

Joint Session of the UNECE Timber Committee (TC) and
Society of Wood Science and Technology (SWST) International Convention



October 11–14, 2010 * October 15, 2010 Industry Tour (optional) organized by SWST
“*Innovative Wood Products are the Future*”



Poster Session * Student Poster Competition * Reception/Cash Bar
October 12, 15:00–18:00 * Hallway, 1st Floor, E-Building, Palais des Nations

Chairs: Douglas Gardner, University of Maine, USA and Magnus Wålinder, SP Tratek, Technical Research Institute of Sweden, Sweden



Title of Presentation

Authors and Affiliations

■ Student Poster

Flexible LVL: Potential for Newly Material Design

Koji Adachi and Masafumi Inoue, University of Tokyo, Japan;
Hidefumi Yamauchi, Akita Prefectural University, Japan **WS-01**

**Morphology and Thermal Stability of Nanocellulose and Cellulose
Extracted from Mengkuang Leaves**

Rasha M. El. Sheltami, University of Garyounis, Libya; **Ishak Ahmad** and
Ibrahim Abdullah, University of Kebangsaan Malaysia, Malaysia **WS-02**

**Performance of Novel Wood Protection Systems – Evaluation Based
on Five Different Test Setups**

Gry Alfredsen, Norwegian Forest and Landscape Institute, Norway;
Per Otto Flæte, Norsk Treteknisk Institutt, Norway; Holger Militz,
Georg-August-Universität Göttingen, Germany **WS-03**

**Efficacy of *Azadirachta indica* (Neem) and *Distemonanthus
benthamianus* (Bonsamdua) Water Extracts on the Durability of
Five Selected Ghanaian Less Used Timber Species**

Akwasi Asamoah, Kwasi Frimpong-Mensah, and Charles Antwi-Boasiako,
Kwame Nkrumah University of Science and Technology, Malaysia **WS-04**

**Compreg Laminates Made from Low Density
Tropical Hardwoods**

Zaidon Ashaari, Paridah Md. Tahir and Edi S. Bakar, Universiti Putra
Malaysia, Malaysia **WS-05**

Preservative-Treated Yellow Poplar for Above Ground Use

Michael O. Hunt, Daniel Cassens, Robert Leavitt, and Daniel Warner,
Purdue University; Terry Amburgey and **H. Michael Barnes**, Mississippi
State University; Ramsay Smith and Kris Owen, Arch Wood Protection,
Inc; and Tom Kohlmeier, SEEMAC, Inc. **WS-07**

Steam-pressed Scrim Lumber (SPSL)

H. Michael Barnes, R. Dan Seale, and Jonathan M. Linton,
Mississippi State University, USA **WS-08**

**Effect of Modification Treatment on the *Abies Pectinata*,
Fagus Orientalis and *Populus Alba* Woods**

Ali Bayatkashkoli, Mohammad Dahmardeh, and Farshad Mansore;
University of Zabol, Iran **WS-09**

**Life-cycle Inventory of Manufacturing Prefinished Engineered Wood
Flooring in the Eastern United States**

Richard D. Bergman and Scott A. Bove, University of
Wisconsin-Madison, USA **WS-10**

**Reusing Reclaimed Lumber and Flooring in Construction:
Measuring Environmental Impact using Life-Cycle Inventory**

Richard D. Bergman, Hongmei Gu, and Robert H. Falk, USDA Forest
Products Laboratory, USA **WS-11**

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Nanindentation of Cell Walls in Densified Hot-Oil Treated Trembling Aspen Veneers	Cecilia Bustos Avila and William Gacitúa Escobar, Universidad del Bío-Bío, Chile; Alain Cloutier and Chang-Hua Fang, Université Laval, Canada WS-15	
Melamine Impregnating Resin/Layered Silicate Nanocomposite	Juqing Cui, Yufei Wu, Chong Jia, and Yang Zhang, Nanjing Forestry University, China WS-16	
Recycling the Sliced Veneer Clippings into Value-Added Products – An International Research Effort	Levente Denes and Zsolt Kovacs, University of Western Hungary, Hungary; Elemer M. Lang and Julio F. Davalos, West Virginia University, USA WS-17	
Increasing Sustainability of Solid Wood Structures by Replacing Flexible Shells through Elastic Interlayers	Franz Dolezal and Martin Teibinger, Holzforschung Austria, Austria WS-18	
Densification of Wood Veneers	Changhua Fang, Alain Cloutier, Nicolas Mariotti, Université Laval, Canada; Ahmed Koubaa, Université du Québec en Abitibi-Témiscaminque (UQAT), Canada; and Pierre Blanchet, FPInnovations-Division Forintek, Canada WS-19	
Processing Problems Associated with New Generation of Laminated Lumbers in Window Industry	Ali Fathollahzadeh, University of Applied Sciences Rosenheim, Germany WS-20	
Effect of Moisture on Bolt-Bearing Behavior of Structural Composite Lumber	Wei Guo, Benhua Fei, Beijing Forestry Machinery Research Institute, China; Sheldon Q. Shi and Dan Seale, Mississippi State University, USA WS-21	
Embodied Energy and Carbon Footprint of Norwegian Roundwood	Per Otto Flæte and Kristian Bysheim, Norsk Treteknisk Institutt, Norway; Gry Alfredsen and Birger Vennesland, Norwegian Forest and Landscape Institute, Norway; and Øyvind Eriksen, Paper and Fibre Research Institute, Norway WS-22	
Formaldehyde Emissions from ULEF and NAF Bonded Commercial Hardwood-Plywood as Influenced by Temperature and Relative Humidity	Charles R. Frihart, USDA Forest Products Laboratory, USA; Michael J. Birkeland, James M. Wescott, and K. M. Gonner, Heartland Resource Technologies, USA WS-23	
Soy Adhesives that can Form Durable Bonds for Plywood, Laminated Wood Flooring and Particleboard	Charles R. Frihart, USDA Forest Products Laboratory, USA; Michael J. Birkeland and James M. Wescott, Heartland Resource Technologies, USA; and Anthony J. Allen, Ashland-Hercules Water Technologies, USA WS-24	
Nanomechanical Properties of <i>Eucalyptus nitens</i> Related to Crack Propagation	William Gacitúa E., Cecilia Bustos A, and Paulina Valenzuela C., Universidad del Bío-Bío, Chile; Jean Pierre Lasserre, Forestal Mininico S.A., Chile WS-25	
Hardwood Log CT Scanning - Proof of Concept	Rado Gazo, Purdue University, USA; and Sun Joseph Chang, Louisiana State University, USA WS-26	
Investigation on the Permeability Coefficient of Wood Coated by Paints and Nano-Particles	Hadi Gholamiyan, Mahdi Shahverdi, and Sadegh Maleki, University of Tehran, Iran; Hamidreza Pirayesh, University of Gorgan, Iran WS-27	
The Measurement of Diffusion Coefficient of Poplar Wood (<i>p. nigra</i>)	Hadi Gholamiyan, Mahdi Shahverdi, and Mosayeb Dalvand, University of Tehran, Iran; Hamidreza Pirayesh, University of Gorgan, Iran WS-28	
Structural Round Wood Research and Development	Thomas Gorman, University of Idaho, USA; David Krestschmann, Marshal Begel, and David Green, USDA Forest Products Laboratory, USA WS-30	

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Laboratory Tests on Fungal Resistance and Hardness of Bagasse RMP Fiber/PP Composite	Seyyed Khalil Hosseini Hashemi , Mahdi Modirzare, Vahid-Reza Safdari; Islamic Azad University, Iran WS-32	
Light-Timber Frames for Transitional Disaster Relief Housing	Eva Haviarova and Carl A. Eckelman, Purdue University, USA WS-33	
A Conceptualization in Computer Simulation of Processing Radiata Pine Finger-jointed Wood and Glued-Laminated Lumber	Seok Sean How , C. J. Williamson, and David Carradine, University of Canterbury, New Zealand; Y. E. Tan, Forest Research Institute, Malaysia WS-35	
Predicting Modulus of Elasticity of Short Length New Zealand Radiata Pine Finger Joint Shooks Using Flexural Vibration Method	Seok Sean How , David Carradine, C. J. Williamson, and Jason Cambridge, University of Canterbury, New Zealand; Y. E. Tan, Forest Research Institute, Malaysia WS-36	
Development of Wooden-based Nails for Wooden Pallet	Masafumi Inoue , Koji Adachi, Ken Kamachi, Mami Yokoi, University of Tokyo, Japan WS-37	
Preparation and Characterization of Acrylamide-formaldehyde-urea Compatibilizer for Wood-plastic Composites	Chong Jia , Juqing Cui, Changtong Mei, Zhaobin Zhou and Yang Zhang, Nanjing Forestry University, China WS-39	
Structural Composite from FSC Certified Hybrid-Poplar	Frederick A. Kamke and Andreja Kutnar, Oregon State University, USA WS-40	
Comparison Between Physical Properties and Drying Behavior of White and Red Heartwood of Iranian Beech	Mahdi Shahverdi, Hadi Gholamiyan, and Elham Karami , University of Tehran, Iran WS-41	
Development of a Carrier System for Cellulose Nanofibrils (CN) in Polymer Composites	Alper Kiziltas , Yousoo Han, Douglas J. Gardner and Jacques W. Nader, University of Maine, USA WS-43	
Organofunctional Silanes as Formaldehyde Free Adhesives for Fiberboards	Lars Kloeser , Georg-August-Universität Göttingen, Germany WS-45	
Nondestructive Evaluation of Wood Strand Mechanical Properties Using Near-Infrared Spectroscopy	Neil Kohan and Brian Via, Auburn University, USA WS-46	
Micro- and Micro Mechanical Properties of Red Oak Wood after Selective Removal of Hemicelluloses	Johannes Konnerth , BOKU University, Austria; Martina Eiser, Wood K plus GmbH; Andreas Jäger, Vienna University of Technology, Austria; Rupert Wimmer, Georg-August-Universität of Göttingen, Germany WS-47	
Best Practices in Quality Management for Innovation Performance	Scott Leavengood , Oregon State University, USA; Timothy R. Anderson, Portland State University, USA WS-48	
A Surface Antibacterial Wood Composite Decorated by Nano-sized Silver Melamine Impregnated Paper	Peng Li , Yubo Tao, Fenghu Wang, Northeast Forestry University, China WS-49	
A Probabilistic Approach to the Simulation of Non-Linear Stress-Strain Relationships for Oriented Strandboard	Anthony McTigue and Annette Hart, NUI Galway, Ireland WS-50	

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Optimization Methods for the Behaviour of Wood Elements on Exteriors	E. Morales Méndez and J. Ruiz, University of Seville, Spain	WS-51
Study on Withdrawal and Shear Strengths with Hornbeam Dowel in Beech T Form Joint	Abdollah Najafi, Majtaba Soltani, and Koroush Mohammadpour, Islamic Azad University (Chalous Branch), Iran	WS-53
Investigation on the Properties of Cement Fiber Composite	Hamed Nasiri and Ali Varshoee, Islamic Azad University, Iran; Abolfazl Kargarfard, Research Institute of Forests & Rangeland, Iran	WS-54
Health Benefits from Wood Interior in a Hospital Room	Anders Q. Nyrud and Kristian Bysheim, NTI, Norway; Tina Bringslimark, Norwegian University of Life Sciences, Norway	WS-56
Interlaminar Fracture Mechanics Characterization of Surface Treatments for Wood Plastic Composites and Fiber Reinforced Polymer Composites Bonded Interfaces	Gloria S. Oporto, West Virginia University, USA	WS-57
Cellulose Nanofibrils Reinforced Inorganic Wood Composites	Yucheng Peng, Yousoo Han, and Douglas J. Gardner; University of Maine, USA	WS-59
Changes to California's Building Code for Construction in Wildfire Prone Areas: Impact on Wood and Wood-based Materials	Stephen L. Quarles, University of California Cooperative Extension, USA	WS-60
Bonding quality of plywood made from Polypropylene as an adhesive	Davood Rasouli and Ali Akbar Enayati, Tehran University, Iran	WS-61
Decay Resistance of Maple (<i>Acer Insigne</i>) Wood Against White Rot In Natural State and Treated	Vahid Tazakor Rezaei, Islamic Azad University of Chalus, Iran	WS-62
Establishing Kiln Drying Schedule for Beech (<i>Fagus Orientalis</i>) at 7.5 cm Thickness from Kelardasht Region	Vahid Tazakor Rezaei, Islamic Azad University of Chalus, Iran	WS-63
Seismic Resistance of Wood Framework on Mudejar Structures	Jonathan Ruiz and Antonio Jaramillo, University of Seville, Spain	WS-65
Effects of Hardener Type and Particles Size on Formaldehyde Emission of UF Bonded Particleboard	Mohsen Saffari, Komeyl Sajedi, Ramin Veysi, and Abdollah Hoseynzadeh; Islamic Azad University (IAU) Chalous Branch, Iran	WS-66
Evaluation of Test Methods for Determination of Formaldehyde Emission from Composite Wood Products	Mohamed Z. M. Salem, Martin Böhm, and Štefan Barčík, Czech University of Life Sciences, Czech Republic; Jaromír Srba, Research Timber Institute, Czech Republic	WS-67
Novel Laminated Composites from Heat-treated Wood for Green Construction	Milan Sernek and Mirko Kariz, University of Ljubljana, Slovenia	WS-68
Multi-layered Lightweight Panels made by In-process Foaming: Comparison of Core Materials	Ali Shalbafan and Jan Luedtke, University of Hamburg, Germany; Johannes Welling, Johann Heinrich von Thuenen-Institute (vTI), Germany; and Heiko Thoemen, Bern University of Applied Sciences, Architecture, Wood and Civil Engineering, Switzerland	WS-70

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An Investigation on Some Mechanical Properties of Wood Plastic Composites Made from the Flour of MDF and Reed and Waste Polypropylene	M. Shams, Ramin Vaysi, S. Hossinzadeh, Islamic Azad University of Chalous, Iran WS-71	
Impact of Hot-pressing Parameters and Climate Conditions on Formaldehyde and VOCs Emission from Particleboard	Jun Shen and Jingxian Wang, Northeast Forestry University, China WS-72	
A Chemical Process for Preparing Cellulose Nanowhiskers (CNW) from Kenaf Bast Fibers for Polymer Composites	Jinshu Shi, Sheldon Shi, H. M. Barnes, Charles Pittman; Mississippi State University, USA WS-73	
Traditional Furniture Joinery from the Point of View of Advanced Technologies	Milan Simek and Vaclav Servera, Mendel University Brno, Czech Republic WS-74	
Skeleton Chair – CNC Technology in New Context	Adam Koreny and Milan Simek, Mendel University Brno, Czech Republic WS-75	
Ramie and <i>Luffa Cylindrica</i> Nanowhiskers as Reinforced Phase in Polycaprolactone	Gilberto Siqueira, Aparacido Junior de Menezes, Julian Bras, and Alain Dufresne, Grenoble Institute of Technology, France WS-76	
Analysis of the Volatile Organic Compounds Emissions from Different Processing Particleboards	Shijing Sun, Jun Shen, Zhiming Liu, and Yu Liu, Northeast Forestry University, China WS-78	
The Effect of Lamina Configurations of Glue Laminated Timber on the Modulus of Elasticity and the Modulus of Rupture	Bambang Suryoatmono and Rendi Peterson, Parahyangan Catholic University, Indonesia WS-79	
Study on Load Carrying Capacity and Stiffness of Curved Glulam Beam	Bambang Suryoatmono and Adhi Bukhari, Parahyangan Catholic University, Indonesia WS-80	
The Investigation of Effective Factors on Supply and Demand of Particleboard in Iran	Ajang Tajdini, Amir Tavakkoli, Ahmad Jahan Latibari and Mehran Roohnia; Islamic Azad University, Iran WS-81	
The Effect of Nano Particles and Common Furniture Paints on Water Resistance Behavior of Poplar Wood (<i>P.nigra</i>)	Hadi Gholamiyan, Asghar Tarmian, and Mahdi Shahverdi, University of Tehran, Iran; Hamidreza Pirayesh, University of Gorgan, Iran WS-82	
Tracking and Simulation of Dry Shell Formation in a Wood Drying Process by X-ray Spectroscopy	Mahdi Shahverdi, Hadi Gholamiyan, and Asghar Tarmian, University of Tehran, Iran; Mohammad Ali Hossein, Islamic Azad University, Iran WS-83	
Effect of Wood Drying Conditions on Occurring of Collapse During Drying	Mahdi Shahverdi, Saeed Eshaghi, and Hadi Gholamiyan, University of Tehran, Iran; Seyed Ali Haji Mirza Tayeb, Azad University, Iran WS-69	
Multi-storey Timber Houses in Urban Regions in Austria	Martin Teibinger, Holzforschung Austria, Austria WS-84	
Bamboo in Green Construction in Ghana: the Studies of Selected Anatomical Properties	Stephen Lartey Tekpetey, K. Frimpong-Mensah, and Akwasi Acheampong, Kwame Nkrumah University of Science and Technology, Ghana WS-85	

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Investigation on the Brightness Reversion of Horn Beam CMP Pulp Following Accelerated Irradiation Aging

Ramin Vaysi, Islamic Azad University, Iran; S. A. Mirshokraie, Payame-Noor University, Iran **WS-86**

Potential of Using the NSSC Pulp for Production Fluting Paper from Kiwi Residues in Mazandaran Wood and Paper Industries

Ramin Vaysi, Islamic Azad University (Sama Organization) of Chalous Branch, Iran **WS-88**

Durability of High Wood-Content WPCs

Magnus E. P. Wålinder, B. Kristoffer Segerholm and Mats Westin; SP Trätec, Technical Research Institute of Sweden, Sweden **WS-89**

Optimization of Process Parameter of Wheatstalk/Polystyrene Composite

Min Xu, Lijuan Wang, Jian Li, Weilun Sun, Northeast Forestry University, China **WS-91**

Discoloration Occurrence and Durability Improvement of Cedar Wood through High-temperature and Hot-water Treatments

Ki-young Son, Chang-Deuk Eom, In-Gyu Choi, and **Hwanmyeong Yeo**, Seoul National University, Korea **WS-92**

Evaluation of Energy Consumption During Drying of Pitch Pine Lumber and Center-Bored Timber

Jun-Ho Park, Yoon-Seong Chang, Joon-Weon Choi, In-Gyu Choi, Jun-Jae Lee, **Hwanmyeong Yeo**; Seoul National University, Korea **WS-93**

Evaluation of Thermal Environment in Wooden House Heated by Floor Heating System

Yoon-Seong Chang, Chang-Deuk Eom, Jun-Ho Park, Jun-Jae Lee, **Hwanmyeong Yeo**; Seoul National University, Korea **WS-94**

Evaluation of Moisture Transfer on the Surface of Wood Using NIR Spectroscopy During Drying

Chang-Deuk Eom, Jun-Ho Park, Yoon-Seong Chang and **Hwanmyeong Yeo**, Seoul National University, Korea **WS-95**

From Laboratory Corrosion Tests to a Corrosion Lifetime: Progress and Challenges

Samuel L. Zelinka and Samuel V. Glass, USDA Forest Products Laboratory, USA; Dominique Derome, EMPA, Switzerland **WS-96**

Value-added Exterior Particleboard Panels Manufacturing and Impact Assessment from Eastern Redcedar

Difei Zhang and Salim Hiziroglu, Oklahoma State University, USA **WS-97**

Considering Reversible Variations in Wood Properties: Possible Applications in the Choice of the Tree-Felling Date?

Ernst Zürcher and Christian Rogenmoser, Bern University of Applied Sciences BFH, Switzerland **WS-98**