



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-PEPPERS RESORT**

## MONDAY, JULY 11

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

General Chair: Henry Quesada, Purdue University, USA

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

7:45-8:00 **WELCOME TO COUNTRY** - Nicole Rotumah Descendant of the Minjungbal People & Local Goori Woman, Australia

8:00-8:30 **KEYNOTE** - Bob Leicester, CSIRO, Australia, **“Service Life Prediction: Translating Timber Durability Expectations for the Building Community”**

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 Graeme Palmer, Southern Cross University, Australia, **“Natural Durability of Young Planted Hardwoods in North Eastern NSW”**

9:05-9:25 Trinh Huynh, University of the Sunshine Coast, Australia, **“Multiple Ecosystem Services of Monoculture Hardwood Plantations: A Case Study of Spotted Gum Forests in Queensland”**

9:25-9:45 Armando McDonald, University of Idaho, United States, **“Biomechanical and Viscoelastic Properties of Sweet Sorghum Stalk and its Correlation With Composition”**

9:45-10:25 Discussion and Q&A

10:25-10:45 Coffee

10:45-11:05 Vikash Ghildiyal, University of Canterbury, New Zealand, **“Strategies for Reducing Drying Collapse in Difficult-to-Dry Plantation Grown Timber”**

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**MONDAY, JULY 11** continued



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 Jacek Siry, University of Georgia, United States, **“Forest Plantations in the Southern United States: Environmental Benefits and Economic Sustainability”**

11:45-12:25 Discussion and Q&A

12:30-13:30 **LUNCH: Lagoon Poolside, Peppers Resort**

## **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, Australia, **“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 Nathan Kotlarewski, 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”**

17:05-17:25 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”**

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”**

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MONDAY, JULY 11 continued

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**”

19:00-21:00 Student Trivia Night (Students Only)

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

8:45-9:05 Mahoobed Hemmati, University of Arkansas, United States, “**LCA Comparison of a Mass Timber Building With an Equivalent Steel Alternative**”

### 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 Discussion and Q&A

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**”

11:25-11:45 Maika Tabukovu, Fiji National University, Fiji, “**Value Chain Analysis for Veneer-Based Engineered Wood Products (EWPs) Manufactured From Fijian-Grown Coconut Palm**”

11:45-12:05 Gavin Matthew, Engineered Wood Products Association of Australasia (EWPA), Australia, “**End-of-Life Options for Engineered Wood Products/Treated Timber in a Circular Economy**”

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TUESDAY, JULY 12 *continued*



12:05-12:25 Discussion and Q&A

12:30-13:30 **LUNCH: Lagoon Poolside, Peppers Resort**

## **DURABILITY, WOOD DECAY AND PRESERVATION 1**

Chair: Bill Leggate, Queensland 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, Queensland Department of Agriculture and Fisheries, 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 Discussion and Q&A

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

Chair: Eva Haviarova, Purdue 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**”

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**”

Azin Ettelaei, University of Tasmania, Australia, “**Optimising the Adhesive Performance of Engineered Wood Products Made From Tasmanian Plantation Eucalypt**”

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

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

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**”

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**TUESDAY, JULY 12** continued

Mahboobeh Hemmati, University of Arkansas, United States, “**Life Cycle Analysis (LCA) for Transportation of Cross-Laminated Timber (CLT) Panels From Three Origin Points of Supply**”

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**”

Trinh Huynh, University of the Sunshine Coast, Australia, “**Multiple Ecosystem Services of Monoculture Hardwood Plantations: A Case Study of Spotted Gum Forests in Queensland**”

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**”

Liu Mengyuan, Tokyo University of Agriculture and Technology, Japan, “**Economic Ripple Effects of Cross-Laminated Timber Manufacturing in Japan**”

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

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**”

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

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

Nežka Sajinčič, InnoRenew CoE, Slovenia, “**Making Knowledge About Renewable Materials Accessible and Engaging With Educational Videos Based on Instructional Design**”

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**TUESDAY, JULY 12** continued



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, 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

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

Vilius Gendvilas, University of the Sunshine Coast, Australia, **“Effects of Resi Sampling Conditions”**

Babar Hassan, Queensland Department of Agriculture and Fisheries, Australia, **“Ability of Waterborne Organo-Metallic Preservatives to Protect Radiata Pine Heartwood Decking”**

Eva Haviarova, Purdue University, United States, **“Physical and Mechanical Performance Testing of the Hybrid Hardwood-Softwood CLT Panels Obtained From One of the First Hardwood CLT Structures”**

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

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

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

Lech Muszynski, Oregon State University, United States, **“Deconstruction Costs, Carbon Footprint and Circularity Options for Two Mass Timber Test Structures. Empirical Data Collection”**

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

Lech Muszynski, Oregon State University, United States, **“Prototype Method to Evaluate the Fire Performance of CLT Floor-to-Wall Connections”**

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**TUESDAY, JULY 12** continued

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

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

Tahiana Ramananantoandro, 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**”

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**”

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**”

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

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

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**”

## WEDNESDAY, JULY 13

7:00-8:00 **REGISTRATION**

**8:00-9:05 EARLY STAGE RESEARCHER (3 MINUTE ORALS)** Chair: Lee Smith, University of North Texas, USA

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**”

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**”

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

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WEDNESDAY, JULY 13 *continued*



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

Mengyuan Liu, Tokyo University of Agriculture and Technology, Japan, “**Economic Ripple Effects of Cross-Laminated Timber Manufacturing in Japan**”

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**”

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

9:45-10:05 Stavros Spyridakis, University of Queensland, Australia, “**A Novel Bench-Scale Test Method to Characterise the Ignition Conditions for Timber Protected With Intumescent Coatings**”

10:05-10:25 Discussion and Q&A

10:25-10:45 Coffee

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

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

10:45-11:05 Matt de Jongh, Responsible Wood, Australia, “**An Overview of Sustainable Forest Management in Australia and New Zealand**”

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**WEDNESDAY, JULY 13** continued

11:05-11:25 Juan Li, TU Braunschweig, Germany, **“The Immediate and Short-Term Degradation of the Bordered Pits on Wood Radial Surfaces in the Cement Alkaline Environment Measured by AFM”**

11:25-11:45 Connor Hewson, Surface Measurement Systems, United Kingdom, **“Dynamic Vapor Sorption – A Versatile Technique for Wood Materials Characterization”**

11:45-12:05 Rupert Wimmer, University of Natural Resources and Life Sciences, Vienna, Austria, **“In-Situ Log Labelling and Earth Observation to Ensure Timber Legality”**

12:05-12:25 Discussion and Q&A

12:30-13:30 **LUNCH: Lagoon Poolside, Peppers Resort**

## **WOOD PROPERTIES AND PHYSICS 1**

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

13:45-14:05 Steven Psaltis, Queensland University of Technology, Australia, **“Modelling of Moisture Movement and Wetting Process in Wood Product Composite Systems”**

14:05-14:25 Jonathan Harrington, Forest Quality Pty Ltd, Australia, **“The Prediction of Green and Dry Board Properties From Pre-Harvest Inventory and Resi (IML PD400) Assessment Data”**

14:25-14:45 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”**

14:45-15:05 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”**

15:05-15:25 Caroline Christina Jaozandry, INRAE, France, **“Measurement of Wood Moisture Content: Variations in French Forest Resources”**

15:25-15:45 Coffee

## **WOOD PROPERTIES AND PHYSICS 1 (CONT.)**

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

15:45-16:05 Rupert Wimmer, University of Natural Resources and Life Sciences, Vienna, Austria, **“Managing Wood Dust in the Wood Industry With Innovative Technologies”**

16:05-16:25 Morgan Sandera, University of Georgia, United States, **“Comparisons of Wood Quality Among Pines: Naturally Regenerated Longleaf vs. Planted Longleaf and Planted Loblolly”**

16:25-16:45 Moein Hemmati, University of Arkansas, United States, **“Comparative Analysis of Thermal Comfort Performance of Wood, Brick, and Concrete”**

16:45-17:05 Discussion and Q&A

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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 the Sunshine Coast, Australia

8:45-9:05 Lee Smith, University of North Texas, United States, “Real Time Gas Modeling for Biomass Pyrolysis Using Triple Gaussian Functions”

9:05-9:25 Idowu Abimbola, Fiji National University, Fiji, “Production and Evaluation of the Combustion Properties of Rice Husk Briquettes as an Alternative Source of Heat Energy”

9:25-9:45 Wenxuan Wu, University of Queensland, Australia, “Novel Insights Into Self-Sustained Smouldering of CCA-Treated Timber Poles”

9:45-10:05 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”

10:05-10:25 Discussion and Q&A

## 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 Jeff Morrell, University of the Sunshine Coast, Australia, and Ian Morrell, Oregon State University, United States, “Stiffness and Energy Characterization of Fungi-Degraded Cross-Laminated Timber (CLT) Connections”

11:45-12:05 Jeff Morrell, University of the Sunshine Coast, Australia, “Natural Durability of Young Plantation and Native Forest Regrowth *Eucalyptus cloeziana* (*Gympie messmate*)”

12:05-12:25 Discussion and Q&A

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

## 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?”

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

14:45-15:05 Chris Lafferty, Forest and Wood Products Australia, Australia, “WoodSolutions – An Overview of FWPA’s Construction Sector Technology Transfer Program – How to Use Wood”

15:05-15:25 Eva Haviarova, Purdue University, USA, “The Use of the Biomimicry Methodology for Nature-Inspired Sustainable Education - A Shared Project in Two Cooperating Institutions”

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**THURSDAY, JULY 14** continued

15:25-15:45 Discussion and Q&A

15:45-16:05 Coffee

## **WOOD PROPERTIES AND PHYSICS 2**

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

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

16:45-17:05 Khamtan Phonetip, National University of Laos, Laos, **“Quality Assessment of Teak Boards Dried in a Solar Kiln”**

17:05-17:25 Graeme Palmer, Southern Cross University, Australia, **“Analysis of Char and Energy Production From the Combustion of Woody Biomass From Different Hardwood Species”**

17:25-17:28 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”**

17:28-17:45 Discussion and Q&A

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

**FRIDAY, JULY 15 - CONVENTION TOUR - SEPARATE PRICE**