



SOCIETY OF
WOOD SCIENCE &
TECHNOLOGY

SWST 65TH INTERNATIONAL CONVENTION

JULY 10-15, 2022

**PEPPERS SALT RESORT & SPA,
KINGSCLIFF, NSW, AUSTRALIA**



**A GLOBAL PERSPECTIVE OF THE PRESENT AND
FUTURE UTILIZATION OF RENEWABLE MATERIALS**

SUNDAY, JULY 10

12:00-16:00 **REGISTRATION**

18:30-21:30 **RECEPTION (WOMEN IN SCIENCE EXHIBIT) - LAGOON POOLSIDE**

MONDAY, JULY 11

ALL TECHNICAL SESSIONS WILL BE HELD IN BALLROOM OF PEPPERS SALT RESORT & SPA

General Co-Chairs: Henry Quesada, Purdue University, USA and Jeffrey Morrell, University of the Sunshine Coast, Australia

7:00-8:00 **REGISTRATION - FOYER OF BALLROOMS**

8:00-8:30 **KEYNOTE** - Bob Leicester

8:45-12:30 **FOREST PLANTATION & NON-WOODY RENEWABLE MATERIAL IMPACTS ON ECOSYSTEMS, SOCIETY, ECONOMY, VALUE-ADDED PRODUCTS**

Chairs: Felix Wiesner, University of Queensland, Australia & Sheldon Shi, University of North Texas, USA

8:45-9:05 Michael Adedotun, Michael Adedotun Oke Foundation, Nigeria, **“Pictorial Representation of the Forest Trees, in the Gwagwalada Area Council of the Federal Capital Territory, Abuja, Nigeria”**

9:05-9:25 Roger Moya, Instituto Tecnológico de Costa Rica, Costa Rica, **“Tropical Magnetic Wood Properties Prepared In Situ From Iron Oxide Nanoparticles of Three Species Growing in Fast-Growth Plantation”**

9:25-9:45 Chuanshuang Hu, South China Agricultural University, China, **“Utilization of Tea Oil Camellia (*Camellia oleifera* Abel.) Shells as Alternative Raw Materials for Manufacturing Particle Board”**

9:45-10:05 Griffin Miller, North Carolina State University, United States, **“Modification of Natural Fibers for Reinforcement in Bioplastic Composites; Thermal and Mechanical Behavior of PLA/PH3B Blends With Acetylated Pulp Fiber Reinforcement”**

10:05-10:25 Armando McDonald, University of Idaho, United States, **“Biomechanical and Viscoelastic Properties of Sweet Sorghum Stalk and its Correlation With Composition”**

10:25-10:45 Coffee

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MONDAY, JULY 11 continued



- 10:45-11:05 Vikash Ghildiyal, University of Canterbury, New Zealand, **“Strategies for Reducing Drying Collapse in Difficult-to-Dry Plantation Grown Timber”**
- 11:05-11:25 Johannes Fehrmann, University of Melbourne, Australia, **“Assessing Hemp Hurd Particle Dimensions for the Manufacture of Low-Density Particle Board”**
- 11:25-11:45 Kojo Afrifah, Kwame Nkrumah University of Science and Technology, Ghana, **“Assessment of Chemical Composition of Ghana Elephant Grass, Sugarcane Bagasse and Silk Cotton for Paper Production”**
- 11:45-12:05 Emmanuel Adu-Sarpong, Forestry Commission, Ghana, **“Reducing Emission by Integrating Shade Tolerant Non-Timber Forest Product (NTFPs) in Cocoa Forest Landscape”**
- 12:05-12:25 Jacek Siry, University of Georgia, United States, **“Forest Plantations in the Southern United States: Environmental Benefits and Economic Sustainability”**
- 12:30-13:30 **LUNCH**

RESIDENTIAL AND COMMERCIAL BUILDING INNOVATIONS: MASS TIMBER DEVELOPMENTS WHOLE OF BUILDING PERFORMANCE

Chair: Jon Shanks, University of Tasmania, Australia

- 13:45-14:05 Mahboobeh Hemmati, University of Arkansas, United States, **“Life Cycle Assessment of Construction Process in Mass Timber Structure”**
- 14:05-14:25 David Barber, ARUP, United States, **“The Promise of Affordable Multistory Modular Mass Timber Housing: An Unfulfilled Agenda”**
- 14:25-14:45 Ian Morrell, Oregon State University, United States, **“Volumetric and Fracture Effects due to Moisture Intrusion in Douglas-Fir Larch Cross-Laminated Timber”**
- 14:45-15:05 Maryam Shirmohammadi, Queensland Department of Agriculture and Fisheries, Australia, **“Experimental Testing to Validate Moisture-Safe CLT Assemblies in Hot and Humid Climates”**
- 15:05-15:25 Abdulrahman Zaben, University of Queensland, Australia, **“Fire Performance of a Hybrid Glulam-FRP Beam”**
- 15:25-15:45 Mateo Gutierrez, Cusp Building Solutions, Australia, **“Mass Timber Alternatives in Construction With Plantation Hardwoods”**
- 15:45-16:05 Coffee

RESIDENTIAL AND COMMERCIAL BUILDING INNOVATIONS: MASS TIMBER DEVELOPMENTS MASS TIMBER STRUCTURAL PERFORMANCE AND STRUCTURAL SYSTEMS

Chair: Jon Shanks, University of Tasmania, Australia

- 16:05-16:25 Jian Hou, University of Tasmania, Australia, **“Bibliometric and Visualization Study of Glulam Research: Overview and Global Research Trends Over the 10-Year Period (2011-2020)”**
- 16:25-16:45 Chandan Kumar, Queensland Department of Agriculture and Fisheries, Australia, **“The Effect of Various Factors on Rolling Shear Properties of Southern Pine and Radiata Pine From Australia”**
- 16:45-17:05 Ji-Yong Kim, Seoul National University, Republic of Korea, **“Determining Methods to Evaluate In-Plane Shear Modulus of Cross-Laminated Timber”**

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MONDAY, JULY 11 continued

17:05-17:25 Lech Muszynski, Oregon State University, United States, “**Measuring Post-Tensioning Losses in Mass Timber Shear Wall Panels**”

17:25-17:45 Benoit Gilbert, Griffith University, Australia, “**Latest Research on the Progressive Collapse of Post-And-Beam Mass Timber Buildings and the Consequences on the Development of Mass Timber Connections**”

17:45-18:05 Kyungsun Ahn, Seoul National University, Republic of Korea, “**Bending Performance of Timber-Concrete Composite Slab With a Notched Plywood Shear Connector**”

TUESDAY, JULY 12

7:00-8:00 REGISTRATION

RESIDENTIAL AND COMMERCIAL BUILDING INNOVATIONS: MASS TIMBER DEVELOPMENTS 2 CLT FROM ALTERNATIVE SPECIES

Chair: Jon Shanks, University of Tasmania, Australia

8:05-8:25 Azin Ettelaei, University of Tasmania, Australia, “**Developing Structurally Reliable Cross-Laminated Timber Panel From Australian Fast-Growing Plantation Eucalyptus Nitens**”

8:25-8:45 Jacob Seddelmeyer, University of Arkansas, United States, “**LCA Comparison of a Mass Timber Building With an Equivalent Steel Alternative**”

8:45-9:05 Anil Kumar Sethy, Institute of Wood Science and Technology, India, “**Properties of Cross-Laminated Timber from *Melia dubia Cav.*, a Plantation Grown Hardwood**”

CIRCULAR ECONOMY, SUPPLY CHAIN, MARKETING & OPERATIONS ISSUES IN WOOD PRODUCTS

Chairs: Michael Burnard, InnoRenew CoE, Slovenia & Kyra Woods, NIFPI, Australia

9:05-9:25 Stephen Kelley, North Carolina State University, United States, “**Carbon Flows Between Forests and the Built Environment: A Narrow Systems Approach**”

9:25-9:45 Mauricio Acuna, University of the Sunshine Coast, Australia, “**Sensing Technology and Artificial Intelligence (AI) Algorithms for Tree Detection and 3D Reconstruction, and Classification of Tree Quality Features During Harvesting Operations**”

9:45-10:05 Mahboobeh Hemmati, University of Arkansas, United States, “**Life Cycle Cost Analysis of Cross-Laminated Timber in a Building Structure**”

10:05-10:25 Isaac Nunoo, Kwame Nkrumah University of Science and Technology, Ghana, “**Woodfuel Marketing and Trade: Implication for Sustainable Livelihood**”

10:25-10:45 Coffee

CIRCULAR ECONOMY, SUPPLY CHAIN, MARKETING & OPERATIONS ISSUES IN WOOD PRODUCTS

Chairs: Michael Burnard, InnoRenew CoE, Slovenia & Kyra Woods, NIFPI, Australia

10:45-11:05 Michael Burnard, InnoRenew CoE, Slovenia, “**Circularity in Europe’s Woodworking Sector: Policy, Practice, and Perspectives on the Future**”

11:05-11:25 Lech Muszynski, Oregon State University, United States, “**The Sensitive Question of Commoditization in the Mass Timber Panel Industry**”

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TUESDAY, JULY 12 *continued*

- 11:25-11:45 Tracey Colley, Edge Environment, Australia, “**Recycling Wooden Pallets: A Case Study of Biochar Production**”
- 11:45-12:05 Maika Tabukovu, Fiji National University, Fiji, “**Value Chain Analysis for Veneer-based Engineered Wood Products (EWPs) Manufactured From Fijian-Grown Coconut Palm**”
- 12:05-12:25 Gavin Matthews, Engineered Wood Products Association of Australasia (EWPAA), Australia, “**End-of-Life Options for Engineered Wood Products/Treated Timber in a Circular Economy**”
- 12:30-13:30 **LUNCH**

DURABILITY, WOOD DECAY AND PRESERVATION 1

Chair: Bill Leggate, Queensland Government/Department of Agriculture and Fisheries, Australia

- 13:45-14:05 Tengfei Yi, University of the Sunshine Coast, Australia, “**Effect of Nano-Particle Characteristics and Concentration on Timber UV Performance: A Large Field Exposure Test**”
- 14:05-14:25 Maryam Shirmohammadi, Queensland Department of Agriculture and Fisheries, Australia, “**Investigating Moisture Uptake of LVL and CLT Panels Exposed to Free Water Pooling - Phase 1 - Developing Experimental Setup**”
- 14:25-14:45 Luis Yermán, University of Queensland, Australia, “**Effect of Wood Decay at Early Stages on Screw Withdrawal Capacity**”
- 14:45-15:05 Juan Roberto Vargas Garcia, University of the Sunshine Coast, Australia, “**Ability of Shallow Preservative Barriers to Protect Australian Eucalyptus Heartwood Timbers: Accelerated Testing**”
- 15:05-15:25 Babar Hassan, University of the Sunshine Coast, Australia, “**Evaluation of Microwave-Based Technology for Detection of West Indian Drywood Termites in Timber**”
- 15:25-15:45 Will Haigh, University of the Sunshine Coast, Australia, “**Susceptibility of Australian Commercial Timbers to West Indian Drywood Termite**”
- 15:45-16:05 Ros Syazmini Mohd Ghani, University of Tasmania, Australia, “**Investigating the Rates of Boron Diffusion Through Two Australian Eucalyptus Species With Thin Envelope Treatments of Alkaline Copper Quaternary (ACQ), Light Organic Solvent Preservatives (LOSPs), and Paraffin Wax**”

POSTER SESSION - PLANTATION ROOM, MANTRA SALT BEACH RESORT (COFFEE/SNACKS/DRINKS)

Chair: Tamara Franca, Mississippi State University, USA

16:15-19:00 • STUDENT POSTER COMPETITION

- Lilik Astari, University of Melbourne, Australia, “**Suitability of Corn Stalk (*Zea mays L.*) and Citric Acid Solution for Single Layer Particle Board: Effect of Particle Board Density on Bending Strength and Thickness Swelling**”
- Bakare Bisola, Forestry Research Institute of Nigeria, Nigeria, “**Strength and Dimensional Stability of Cement Bonded Board Reinforced With Tomato Stem Particles and Coconut Husk Dust**”
- Young-Min Cho, Seoul National University, Republic of Korea, “**Study on the Atom Transfer Radical Polymerization According to the Structural Difference of Organosolv Lignin and the Physicochemical Characteristics of Ligno-bioplastics**” after Bisola
- Azin Ettelaei, University of Tasmania, Australia, “**Optimising the Adhesive Performance of Engineered Wood Products Made From Tasmanian Plantation Eucalypt**”

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TUESDAY, JULY 12 continued

Shofi Fauziyyah, University of Natural Resources and Life Sciences, Vienna, Austria, **“Wood-Water Relationships of Fast-Grown Wood Species Coming From Indonesia and Austria”**

Ros Syazmini Mohd Ghani, University of Tasmania, Australia, **“A Boron-Based Dual Treatment Preservative System to Enhance the Durability of Tasmanian Hardwoods”**

Vikash Ghildiyal, University of Canterbury, New Zealand, **“Strategies for Reducing Drying Collapse in Difficult-to-Dry Plantation Grown Timber”**

Mahboobeh Hemmati, University of Arkansas, United States, **“Life Cycle Assessment of Construction Process in Mass Timber Structure”**

Moein Hemmati, University of Arkansas, United States, **“Comparative Analysis of Thermal Comfort Performance of Wood, Brick, and Concrete”**

Jian Hou, University of Tasmania, Australia, **“Trial Study of the Effect of Glue Type on Finger Joint Strength of *E. nitens*”**

Jiyao Hu, University of North Texas, United States, **“Binderless Bio-Based Cathode From Wood”**

Caroline C. Jaozandry, INRAE, France, **“Measurement of Wood Moisture Content: Variations in French Forest Resources”**

Jungkyu Kim, Seoul National University, Republic of Korea, **“Effect of Hemicellulose Hydrolysate Addition on Drying and Redispersion Behavior of Cellulose Nanofibers”**

Yunjin Kim, Seoul National University, Republic of Korea, **“Development Strategy of Cationized Nanocellulose Hydrogel Adsorbent for Effective Cr(VI) Removal”**

Lena Maria Leiter, University of Natural Resources and Life Sciences, Vienna, Austria, **“Dancing Wood Fibers - Engage Children in Wood Science With Triboelectricity”**

Yingwei Liang, University of Tasmania, Australia, **“Serviceability Performance of Cross-Laminated Timber Panels From Fibre-Managed Plantation Hardwood”**

Kuluni Millaniyage, University of Tasmania, Australia, **“Comparing the Serviceability of Different Species Used for Flooring Under Extreme Indoor Environmental Conditions: A Tasmanian Case Study”**

Griffin Miller, North Carolina State University, United States, **“Modification of Natural Fibers for Reinforcement in Bioplastic Composites; Thermal and Mechanical Behavior of PLA/PH3B Blends With Acetylated Pulp Fiber Reinforcement”**

Isaac Nunoo, Kwame Nkrumah University of Science and Technology, Ghana, **“Woodfuel Marketing and Trade: Implication for Sustainable Livelihood”**

Jaewon Oh, Seoul National University, Republic of Korea, **“Greenhouse Gas Emissions and Embodied Energy Analysis of Equivalent Performance Structure Members by Building Material”**

Sangwoo Park, Seoul National University, Republic of Korea, **“Evaluation of Biodegradability and Characterization of Biodegradable Plastic Depending on Lignin Content”**

Lea Primožič, InnoRenew CoE, Slovenia, **“Sustainability Communication of Wood Sector in Comparison to Textile and Car Industry”**

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TUESDAY, JULY 12 *continued*



Shaikh Atikur Rahman, Deakin University, Australia, “Advanced Finite Element Modelling Technique to Simulate Delamination of Cross-Laminated Timber Under Out of Plane Loading”

Lalaina Patricia Rasoamanana, Université d'Antananarivo, Madagascar, “Correction of the Effect of Wood Moisture Variation on the Calibration of NIRS Discrimination Models: Case of Three Dalbergia Species From Madagascar”

Claudia Roder, University of the Sunshine Coast, Australia, “Effect of Moisture and Fungal Attack on CLT Connections”

Nežka Sajinčič, University of Primorska, Slovenia, “Accessibility of Knowledge About Renewable Materials – How to Design Effective Educational Videos”

Morgan Sandera, University of Georgia, United States, “Comparisons of Wood Quality Among Pines: Naturally Regenerated 1 Longleaf vs Planted Longleaf and Planted Loblolly”

Jacob Snow, University of Maine, United States, “Real-Time Monitoring of the Hygrothermal Performance of a CLT School Building”

Juan Roberto Vargas, University of the Sunshine Coast, Australia, “Ability of Shallow Preservative Barriers to Protect Eucalyptus Heartwood Timbers: Accelerated Testing”

Cody Wainscott, Oregon State University, United States, “In-Depth Characterization of Bondlines in Cross-Laminated Timber Made With Preservative-Treated Lumber”

Wenxuan Wu, The University of Queensland, Australia, “Novel Insights Into Self-Sustained Smouldering of CCA-Treated Timber Poles”

Zidi Yan, University of Queensland, Australia, “Effect of Repeated Wetting and Drying on Withdrawal Capacity and Corrosion of European Screws in Treated and Untreated Australian Sawn Timber”

Chae-Hwi Yoon, Seoul National University, Republic of Korea, “Anti-Inflammatory Effect of Sesquiterpenoids Extracted From Major Coniferous Species in Korea”

Yuhao Zhang, University of Queensland, Australia, “Oil Heat Treatment of Timber: Durability Enhancement vs Loss of Mechanical Properties”

REGULAR POSTER SESSION

Michael Adedotun, Michael Adedotun Oke Foundation, Nigeria, “Forests and Forestry Reserves as Security Threat in Federal Capital Territory, Abuja, Nigeria”

Kojo Afrifah, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana, “Assessment of the Efficacy of Chlorpyrifos Preservative Mixed With Kerosene or Water in Enhancing Durability of *Aningeria robusta* and *Alstonia boonei* in a Tropical Region”

Kwadwo Boakye Boadu, Kwame Nkrumah University of Science and Technology, Ghana, “Heating and Emission Properties of Tissue Cultured Clone From *Bambusa balcooa* (Beema bamboo) and *Oxytenanthera abyssinica* as Sustainable Solid Biofuel Materials”

Young-Min Cho, Seoul National University, Republic of Korea, “Study on the Atom Transfer Radical Polymerization According to the Structural Difference of Organosolv Lignin and the Physicochemical Characteristics of Ligno-Bioplastics”

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TUESDAY, JULY 12 continued

Elaine Galore, University of the Sunshine Coast, Australia, **“Potential Uses of Papua New Guinea Lesser-Known Hardwood Timber Species”**

Babar Hassan, University of the Sunshine Coast, Australia, **“Ability of Waterborne Organo-Metallic Preservatives to Protect Radiata Pine Heartwood Decking”**

Eva Haviarova, Purdue University, United States, **“Product Development and Value Added to Hardwoods”**

Sung-Wook Hwang, Seoul National University, Republic of Korea, **“Long-Term Moisture and Dimensional Behavior of a Nail-Laminated Timber Slab”**

Annika Hyytiä, Finland, **“Sustainable Development – International Framework – Overview and Analysis in the Context of Forests and Forest Products With Sustainable Processes”**

Ebenezer Iyiola, Federal University of Technology, Nigeria, **“Assessment of the Efficiency of Sawdust From Three Hardwood Species as Low-Cost Adsorbent for the Removal of Cadmium From Contaminated Water”**

Myungkil Kim, National Institute of Forest Science, Republic of Korea, **“Correlation Between Wood Characteristics by Social Network Analysis”**

Scott Kleinschmidt, Australian Timber & Pest Research, Australia, **“Termite Resistance of Australian Timber Species”**

Taekyeong Lee, Seoul National University, Republic of Korea, **“Effect of Microwave Heating for Production of Kraft Lignin-Derived Activated Carbon”**

David Lorenzo, University of Santiago de Compostela, Spain, **“Natural Durability and Performance of *Eucalyptus globulus* Single Family House in Spain After 20 Years”**

Lech Muszynski, Oregon State University, United States, **“Image-Based Method for Diagnostics of Penetration Firestop Systems in Cross-Laminated Timber Specimens Subjected to ASTM E418 Test”**

Isaac Nunoo, Kwame Nkrumah University of Science and Technology, Ghana, **“Saving and Restoring Ghana’s Ecosystem: Evidence From Cocoa Agroforestry System”**

Sangwoo Park, Seoul National University, Republic of Korea, **“Evaluation of Biodegradability and Characterization of Biodegradable Plastic Depending on Lignin Content”**

Rameez Rameezdeen, University of South Australia, Australia, **“Characterising Softwood Sawn Products in Australia”**

Michael Risse, Technical University of Munich, Germany, **“Comparative Life Cycle Assessment of CLT Panels From Recovered and Primary Timber”**

Michael Risse, Technical University of Munich, Germany, **“Wood Properties of Grand Fir (*Abies grandis*) Lumber Modified With Citric Acid and Sorbitol”**

Laurence Schimleck, Oregon State University, United States, **“Radial Density Variation in North American Conifers. A Synthesis of Specific Gravity Ring Components, Life History Strategy, and Shade Tolerance”**

Ján Sedliačik, Technical University in Zvolen, Slovakia, **“Environmentally Friendly Wood Composites Based on UF Resin Modified by Protein Formaldehyde Scavengers”**

Ján Sedliačik, Technical University in Zvolen, Slovakia, **“Surface Modification of Selected Wood Species by Atmospheric Plasma”**

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Jan Tippner, Mendel University in Brno, Czech Republic, “From Static to Dynamic Mechanical Model of Green Wood”

Hwanmyeong Yeo, Seoul National University, Republic of Korea, “Prediction of Moisture Content Distribution During Drying Process by Using Approximate Solution of Moisture Diffusion Equation”

Chae-Hwi Yoon, Seoul National University, Republic of Korea, “Anti-inflammatory Effect of Sesquiterpenoids Extracted From Major Coniferous Species in Korea”

WEDNESDAY, JULY 13

7:00-8:00 REGISTRATION

EARLY STAGE RESEARCHER (3 MINUTE ORALS)

Michael Adedotun, Michael Adedotun Oke Foundation, Nigeria, “The Case Studies of a Typical Sawmilling Business in Gwagwalada Area Council of the Federal Capital Territory, Abuja , Nigeria”

Lilik Astari, University of Melbourne, Australia, “Suitability of Corn Stalk (*Zea mays L.*) and Citric Acid Solution for Single-Layer Particle Board: Effect of Particle Board Density on Bending Strength and Thickness Swelling”

Shaikh Atikur Rahman, Deakin University, Australia, “Advanced Finite Element Modelling Technique to Simulate Delamination of Cross-Laminated Timber Under Out-of-Plane Loading”

Bisola Bakare, Forestry Research Institute of Nigeria, Nigeria, “Strength and Dimensional Stability of Cement-Bonded Board Reinforced With Tomato Stem Particles and Coconut Husk Dust”

Hyunwoo Chung, Seoul National University, Republic of Korea, “Wood Surface Inspection Using Deep Neural Networks”

Valentino Cristini, Mendel University in Brno, Czech Republic, “Heterogeneity of Density of Green Beech Wood Caused by Fungal Deterioration and Its Impact on Mechanical Testing”

Adam Faircloth, Griffith University, Australia, “Non-Destructive Evaluation of the Global Elastic Properties for Large-Scale Cross-Laminated Timber Panels Through Various Strip Specimens”

Patrick Grant, Queensland University of Technology, Australia, “Applying Image Analysis Techniques and Spectral Segmentation to Generate a Virtual Board Representation for Simulating Moisture Migration in Laminated Timber Panels”

Jiyao Hu, University of North Texas, United States, “Binderless Bio-Based Cathode From Wood”

Jong-Hwa Kim, Seoul National University, Republic of Korea, “Preparation of Gelatin-Based Hydrogel Reinforced by Hemicellulose-Based Crosslinker and Its Properties”

Kuluni Millaniyage, University of Tasmania, Australia, “Challenges Faced in Introducing Non-Conventional Timber for Flooring Applications: An Australian Case Study”

Linda Moss, University of the Sunshine Coast, Australia, “Molecular Level Community Analysis of Fungal Colonisation of Timber in a Field Test Site”

Lea Primožič, InnoRenew CoE, Slovenia, “Sustainability Communication of Wood Sector in Comparison to Textile and Car Industry”

Jake Snow, University of Maine, United States, “Real-Time Monitoring of the Hygrothermal Performance of a CLT School Building”

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WEDNESDAY, JULY 13 continued

Stavros Spyridakis, University of Queensland, Australia, **“A Novel Bench-Scale Test Method to Characterise the Ignition Conditions for Timber Protected With Intumescent Coatings”**

Wenjing Sun, University of Maine, United States, **“Insight Into Mycelium-Lignocellulosic Bio-Composites: Essential Factors and Properties”**

David Tanton, University of Tasmania, Australia, **“Process Induced Discoloration – A Case Study on Tasmanian Blackwood”**

Barbora Vojáčková, Mendel University in Brno, Czech Republic, **“Simulation of Tree Oscillation Mode Shapes”**

Jiang Zhuoting, Nagoya University, Japan, **“Effect of High-Temperature Drying With Load on Reduction of Residual Stress and Correction of Warp of Japanese Cedar Lumber”**

Jan Zlámal, Mendel University in Brno, Czech Republic, **“Influence of Sample Scale on Dynamic and Static Bending Testing of Green Wood”**

NEW DEVELOPMENTS IN CERTIFICATION/LEGALITY/WOOD FORENSIC/RENEWABLE MATERIALS

Chairs: Michael Powell, Biotica EC, Australia & Rob McGavin, Queensland Government/Department of Agriculture and Fisheries, Australia

9:05-9:25 Simon Dorries, Responsible Wood, Australia, **“Revision of the Australia/New Zealand Standard for Sustainable Forest Management”**

9:25-9:45 Michael Risse, Technical University of Munich, Germany, **“A Machine Learning Application for Automated Identification of Wood Species Using Microscopic Images”**

9:45-10:05 Tahiana Ramananantoandro, University of Antananarivo, Madagascar, **“Potentiality of Portable Low-Cost Near Infrared Spectrometer as a Precious Wood Identification Tool in Madagascar”**

10:05-10:25 Adriana Costa, Mississippi State University, United States, **“A Field-Deployable, Forensic DNA Test for Detecting Norway Spruce Lumber”**

10:25-10:45 Coffee

NEW DEVELOPMENTS IN CERTIFICATION/LEGALITY/WOOD FORENSIC/RENEWABLE MATERIALS (CONT.)

Chairs: Michael Powell, Biotica EC, Australia & Rob McGavin, Queensland Government/Department of Agriculture and Fisheries, Australia

10:45-11:05 Tomas Pipiska, Mendel University in Brno, Czech Republic, **“Strandboard Manufacturing With Recycled and Virgin Wood”**

11:05-11:25 Osei Asafu-Adjaye, Auburn University, United States, **“Epoxy Resin Substituted Hydrothermal Liquefaction (HTL) Bio-Oil as a Binder for Particle Board Production”**

11:25-11:45 YunJin Kim, Seoul National University, Republic of Korea, **“Preparation of Lignin/PVA Blend and Dialdehyde Cellulose Crosslinked Fibers for Dye Removal”**

11:45-12:05 Daryl Williams, Surface Measurement Systems, United Kingdom, **“Dynamic Vapor Sorption – A Versatile Technique for Wood Materials Characterization”**

12:05-12:25

12:30-13:30 **LUNCH**

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WEDNESDAY, JULY 13 *continued*



WOOD PROPERTIES AND PHYSICS 1

Chairs: Graeme Palmer, Southern Cross University, Australia & Maryam Shirmohammadi, Queensland Government/Department of Agriculture and Fisheries

- 13:45-14:05 Lawrence Aguda, Forestry Research Institute of Nigeria, Nigeria, **“Variations in Anatomical and Chemical Properties of *Lonchocarpus sericeus*: A Potential Raw Material for Pulp and Paper Industries in West Africa”**
- 14:05-14:25 Katja Fruehwald-Koenig, Ostwestfalen-Lippe University of Applied Sciences and Arts, Germany, **“GLT From Oil Palm Wood”**
- 14:25-14:45 Steven Psaltis, Queensland University of Technology, Australia, **“Modelling of Moisture Movement and Wetting Process in Wood Product Composite Systems”**
- 14:45-15:05 Geoff Downes, Forest Quality Pty Ltd, Australia, **“The Prediction of Green and Dry Board Properties From Pre-Harvest Inventory and Resi (IML PD400) Assessment Data”**
- 15:05-15:25 Lena Marie Leiter, University of Natural Resources and Life Sciences, Vienna, Austria, **“Developing a Continuous Measurement Setup for Electrostatic Surface Charges, Implemented in Woodworking Processes”**
- 15:25-15:45 Abdul Haqim Lai Mohd Fikri Lai, Universiti Putra Malaysia, Malaysia, **“Characterization of Malaysian Hardwood, Bamboo, and Composite Material for Baseball Bat Modelling”**
- 15:45-16:05 Coffee

WOOD PROPERTIES AND PHYSICS 1 (CONT.)

Chairs: Graeme Palmer, Southern Cross University, Australia & Maryam Shirmohammadi, Queensland Government/Department of Agriculture and Fisheries

- 16:25-16:45 Chandan Kumar, Queensland Department of Agriculture and Fisheries, Australia, **“Comparison Between High Temperature and Continuous Drying of Southern Pine in Terms of Drying Quality and Permeability”**
- 16:45-17:05 Caroline Christina Jaozandry, INRAE, France, **“Measurement of Wood Moisture Content: Variations in French Forest Resources”**
- 17:05-17:25 Rupert Wimmer, University of Natural Resources and Life Sciences, Vienna, Austria, **“Managing Wood Dust in the Wood Industry With Innovative Technologies”**
- 17:25-17:45 Morgan Sandera, University of Georgia, United States, **“Comparisons of Wood Quality Among Pines: Naturally Regenerated Longleaf vs. Planted Longleaf and Planted Loblolly”**
- 17:45-18:05 Moein Hemmati, University of Arkansas, United States, **“Comparative Analysis of Thermal Comfort Performance of Wood, Brick, and Concrete”**

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THURSDAY, JULY 14

7:00-8:00 REGISTRATION

WOOD MODIFICATION & BIOENERGY: CHEMICAL, THERMAL, EPL, BIOLOGICAL, OTHERS

Chair: Mark Brown, University of Sunshine Coast, Australia

8:05-8:25 Edita Garskaite, Luleå University of Technology, Sweden, “**Exploitation of Available Waste Materials as Fire-Retardancy Promoter for Scots Pine Sapwood**”

8:25-8:45 Lee Smith, University of North Texas, United States, “**Real Time Gas Modeling for Biomass Pyrolysis Using Triple Gaussian Functions**”

8:45-9:05 Idowu Abimbola Adegoke, Fiji, “**Production and Evaluation of the Combustion Properties of Rice Husk Briquettes as an Alternative Source of Heat Energy**”

9:05-9:25 Wenxuan Wu, University of Queensland, Australia, “**Novel Insights Into Self-Sustained Smouldering of CCA-Treated Timber Poles**”

9:25-9:45 Wanhe Hu, West Virginia University, United States, “**Pyrolysis Characteristics and Kinetics of Logging Residues for Bioenergy**”

9:45-10:05 Mohammadali Azadfar, SUNY Morrisville, United States, “**Solvent-Free Mechanochemical Pretreatment of Forest Harvest Residuals: Coupling Mechanical Size Reduction With Dry Base Through Ball Milling**”

10:05-10:25 Jong-Chan Kim, Seoul National University, Republic of Korea, “**Evaluation of the Optical, Thermal, and Mechanical Properties of Cellulose Nanofibril Composite Film With Hydrophilic Lignin**”

10:25-10:45 Coffee

DURABILITY, WOOD DECAY, AND PRESERVATION 2

Chair: Bill Leggate, Queensland Government/Department of Agriculture and Fisheries, Australia

10:45-11:05 Kyra Wood, University of Tasmania, Australia, “**Improving the Durability and Fire Resistance of Tasmanian Eucalyptus Species**”

11:05-11:25 Tripti Singh, Scion Research, New Zealand “**Structural Wood Products and Their Biological Risk in the Built Environment of New Zealand**”

11:25-11:45

11:45-12:05 Lesley Francis, National Centre for Durability and Design Life, Australia, “**Natural Durability of Young Plantation and Native Forest Regrowth *Eucalyptus cloeziana* (*Gympie messmate*)**”

12:05-12:25 David Lorenzo, University of Santiago de Compostela, Spain, “**Durability of *Eucalyptus globulus* Floating Structures Mussels Trough in Sea Water Against Marine Borers in the Atlantic Coast of Spain**”

12:30-14:00 LUNCH, AWARDS, BUSINESS MEETING

EDUCATIONAL ISSUES, DIVERSITY, EQUITY, AND INCLUSION IN OUR INDUSTRY

Chairs: Hongmei Gu, USDA FS FPL, USA & Keith Crews, University of Queensland, Australia

14:05-14:25 Kyra Wood, University of Tasmania, Australia, “**Demystifying Wood? Or Learning to Love the Enigma?**”

SWST 65TH INTERNATIONAL CONVENTION *JULY 10-15, 2022*

A GLOBAL PERSPECTIVE OF THE PRESENT AND FUTURE UTILIZATION OF RENEWABLE MATERIALS



THURSDAY, JULY 14 continued

14:25-14:45 Nezka Sajjincic, InnoRenew CoE, Slovenia, **“Making Knowledge about Renewable Materials Accessible and Engaging With Educational Videos Based on Instructional Design”**

14:45-15:05 Andrew La Spina, Wood Research and Development, Australia, **“Breaking the Myths – Exploring the Capabilities of ‘Modern’ Engineered Timber Bridges”**

15:05-15:25 Jana Nour, Mahmoud Omer High School, Egypt, **“AI Labs”**

15:25-15:45

15:45-16:05 Coffee

WOOD PROPERTIES AND PHYSICS 2

Chairs: Graeme Palmer, Southern Cross University, Australia & Maryam Shirmohammadi, Queensland Government/ Department of Agriculture and Fisheries

16:05-16:25 Khonethong Soukphaxay, National University of Laos, Laos, **“Quality Assessment of Glue Bond on Plywood-Eucalyptus Based on the Length of Pressing Time”**

16:25-16:45 Laurence Schimleck, Oregon State University, United States, **“Mapping Wood Property Variation Within North American Conifers”**

16:45-17:05 Ilona Peszlen, North Carolina State University, United States, **“Wood Properties of CRISPR Gene-Edited Black Cottonwood”**

17:05-17:25 Khamtan Phonetip, National University of Laos, Laos, **“Quality Assessment of Teak Boards Dried in a Solar Kiln”**

17:25-17:45 Sung-Jun Pang, Seoul National University, Republic of Korea, **“Structural Performance of Particle Board Shear Walls Made by Bonding With Timber Studs”**

17:45-18:05 Judith Gisip, Universiti Teknologi Mara, Malaysia, **“Effects of Resin Content on Mechanical and Physical Properties of Alkaline-Treated Kenaf Particle Board for Exterior Applications”**

19:00-23:30 Banquet - Plantation Room - Mantra Salt Beach Resort

FRIDAY, JULY 15 - CONVENTION TOUR - SEPARATE PRICE