

57th SWST International Convention
7th Wood Structure and Properties Conference
6th European Hardwood Conference



Sustainable Resources and Technology for Forest Products

June 23–27, 2014

Technical University in Zvolen, Zvolen, Slovakia

Session Co-Chairs: Douglas Gardner, University of Maine, USA and Jozef Kudela, Technical University in Zvolen, Slovakia

Poster Setup: 14:00 to 15:00 • **Poster Session with Cash Bar and Student Poster Competition:** 15:00 to 18:00



Title of Presentation	Authors and Affiliations
Low Formaldehyde-Emitting Wood Composites by Nanotechnology	Turgay Akbulut and Zeki Candan, Istanbul University, Turkey
Phthalic Acid Snhydride for Wood Modification	Abdulrazzak Raoof Alsulaiman, Mosul University, Iraq; Ahmed Younis Al-Khero, Ministry of Agriculture/Ninavah Agricultural Directorate, Iraq
Enhancing the Value of Oil Palm Wood (<i>Elaeis Guineensis</i>) through Modified Phenolic Compressed Technique	Zaidon Ashaari, Universiti Putra Malaysia, Malaysia
Rapid Hydrolysis of Lignocellulosic Wood Biomass	Hyeun-Jong Bae, Chonnam National University, Korea
The Effects of Bark on Fuel Characteristics of Some Mediterranean Forest Species	Ioannis Barboutis, istotle University of Thessaloniki, Greece; Charalampos Lykidis, Hellenic Agricultural Organization "Demeter"
Density Reduction in Bark-based Insulation Panels by Adding Popcorn	Marius C. Barbu, Salzburg University of Applied Sciences, Austria
Acoustic Panels from Ligno-cellulosic Renewable Materials	Marius C. Barbu, Salzburg University of Applied Sciences, Austria
Predicting the Compression Strength Parallel to Grain of Heat Treated Wood Using Artificial Neural Networks: A Preliminary Study	Bogdan Bedelea, Cristina Olarescu, and Mihaela Campean, Transilvania University of Brasov, Romania
Life-Cycle Inventory Analysis of Cellulosic Fiberboard Production in North America	Richard Bergman, US Forest Service Forest Products Laboratory, USA
Restorative Environmental Design: Wood as a Material for Sustainable, Healthy Environments	Michael Burnard, University of Primorska, Slovenia
High Energy Density Solid Biofuel from Oil Palm Biomass	Kit-Ling Chin, Paik-San H'ng, and Paridah Md Tahir, Universiti Putra Malaysia, Malaysia
Determination of Physical and Mechanical Properties of <i>fungumia elastica (preuss) stapf</i> , a Lesser Known Wood Species	Aba Oluwatobi Damilola and A.B. Alarape, Forestry Research Institute of Nigeria (FRIN), Nigeria

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Title of Presentation	Authors and Affiliations
Strength and Dimensional Properties of Wood Plastic Composite Made From <i>Gmelina arborea</i> Sawdust	Aba Oluwatobi Damilola and A.B. Alarape, Forestry Research Institute of Nigeria (FRIN), Nigeria
Lathe Check Characteristics of Fast Growing Sengon Veneers and Their LVL Glue-Bond and Bending Strength	Wayan Darmawan, Dodi Nandika, Yusram Massijaya, Abigael Kabe, Irsan Alipraja, Istie Rahayu, Bogor Agricultural University, Indonesia; Barbara Ozarska, University of Melbourne, Australia
Wood Related Researches in Central Europe- A Review	Levente Dénes, University of West Hungary, Hungary
User-chair Interaction Analysis of Different Age Groups	Levente Dénes, University of West Hungary, Hungary
Use of Non-treated and Thermally-treated Biomass Media in Livestock Heavy-use Areas to Reduce the Environmental Impacts of Agriculture	David DeVallance, West Virginia University, USA; Joshua Faulkner, University of Vermont Center for Sustainable Agriculture, USA; and Tom Basden, West Virginia University Extension, USA
Surface Treatment, Layer Thickness and Surface Performance Relations of Wood Materials	Tuncer Dilik, Istanbul University, Turkey
Wood Anatomy of Naturally Grown Philippine Teak (<i>Tectona philippinensis</i> Benth. & Hook. F)	Arsenio Ella, Forest Products Research and Development Institute, Philippines
Relations Between Varnish Type and Color Changes of Wood Material	Emine Seda Erdinler, Istanbul University, Turkey
Development of High Performance Oil Palm Stem Plywood	Loh Yueh Feng, Fibre and Biocomposite Centre, Malaysia
Classicistic Furniture in Slovakia	L'uboš Gajdoš, Roman Nôta, Juraj Veselovský, Igor Želtvay, Technical University in Zvolen, Slovakia
Comparing the Efficiency of Selected Methods of Logging Residue Chipping for the Energy Purposes	Tomasz Gałęzia, Pomorze Forest Inspectorate, Poland
FTIR-Study of Thermally Treated Beech Wood	Galina Gorbacheva, Moscow State Forest University, Russia
Indian Pulp and Paper Industry: Status and Perspective	P. K. Gupta, Forest Research Institute, India
Wood Characteristic Account of the Living Fossil " <i>Ginkgo biloba</i> L"	Aanchal Gusain, Forest Research Institute, India
US Forest Sector Innovation During the Great Recession	Eric Hansen, Oregon State University, USA
Industry Perspective on Wood as Structural Green Building Material	Eric Hansen, Alyson Wade, Arijit Sinha, and Chris Knowles, Oregon State University, USA

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Title of Presentation	Authors and Affiliations
Modeling Hydrogen Peroxide Bleaching to Predict Optical Properties of Bleached Hardwood CMP	Abouzar Hatam, Aryak Décor Company, Iran
Incorporating Experiential Learning into a Sustainability Study Abroad Program	Eva Haviarova, Purdue University, USA
Wood-Plastic Composite Made from Eastern Redcedar	Salim Hiziroglu, Oklahoma State University, USA
Formaldehyde Emission and Quality of Particleboard Produced from Melamine-modified Urea Formaldehyde Resin	Paik-San H'ng, Paridah Md Tahir, and Kit-Ling Chin, Universiti Putra Malaysia, Malaysia
Transverse Isotropic Material Thermal Properties Measurement	Richard Hróčka, Pavol Halachan, Marián Babiak and Rastislav Lagaňa, Technical University in Zvolen, Slovakia; Jan Tippner, Eva Troppová, and Miroslav Trcala, Mendel University in Brno, Czech Republic
Morphological Changes on Spruce Wood Surface during Accelerated Aging	Pavel Ihracký and Josef Kúdela, Technical University in Zvolen, Slovakia
Chinese Historical Furniture	Marián Ihring, René bad'ura, Juraj Veselovský, Technical University in Zvolen, Slovakia
The Viscoelastic Properties of Wood under Hydrothermal Conditions	Jiali Jiang, Research Institute of Wood Industry, China
Providing Wood Science Training to the Forest Products Industry or How Do You Provide Educational Programs to Employees with No Formal Education in Wood Science	David Jones, Mississippi State University, USA
Effect of Thermal Treatment and Aging on Some Properties of Wood Material	Mehmet Karamanoglu, Kastamonu University, Turkey
Investigation of The Effect of Resin Consumption on The Properties of Particleboard Made Using Cotton Stalks	Abolfazl Kargarfard, Iran Research Institute of Forests & Rangelands, Iran; Ahmad Jahan-Latibari, Islamic Azad University, Iran
Investigation on the Influence of Nano-clay Addition on Mechanical Properties of Soy Straw-polypropylene Composite	Abolfazl Kargarfard, Iran Research Institute of Forests & Rangelands, Iran; Ahmad Jahan-Latibari, Islamic Azad University, Iran
Wood Properties of <i>Acacia mangium</i> at 5, 6, 7 Years Old	Lina Karlinasari, Bogor Agricultural University, Indonesia
Using Pine And Oak Bark Tannin Extracts As An Adhesive For Particleboards Production	Walid Aboudi Kasir, Mosul University, Iraq
Effect of Wood Chemical Composition on Physical Properties of Biocomposites	Alperen Kaymakçı, Istanbul University, Turkey
The Effect of Altitude on Chemical Composition and Mineral Content of Iron Wood (Case study in Khanican-Noshahr Forest)	Majid Kiaei, Islamic Azad University, Iran

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Title of Presentation	Authors and Affiliations
Improvement of Accuracy of Portable CT by Considering Penetrating Depth in Wood	Chul-Ki Kim, Seoul National University, Korea
Insecticidal Effect of Essential Oils from <i>Abies Holophylla Maxim</i> and its Chemical Constituents against <i>Dermatophagoides Farinae</i>	Seon-Hong Kim, Ga-Hee Ryu, and Su-Yeon Lee, Seoul National University, Korea; Mi-Jin Park, Korea Forest Research Institute, Korea; In-Gyu Choi, Seoul National University, Korea
Abrasion, Surface Treatment and Glossiness Relations of Wood Material	Kucuk Huseyin Koc, Istanbul University, Turkey
Surface Characteristics of Thermally Modified Plywood Panels	Suleyman Korkut and Zeki Candan, Istanbul University, Turkey
Bio-friendly Systems for Finishing of Wooden Windows Elements	Tomasz Krystofiak, Stanislaw Proszyk and Barbara Lis, Poznan University of Life Sciences, Poland
Full-field Strain Analysis of Wood with Knots in <i>Cryptomeria Japonica</i> by Digital Image Correlation Method	Tzu-Yu Kuo, National Tsing Hua University, Taiwan
Sorption Properties of Viscoelastic Thermal Compressed (VTC) wood	Andreja Kutnar, University of Primorska, Slovenia; Frederick A Kamke, Oregon State University, USA; Emil Engelund Thybring, ETH Zurich EMPA, Switzerland
Timber Passive House Technologies of Slovenian Contemporary Architecture	Manja Kuzman, University of Ljubljana, Slovenia
Effect of Microfibrillated Cellulose Content on the Bonding Performance of Rrea-formaldehyde Resin	Jin Heon Kwon and Seung-Hwan Lee, Kangwon National University, Korea; Nadir Ayrlmis, Istanbul University, Turkey; Tae Hyung Han, Kangwon National University, Korea
Stress in PUR Coating System on Moisturized Wood Evaluated by Full Field Strain Measurement Technique	Rastaslav Lagaňa and Josef Kúdela, Technical University in Zvolen, Slovakia
The Application of Canola Straw In the Reduction of the Particleboard Density	Ahmad Jahan Latibari and Hanieh Ghasemi, Islamic Azad University, Iran; Abolfazl Kargarfard, Institute of Forests and Rangeland, Iran
Improvement of the Selection of Trees to be Felled in Natural Forests of French Guiana. Crown Architecture Investigation of <i>Dicorynia guianensis</i> Amsh. (Fabaceae): Link between Visual Description, Tree Structure and Heartwood ProductionUMR AMAP, French Guiana	Romain Lehnebach, Cirad AMAP, French Guiana
Overall Pattern and Stochastic Dissimilarities Within and Between Stem	Ma. Teresa Bombais Lirag, Central Bicol State University of Agriculture, Philippines
Some Physical and Mechanical Properties of Two-step Organo-montmorillonie Modified Wood Flour/Polypropylene Composites	Ru Liu, Beijing Forestry University, China
Dimensional Responses of Wood Subjected to Cyclic Temperature Changes	Erni Ma, Beijing Forestry University, China
Spectrophotometric Analysis of the Aging of Coating Systems for Wooden Exterior Construction	Miroslava Mamoňová and Ladislav Reinprecht, Technical University in Zvolen, Slovakia

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Title of Presentation	Authors and Affiliations
Relationship between Physico-Mechanical Properties, Compacting Pressure and Mixing Proportion of Briquettes Produced from Maize Cobs and Sawdust	Stephen Jobson Mitchual, University of Education, Winneba, Kumasi Campus, Ghana; Kwasi Frimpong-Mensah and Nicholas Albert Darkwa, Kwame Nkrumah University of Science and Technology, Ghana
A Comparison of Latewood Measurements in Suppressed Douglas-fir	Carl Morrow and Thomas M. Gorman, University of Idaho, USA; David E. Kretschmann, USDA Forest Service, Forest Products Laboratory, USA
Pre-treatment of Surface of Old Wood Construction Elements with Dry Ice	Leoš Mrenica, Technical University in Zvolen, Slovakia; Šmíra, P., Thermo Sanace Ltd., Czech Republic; Ihracký, P., Technical University in Zvolen, Slovakia; Nasswetrová, A., Thermo Sanace Ltd., Czech Republic; and Kúdela, J., Technical University in Zvolen, Slovakia
Silanes Adhesion Promoters Applied in Furniture Industry	Monika Muszynska, Tomasz Krystofiak, Stanisław Prosyk, and Barbara Lis, Poznan University of Life Sciences, Poland
Effect of Pretreatment of Rice Husk with Acetic Acid on Properties of Rice Husk/HDPE Composites	Abdollah Najafi, Islamic Azad University, Iran
Variation of Fiber Anatomy Related to Tree Height and Wood Density from an Acer Velutinum Trial Plantation	Hamidreza Najji, 1- Institute of Tropical Forestry and Forest Products (INTROP), Malaysia
Variations of Tree Growth, Wood Density and Anatomical Properties in Relation to Initial Planting Density and Tree Features from a <i>Hevea brasiliensis</i> Trial Plantation	Hamidreza Najji, 1- Institute of Tropical Forestry and Forest Products (INTROP), Malaysia
Premature Failure of Creosote Treated Electricity Transmission Wood Poles in Zambia	Elisha Ncube, Copperbelt University, Zambia
Rococo Furniture in Slovakia	Roman Nôta, Juraj Veselovský, Igor Želtvay, Ľuboš Gajdoš, Technical University in Zvolen, Slovakia
Mechano-sorptive Creep in Reinforced Sitka Spruce	Conan O'Ceallaigh, Annette Harte, and Karol Sikora, National University of Ireland, Ireland; Daniel McPolin, Queens University Belfast, Ireland
Compressive Strength of Cross-laminated Timber Panel	Jung-Kwon Oh, Jung-Pyo Hong, and Jun-Jae Lee, Seoul National University, Korea
Combustion Related Properties of Sawdust and Charcoal Briquettes from Four Tropical Hardwood Species	Amos Olajide Oluyeye, Federal University Of Technology, Nigeria
Specific Gravity and Shrinkage Characteristics of Red Mangrove (<i>Rhizophora racemosa</i> G. Mey)	Ayodeji Oludare OMOLE, Department of Forest Resources Managemnt, Nigeria
Accelerated Leaching Test for Estimating Service Life of Preservative Treated Wood in Retaining Wall	Sung-Jun Pang, Seoul National University, Korea
Distribution of the Equilibrium Moisture Content in the Wood Structure of Rour Hardwoods below Fiber Saturation Point by Magnetic Resonance Imaging	Leandro Passarini, Université Laval, Canada; Cédric Malveau, Université de Montréal, Canada; Roger Hernandez, Université Laval, Canada
Log Homes Mitigate the Global Warming	Zoltán Pásztory, University of West Hungary, Hungary
Anisotropy of the Properties Measured in Tangential and Radial Anatomical Direction of Hickory Drumsticks	Djordje Popovic, Lulea University of Technology, Sweden
The Influence of Some Anatomical Features on the Physical and Mechanical Properties of Selected Ghanaian Hardwood Species	Gladys Ama Quartey, Takoradi Polytechnic, Ghana

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Case Study: “Exports of U.S. Hardwood Products: Increasing Performance in Asia and Western Europe”	Henry Quesada-Pineda, Edgar Arias, Robert Smith, Virginia Tech, USA
Effect the Indentation of the Annual Growth Rings in Norway Spruce (<i>Picea Abies L.</i>) on the Shear Strength - Preliminary Study	Vladimír Račko and Ol’ga Mišíková, Technical University in Zvolen, Slovakia
Improvement of Properties of Selected Woods using Different Modification Techniques	Peter Rademacher, Mendel University in Brno, Czech Republic; Ditriech Meier, Thünen Institute of Wood Research, Germany; Petr Pařil, Jan Baar, Pavel Sáblík, Petr Čermák, and Radim Rousek, Mendel University in Brno, Czech Republic
CO² Balance of Wood Wall Constructions Compared to Other Types of Wall	Péter Rébék-Nagy and Zoltán Pásztor, University of West Hungary, Hungary
Non-Wood Lignocellulosic Composites	Roman Réh, Technical University in Zvolen, Slovakia
The Role of Fibre Characteristics for Online Process Adaptation in the Manufacturing of MDF	Martin Riegler, Martin Weigl, and Ulrich Müller, Wood K Plus, Austria
Errors of Sampling Based Moisture Content Measurement of Wood	Ildikó Ronyecz, Kristóf Mohácsi, and Zoltán Pásztor, University of West Hungary, Hungary
Quantitative Analysis of the Micromechanical Load Transfer in Wood-Adhesive Bond Interphases	Matthew Schwarzkopf and Lech Muszynski, Oregon State University, USA
FE model of Oriented Strand Board Made By Two Different Geometry Generation Techniques	Václav Sebera, Jan Tippner, Peter Rademacher, and Rupert Wimmer, Mendel University in Brno, Czech Republic
Aluminium Laminated Wood Composites: Optimal Manufactured Parameters	Franz Segovia, Pierre Blanchet, Costel Barbuta, and Robert Beauregard; Université Laval, Canada
Development of Ready-to-Assemble Furniture Constructions	Milan Simek, Mendel University, Czech Republic
Defining of Wood Colour	Tomislav Sinković, Faculty of Forestry, Croatia
Assessment of Drying Quality and Accuracy of Wood Processing	Nikolay Skuratov, Moscow State Forest University, Russia
Mathematical Modeling of Timber Elastic-viscous-plastic Deformation in Drying Process	Yaroslav Sokolovskyy, Ukraine National Forestry University, Ukraine
The Effect of Titanium Dioxide Nanoparticles on Optical and Mechanical Properties of UV-Curable Coated Duplex Paperboard	Mojtaba Soltani, Islamic Azad University, Iran
Mitigation of End Shakes on Oak Saw Timber as a Result of Storage by Applying Environmentally-friendly Methods	Péter Szeles, Szabolcs Komán, and Sándor Fehér; University of West Hungary, Hungary
The Impact of Macroeconomics Variables on the Imports of Particleboard and MDF in Iran	Ajang Tajdini, Shayan Khoshkar Langerudi, Mehran Roohnia; Islamic Azad University, Iran
Evaluation of Boron Minerals in Wood Plastic Composites as Fire Retardants	Evren Terzi, Istanbul University, Turkey

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Title of Presentation	Authors and Affiliations
Effects of Atmospheric Plasma Treatment on Wood Surface	Radovan Tiňo, Zuzana Repanova, and Michal Jablonsky, Slovak University of Technology, Slovakia
Probabilistic Numerical Analysis of Quasi-stationary Thermal Measurement of Medium Density Fiberboard	Jan Tippner, Mendel University in Brno, Czech Republic
Integrating the Surface Treatment of Monocotyledons into Particleboard Production Process to Provide a Substitute Raw Material	Johann Trischler, Linnæus University, Sweden; Dick Sandberg, Luleå University of Technology, Sweden
Thermal Conductivity and Water Vapor Transmission Properties of Wood-based Fiberboards	Eva Troppová, Mendel University, Czech Republic
Wooden Furniture Design and Product Development Principles Considering Variable End-of-Life Options and Design for Environment Strategies	Mesut Uysal, Purdue University, USA
Interconnection of Strength, Porosity and Microstructure of Hardwood	Inna Varivodina, Nikolai Kosichenko and Tamara Starodubtseva, Voronezh State Academy of Forestry and Technologies, Russia
Cross Industry Innovation Process to Identify “New” Technologies for Mechanical Wood Disintegration	Oliver Vay, Kompetenzzentrum Holz GmbH, Austria; Johannes Konnerth, Alfred Teischinger, and Ulrich Müller, BOKU - University of Natural Resources and Life Sciences - Vienna, Austria
Baroque Furniture in Slovakia	Juraj Veselovský, Igor Želtvay, Ľuboš Gajdoš, Roman Nôta, Technical University in Zvolen, Slovakia
Renaissance Furniture in Slovakia	Juraj Veselovský, Ľuboš Gajdoš, Roman Nôta, Igor Želtvay, Technical University in Zvolen, Slovakia
Acoustic Sorting Models for Improved Log Segregation	Xiping Wang, Steve Verrill, Eini Lowell, Robert J. Ross and Vicki L. Herian, US Forest Products Laboratory, USA
Compost Feedstock Characteristics and Ratio Modelling for Organic Waste Materials Co-composting in Malaysia	CHAI Ee Wen, H'NG Paik San, and PARIDAH Md. Tahir, Universiti Putra Malaysia, Malaysia
Heart Rots Detection on the Basis of Sonic Velocity Based on Transducer's Angles Orientation	Kyaw Ko Win, Seoul National University, Korea
Analysis of High Frequency Dielectric Curing of Phenol-Resorcinol Formaldehyde Resin used for Manufacturing Larch Glulam	Sang-Yun Yang, Seoul National University, Korea
Analysis of Laminar Yield for Manufacturing Cross Laminated Timber	Hwanmyeong Yeo, Yeonjung Han, Yoon-Seong Chang, Sang-Yun Yang, Chul-Ki Kim, Gi-Young Jeong, Jun-Jae Lee, Seoul National University, Korea; Hwanmyeong Yeo, Yeonjung Han, Yoon-Seong Chang, Sang-Yun Yang, and Chul-Ki Kim, Seoul National University; Gi-Young Jeong, Chunnam National University; Jun-Jae Lee, Seoul National University
Half-Life and Carbon Stock of Harvested Wood Products (HWP) Produced by Domestic Trees in Korea	Hwanmyeong Yeo, Yoon-Seong Chang, and Jun-Ho Park, Seoul National University, Korea; Whi-Lim Son, Joo-Saeng Park, and Moon-Jae Park, Korea Forest Research Institute, Korea
Wood Quality of Black Walnut Grown in Reclaimed Surface Mine in the Czech Republic	Ales Zeidler, Vlastimil Boruvka, Guillermo Garcia Mayoral, Czech University of Life Sciences Prague, Czech Republic
Mechanical Properties of Common Beech (<i>Fagus sylvatica</i> L.) after Microwave Drying in Comparison to Naturally and Laboratory Oven Dried Material	Philipp Zingerle, University of Innsbruck, Austria

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Student Poster Competition



Title of Presentation

Authors and Affiliations

Effects of Particle Geometry on Dimensional Stability of Bamboo-reinforced Cement Composites

Adeyinka Saheed Adesope, Forestry Research Institute of Nigeria, Nigeria

Life Cycle Assessment of Exported Torrefied Wood Pellets (TOP) from Maine to the European Union

Melanie Blumentritt, Sasha Howes and Stephen M. Shaler, University of Maine, USA

Changes in the Anatomy of Exposed Roots of Some Hardwood Species

Bryan Dick, North Carolina State University, USA

Thermo-mechanical Properties of Genetically Modified *Populus trichocarpa*

Charles Edmunds, North Carolina State University, USA

Rheometer Method to Determine Factors Influencing Sticking Behaviour of Aminoplastic Resins

Alexandra Himsel, Kompetenzzentrum Holz GmbH, Austria; Ulrich Müller, BOKU – University of Natural Resources and Applied Life Science, Austria; Hendrikus W. G. van Herwijnen, Kompetenzzentrum Holz GmbH, Austria

Study of Mechanical Properties of Composites Based on TEMPO-oxidized Cellulose Gel and Silica Nanoparticles

Chloé Maury and Khalil Jradi, Université du Québec à Trois-Rivières, Canada; Claude Daneault, Canada Research Chair in Value-added Paper, Canada

Comparing Mechanical and Chemical Properties of Young Transgenic Black Cottonwood Trees Modified for Reduction of Specific Genes in Lignin Biosynthesis

Zachary Miller, North Carolina State University, USA

Novel Imaging and 3D rendering Techniques to Visualise Spiral Grain in *Pinus radiata*

Jimmy Thomas, The Rubber Board and University of Canterbury, New Zealand; David Anthony Collings, University of Canterbury, New Zealand