

2022 Convention Review

The 65th International SWST Convention took place July 10-15, 2022, at Peppers Salt Resort and Spa in Kingscliff, NSW, Australia. The overall theme of the Convention was “**A Global Perspective of the Present and Future Utilization of Renewable Materials** “. The General Chair of the Convention was Henry Quesada, Purdue University, United States.

146 people registered and paid for the convention, although 6 had to cancel at the last minute. Sixteen countries were represented, and the breakdown was:

Australia	62	Madagascar	1
Austria	3	New Zealand	5
China	1	Republic of Korea	17
Czech Republic	4	Slovakia	3
Fiji	7	Slovenia	4
France	1	United Kingdom	1
Germany	4	United States	23
Japan	2		
Lao People's Democratic Republic	2		140

There were 65 oral presentations over the 4 days in 8 topic areas. Topic areas were:

- Forest Plantation & Non-Woody Renewable Material Impacts on Ecosystems, Society, Economy, Value-Added Products
- Circular Economy, Supply Chain, Marketing & Operations Issues in Wood Products
- Residential and Commercial Building Innovations: Mass Timber Developments
- Durability, Wood Decay and Preservation
- New Developments in Certification/Legality/Wood Forensic/Renewable Materials
- Wood Properties and Physics
- Educational Issues, Diversity, Equity and Inclusion in our Industry
- Wood Modification & Bioenergy: Chemical, Thermal, EPL, Biological, Others

Of these 65 oral presentations, 22 were presented by students and qualified for the Student Oral Presentation Award. There were also 16 students who participated in the Early-Stage Researcher 3-minute oral presentations. In addition, we had 32 student poster presenters and 20 regular poster presentations. 28 people participated in the Friday Convention tour.

The Convention began on Sunday afternoon with a Young Researcher/Mentor Activity where 25 young researchers met in the garden/beach area of the resort along with 5 mentors for an afternoon of games, beach, and snags on the barbie. A good way to meet new people and have fun.

That evening we had our Welcome Reception which was highlighted by our Women Ambassadors Creating the Future of Wood Science poster display. Sixteen women were recognized in this display: Balkis Bakar, Cecilia Bustos, Jinzhen Cao, Tamara Franca, Maria Fredriksson, Eva Haviarova, Victoria Herian, Andreja Kutnar, Susan LeVan-Green, Mariapaolo

Riggio, Anne Toppinen, Barbara Wade, Anne Wekesa, Kyra Wood, Mariko Yamasaki, and Audrey Zink-Sharp

This will be a traveling SWST-sponsored exhibition designed to celebrate women ambassadors over time. Ambassadors were announced in a news release on February 11, 2022 (International Day of Women and Girls in Science). The exhibition will now be traveling around the world and join us at the 2023 SWST International Convention in Asheville, North Carolina USA, as well as be available for downloading and printing at individual institutions.

Official sessions began on Monday, July 11, with a “Welcome to Country” provided by Nicole Rotumah Descendant of the Minjungbal People & Local Goori Woman, Australia. A keynote was given by Bob Leicester, CSIRO, Australia, on “Service Life Prediction: Translating Timber Durability Expectations for the Building Community”.

The rest of the day saw presentations in two technical sessions: Forest Plantation & Non-Woody Renewable Material Impacts on Ecosystems, Society, Economy, Value-Added Products; and secondly, Residential and Commercial Building Innovations: Mass Timber Developments. The day ended with another student activity – Student Trivia Night. This event is a fun evening for students to get together, try to identify photos of other student’s research, win prizes, and enjoy colleagues.

Tuesday, July 12 consisted of additional presentations in Residential and Commercial Building Innovations: Mass Timber Developments as well as those in Circular Economy, Supply Chain, Marketing & Operations Issues in Wood Products; and Durability, Wood Decay and Preservation. The early evening was taken up with the Poster Session and Student Poster Competition.

Wednesday, July 13 began with our Early-Stage Researcher Session where 16 people gave succinct 3-minute presentations about their research. It’s a unique opportunity to give a presentation in front of people and be required to summarize and present efficiently and effectively. It is great practice for future presentations. Full presentations followed in Circular Economy, Supply Chain, Marketing & Operations Issues in Wood Products; and Wood Properties and Physics sessions.

Our sessions ended on Thursday, July 14, with sessions on Wood Modification & Bioenergy: Chemical, Thermal, EPL, Biological, Others; Durability, Wood Decay and Preservation; Educational Issues, Diversity, Equity and Inclusion in our Industry; and ended with the final session on Wood Properties and Physics. We held our 2022 Annual Business Meeting and Awards Ceremony during the lunch. Awards presented were:

- DSA – 2022 Armando McDonald
- Fellow – 2022 Eric Hansen
- Distinguished Educator Award – 2022 Gloria Oporto & Laurence Schimleck
- Reviewer of the Year – 2022 Jilei Zhang
- George Marra Excellence in Writing

2022 Committee: Chair: Tom Gorman, Prof. Emeritus, University of Idaho, USA; Duncan Mayes, Lignutech Oy (Ltd), Finland; Samuel Glass, USDA Forest Products Laboratory, USA; Ilona Peszlen, North Carolina State University, USA

1st place – Juan, Li and Kasal Bohumil. Repeatability of adhesion force measurement on wood longitudinal cut cell wall using atomic force microscopy. No. 1, pp. 3-16.

2nd place – Jang, Eun-Suk and Chun-Won Kang. Effect of porous traits of hardwoods crosssection on sound absorption performance – Focusing on six species of Korean hardwoods. No. 4, pp. 260-272.

3rd place – Liu, Fenglu, Houjiang Zhang, Xiping Wang, Fang Jiang, Wenhua Yu, and Robert J Ross. Acoustic wave propagation in standing trees – Part II. Effects of tree diameter and juvenile wood. No. 2, pp. 95-108.

- Student Poster Competition

Student Poster Competition Judges: Chair: Eva Haviarova, Purdue University, USA; Lech Muszynski, Oregon State University, USA; Bo Kasal, Fraunhofer-Institut für Holzforschung, Germany; Ilona Peszlen, North Carolina State University, USA; Kyra Wood, University of Tasmania, Australia

Student Poster Competition Participants:

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”*

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”*

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”*

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, *“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”*

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”*

1st Place Student Poster Competition Winner: **Wenxuan Wu**, The University of Queensland, Australia, *“Novel Insights Into Self-Sustained Smouldering of CCA-Treated Timber Poles”*

2nd Place Student Poster Competition Winner: **Cody Wainscott**, Oregon State University, United States, *“In-Depth Characterization of Bondlines in Cross-Laminated Timber Made with Preservative-Treated Lumber”*

3rd Place Student Poster Competition Winner: **Trinh Huynh**, University of the Sunshine Coast, Australia, *“Multiple Ecosystem Services of Monoculture Hardwood Plantations: A Case Study of Spotted Gum Forests in Queensland”*

The evening ended with our Banquet which was held at the Mantra on Salt Beach Kingscliff, with a traditional Australian Barbeque. Student Oral Presentation Awards were announced at the banquet.

- Student Oral Presentation Awards

Student Oral Presentation Judges: Chair: Henry Quesada, Purdue University, USA; Rameez Rameezdeen, University of South Australia, Australia; Tahiana Ramanantoandro, University of Antananarivo, Madagascar; Armando McDonald, University of Idaho, USA; Jan Tippner, Mendel University in Brno, Czech Republic

Students who were eligible for the Oral Presentation Awards:

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

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

Johannes Fehrmann, University of Melbourne, Australia, *“Assessing Hemp Hurd Particle Dimensions for the Manufacture of Low-Density Particle Board”*

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

Ian Morrell, Oregon State University, United States, *“Volumetric and Fracture Effects due to Moisture Intrusion in Douglas-Fir Larch Cross-Laminated Timber”*

Abdulrahman Zaben, University of Queensland, Australia, *“Fire Performance of a Hybrid Glulam-FRP Beam”*

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)”*

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

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

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

Tengfei Yi, University of the Sunshine Coast, Australia, *“Effect of Nano-Particle Characteristics and Concentration on Timber UV Performance: A Large Field Exposure Test”*

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

Will Haigh, University of the Sunshine Coast, Australia, *“Susceptibility of Australian Commercial Timbers to West Indian Drywood Termite”*

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

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”*

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”*

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

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

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

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

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

1st Place Student Oral Presentation Winner: 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”*

2nd Place Student Oral Presentation Winner: Stavros Spyridakis, University of Queensland, Australia, *“A Novel Bench-Scale Test Method to Characterise the Ignition Conditions for Timber Protected with Intumescent Coatings”*

3rd Place Student Oral Presentation Winner: Juan Roberto Vargas Garcia, University of the Sunshine Coast, Australia, *“Ability of Shallow Preservative Barriers to Protect Australian Eucalyptus Heartwood Timbers: Accelerated Testing”*

Friday, July 15 was our Convention tour day where 28 attended for an additional \$100 fee. The tour included visits to:

- **Minjungbal Museum & Cultural Centre** -For a unique insight into Aboriginal culture, you can't miss Minjungbal Aboriginal Cultural Centre. It's perfect for those looking to learn about local Aboriginal culture. Run by the area's Aboriginal community, it's a popular meeting place for Goori people and other Aboriginal peoples. You'll find museum exhibits, informative videos, Aboriginal art, and you may even be lucky to see traditional dance and song on the outdoor performance area. Aboriginal tour guides offer tours through the museum and site, telling you about its relics, plants, and animals. Hear how Aboriginal life was when this area was an untouched paradise of natural forest and mangroves, before learning about the cultural significance of Bora Ring, which you can see on the Walk on Water walking track.
- **Hurford Hardwood Timber Processing Plant** - For three generations the Hurford family has specialised in the production of high-quality Australian hardwood products. Situated in Northern NSW, the company is positioned perfectly to distribute its range of flooring products to any state in Australia or to any port for shipment anywhere around the world. Hurford is committed to continually developing new procedures and upgrading milling equipment to enhance product performance in the marketplace as well as the development of new products to complement their existing range.
- **Pie lunch:** We'll stop along the way for a delicious and nutritious meat or vegetarian pie.
- **Forestry Corporation New South Wales** plantation site and presentation. We will learn about how FCNSW manages its plantations. We will visit a managed hardwood estate.
- **Macadamia Castle and Wildlife Sanctuary** - The Sanctuary is home to more than 150 animals including kangaroos, wombats, koala, and a fabulous array of birds and reptiles including snakes and crocodiles. Visitors can tour the Macadamia Orchard and learn all about how macadamia trees, which are native to Australia are grown. This area has conditions that are excellent for Macadamia trees to flourish as the soil is well-drained and rich in organic matter.