(lactic acid) Nanocomposites	**Jamileh Shojaeiarani,** *North Dakota State University*

6.3 Furniture and Sandwich Panels

Session Chair: **Dilpreet Bajwa,** *North Dakota State University*

6.3.1	Time-Dependent Behavior of Wood-Strand Sandwich Panels with 3-D Core	**Mostafa Mohammadabadi,** *Washington State University*
6.3.2	Modeling and Designing of a Wood-Strand Sandwich Panel with a Bidirectional Corrugated Core	**Mostafa Mohammadabadi,** *Washington State University*
6.3.3	Fabrication and Characterization of Emulsified and Freeze-dried Epoxy/CNF Nanocomposite Foam for Structural Insulated Panels	**Jinghao Li,** *USDA Forest Products Laboratory*
6.3.4	A Novel Method to Dynamically Identify and Measure Checking in Hardwood Plywood	**Scott Leavengood,** *Oregon State University*
6.3.5	Three-point Flexural Failure Mechanism of Wooden Sandwich Construction with a Paper Honey-comb Core	**Jinxin Hao,** *Central South University of Forestry & Technology & West Virginia University*

12:00 pm - 2:00 pm Awards Lunch

2:00 pm - 3:30 pm

7.1 Nanocomposites

Session Chair: **Kristiina Oksman,** *Luleå University of Technology*

7.1.1	Aligned Polylactic Acid Based Nanocomposite Reinforced Using a Tiny Amount of Functionalized Cellulose Nanofibers	**Shiyu Geng,** *Luleå University of Technology*
7.1.2	Nanocellulose as a Filler in Films, Foams and Electrospun Fibers	**Mikael Hedenqvist,** *Royal Institute of Technology*
7.1.3	Direct Ink Writing Cellulose Nanocrystal Composites	**Gilberto Siqueira,** *EMPA*
7.1.4	3D Printed Hydrogel Scaffolds from Nanocellulose and its Hybrids	**Aji Mathew,** *Stockholm University*

7.2 Tools for Sustainability

Session Chair: **Hongmei Gu,** *USDA Forest Products Laboratory*

7.2.1	Balancing the Production Flow in Prefabrication of Wooden Houses	**Tobias Schauerte,** *Linnaeus University*
7.2.2	How Customized KPI Pools Could Help with Assessment of True Sustainability Performance?	**Cagatay Tasdemir,** *Purdue University*
7.2.3	A Model for Enterprise Development for Integrated Wood Manufacturing	**Eini Lowell,** *USDA Forest Service PNW Research Station*
7.2.4	High Performance Leadership in Forest Products Manufacturing	**Dick Baldwin,** *Oak Creek Investments LLC*

7.3 Adhesives

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

7.3.1	Adhesive Bonding of Wood and Steel	**Milan Šernek,** *University of Ljubljana*
7.3.2	Production of Plywood Panels Using Washed Cottonseed Meal as Bonding Reagents	**Zhongqi He,** *USDA-ARS*
7.3.3	Optimization of Novel Soybased Resin Curing Time for Commercial Acceptance	**Dilpreet Bajwa,** *North Dakota State University*
7.3.4	Sustainable Plywood Adhesive Created from Cotton Production Waste	**Julianna Stratton,** *Mississippi State University*
7.3.5	Influence of Molecular Weights of Urea-Formaldehyde Resins to Their Performance	**Byung-Dae Park,** *Kyungpook National University*

3:30 pm - 4:00 pm Coffee Break

4:00 pm - 5:30 pm

8.1 Nanocomposites

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

8.1.1	Evaluation of Super-Hydrophobicity for Nanocomposite-Coated Packaging Materials: Resisting Water Penetration Under Hydrostatic Pressure	**Xue Zhang,** *Monash University*
8.1.2	Synthesis and Characterization of Cellulose Nanofibril-Reinforced	**Weiqi Leng,** *USDA Forest Products Laboratory*
8.1.3	Physical, Mechanical and Thermal Properties of Polymeric Nanocomposites Reinforced with Nanocellulose	**George Cheng,** *Auburn University*
8.1.4	Moisture/Oxygen Barrier Properties of Nanocellulose-Montmorillonite hybrid Films Enhanced with Cross-linking Additives	**Ali H. Tayeb,** *University of Maine*

8.2 Wood Durability

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

8.2.1	Performance of Soy-based Adhesive OSB in Termite Choice Tests with Southern Yellow Pine	**Juliet Tang,** *USDA Forest Products Laboratory*
8.2.2	Diversity of Bacteria Associated with Hindgut of Termite Reticulitermes	**Telmah Telmadarrehei,** *Mississippi State*
8.2.3	Combination of Fire-retardant and Antifungal Treatment of Wood with Nano-chitosan Particles as Wood Preservative	**Laya KhademiBami,** *Mississippi State University*
8.2.4	Application of Gamma Radiation for Controlling Wood Destroying Agents	**Aparna Kalawate,** *WRC, Zoological Survey of*
8.2.5	Chemical Modification with Epoxides to Improve the Moisture and Decay Resistance of Solid Wood and Fiber	**Rebecca Ibach,** *USDA Forest Products Laboratory*

8.3 Poster Presentations (students)

Session Chair: **Byrne Miyamoto,** *Oregon State University*

8.3.1	Sustainable Development – International Framework – Overview and Analysis in the Context of Forests and Forest Products – From Forests to Competitive Sustainable Innovations in the Markets	**Annika Hyytiä,** *University of Helsinki*
8.3.2	Cell Wall Mechanical Properties of Genetically Modified Biomass by	**Yasar Selim Bostanci,** *Michigan Technological*
8.3.3	Life Cycle Analysis of Modular Partitions	**Valéria Pazetto,** *Instituto Federal de Brasília*
8.3.4	Characteristics of Short Rotation Woody Biomass Relative to Debarking	**Azadwinder Chahal,** *Pennsylvania State*
8.3.5	Cyclic and Static Load Capacities of Chair Frames Constructed of Rectangular Mortise and Tenon Joints Designed by Using Lower Tolerance	**Mesut Uysal,** *Purdue University*
8.3.6	Phase-Contrast X-Ray µct Study of Moisture- and Mechanically-Induced	**Xavier Arzola-Villegas,** *University of Wisconsin-*
8.3.7	Composting of Cross Laminated Timber (CLT) Sawdust	**Gulbahar Bahsi-Kaya,** *Mississippi State*
8.3.8	Oriented Strand Board from Softwood: A Biorefinery Approach	**Marina Hornus,** *Auburn University*
8.3.9	Using Southern Yellow Pine Biochar to Remediate Poultry Litter	**Maryam Mohammadi-Aragh,** *Mississippi State*
8.3.10	Ecodesign and Economy: A study about the value aggregation for reuse of	**Keila Sanches,** *Instituto Federal de Brasília*
8.3.11	Multiple Knots in Close Proximity on Southern Pine Lumber Properties	**Marcela Cordeiro Barbosa,** *Mississippi State*
8.3.12	Natural Wood Adhesives Prepared from Irvingia Gabonensis and Irvingia Wombolu Kernel Extracts to Reduce Formaldehyde Emissions	**Abiodun Alawode,** *Stellenbosch Univeristy*
8.3.13	The Properties of Particle Board Prepared with Light Colored Phenolic	**Min Lee,** *National Institute of Forest Science*
8.3.14	Numerical Simulation of Acoustic Guided Waves in Trees	**Fenglu Liu,** *Beijing Forestry University*

5:30 pm - 6:30 pm - President's Reception

6:30 pm - 9:00 pm - Paul Bunyan Reception

Thursday, June 14th

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8:30 am - 10:00 am

9 - Housing Plenary

Session Chair: **Dave DeVallance,** *West Virgina University*

9.1	Full Circle Urban Forest Management	**Dwayne Spurber,** *Wudeward*
9.2	Housing Reconsidered: The New Drivers of Wood Demand in North	**David Fell,** *FPInnovations*

10:00 am - 10:30 am Coffee Break

10:30 am - 12:00 pm

10.1 Mass Timber

Session Chair: **Lori Koch,** *American Wood Council*

10.1.1	Seismic Research on Cross Laminated Timber Buildings in North American: An Overview	**Shiling Pei,** *Colorado School of Mines*
10.1.2	Life Cycle Cost Analysis of Mid-Rise Cross-Laminated Timber Building	**Hongmei Gu,** *USDA Forest Products Laboratory*
10.1.3	What Do They Think? Public Perceptions of Tall Wood Buildings in the US Pacific Northwest	**Pipiet Larasatie,** *Oregon State University*
10.1.4	Tensile Strength of Glulam Connection With Glued-in Rod	**Bambang Suryoatmono,** *Parahyangan Catholic University*

10.2 Measuring Properties (Non-Destructive)

Session Chair: **Xiping Wang,** *USDA Forest Products Laboratory*

10.2.1	Condition Assessment of Timber Bridge Components from U.S. Route 66	**Xiaoquan Yue,** *Fujian Agriculture and Forestry University*
10.2.2	Assessing Southern Pine 2X8 and 2X10 Lumber Quality Using Longitudinal and Transverse Vibration	**Frederico Jose Nistal França,** *Mississippi State University*
10.2.3	Defect Classification of Bridge Timber Using Image Processing Algorithms Based on GPR Radargrams	**Xi Wu,** *Jiangnan University*
10.2.4	Automatic multiple surface feature extraction from sawn board of fibre-managed plantation grown Eucalyptus in Tasmania, Australia	**Kent Davis,** *University of Tasmania*
10.2.5	Automated Hardwood Lumber Grading: A Proof of Concept Study Grading KD, Rough Lumber	**Logan Wells,** *Purdue University*

10.3 Fundamentals (Modeling/Predictive Analysis)

Session Chair: **Nayomi Plaza,** *USDA Forest Products Laboratory*

10.3.1	“PEK-a-boo, I See You”: A Critical Reevaluation of the Parallel Exponential Kinetics (PEK) Model	**Samuel Zelinka,** *USDA Forest Products Laboratory*
10.3.2	Numerical Simulation of Acoustic Guided Waves in Trees	**Fenglu Liu,** *Beijing Forestry University*
10.3.3	Numerical Method: Moisture Absorption Prediction in Wood Pellets During Storage	**Jamileh Shojaeiarani,** *North Dakota State University*
10.3.4	An Innovative Technology for In-Situ Wood Identification Based on Computer Vision and Machine Learning	**Tuo He,** *Chinese Academy of Forestry*

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

12:30 pm - 1:30 pm - FPS BOD Wrap-Up

12:30 pm - 5:30 pm - Talesin Tour

Posters (P)

P1	High Bio-Content Polyurethane (PU) Foam Made From Bio-Polyol and Cellulose Nanocrystals (CNCS) via Microwave Liquefaction	**Xingyan Huang,** *Louisiana State University*
P2	Lignin Containing Cellulose Nanofibrils (L-CNF) as an Additive in Drilling Fluids	**Maria Soledad Peresin,** *Auburn University*
P3	Adsorption of Carbon Dioxide on Cellulose Nanofiber-Based Monolithic Cryogels Impregnated with Acetylated Cellulose Nanocrystals	**Jiayun Wei,** *Luleå University of Technology*
P4	Automated Hardwood Lumber Grading with Purdue HardwoodGrader & Microtec Goldeneye300 Scanner: Lumber defect detection capabilities and performance overview	**Logan Wells,** *Purdue University*
P5	Evaluation of Adsorption Capability on Methylene Blue by Bamboo Charcoals Prepared from Sembilang and Moso Bamboo Species	**Min Lee,** *National Institute of Forest Science*

P6	A Rational Approach to Estimate Reasonable Design Value of Dowel Joints for Frame Type Furniture Constructions	**Mesut Uysal,** *Purdue University*
P7	Vacuum Drying Hardwoods in the U.S.: Large Scale Commercial Acceptance?	**Brian Bond,** *Virginia Tech*
P8	A Pilot Study on the Effects of Casein from Milk on the Flame Properties of Some Tropical Woods	**Nkechi Okoye,** *NnamdiAzikiwe University*
P9	Improvement of Storage Stability of Natural Adhesive for Wood Based Panels	**Min Lee,** *National Institute of Forest Science*
P10	Preparation, Characterization and Properties of Multi-Walled Carbon Nanotubes-Graphene Oxide/Urushiol Formaldehyde Polymer Composite Coating	**Xiaohua Huang,** *Northwest A&F University*
P11*	Water Based Esterification of Cellulose Nanofibril for Wet Compounding with PLA	**Ruth Lafia-Araga,** *Federal University of Technology*
P12	Physical and Chemical Effects of Cellulose Nanocrystals as Reinforcement of Electrospun Silk Fibroin	**Maria Soledad Peresin,** *Auburn University*
P13	Timber Supply and Demand Issues and Management in Pakistan	**Muhammad Zada,** *Northeast Forestry University*
P14	Evaluate the Feasibility of Using Planting Zelkova Serrata as the Structural Reinforcement Material	**Min-Jay Chung,** *National Taiwan University*
P15	Formulation and Testing of Nanomaterial-Reinforced Almaciga (Agathis Philippinensis Warb.) Resin Varnish	**Aralyn Quintos,** *DOST-FPRDI*
P16	Characterization of Pyrolysis and Hydrothermal Liquefaction Bio-Oils From Loblolly Pine Biomass	**Osei Asafu-Adjaye,** *Auburn University*
P17	Effects of Termite Collection Method, Geographic Location, Season Collected, Year, Laboratory Storage Time, and Average Termite Size on Termite Performance and the Variability of Control Samples Used in the Awpa E1-06 Standard Jar Test	**Rich Vlosky,** *Louisiana Forest Products Development Center*
P18	Utilization of Hardwoods for Production of Value Added Products (Musical Instruments, One of A Kind Furniture, Architectural Application)	**Yue Zhao,** *Purdue University*
P19	Adsorption of Pharmaceuticals Using Biomass Derived Activated Carbons	**Oluwatosin Oginni,** *West Virginia University*
P20	Modification of Enzyme System of Cellulase Used in the Production of Nanocellulose	**Tiantian Yang,** *Shandong University*
P21	Global Warming Mitigating Potential of Wood Products: A Temporal Radiative Forcing Analysis	**Olivia Jacobs,** *University of Washington*
P22	Cross Laminated Timber Wall and Floor Assemblies for 2 Hours Fire Resistance	**Sejong Kim,** *NIFoS*
P23*	Analyses of a Hydrophobin Protein, Hyd2, as a Wood Protection Agent	**Lakshmi Narayanan,** *Mississippi State University*
P24*	Lateral Force Resistances of CLT Wall Panels Made of Small Square Timber Core and Plywood Crossband	**Sang Sik Jang,** *Chungnam National University*
P25*	Effects of Resin Content on Insulation Performance of Wood Fiber Insulation Boards	**Jaehyuk Jang,** *National Institute of Forest Science*
P26*	Characteristics of Wood Fiber Insulation Boards Manufactured by Melamine-Urea-Formaldehyde Adhesives with Different Panel Densities	**Jaehyuk Jang,** *National Institute of Forest Science*
P27*	Outdoor Above-ground Wood Moisture Modeling in Relation to Microclimate	**Patricia Lebow,** *USDA Forest Service*
P28*	Seasonal Changes in Critical Thermal Minimum and Supercooling Point in Eastern Subterranean Termites (Reticulitermes flavipes (Kollar)) in Wisconsin	**Rachel Arango,** *USDA Forest Products Laboratory*
P29*	Investigation of Volatile Pyrolysis Products from SixTtropical woods of Southeast Nigeria	**Nkechi Okoye,** *NnamdiAzikiwe University*
P30*	Flexural Properties of Visually Graded Southern Pine Structural Lumber	**Tâmara Suely Filgueira Amorim Franca,** *Mississippi State University*
P31*	Studies of Carbon Dioxide Activated Eastern White Pine Carbon Used in Double-layer Supercapacitors	**Nan Nan,** *West Virginia University*
P32*	Sound Absorption Rate of CLT Wall Panels Composed of Larch Square Timber Core and Plywood Cross Band	**Chun Won Kang,** *Chonbuk National University*
P33*	High-Lignin-Content Rigid Polyurethane Foam from Unmodified Kraft Lignin Prepolymerized with Isocyantes	**Xuefeng Zhang,** *Mississippi State University*
P34*	Sustainable Development – International Framework – Overview and Analysis in the Context of Forests and Forest Products – From Forests to Competitive Sustainable Innovations in the Markets	**Annika Hyytiä,** *University of Helsinki*
P35*	Cell Wall Mechanical Properties of Genetically Modified Biomass by Atomic Force Microscopy	**Yasar Selim Bostanci,** *Michigan Technological University*
P36*	Life Cycle Analysis of Modular Partitions	**Valéria Pazetto,** *Instituto Federal de Brasília*

P37*	Characteristics of Short Rotation Woody Biomass Relative to Debarking	**Azadwinder Chahal,** *Pennsylvania State University*
P38*	Cyclic and Static Load Capacities of Chair Frames Constructed of Rectangular Mortise and Tenon Joints Designed by Using Lower Tolerance Limits Method	**Mesut Uysal,** *Purdue University*
P39*	Phase-Contrast X-Ray µct Study of Moisture- and Mechanically-Induced Twist of Wood Sliver	**Xavier Arzola-Villegas,** *University of Wisconsin-Madison*
P40*	Composting of Cross Laminated Timber (CLT) Sawdust	**Gulbahar Bahsi-Kaya,** *Mississippi State University*
P41*	Oriented Strand Board from Softwood: A Biorefinery Approach	**Marina Hornus,** *Auburn University*
P42*	Using Southern Yellow Pine Biochar to Remediate Poultry Litter	**Maryam Mohammadi-Aragh,** *Mississippi State University*
P43*	Ecodesign and Economy: A study about the value aggregation for reuse of wood wastes.	**Keila Sanches,** *Instituto Federal de Brasília*
P44*	Multiple Knots in Close Proximity on Southern Pine Lumber Properties	**Marcela Cordeiro Barbosa,** *Mississippi State Uniuversity*
P45*	Natural Wood Adhesives Prepared from Irvingia Gabonensis and Irvingia Wombolu Kernel Extracts to Reduce Formaldehyde Emissions	**Abiodun Alawode,** *Stellenbosch Univeristy*
P46*	The Properties of Particle Board Prepared with Light Colored Phenolic Resin Adhesive	**Min Lee,** *National Institute of Forest Science*
P47*	Numerical Simulation of Acoustic Guided Waves in Trees	**Fenglu Liu,** *Beijing Forestry University*
P48	Eco-Efficient Production Route of Natural Nanofibers	**Linn Berglund,** *Luleå University of Technology*
P49	Analysis of Hygrothermal Performance of Cross Laminated Timber (CLT) Frame Wall Depend on Layout	**Sumin Kim,** *Soongsil University*