



# 11<sup>th</sup> Hardwood Conference

30-31 May 2024  
Sopron

## 11<sup>TH</sup> HARDWOOD CONFERENCE

### PROGRAM

2024



**29 May 2024, Wednesday**

**Location: Fagus Hotel**

**9400 Sopron, Ojtózi fasor 3**

18:00- **Welcome Reception & Pre-Registration**

21.00

**30 May 2024, Thursday**

**Location: Fagus Hotel**

**9400 Sopron, Ojtózi fasor 3**

08:00- **Registration**

08:30

08:30- **Welcome speeches of 11<sup>TH</sup> Hardwood Conference**

08:45

08:45- **Plenary Session**

*Chair: Róbert Németh & Åsa Rydell Blom*

**The role of black locust (*Robinia pseudoacacia*) in Czechia**

Ivan Kuneš

**Engineered wood products for construction based on beech and poplar resources in Europe**

Joris Van Acker, Liselotte De Ligne, Tobi Hallez, Jan Van den Bulcke

**The situation in the hardwood sector in Europe**

Maria Kiefer-Polz, Rainer Handl

10:30- **Coffee Break**

11:00

11:00- **Session I - Silvicultural aspects and forest management of hardwoods**

*Chair: Attila Benke & Joris Van Acker*

**Monitoring xylogenesis as tool to assess the impact of different management treatments on wood formation: A study case on *Vitis vinifera***

Angela Balzano, Maks Merela, Meta Pivk, Luka Krže, Veronica De Micco

**The history of forests - Climate periods of the middle ages and forestry**

Emese Berzsenyi, Dóra Hegyesi, Rita Kattein-Pornói, Dávid Kazai

**Climate change mitigation aspects of increasing industrial wood assortments of hardwood species in Hungary**

Éva Király, Zoltán Börcsök, Attila Borovics

**Uncovering genetic structures of natural Turkey oak populations to help develop effective climate change strategies for forestry**

**Botond B. Lados**, László Nagy, Attila Benke, Csilla É. Molnár, Zoltán A. Kőbölkuti, Attila Borovics, Klára Cseke

**Ash dieback: Infection biology and management**

**Nina E. Nagy**, Volkmar Timmermann, Isabella Børja, Halvor Solheim, Ari M. Hietala

**The role of industrial hardwood production plantations and long-term carbon sequestration in a circular economy via the new *Robinia pseudoacacia* ‘turbo obelisk’ varieties**

**Márton Németh**, Kálmán Pogrányi, Rezső Solymos

**Initial growth of native and introduced hardwoods at the afforested agricultural lands – Preliminary results**

**Vilém Podrázský**, Josef Gallo, Martin Baláš, Ivan Kuneš, Tama Abubakar Yahaya, Miroslav Šulitka

12:30-  
13:30      **Lunch Break**

13:30-  
15:30      **Poster Session**

*Chair: Mátyás Báder & Tamás Rétfalvi*

**Light response curve analysis of juvenile Püspökladányi and Üllői black locust**

**Tamás Ábri**, Zsolt Keserű, József Csajbók

**Revealing the optimum configuration of heat-treated wood dowel joints by means of Artificial Neural Networks and Response Surface Methodology**

**Bogdan Bedelean**, Cosmin Spîrchez

**Artificial neural networks as a predictive tool for thrust force and torque during drilling of wood-based composites**

**Bogdan Bedelean**, Mihai Ispas, Sergiu Răcăsan

**Research on the value retention of hardwood products in the spirit of sustainability**

**Dániel Bodorkós**, József Zalavári, Péter György Horváth

**Abrasive water jet cutting vs. laser jet cutting of oak wood panels**

Camelia Cosereanu, Gheorghe Cosmin Spirchez, Antonela Lungu, **Sergiu-Valeriu Georgescu**, Filip Alexandru Catalin, Sergiu Racasan

**Polyphenol content of underutilized wood species from Hungary**

**Tamás Hofmann**, Haruna Seidu, Kibet Tito Kipkoror

**Wood quality evaluation of 32 clones of Keyaki (*Zelkova serrata*) elite trees 12 years after planting**

Kiyohiko Ikeda, Shigehiro Yamamoto

**Influence of the number of belts over vibrations of the cutting mechanism in woodworking shaper**

Georgi Kovatchev, Valentin Atanasov

**The impact of litter forest fires on the internal structure of wood from the stem of beech trees**

Elena-Camelia Musat, Costin Ovidiu Vantoiu, Emilia-Adela Salca

**Analysing innovative wooden joints crafted by laser-cut spline curves**

László Németh, József Garab, György Péter Horváth

**Dynamic fatigue tests of hardwoods**

Gábor Orbán, Antal Kánnár

**Restoration of an old painted oak boardsign - A case study**

Gabriel Calin Canalas, Emilia-Adela Salca, Elena-Camelia Musat

**Some physical and mechanical properties of native and thermo-treated *Fraxinus excelsior* timber**

Cosmin Spîrchez, Aurel Lunguleasa, Alin Olărescu, Camelia Coșereanu, Bogdan Bedelean

**The surface morphology of sanded curly maple in comparison with straight grain maple selected for musical instruments**

Mariana Domnica Stanciu, Lidia Gurau, Florin Dinulica, Catalin Constantin Roibu, Cristian Hiciu, Andrei Mursa, Marian Stirbu

**Analysis of changes in the composition of beech as an important industrial raw material in Hungary**

Katalin Szakálosné Mátyás, Attila László Horváth

**Investigation of old hardwood structure element**

Fanni Szóke, Antal Kánnár

**An investigation of the influence of coating film thickness on the light induced colour changes of clear coated maple (*Acer pseudoplatanus*) wood surfaces with natural aspect**

Mihai-Junior Torcătoru, Maria Cristina Timar

**Composite material manufacturing from plantation paulownia wood with using microwave technology: Technical and cost analyses**

Grigory Torgovnikov, Peter Vinden, Alexandra Leshchinskaya

**High termite resistance of kempas (*Koompassia malaccensis*) hardwood protected with a novel vegetal extracts-cypermethrin wood preservative under outdoor aboveground tropical environment**

Daouia Messaoudi, Andrew H.H. Wong  
(Presented by Antoine Robert)

<b>Comparison of wood properties of pedunculate oak and non-native northern red oak from an anthropogenic site</b>	<u>Aleš Zeidler</u> , Vlastimil Borůvka
<b>Determination of elastic parameters of birch and oak wood using optical method</b>	<u>David Novák</u> , Vlastimil Borůvka, Petr Horák, Tomáš Kytka
<b>Preliminary study on climate change impacts on annual wood growth development in Hungary</b>	<u>Péter Farkas</u> , Zsolt György Tóth, Huba Komán
<b>Combustion characteristics of Russian olive (<i>Elaeagnus angustifolia</i> L.)</b>	Szabolcs Komán, <u>Krisztián Töröcsi</u>
<b>Withdrawal capacity of Green ash (<i>Fraxinus pennsylvanica</i> Marsh.) and Box elder (<i>Acer negundo</i> L.)</b>	Szabolcs Komán, <u>Boldizsár Déri</u>
<b>Formaldehyde emission from wood and wood-based products</b>	Szabolcs Komán, <u>Csilla Czók</u> , Tamás Hofmann
<b>Finite Element Analysis of heat transfer of Turkey Oak (<i>Quercus cerris</i> L.)</b>	Sándor Borza, Gergely Csiszár, <u>József Garab</u> , Szabolcs Komán
<b>Possible alternative to creosote treated railway sleepers, Fürstenberg-System Sleeper (FSS)</b>	Szabolcs Komán, <u>Mátyás Zalán Balogh</u> , Sándor Fehér
<b>Investigation of bendability characteristics of wood-based polymer composites</b>	<u>S. Behnam Hosseini</u> , Milan Gaff
<b>Comparing the blossoming and wood producing properties of selected black locust clones</b>	<u>Alexandra Porcsin</u> , Katalin Szakálosné Mátyás, Zsolt Keserű
<b>The influence of two different adhesives on structural reinforcement of oak-wood elements by carbon and glass fibres</b>	<u>Andrija Novosel</u> , Vjekoslav Živković
<b>Investigating kerf topology and morphology variation in native species after CO<sub>2</sub> laser cutting</b>	<u>Lukáš Štefancin</u> , Rastislav Igaz, Ivan Kubovský, Richard Kminiak
<b>Comparison of fluted-growth and cylindrical hornbeam logs from Hungarian forests</b>	Mátyás Báder, <u>Maximilián Cziczer</u>

<b>Thermal modification affects the dynamic vapor sorption of tree of heaven wood (<i>Ailanthus altissima</i>, Mill.)</b>	Fanni Fodor, Lukas Emmerich, Norbert Horváth, <u>Róbert Németh</u>
<b>How conditions after application affect the depth of penetration of gel wood preservative in oak</b>	<u>Jan Baar</u> , Štěpán Bartoš, Anna Oberle, Zuzana Paschová
<b>The weathering of the beech wood impregnated by pigmented linseed oil</b>	<u>Jakub Dömény</u> , Jan Baar
<b>Examination of the durability of beeswax-impregnated wood</b>	<u>Miklós Bak</u> , Róbert Németh
<b>Preparation of pleated oak samples and their bending tests at different moisture contents</b>	<u>Péter Gecseg</u> , Mátyás Báder
<b>Bending test results of glued laminated oak timber consisting 2, 3 and 5 layers</b>	<u>Dénes Horváth</u> , Sándor Fehér
<b>Homogenized dynamic Modulus of Elasticity of structural strip-like laminations made from low grade sawn hardwood</b>	<u>Simon Lux</u> , Johannes Konnerth, Andreas Neumüller
<b>Impact of varnishing on the acoustic properties of sycamore maple (<i>Acer pseudoplatanus</i>) panels</b>	<u>Aleš Straže</u> , Jure Žigon, Matjaž Pavlič
<b>The effect of wood and solution temperatures on the preservative uptake of Pannonia poplar and common spruce – preliminary research</b>	<u>Buga-Kovács Luca</u> , Horváth Norbert
<b>Acoustic parameters of pioneer wood species</b>	<u>Petr Horák</u> , Vlastimil Borůvka
<b>Thermal modification of wood as a tool for changing the colour of hardwoods</b>	<u>Zuzana Vidholdová</u>

15:30-  
16:15

Coffee Break

16:15- 17:30	<b>Session II - Hardwood resources, product approaches, and timber trade</b>	<i>Chair: Franka Brüchert &amp; Alfred Teischinger</i>
	<b>Hardwood processing - Do we apply appropriate technologies?</b>	<u><b>Alfred Teischinger</b></u>
	<b>Beech wood steaming – Chemical profile of condensate for sustainable applications</b>	<u><b>Goran Milić</b></u> , Nebojša Todorović, Dejan Orčić, Nemanja Živanović, Nataša Simin
	<b>Towards a complete technological profile of hardwood branches for structural use: Case study on Poisson's ratio</b>	<u><b>Tobias Nenning</b></u> , Michael Grabner, Christian Hansmann, Wolfgang Gindl-Altmutter, Johannes Konnerth, Maximilian Pramreiter
	<b>Low-value wood from non-native tree species as a source of bioactive extractives for bio-based preservation</b>	<u><b>Viljem Vek</b></u> , Ida Poljanšek, Urša Osolnik, Miha Humar, Primož Oven
	<b>Birch tar – historic material, innovative approach</b>	<u><b>Jakub Brózdowski</b></u> , Monika Bartkowiak, Grzegorz Cofta, Grażyna Dąbrowska, Ahmet Erdem Yazici, Zbigniew Katolik, Szymon Rosołowski, Magdalena Zborowska
20:00- 23:00	<b>Conference dinner</b> <i>Location: Deák Restaurant</i> <i>Address: 9400 Sopron, Erzsébet u. 20</i>	

**31 May 2024, Friday**

**Location: Fagus Hotel**

**9400 Sopron, Ojtózi fasor 3**

08:00- 09:30	<b>Session III - Surface coating and bonding characteristics of hardwoods</b>  <b>Influence of pretreatments with essential oils on the colour and light resistance of maple (<i>Acer pseudoplatanus</i>) wood surfaces coated with shellac and beeswax</b>	<i>Chair: Christian Hansmann &amp; Emilia-Adela Salca</i>  <i>Emanuela Carmen Beldean, Maria Cristina Timar, Dana Mihaela Pop</i>
	<b>Oak timber cross-cutting based on fiber orientation scanning and mechanical modelling to ensure finger-joints strength</b>	<i>Delin Soh Mbou, Benoit Besseau, Guillaume Pot, Joffrey Viguer, Bertrand Marcon, Louis Milhe, Jean-Denis Lanvin, Didier Reuling</i>
	<b>From lignin-phenol blends towards birch plywood board production</b>	<i>Wilfried Sailer-Kronlachner, Peter Bliem, Hendrikus van Herwijnen</i>
	<b>Flatwise bending strength and stiffness of finger jointed beech lamellas (<i>Fagus sylvatica</i>, L.) using different adhesive systems and effect of finger joint gap size</b>	<i>Hannes Stolze, Adefemi Adebisi Alade, Holger Militz</i>
	<b>Mode I fracture behaviour of bonded beech wood analysed with acoustic emission</b>	<i>Martin Capuder, Aleš Straže, Azinović Boris, Ana Brunčić</i>
	<b>Adhesion strength of UV coatings to plasma-activated edges</b>	<i>Maciej Tokarczyk, Barbara Lisa, Tomasz Krystofiak</i>

09:30- 10:00	<b>Coffee Break</b>	
-----------------	---------------------	--

10:00- 12:00	<b>Session IV - Hardwood structure and properties</b>  <b>Compression strength perpendicular to grain in hardwoods depending on test method</b>	<i>Chair: Miklós Bak &amp; Goran Milić</i>  <i>Marlene Cramer</i>
-----------------	---	---

**Compensatory Anatomical Studies on  
*Robinia*, *Sclerocarya* and *Ulmus***

**Fath Alrhman A. A. Younis**, Róbert Németh, Mátyás Báder

**The influence of the type of varnish on the viscous-elastic properties of maple wood used for musical instruments**

**Roxana Gall**, Adriana Savin, Mariana Domnica Stanciu, Mihaela Campean, Vasile Ghiorghe Gliga

**XRF investigation of subfossil oak (*Quercus* spp) wood revealing colour - iron content correlation**

**Ruxandra Nedelcu**, Maria Cristina Timar, Emanuela Carmen Beldean

**Investigating the development of heartwood in *Quercus robur* in Denmark**

**Andrea Ponzecchi**, Albin Lobo, Jill Katarina Olofsson, Jon Kehlet Hansen, Erik Dahl Kjær, Lisbeth Garbrecht Thygesen

**Modelling tensile mechanical properties of oak timber from fibre orientation scanning for strength grading purpose**

**Guillaume Pot**, Joffrey Viguier, Benoit Besseau, Jean-Denis Lanvin, Didier Reuling

**Green oak building – small diameter logs for construction**

Martin Huber, **Franka Brüchert**, Nicolas Hofmann, Kay-Uwe Schober, Beate Hörmel-Metzger, Maximilian Müller, Udo H. Sauter

**An evaluative examination of oak wood defect detection employing deep learning (DL) software systems**

**Branimir Jambreković**, Filip Veselčić, Iva Ištak, Tomislav Sinković, Vjekoslav Živković, Tomislav Sedlar

**Comparison of surface roughness of milled surface of false heartwood, mature wood and sapwood within beech wood**

**Lukáš Adamčík**, Richard Kmíniak, Adrián Banski

12:00-  
13:00      **Lunch Break**

13:00-  
14:15      **Session V - Hardwoods in composites and engineered materials**

*Chair: Tibor Alpár & Hrvoje Turkulin*

**Developing Laminated Strand Lumber (LSL) based on underutilized Hungarian wood species**

László Bejó, **Ahmed Altaher Omer Ahmed**

**Feasibility study on manufacturing finger joint laminated boards using *Eucalyptus grandis* wood**

**Adefemi Adebisi Alade**, Hannes Stolze, Coenraad Brand Wessels, Holger Militz

**A novel approach for the design of flame-retardant plywood**

**Christian Hansmann**, Georg Baumgartner, Christoph Preimesberger

**The use of beech particles in the production of particleboards based on recycled wood**

Ján Iždinský, Emilia Adela Salca, Pavlo Bekhta

**Thermal properties of highly porous wood-based insulation material**

Kryštof Kubista, Přemysl Šedivka

14:15-  
15:00 **Coffee Break**

15:00-  
16:45 **Session VI - Modification & functionalization**

Chair: Tamás Hofmann & Holger Militz

**Quantitative and qualitative aspects of industrial drying of Turkey oak lumber**

Iulia Deaconu, Bogdan Bedelean, Sergiu Georgescu, Octavia Zeleniuc, Mihaela Campean

**Changes in properties of maple by hygrothermally treatment for accelerated ageing at 135-142°C**

Tobias Dietrich, Herwig Hackenberg, Mario Zauer, Holger Schiema, André Wagenführ

**Change of chemical composition and FTIR spectra of Turkey oak and Pannonia poplar wood after acetylation**

Fanni Fodor, Tamás Hofmann

**Change of cellulose crystal structure in beech wood (*Fagus sylvatica* L.) due to gaseous ammonia treatment**

Herwig Hackenberg, Tobias Dietrich, Mario Zauer, Martina Bremer, Steffen Fischer, André Wagenführ

**Evaluation of weathering performance of acetylated hardwood species**

Rene Herrera Diaz, Jakub Sandak, Oihana Gordobil, Faksawat Poohphajai, Anna Sandak

**Unlocking a potential deacetylation of acetylated beech (*Fagus sylvatica* L.) LVL**

Maik Slabohm, Holger Militz

**Fork and flying wood tests to improve prediction of board stress development during drying**

Antoine Stéphan, Patrick Perré, Clément L'Hostis, Romain Rémond

**Modification of different European hardwood species with a bio-based thermosetting resin on a semi-industrial scale**

Christoph Hötte, Holger Militz

16:45- **Closing remarks**



**UNIVERSITY  
of SOPRON**

