



UNIVERSITÀ  
DEGLI STUDI  
FIRENZE  
DAGRI  
TECNOLOGIE E SCIENZE  
ALIMENTARI E FORESTALI

Consiglio Nazionale delle Ricerche  
CNR - Istituto per la BioEconomia



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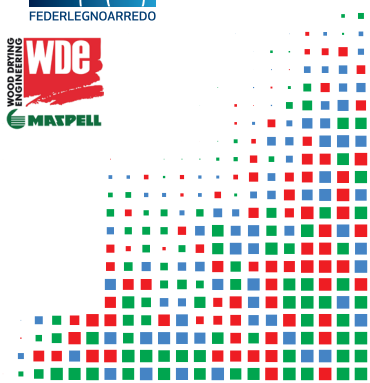
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14.15 APRIL 2025 - FLORENCE

AULA MAGNA  
UNIVERSITY OF FLORENCE  
Piazza San Marco 4

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SUNDAY 13TH APRIL 2025



18.30–20:00 **Welcome cocktail**  
**Crudi e Bollicine** - Via Faenza, 4/A, 50123 Florence



MONDAY 14TH APRIL 2025 Aula Magna



- 08:30 Registration and welcome coffee
- 09:00 Greetings from the University of Florence and the International advisory board  
*Giacomo Goli and Gary Schajer*
- 09:15 Welcome from IUFRO  
*Julie Cool and Louis Denaud*
- 09:25 Memorial for Ryszard Szymani
- 09:40 **Keynote 1** *Chair Giacomo Goli*
- 09:40 k1 Forest resources in Europe and the role of Italy for a forest based bio-economy  
*Davide Pettenella*
- 10:00 k2 Circular economy for wood  
*Stefano Saviola*
- 10:20 k3 The woodworking machinery international market  
*Dario Corbetta*
- 10:40–11:15 Coffee break and poster discussion
- 11:20 **Session 1 CUTTING MECHANICS** *Chair Christian Gottlöber*
- 11:20 s1.2 Calibration and sensitivity analysis of a bonded particle model for the simulation of chip ejection from wood cutting tools  
*Julius Hausmann, Christian Gottlöber*
- 11:35 s1.3 Impact of sandpaper and machining settings on triboelectric charges in wood sanding  
*Lena Maria Leiter, Julie Cool*
- 11:50 s1.4 Analysis of tool-workpiece interaction in peripheral planing of Douglas Fir using jointed hydro-clamped tools  
*Christian Kortüm*
- 12:10 **Session 2 CUTTING FORCE AND POWER** *Chair Julie Cool*
- 12:10 s2.1 Chip formation research using high speed filming, cutting force measurements and computed tomography scanning – a first approach  
*Magnus Fredriksson, Frank Schleicher, Fredrik Larsson, Jörgen Kajberg, Yunbo Huang, Mikael Svensson*
- 12:25 s2.2 Friction forces between cutting edge flanks and machined wood due to Scots pine wood elasticity  
*Daniel Chuchala, Yunbo Huang, Kazimierz Orłowski, Mikael Svensson, Magnus Fredriksson*





- 12:40 s2.3 Cutting force predictions in orthogonal cutting by a foam model  
*Gerhard Sinn, Andreas Schütz, Helga Lichtenegger, Kazimierz Orłowski, Daniel Chuchala*
- 12:55–13:50 **Lunch and poster discussion**
- 13:55 **Keynote 2** *Chair Michela Zanetti*
- 13:55 k4 Use of millimeter waves for non-destructive quality analysis during the production stages of fiber-based panels  
*Massimo Bergonzini, Riccardo Centi, Giuseppe Amico*
- 14:15 k5 Tracking and learning: AI cross training between scanners in sawmills  
*Enrico Ursella*
- 14:40 **Session 3 NEW TOOLS AND MACHINES** *Chair Louis Denaud*
- 14:40 s3.1 Wood-based materials for machine components such as machine enclosures  
*Matthias Schneider, Thomas Stehle, André Jaquemod, Hans-Christian Moehring*
- 14:55 s3.2 Cutting area observation coupled with dynamically compensated cutting forces to characterize the chip formation in wood peeling  
*Hugo Curial, Louis Denaud, Joffrey Viguié, Bertrand Marcon, Fabrice Verjat*
- 15:10 s3.3 Exclusive finishing with DMC laser technology  
*Marco Venturini*
- 15:30 **Session 4 CHIPLESS MANUFACTURING PROCESSES** *Chair Tadashi Ohtani*
- 15:30 s4.1 Thermally Modified Wood (TMW) with TermoVuoto method  
*Alessio Lucarelli, Umberto Pagnozzi*
- 15:45 s4.2 Water repellency of wood surfaces by high-speed friction processing  
*Tadashi Ohtani, Ryuichi IIDA, Doppo Matsubara*
- 16:15 **CLOSE DAY 1**
- 17:00 **In-seminar tour**  
Meeting at 16.45 in front of the Basilica della Santissima Annunziata in Piazza della SS. Annunziata, 50122, Florence
- 20:00 **CONFERENCE BANQUET**  
Appointment with Scaramuzzi Team Hostess at 19:45 in front of T2 Tram Stop "MORGAGNI-UNIVERSITA"  
VENUE BANQUET- Associazione Progetto Villa Lorenzi, Via Pietro Grocco, 31, 50139, Florence

- 08:30 **Arrival**
- 08:45 **Session 5 SENSORS AND QUALITY** *Chair Gerhard Sinn*
- 08:45 s5.1 Advances in robotic sanding of wooden parts  
*Alfredo Aguilera, Ricardo Alzugaray, Pablo Sanhueza, Eduardo Diez, Fabián Iglesias*
- 09:00 s5.2 Deep learning approaches for the automation of lathe check detection in wood veneers  
*Caroline Marc, Bertrand Marcon, Louis Denaud, Stéphane Girardon*
- 09:15 s5.3 Systematic and comprehensive quality specification and verification for furniture industry – DIN 919, DIN 68100, VDI 3414, VDI 3415  
*Frieder Scholz, Adrian Riegel, Christian Kortüm*
- 09:30 s5.4 Evaluation of the capability of poly-articulated robots for wood machining and identification of parameters correlated with surface quality in robotic wood machining  
*Linda Nasri, Rémi Curti, Pierre Larricq, Florent Eyma*
- 09:45 s5.5 Influence of pinewood moisture swelling and shrinkage on robotic montage susceptibility  
*Maciej Sydor, Anna Jasińska, Wojciech Turbański*
- 10:00 s5.6 Simulation of internal defect detection in logs scanned with a tilted X-ray imager  
*Jakub Sandak, Piotr Taube, Daniel Chuchala, Kazimierz Orłowski*
- 10:15 s5.7 Embedded sensors in wood cutting tools State of Art and future developments  
*Abdou Djouadi*
- 10:30–11:05 **Coffee break**
- 11:10 **Session 5 SENSORS AND QUALITY (continuation)** *Chair Gerhard Sinn*
- 11:10 s5.8 Optimization of knots assessment using laser scattering for predicting beech mechanical properties  
*Michela Nocetti, Giovanni Aminti, Martin Bacher, Nicola Conforto, Michele Brunetti*
- 11:25 s5.9 EDGE-o-SCOPE System for real-time assessment of laminated particleboard edge quality  
*Bartosz Paubicki, Grzegorz Kowaluk, Martino Negri, Jakub Sandak*
- 11:45 **Lecture and Keynote SESSION** *Chair Paola Mazzanti*
- 11:45 **Lecture**  
Critical Speed Design of Circular Saws *Gary Schajer*
- 12:15 **Keynote 6**  
Driving Digital Servitization Forward *Alessandra Benedetti*
- 12:40–13:25 **Lunch**
- 13:30 **Session 6 PROCESS OPTIMIZATION** *Chair Alfredo Aguilera*
- 13:30 s6.1 Efficient timber construction production: process integration and cyber-physical systems for batch size one manufacturing  
*Stefan Andreas Böhm, Daniel Schulz, Sebastian Bitzan, Lucas Heider, Lars Jonas, Fabian Riß*





# POSTERS



- 13:45 s6.2 Autoencoder-based anomaly detection in wood machining for quality assurance and process monitoring  
**André Jaquemod, Kamil Güzel, Hans-Christian Moehring**
- 14:00 s6.3 Attempts at controlling the size of Japanese cedar chip by adjusting cutting conditions of a disc chipper  
**Yosuke Matsuda, Yukari Matsumura, Takashi Yanagida, Kiyohiko Fujimoto**
- 14:15 s6.4 Steam softening for solid wood bending, focussing on dry, kiln dried or pre-bend lumber  
**Otto Eggert**
- 14:30 s6.5 High volume semi automatized on-site production of sustainable refugee shelters  
**Adrian Riegel**
- 14:45 s6.6 Effect of tool wear and wood species on surface quality and finger-joint performance  
**Julie Cool, Shiqing Li, William Nkeuwa**
- 15:00 s6.7 How digital printing technology can optimize the wood-based element finishing process  
**Lorenzo Melloni**
- 15:15 s6.8 A case study on acoustic anomaly detection for a wood planing machine dataset  
**Anthony Deschênes, Rémi Georges, Cem Subakan, Michael Morin**
- 15:30-16:05 **Coffee break**
- 16:10 **Session 7 ENVIRONMENTAL AND MARKET ISSUES** *Chair Daniel Chuchala*
- 16:10 s7.1 Assessing the impact of machining processes on industrial wood packaging: an LCA-based approach  
**Giulia Cortina, Giacomo Goli, Viola Arena, Lisa Bernacchi, Massimo Delogu**
- 16:25 s7.2 Influence of wood chip moisture content on the environmental impact of a biomass boiler of a sawmill drying plant in Veneto  
**Annalisa Magnabosco, Martina Boschiero, Michela Zanetti**
- 16:40 s7.3 Wood traceability along the whole value chain: exaggeration or obligation  
**Gianni Picchi, Antonio Ruano, Simon Stegel, Jana Hmeljak, Bengt Sörvik, Mari Selkimäki, Heli Kymäläinen, Blas Mola, Enrico Ursella, Gennaro Azzollini, Johan Ekenstedt, Garret Mullooly, Alejandro Poveda, Silvia Melegari, Ryszard Sandak, Cuauhtli Campos Mijangos, Jakub Sandak**
- 17:00 **Closing remarks and prizes**  
**Giacomo Goli and Gary Schajer**
- 17:15 **END of the scientific part of the conference**

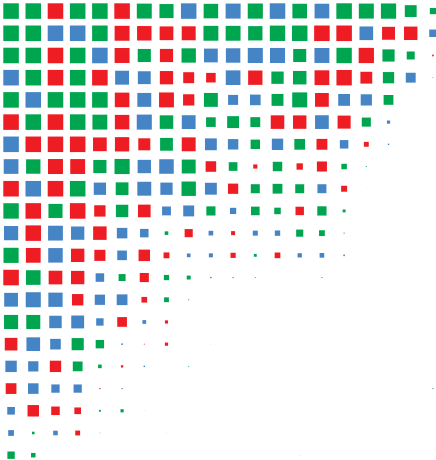
- P1 Shear cutting in fiber direction of several wood species  
**Marcus Herzberg, Christian Korn, Mathias Stirn, Christian Gottlöber, Julius Hausmann, Julius Hausmann**
- P2 Effect of sawing and drying processes on bow and crook of dimension lumber from large-diameter sugi (*Cryptomeria japonica*) logs  
**Yukari Matsumura, Yosuke Matsuda, Kana Yamashita, Erina Kojima, Hideo Kato, Hirofumi Ido, Yuji Ikami**
- P3 Modern feed systems for optimizing cross-cut saws  
**Kazimierz Orłowski, Wojciech Blacharski, Daniel Chuchala, Przemyslaw Dudek, Jakub Sandak, Gerhard Sinn**
- P4 Effects of the lubricant in high-speed friction processing  
**Ryuichi IIDA, Tadashi Ohtani**
- P5 Influence of pre-treatments on the machining processes of softwood and hardwood and evaluation of surface roughness  
**Paola Cetera, Jarno Bontadi, Mario Marra, Martino Negri**
- P6 Effect of wood properties on warp of lumber sawn from large-diameter sugi (*Cryptomeria japonica*) logs  
**Kana Yamashita, Yukari Matsumura, Yosuke Matsuda, Miyuki Matsuo-Ueda, Masato Yoshida, Hiroyuki Yamamoto**
- P7 Effect of Wood Surface Brushing on Delamination Resistance of Glue-Laminated Timber  
**Drago Pregl, Tomaz Petrun, Ambrož Ahec, Edit Földvári-Nagy, Ryszard Sandak, Andreja Kutnar, Jakub Sandak**
- P8 Comparison of the cutting-Edge Wear in Wood Peeling Between Nitrided and Standard Compound Alloy Knives  
**Haithem NCIBI, Hugo Curial, Alaa Albayda, Philippe Jacquet, Alexis Vaucheret, Louis Denaud, Bertrand Marcon, Joffrey Viguier**
- P9 Early wood quality assessment for a better use of the forest resource. The DigiMedFor project  
**Michela Nocetti, Giovanni Aminti, Michele Brunetti, Giovanni Fontani, Simo Kivimäki, Timo Rouvinen, Luigi Saulino**

**The conference will continue with a post seminar tour on April 16 and 17 only for the one who booked in advance.**

Departure on 16th April 2025 at 7:40 from Piazzale Montelungo, 50129, Florence.

Return to the same place on 17th April 2025 at dinner time.





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