



SOCIETY OF
WOOD SCIENCE &
TECHNOLOGY

SWST 62ND INTERNATIONAL CONVENTION

OCTOBER 20-25, 2019

Renewable Materials and the Wood-based Bioeconomy

TENAYA LODGE AT YOSEMITE NATIONAL PARK

SUNDAY, OCTOBER 20

12:00-16:00 REGISTRATION - TENAYA LODGE, YOSEMITE

18:00-20:00 WELCOME RECEPTION - TENAYA LODGE - SALON 1 & TERRACE

MONDAY, OCTOBER 21

7:30-8:30 REGISTRATION - TENAYA LODGE, YOSEMITE

8:30-8:35 WELCOME - Eva Haviarova, General Chair, Purdue University, USA

8:35-9:15 KEYNOTE - FIRE CHALLENGES IN CALIFORNIA - Chris Schow, Fire Management Officer, Stanislaus National Forest, California USA

9:30-10:45 EARLY STAGE RESEARCHER (3-MINUTE ORALS)

Chair: Hui Li, Washington State University, USA

Jerry Oppong Aduwum, Kyushu University, Japan, "Modeling Changing Point of Specific Gravity with Cambial Age of *Daniellia oliveri*"

Aitor Barbero-López, University of Eastern Finland, Finland, "Activity of Organic Acids and their Synergy against the Wood-Decaying Fungus *Coniophora puteana*"

Tekat Dwi Cahyono, University of Darussalam Ambon, Indonesia, "The Differentiating Anatomical Features of Five Tree Species From East Seram, Indonesia"

Tianyu Cao, Northeast Forestry University, China, "Study on VOCs Emissions from Veneered Plywood at Closed Circumstances"

Nairong Chen, Fujian Agriculture and Forestry University, China, "Investigation of a Waste Newspaper Reinforced Soybean Based Adhesives for Interior Plywood"

René Herrera Díaz, University of the Basque Country & InnoRenew CoE, Spain, "Rapid Determination of the Quality of Spanish Coniferous Wood by IR Spectroscopy and Chemometry"

Ondrej Dvoracek, Wood K Plus, Austria, "Measuring Device Development for a Hardwood High-Speed Disintegration Process Analysis"

Lei Han, Lulea Technology University, Sweden, "Reducing the Set-recovery of Surface-densified Wood by Furfuryl Alcohol Modification"

Raphaela Hellmayr, University of Natural Resources and Life Sciences, Vienna, Austria, "Structure-related Vapor Sorption Phenomena in Wood"

Ronald Kizza, Makerere University, Uganda, "Pyrolysis of Wood Residues in a Cylindrical Batch Reactor: Effect of Operating Parameters on the Yield of Products and Energy Balance of the Reactor"

Brooklyn Legg, Oregon State University, United States, "Industry 4.0 Readiness in the US Forestry Industry"

SWST 62ND INTERNATIONAL CONVENTION

OCTOBER 20-25, 2019

Renewable Materials and the Wood-based Bioeconomy



MONDAY, OCTOBER 21 continued

Huifang Li, Northeast Forestry University, China, **“Composition Analysis and Health Risk Assessment of Benzene Series for Nitrocellulose Paint Lacquered MDF”**

Kayode Olaoye, Forestry Research Institute of Nigeria, Nigeria, **“Potentiality of Non-Destructive Acoustic Method for Determining Modulus of Elasticity of *Boscia augustifolia* Wood”**

Hamed Olafiku Olayiwola, Stellenbosch University, South Africa, **“Investigating the Thermal and Mechanical Properties of Fly Ash/Metakaolin-based Geopolymer Reinforced with Alien Invasive Wood Species”**

Olena Myronycheva, Luleå University of Technology, Sweden, **“Portable MicroNIR Sensor for the Evaluation of Mould Contaminated Boards”**

Sameen Raut, University of Georgia, United States, **“Evaluating Stem and Wood Quality of Planted Longleaf Pines Using Bio-Imaging Techniques”**

Ojo Robert, Forestry Research Institute of Nigeria, Nigeria, **“Evaluation of the Dimensional Stability of Three Tropical Hardwood Species in Orthotropic Direction for the Production of Glue-Laminated Objects”**

Alexander Scharf, Luleå University of Technology, Sweden, **“Improvement of Leaching Resistance of Fire-retardant Wood by Formation of Insoluble Compounds”**

Adam Scouse, North Carolina State University, United States, **“Understanding Silvicultural and Process Variation and its Influence on Life-Cycle Carbon Emissions for Durable Wood Products”**

Lu Wang, University of Maine, United States, **“Cellulose Nanocrystals vs Cellulose Nanofibrils: Which One Performs Better in Flexible, Biodegradable and Multilayer Films for Food Packaging?”**

Qifan Wang, Northeast Forestry University, China, **“Influence of Particleboard Thickness and Veneers on Odor Emissions”**

Xiaoqian Wang, Beijing Forestry University, China, **“Effects of Pyrolysis Temperature on Properties of Cardboard Biochar and the Resulting Biochar/High Density Polyethylene Composites”**

Fanyou Wu, Purdue University, United States, **“Applying Zero-Slot Learning Process to Automated Wood Identification”**

10:45-11:00 Coffee

IMPACT OF FOREST DISTURBANCES ON WOOD QUALITY

Chair: Scott Leavengood, Oregon State University, USA

11:00-11:15 Emmanuel Adu-Sarpong, Forestry Commission of Ghana, Ghana, **“Assessing the Resilience of *Tectona grandis* (Teak), *Ceiba pentandra* (Ceiba), *Triplochiton scleroxylon* (Wawa) and *Terminalia superba* (Ofram) Plantation Stands after Fire Occurrence”**

11:15-11:30 Mike Burnard, InnoRenew CoE & University of Primorska, Slovenia, **“Evaluating the Role of Europe’s Wood Value Chain in the Circular Bio-economy: The WoodCircus Project”**

11:30-11:45 Thomas Eberhardt, U.S. Forest Products Laboratory, United States, **“Comparisons of Juvenile Wood Depictions to Southern Pine Wood Property Maps”**

11:45-12:00 Shaobo Liang, North Carolina State University, United States, **“Life Cycle Assessment of Mass Timber Building Structural System”**

12:00-12:15 Kai Lan, North Carolina State University, United States, **“Understanding the Uncertainty in Environmental Life Cycle Analysis for Biofuel Production from Forest Residue in the United States”**

12:15-12:30 Jean-Michel Leban, INRA, France, **“The Wood Density Variability of the French Forest Species - A New Database”**

12:30-13:30 **MONDAY LUNCH KEYNOTE: Bo Kasal: Overview of Work and Future Developments at Fraunhofer Institute for Wood Research Wilhelm-Klauditz-Institut WKI**

IMPACT OF FOREST DISTURBANCES ON WOOD QUALITY (CONTINUED)

Chair: Scott Leavengood, Oregon State University, USA

13:45-14:00 Elaine Oneil, CORRIM - The Consortium for Research on Renewable Industrial Materials, United States, **“Managed Forest Carbon Sustainability: Myths and Metrics”**

14:00-14:15 Maureen Puettmann - The Consortium for Research on Renewable Industrial Materials, United States, **“Life Cycle Assessment Can Improve Decisions to Optimize Wood Use”**

14:15-14:30 NAME Humboldt State University, United States, **“Evaluating the Climate and Air Quality Performance of Bioelectricity from Forest Residues in California”**

SWST 62ND INTERNATIONAL CONVENTION

OCTOBER 20-25, 2019

Renewable Materials and the Wood-based Bioeconomy



MONDAY, OCTOBER 21 continued

14:30-14:45 Qihang Wang, Beijing Forestry University, China, **“Rapid and Eco-friendly Approach to Prepare Cork-based Biochar Using Lightweight, Porous Cork Powders”**

14:45-15:00 Anne Wekesa, University of Canterbury, New Zealand, **“The Contribution of the New Zealand Forest Harvest to Greenhouse Gas Emission Reduction”**

15:00-15:15 Coffee

INTERNATIONAL INNOVATION, TRENDS AND EDUCATION IN WOOD SCIENCE

Chairs: Rupert Wimmer, University of Natural Resources and Life Sciences, Vienna, Austria

Michael Burnard, InnoRenew, Slovenia

15:30-15:45 Taylor Barnett, Oregon State University, United States, **“The Perspectives of Female College Student Leaders on Gender Aspects in the Forest Sector”**

15:45-16:00 Kazuhiko Sameshima, Kochi University, Japan, **“Suggestions for the Sustainable Development Goals of United Nations - Based on the 30-year Kenaf Research and Development in Japan”**

16:00-16:15 David DeVallance, InnoRenew CoE & University of Primorska, Slovenia, **“Development of Nano-cellulose Based Thermal Insulating and Encapsulated Phase Change Materials for Energy Efficient Buildings”**

16:15-16:30 Eva Haviarova, Purdue University, United States, **“Nature-inspired Sustainable Solutions for an Architectonic Environment – A Collection of Case Studies”**

16:30-17:00 Ed Pepke, Dovetail Partners, Inc., France, **“Future Developments in the Forest Sector”**

17:00-17:15 Evan Schmidt, TallWood Design Institute, United States, **“Integrating Wood Science, Architecture, and Engineering in Research and Education: The TallWood Design Institute and the Renewable Materials Program at Oregon State University”**

17:15-17:30 Amy Simmons, InnoRenew CoE & University of Primorska, Slovenia, **“The Forest for the Trees: Understanding the Experiences of Female PhDs in Forestry-Related Academia”**

TUESDAY, OCTOBER 22

7:30-8:30 **REGISTRATION**

BIODEGRADATION AND PRESERVATION

Chair: Tamara Franca, Mississippi State University, USA

8:30-8:45 Jan Baar, Mendel University in Brno, Czech Republic, **“The Effect of Cattle Blood-based Coatings on Wood-rotting Fungi Growth”**

8:45-9:00 Anni Harju, Natural Resources Institute Finland (Luke), Finland, **“Search for the Decay Resistant Scots Pine, *Pinus sylvestris* L., Heartwood”**

9:00-9:15 Juhani Marttila, University of Eastern Finland, Finland, **“Decay and Mechanical Deterioration of Thermo-mechanically Modified Timber Exposed to *Coniophora puteana*”**

9:15-9:30 Lakshmi Narayanan, Mississippi State University, United States, **“Revisiting the Role of Bacteria in Wood Decay”**

9:30-9:45 Kufre Okon, University of Uyo, Nigeria, **“Characterization of Some Properties of Fast-growing Masson Pine Wood Subjected to Two-step Freeze-silicone Oil Treatments”**

9:45-10:00 Abir Oueslati, Université du Québec en Abitibi-Témiscamingue (UQAT), Canada, **“Potential of Fast Pyrolysis for the Decontamination of Creosote-Treated Wood”**

10:00-10:15 Coffee

COMPOSITES AND ADHESIVES 1

Chair: Roger Moya, Instituto Tecnológico de Costa Rica, Costa Rica

10:30-10:45 Levente Dénes, University of Sopron, Hungary, **“Anisotropy of 3D Printed Parts using Bio-filaments”**

10:45-11:00 Bernard Effah, Kumasi Technical University, Ghana, **“Determining the Compatibility between Components of Wood-Plastic Composites Using Chemical Force Microscopy”**

11:00-11:15 Qilan Fu, Laval University and FPInnovations, Canada, **“Thermo-hydrolytic Recycling of Urea Formaldehyde Resin-bonded Laminated Particleboards”**

SWST 62ND INTERNATIONAL CONVENTION

OCTOBER 20-25, 2019

Renewable Materials and the Wood-based Bioeconomy



TUESDAY, OCTOBER 22 continued

- 11:15-11:30 Douglas Gardner, University of Maine, United States, **“Wood-based Material Applications in 3D Printing for Composites”**
- 11:30-11:45 Qian He, Nanjing Forestry University, China, **“Variation of Bonding Characteristics for Laminated Veneer Lumber affected by High Voltage Electric Field Treatment”**
- 11:45-12:00 Chaozheng Liu, Nanjing Forestry University, China, **“Light Stabilizers Added to the Shell of Co-extruded Wood/High-Density Polyethylene Composites to Improve Mechanical and Anti-UV Aging Properties”**
- 12:00-12:15 Peter Niemz, Czech University of Life Sciences Prague, Czech Republic, **“Improvement of Ash (*Fraxinus excelsior* L.) Bonding Quality with One Component Polyurethane Adhesive and a Primer for Glued Laminated Timber”**
- 12:15-12:30 Matthew Schwarzkopf, InnoRenew CoE & University of Primorska, Slovenia, **“Synchrotron-based Analysis of Densified Wood Impregnated with Curing Resin”**
- 12:30-13:30 **LUNCH KEYNOTE: LEVENTE DENES - Smart Systems and Intelligent Solutions in the Bio-materials Processing Industry**

WOOD CHEMISTRY

Chair: Steven Keller, Miami University in Ohio, USA

- 13:45-14:00 Idowu Abimbola Adegoke, Forestry Research Institute of Nigeria, Nigeria, **“Preparation and Characterization of Bio-Oil Produced from Sawdust of Selected Wood Species”**
- 14:00-14:15 Salonika Aggarwal, North Carolina State University, United States, **“Dewatering Wood Using Supercritical CO₂”**
- 14:15-14:30 Hang Chen, Nanjing Forestry University, China, **“Investigating the Influence of High Residual Lignin on the Properties of Lignin Containing Cellulose Nanofibers/Films”**
- 14:30-14:45 Jin Gu, South China Agricultural University, China, **“Cellulose I and II Nanocrystals Derived from Sulfuric Acid Hydrolysis of Cellulose I Substrates”**
- 14:45-15:00 Roger Moya, Instituto Tecnológico de Costa Rica, Costa Rica, **“Mineralization *in situs* of Tropical Hardwood Species: Calcium Carbonate Formation and Wood Properties”**
- 15:00-15:15 Benedikt Neyses, Luleå University of Technology, Sweden, **“Chemical Analysis of Ionic Liquid Pre-Treated and Surface-Densified Scots Pine”**
- 15:15-15:30 Jingxin Wang, West Virginia University, United States, **“Biomass Derived High Surface Area Carbon Materials for Shale Gas Flowback Water Purification”**
- 15:30-15:45 Coffee

POSTER SESSION

Chair: Gloria Oporto, West Virginia University, USA

- Student Poster** Osei Asafu-Adjaye, Auburn University, United States, **“Characterization and Utilization of Epoxy/Pyrolysis Bio-oil in Oriented Strand Board Production”**
- Student Poster** Jerry Oppong Adutwum, Kyushu University, Japan, **“Modeling Changing Point of Specific Gravity with Cambial Age of *Daniellia oliveri*”**
- Student Poster** Nasim Alikhan, University of Maine, United States, **“Membrane-based Thermal Energy Recovery System to Improve the Energy Efficiency of Kiln Drying Processes”**
- Student Poster** Raphael Arbelaez, Oregon State University, United States, **“Structural Feasibility of using Salvaged Lumber from Portland Residential Building Deconstruction for Cross-Laminated Timber Manufacturing”**
- Student Poster** Rafael Azambuja, West Virginia University, United States, **“Evaluation of NHLA Graded Yellow-Poplar Lumber Regraded for Structural Use in CLT Panel Production”**
- Student Poster** Esther Baas, Oregon State University, United States, **“Design Validation of Cross-Laminated Timber Rocking Shear Walls”**
- Student Poster** Aitor Barbero-López, University of Eastern Finland, Finland, **“Activity of Organic Acids and their Synergy against the Wood-Decaying Fungus *Coniophora puteana*”**
- Student Poster** Taylor Barnett, Oregon State University, United States, **“The Perspectives of Female College Student Leaders on Gender Aspects in the Forest Sector”**
- Student Poster** Shrenik Bora, Oregon State University, United States, **“Evaluation of Shear Performance of Cross-Laminated Timber Shear Wall Connections under the Effects of Moisture Intrusion”**

SWST 62ND INTERNATIONAL CONVENTION

OCTOBER 20-25, 2019

Renewable Materials and the Wood-based Bioeconomy



SOCIETY OF
WOOD SCIENCE &
TECHNOLOGY

TUESDAY, OCTOBER 22 continued

Student Poster	Tianyu Cao, Northeast Forestry University, China, “Study on VOCs Emissions from Veneered Plywood at Closed Circumstances”
Student Poster	Lei Han, Lulea Technology University, Sweden, “Reducing the Set-recovery of Surface-densified Wood by Furfuryl Alcohol Modification”
Student Poster	Raphaela Hellmayr, University of Natural Resources and Life Sciences, Vienna, Austria, “Structure-related Vapor Sorption Phenomena in Wood”
Student Poster	Jiyao Hu, University of North Texas, United States, “The Effect of Pore Size on Specific Capacitance for Activated Carbon Supercapacitors”
Student Poster	Annika Hyytiä, University of Helsinki, Finland, “Sustainable Development – International Framework – Overview and Analysis in the Context of Forests and Forest Products with Quality”
Student Poster	Sina Jahedi, Oregon State University, United States, “Evaluation of Bond Integrity on Low-value Blue Stain Ponderosa Pine CLT”
Student Poster	Pipiet Larasatie, Oregon State University, United States, “A Science Comic Poster: The Gender Diversity Tale in the US, Canada, Finland, and Sweden Forest Sector”
Student Poster	Yishi Lee, University of Denver, United States, “Rayleigh Wave Excitation and Field Characteristics at the Half-space Boundary in Wood using Embedded Elastic Waveguides”
Student Poster	Brooklyn Legg, Oregon State University, United States, “Industry 4.0 Readiness in the US Forestry Industry”
Student Poster	Huifang Li, Northeast Forestry University, China, “Composition Analysis and Health Risk Assessment of Benzene Series for Nitrocellulose Paint Lacquered MDF”
Student Poster	Sweta Mahapatra, Oregon State University, United States, “Using Crack-growth Experiments to Study the Moisture and Thermal Durability of MDF, OSB and PB”
Student Poster	Sameer Mehra, National University of Ireland Galway, Ireland, “Moment-rotation Behaviour of Beam-column Connections Fastened using Compressed Wood Connectors”
Student Poster	Mostafa Mohammadabadi, Washington State University, United States, “A Wood Composite Sandwich Panel as an Innovative Building Product From Underutilized Renewable Materials”
Student Poster	Luis Molina, Oregon State University, Chile, “Dynamic Assessment of Dimensional Change of Wood-Based Composite Materials in Moist Environments”
Student Poster	Hamed Olafiku Olayiwola, Stellenbosch University, South Africa, “Investigating the Thermal and Mechanical Properties of Fly Ash/Metakaolin-based Geopolymer Reinforced with Alien Invasive Wood Species”
Student Poster	Abir Oueslati, Université du Québec en Abitibi-Témiscamingue (UQAT), Canada, “Potential of Fast Pyrolysis for the Decontamination of Creosote-Treated Wood”
Student Poster	Sameen Raut, University of Georgia, United States, “Evaluating Stem and Wood Quality of Planted Longleaf Pines Using Bio-Imaging Techniques”
Student Poster	Alexander Scharf, Luleå University of Technology, Sweden, “Improvement of Leaching Resistance of Fire-retardant Wood by Formation of Insoluble Compounds”
Student Poster	Younes Shirmohammadli, University of Maine, United States, “Preliminary Characterization of Air Permeability of Hybrid Cross-laminated Timber (CLT) Panels made of Spruce-Pine-Fir (South) and Laminated Strand Lumber (LSL)”
Student Poster	Wenjing Sun, University of Maine, United States, “Mycelium-Assisted Bonding: Influence of the Aerial Hyphae on the Bonding Properties of White-Rot Modified Wood”
Student Poster	Micah Sutfin, Oregon State University, United States, “Characterizing Accelerated Weathering Conditions”
Student Poster	Qifan Wang, Northeast Forestry University, China, “Influence of Particleboard Thickness and Veneers on Odor Emissions”
Student Poster	Qihang Wang, Beijing Forestry University, China, “Rapid and Eco-friendly Approach to Prepare Cork-based Biochar Using Lightweight, Porous Cork Powders”
Student Poster	Qijun Zhang, University of Tennessee, United States, “A Novel Method for Fabricating an Electrospun Polyvinyl Alcohol/Cellulose Nanocrystals Composite Nanofibrous Filter with Low Air Resistance for High-efficiency Filtration of Particulate Matter”

SWST 62ND INTERNATIONAL CONVENTION

OCTOBER 20-25, 2019

Renewable Materials and the Wood-based Bioeconomy



TUESDAY, OCTOBER 22 continued

Abiodun Alawode, Stellenbosch University, South Africa, **“Properties and Potential Use of Irvingia Kernel Extract as an Eco-Friendly Wood Adhesive”**

Tibor L. Alpár, University of Sopron, Hungary, **“Effect of Element Morphology on Strength of Wood-PLA Composite”**

Osei Asafu-Adjaye, Auburn University, United States, **“Characterization and Utilization of Epoxy/Pyrolysis Bio-oil in Oriented Strand Board Production”**

Cody Beirsto, Oregon State University, United States, **“Monotonic and Cyclic Testing of Large-Scale CLT Diaphragms”**

Richard Bergman, U.S. Forest Products Laboratory, United States, **“Environmental Impacts of Redwood Lumber: A Cradle-to-gate Assessment”**

Mike Burnard, InnoRenew CoE & University of Primorska, Slovenia, **“Data Science at the University of Primorska: Combining Fundamentals with Data and Challenges from Buildings, Wood and Processing Science”**

Daniel Burnett, Surface Measurement Systems, United States, **“Quantifying Dimensional Changes in Wood Pellets as a Function of Relative Humidity”**

Tekat Dwi Cahyono, University of Darussalam Ambon, Indonesia, **“Linear Expansion and Durability Properties of Composite Board (MDF Coated with Three Selected Wood Veneers)”**

Jinzhen Cao, Beijing Forestry University, China, **“A Potential Thermal Energy Storage Material Used for Green Buildings”**

Hong Chen, Nanjing Forestry University, China, **“Structure and Water Permeability of Flattening Bamboo”**

Roberto Corleto, Czech University of Life Sciences Prague, Czech Republic, **“Analysis of the Color after CO₂ Laser Cutting of the Oak Wood”**

Peter Dadzie, Kumasi Technical University, Ghana **“Physical, Decay Resistance and Microstructural Characteristics of Stem and Branch Wood of *Terminalia superba* (ofram) from Ghana”**

Wayan Darmawan, Bogor Agricultural University, Indonesia, **“Cutting Performance of Multilayer Coated Tungsten Carbide in Milling of Wood Composites”**

Pedro Luis de Hoyos-Martinez, University of the Basque Country, Spain, **“Improvement of Wood Fire Resistance by Means of Different Methods”**

Gianluca Ditommaso, Czech University of Life Sciences Prague, Czech Republic, **“Wood Performance Changes Related to Mechanical Properties Alteration after Processing with Laser Cutting Machine”**

Satoshi Fukuta, Aichi Center for Industry and Science Technology, Japan, **“Improvement of Weathering Performance of Painted Wood Applying Laser Micro Incisions”**

Qiang Gao, Beijing Forestry University, China, **“Improve the Performance of Soy Protein-based Adhesives by a Polyurethane Elastomer”**

Eva Haviarova, Purdue University, United States, **“Performance Test of Chairs - Joints Design by Use of Lower Tolerance Limits”**

Eva Haviarova, Purdue University, United States, **“Mechanical Properties of 3D Printed Sustainable Bio-based Sandwich Structures”**

Lu Hong, Nanjing Forestry University, China, **“Improving Bonding Quality of Plywood by Vacuum Hot Pressing”**

Seung Hyun Hong, Oregon State University, United States, **“Fire Resistance of Unprotected Cross-Laminated Timber Assemblies of Walls and Floors made in the U.S.”**

Ke-Chang Hung, National Chung Hsing University, Taiwan, **“Preparation and Characterization of Biomorphic Porous SiC Ceramics from Bamboo Charcoal-SiO₂ Composites”**

Petra Hýsková, Czech University of Life Sciences Prague, Czech Republic, **“Availability of Raw Materials for the Production of Wood-based Composite Materials”**

Owoyemi Jacob, Federal University of Technology Akure, Nigeria, **“Development of Termite Severity Probability Map of FUTA Campus using Geographical Information System (GIS) Technology”**

Seokun Jo, Chonbuk National University, Korea, Republic of, **“Fire-retardant & Sound Absorption Performance of WM Board”**

Gourav Kamboj, Czech University of Life Sciences Prague, Czech Republic, **“Thermal Stability of Glued Wood Joint Reinforced with Nanocrystalline Cellulose in Shear Loading”**

Chun Won Kang, Chonbuk National University, Korea, Republic of, **“A Study on the Pore Structure of Hinoki (*Chamaecyparis obtusa* (Siebold & Zucc.)) by IUPAC Classification”**

SWST 62ND INTERNATIONAL CONVENTION

Renewable Materials and the Wood-based Bioeconomy

OCTOBER 20-25, 2019



TUESDAY, OCTOBER 22 continued

Marie-Pierre Laborie, Albert Ludwig University of Freiburg, Germany, **“Impact of Heat Compression on Lignin in situ Softening”**

Shanming Li, Chinese Academy of Forestry, China, **“Wood Modification using in situ Polyesterification Treatment with Cost-effective and Eco-friendly Biomass Materials”**

Yali Li, Mississippi State University, United States, **“Nonlinear Finite-Element Analysis of a Newel-to-Footing Staircase Connection”**

Daxin Liang, Northeast Forestry University, China, **“Cu Thin Films on Wood Surface for Robust Superhydrophobicity by Magnetron Sputtering Treatment with Perfluorocarboxylic Acid”**

Bruce Lipke, University of Washington, United States, **“Hierarchy of Efficient Carbon Displacement & Storage in Products”**

Ming Liu, Central South University of Forestry and Technology, China, **“Wood Bonding Design for Strength Enhanced Southern Pine Wood Products”**

Zhenbo Liu, Northeast Forestry University, China, **“Effects of Physical Extraction on the Acoustic Vibration Performance of *Picea jezoensis*”**

Jing Luo, Nanjing Forestry University, China, **“‘Green’ Bio-thermoset Resins derived from Soy Protein Isolate and Condensed Tannin”**

Michelle Maller, Oregon State University, United States, **“Strategic Mentoring for Student Success”**

Jazmine McGinnis, Mississippi State University, United States, **“Evaluation of the Durability of CLT against Termites (*Reticulitermes* spp.) using Choice Testing”**

Jaromir Milch, Mendel University in Brno, Czech Republic, **“The Stress-strain Behavior of Joint Components in the Surrounding of Oak Dowels”**

Abiodun Oluwafemi Oluwadare, University of Ibadan, Nigeria, **“Acoustic Properties of *Gmelina arborea* Wood”**

Gloria Oporto, West Virginia University, United States, **“Lignocellulosic Materials as Biocompatible Drug Delivery System for Opioid Addiction Treatment”**

Gloria Oporto, West Virginia University, United States, **“Intensified Pulping Process to Produce High Value Materials from Underutilized Appalachian Hardwood Biomass”**

Ilona Peszlen, North Carolina State University, United States, **“Comparison of Small- and Intermediate-Scale Fire Performance Tests of Southern Pine Cross-Laminated Timber”**

Henry Quesada, Virginia Tech, United States, **“Potential Use of Hardwood Lumber in Cross-Laminated Timber: A Manufacturer Perspective”**

Fatemeh Rezaei, Czech University of Life Sciences Prague, Czech Republic, **“Mass Spectrometry Imaging of Wood Surface Cut by Laser Beam”**

Miroslav Sedlecký, Czech University of Life Sciences Prague, Czech Republic, **“Optimization of Milling Process of Iroko Wood (*Chlorophora excelsa*) Depending on Temperature of Thermal Modification”**

Adam Sikora, Czech University of Life Sciences Prague, Czech Republic, **“Behavior of Layered Beech Wood Reinforced with Glass and Carbon Fibers under Bending Loading”**

Lee Smith, University of North Texas, United States, **“Impact of Operational Parameters of Self-activation of Biomass on Gas Concentrations”**

Meelis Teder, Estonian University of Life Sciences, **“Survey of the Needed Changes in Forestry-related Curricula – for Improving the Competitiveness of Estonian Forest Sector”**

Jan Tippner, Mendel University in Brno, Czech Republic, **“Comparison of Acoustic Non-destructive Methods and Semi-destructive Methods for Logs and Timber Assessment”**

Imam Wahyudi, Bogor Agricultural University, Indonesia, **“Quality Improvement of Faster Growing Teak Wood through Partial Densification”**

Di Wang, Northeast Forestry University, China, **“Preparation and UV-aging Resistant Properties of Eu(III) Complex-modified Poplar Wood-based Materials”**

Zilun Wang, South China Agricultural University, China, **“Effects of Removing the Extractives of Rubber Wood on Mold Resistance and Mechanical Properties of HDPE/Rubber Wood Composites”**

SWST 62ND INTERNATIONAL CONVENTION

OCTOBER 20-25, 2019

Renewable Materials and the Wood-based Bioeconomy



TUESDAY, OCTOBER 22 continued

Anne Wekesa, University of Kabianga, New Zealand, **“Impact of Torrefaction on the Chemical Component Nigerian Grown *Pinus caribaea* Morelet”**

Rupert Wimmer, University of Natural Resources and Life Sciences, Vienna, Austria, **“Wood Bonding with Enzyme-polymerized Lignosulfonates – A Novel Approach”**

WEDNESDAY, OCTOBER 23 - FREE DAY FOR TOURS

THURSDAY, OCTOBER 24

7:30-8:30 REGISTRATION

COMPOSITES AND ADHESIVES 2

Chair: Ilona Peszlen, North Carolina State University, USA

8:30-8:45 Babatunde Ajayi, Federal University of Technology Akure, Nigeria, **“Characterization of Plastic-Bonded Composites Reinforced with *Delonix Regia* Pods”**

8:45-9:00 Nicole Brown, Pennsylvania State University, United States, **“Switchgrass Biochar as a Filler in Polypropylene Composites”**

9:00-9:15 Rui Guo, Northeast Forestry University, China, **“Characterization and Properties of PLA-Based Biomass Composites for FDM Technology”**

9:15-9:30 Mostafa Mohammadabadi, Washington State University, United States, **“Evaluation of a Renewable Wood Composite Sandwich Panel for Building Construction”**

9:30-9:45 Brian Via, Auburn University, United States, **“The Use of Soy Flour to Replace pMDI in Wood Composites”**

9:45-10:00 Jinwu Wang, U.S. Forest Products Laboratory, United States, **“Multivalent Ionic Crosslinking Bonds Preserve Mechanical and Barrier Properties of Cellulose Nanocrystal Films at High Humidity”**

10:00-10:15 Simon Barth, Rosenheim Technical University of Applied Sciences, Germany, **“Study of Refiner Plates as a Possibility to Improve the Production of Wood Fiber Insulation Materials”**

10:15-10:30 Milan Sernek, University of Ljubljana, Slovenia, **“Environmentally-friendly Bioadhesives from Renewable Resources - WooBAdh Project”**

10:30-10:45 Coffee

BUSINESS, MARKETING AND REGULATIONS

Chair: Henry Quesada, Virginia Tech, USA

11:00-11:15 Mike Eckhoff, Hoover Treated Wood Products, Inc., United States, **“Keeping the Home Fires from Burning: The Latest on Fire-Retardant-Treated Wood and the Model Codes”**

11:15-11:30 Omar Espinoza, University of Minnesota, United States, **“Marketing of Urban and Reclaimed Wood Products”**

11:30-11:45 Henry Quesada, Virginia Tech, United States, **“Drivers Impacting Supplying Decisions of Construction Companies: A Case Study in the Southeastern Region of the US”**

11:45-12:00 Tobias Schauerte, Linnaeus University, Sweden, **“Productivity of Firms in the Swedish Industry for Wooden Single-Family Houses”**

12:00-12:15 Candra Burns, Talking Forests, Germany, **“Building the Future with Social Media”**

12:15-13:45 Business Meeting, Awards, and Lunch

WOOD PHYSICS AND MECHANICS

Chair: Tetsuya Inagaki, Nagoya University, Japan

14:00-14:15 Jan Carmeliet, ETHZ, Switzerland, **“Sorptions Hysteresis in Wood and its Coupling to Swelling Investigated by Atomistic Modeling”**

14:15-14:30 Dominique Derome, EMPA, Switzerland, **“Sorptions, Swelling and Mechanical Behavior of Wood: a Multiscale Study”**

SWST 62ND INTERNATIONAL CONVENTION

OCTOBER 20-25, 2019

Renewable Materials and the Wood-based Bioeconomy



THURSDAY, OCTOBER 24 continued

- 14:30-14:45 Antti Haapala, University of Eastern Finland, Finland, **“Effect of Pyrolysis oil-based Microemulsions on Mechanical Properties of Scots Pine”**
- 14:45-15:00 Dominik Hess, Mendel University in Brno, Czech Republic, **“Thermal Modification Influences on Permeability and Sorption Properties of Wooden Shingles”**
- 15:00-15:15 Yishi Lee, University of Denver, United States, **“Rayleigh Wave Excitation and Field Characteristics at the Half-space Boundary in Wood using Embedded Elastic Waveguides”**
- 15:15-15:30 Coffee
- 15:45-16:00 Joseph Loferski, Virginia Tech, United States, **“The Mechanics of Engineered Wood Flooring”**
- 16:00-16:15 Martin Nopens, Universität Hamburg, Germany, **“Water in Wood – The Gel-theory Revised”**
- 16:15-16:30 Ilona Peszlen, North Carolina State University, United States, **“Cell Morphology and Mechanical Properties of Transgenic Poplar with Reduced Cellulose Content”**
- 16:30-16:45 NAME University of Lorraine, France, **“Characteristics of Color Change, Hygroscopicity Transformation, and Devolatilization in Wood Treated by Torrefaction”**
- 16:45-17:00 Rupert Wimmer, University of Natural Resources and Life Sciences, Vienna, Austria, **“Triboelectrical Charging of Wood: A Neglected Wood Property with Potential Applications”**

FRIDAY, OCTOBER 25

- 18:00-21:00 **BANQUET**
- 7:30-8:30 **REGISTRATION**
- TIMBER ENGINEERING AND MASS TIMBER**
Chair: Dave Devallance, InnoRenew CoE, Slovenia
- 8:30-8:45 Rafael Azambuja, West Virginia University, United States, **“Evaluation of NHLA Graded Yellow-Poplar Lumber Regraded for Structural Use in CLT Panel Production”**
- 8:45-9:00 Shrenik Bora, Oregon State University, United States, **“Evaluation of Shear Performance of Cross-Laminated Timber Shear Wall Connections under the Effects of Moisture Intrusion”**
- 9:00-9:15 Bojan Cosovic, Mississippi State University, United States, **“Mechanical Properties of a Layered Composite Panel with Embedded Cross Laminations”**
- 9:15-9:30 Meng Gong, University of New Brunswick, Canada, **“Flexural Properties of Dowel-type Fastener-laminated Timber”**
- 9:30-9:45 Hongmei Gu, U. S. Forest Products Laboratory, United States, **“Mass Timber Building Construction Cost and Life Cycle Cost Analysis with Comparison to Concrete and Steel Buildings”**
- 9:45-10:00 Zehui Ju, Nanjing Forestry University, China, **“Prediction of Sound Insulation for Hybrid CLT Fabricated with Lumber and LVL”**
- 10:00-10:15 Coffee
- 10:30-10:45 Sameer Mehra, National University of Ireland Galway, Ireland, **“Moment-rotation Behaviour of Beam-column Connections Fastened using Compressed Wood Connectors”**
- 10:45-11:00 Ian Morrell, Oregon State University, United States, **“Experimental Investigation of a Mass Plywood Panel Self-Centering Rocking Wall System”**
- 11:00-11:15 Sam Zelinka, U.S. Forest Products Laboratory, United States, **“Adhesive Performance under Elevated Temperatures: Small and Intermediate Scale Testing”**
- 11:15-11:30 Haiying Zhou, International Centre for Bamboo and Rattan, China, **“Comparison of Hydrothermal Aging Properties of Three Typical Bamboo Engineering Composites”**
- 11:30-12:00 Closing, Grab & Go Lunch