

Table of Contents

Session 1: Fundamentals and Characterisation

KEYNOTE: Probing the structure of particulate wood composites using X-ray micro-computed tomography <i>P.D. Evans, O. Morrison, H. Averdunk, M. Turner, A. Limaye, C.H. Arns, V. Lube, S. Vollmer, R. Roberts, A. Kingston, M. Knackstedt and T.J. Senden</i>	3
Effects of refining parameters on fibre quality measured by FibreCube <i>M. Ohlmeyer, S. Helder, J.T. Benthien and B. Seppke</i>	17
Surface characterization of particleboard panels manufactured from Eastern redcedar using a multi-sensor approach <i>J. Sandak, A. Sandak, S. Hiziroglu and S. Bosak</i>	27

Session 2: Resins and Additives

Green glue – biomass based formaldehyde-free bio-resin for wood panel processes <i>Xiaobin Zhao</i>	41
Starboard TM : MDF derived from starch <i>A.P. Abbott, W.R. Wise, S.J. Davis and L.A. Wright</i>	51
Characteristics of urea-formaldehyde resins with low formaldehyde/urea mole ratio <i>B.-D. Park, A. Nuryawan, V. Causin and M.-K. Hong</i>	59
Performance of a water-based fire retardant in wood-based panels <i>A.C.S. Hastrup, D. Jones, M. Lawther, P. Fynholm and P. Fælled</i>	71

Session 3: Feedstocks, Recycling and Waste Materials

MDF: Closed-loop recycling – enhancing supply chain value <i>Craig Bartlett</i>	83
Extracting high value products from waste MDF <i>L. Couret, M. Irle, C. Belloncle, and B. Cathala</i>	89
Partial liquefaction as a method for remediation of recovered wood <i>S. Medved, M. Irle, D. Kržišnik and M. Humar</i>	97
Impact of blue stain infected spruce wood on particleboard properties <i>Martin Weigl and Sergej Medved</i>	105
Development of medium and low density fibreboards made of milled coconut husk and bound with formaldehyde free tannin-based adhesive <i>J.F.dV.M. Niro, M. Kyriazopoulos, S. Bianchi, D.A. Eusebio, J.R. Arboleda, M.M. Lanuzo and F. Pichelin</i>	115
Potential of granulated maize cobs as substitute for particleboard production <i>M. Riegler, M. Müller, C. Hansmann and U. Müller</i>	127

Session 4: Durability and Performance

KEYNOTE: The environmental impact of wood compared to other building materials – the impact of European Standard EN 15804 <i>Callum Hill</i>	133
Reducing the thickness swelling of wood composites by creating a 3-dimensional adhesive network <i>Wenchang He and Philip D. Evans</i>	143
Thermo-hydro treated (THT) birch plywood with improved service properties <i>J. Grinins, B. Andersons, I. Irbe, I. Andersone, A. Meija-Feldmane A. Janberga G. Pavlovics and E. Sansonetti</i>	153
Biological performance of post-treated wood-based composites under protected above ground conditions <i>Cihat Tascioglu, Tsuyoshi Yoshimura and Kunio Tsunoda</i>	165
The sorption of volatile organic compounds (VOCs) by modified MDF panels and the effects on mould colonisation and growth <i>Bronia Stefanowski, Simon Curling and Graham Ormondroyd</i>	175
Investigating plywood behaviour in outdoor conditions <i>W. Li, J. Van den Bulke, I. De Windt, J. Dhaene, D. Mannes, E. Lehmann and J. Van Acker</i>	185
Experimental characterization of wood heterogeneities with the grid method. Application to a European species: White fir of Massif Central <i>D. Dang, R. Moutou Pitti, E. Toussaint and M. Grédias</i>	193

Session 5: Bio-based Building Materials: COST Action FP1303

Performance of bio-based building materials – viewpoints from the first year of COST Action FP1303 <i>Dennis Jones</i>	201
From model rooms towards a modelled indoor environment <i>D. Stratev, C. Fürhapper, S. Niedermayer, E. Habla, M. Nohava, M. Flach, W. Beikircher, P. Zingerle and Martin Weigl</i>	211
Formaldehyde and total volatile organic compound emission (TVOC) in wooden model house <i>Sergej Medved, Boštjan Lesar and Miha Humar</i>	221
Emissions and sensory testing of straw and non-wood fibre based panels <i>H.B. Klinke, A.C.S. Hastrup, P. Fynholm and M. Lawther</i>	231
Durability of Maderon®, a non-wood composite, against wood decay organisms <i>T. Troya, F. Llinares, J. Galván, J.I. Fernández-Golfin and R. Díaz</i>	237
Wood plastic composites made with thermally modified birch wood residues <i>E. Kuka, D. Cirule, J. Kajaks, I. Andersone and B. Andersons</i>	241
Process analysis using multivariate regression models exemplified by WPC processing with a single screw extruder <i>S. Himmel, M. Poszvek, M. Riegler and E. Sykacek</i>	253

Poster Session

Influence of hemp shives on mechanical properties of particleboard's core layer <i>Martin Riegler, Marcus Müller and Ulrich Müller</i>	261
Integrating optical measurement and modelling for quantitative analysis of the micromechanical load transfer in the wood-adhesive bond interphase <i>M. Schwarzkopf, L. Muszynski, J. Paris, F. Kamke and J. Nairn</i>	265
Shive and hurd residue as alternate fibre source for particleboard production <i>Solace Sam-Brew</i>	269
Determination of correlation between destructive and non-destructive testing methods applied on plywood <i>K. Arnetová, E. Oberhofnerová, T. Holeček and J. Bomba</i>	273
Influence of modified cellulose nanofibers on self assembled multi-layer fiberboard <i>E. Robles, E. Czubak, L. Serrano, G. Kowaluk and J. Labidi</i>	277
Breathaboard – from product concept to commercialisation <i>Alberto Fernandez Minguela, Tom Robinson and Ceri Loxton</i>	281
Absorption of formaldehyde by different wool types <i>Elie Mansour, Simon Curling and Graham Ormondroyd</i>	285
Material naturalness and restorative environments in the built environment <i>Michael Burnard and Andreja Kutnar</i>	289
Biobased and bioinspired materials for a modern building design – a research perspective <i>R.T. Durai Prabhakaran, S. Curling, G. Ormondroyd and M.J. Spear</i>	293
InnoRenew CoE – renewable materials and healthy environments research and innovation centre of excellence <i>M. Burnard A. Simmons, M. Schwarzkopf, Č. Taves and Andreja Kutnar</i>	297
COST Action FP1404 Fire safe use of bio-based building products <i>W. Beikircher, J. Schmid, M. Fragiacomo and D. Jones</i>	301
COST Action FP1407 – Understanding wood modification through an integrated scientific and environmental impact approach <i>Andreja Kutnar and Dennis Jones</i>	305