

COST Action FP1407 3rd Conference:
"Wood modification research and applications"
*co-organized with Society of Wood Science and Technology &
the European Conference of Wood modification*

Conference Program

Wednesday, September 13th, 2017

18:00-21:00: Welcome evening. "Drinks and Blues", with live music featuring Doug Gardner and Rupert Wimmer

Thursday, September 14th, 2017

8:30: Registration

9:00-9:05 : Welcome to Kuchl : A. Petutschnigg & G. Tondi

9:05-9:10: Welcome from COST action chair: A. Kutnar

9:10-9:15: Welcome from the ECWM chair: H. Miltz

| Keynote session | | Chairs: A. Kutnar, R. Wimmer |
|------------------------|--------------------------------------------------------------------------------------------|------------------------------|
| 9:15 | New strategies for modifying wood with biopolymers | W. Grigsby |
| 9:45 | Advanced analysis tools and programs to accelerate the adoption of more natural structures | C. G. Hunt |
| 10:15 | Presentation of SWST and its presence in Europe | V. L. Herian |
| 10:30 | Presentation of "ForestValue" | M. Greimel |

10:45-11:15: Coffee break

| ECWM Session: Novel wood modification technologies | | H.Miltz, I.Burawska |
|-----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
| 11:15 | Effects of methyl methacrylate impregnation on physical properties of timber | S. Curling, M. Spear, R. Gibson, G. Ormondroyd |
| 11:28 | Catalytically induced <i>in situ</i> polymerisation of ethylene in the hierarchical porous wood structure | J. Gurr, G.A. Luinstra, A. Krause |
| | Modified wood with lactic acid oligomers: Assessment of | C. Grosse, M.Noël, |

| | | |
|-------|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| 11:40 | performance | MF. Thévenon, P.Gérardin |
| 11:53 | Improvement of beech wood properties through chemical modification with bio-sourced polyesters | C. L'Hostis, E. Fredon , MF. Thévenon, P. Gérardin |
| 12:05 | Laminated veneer lumber (LVL) made of beech wood veneers modified with lignin-phenol formaldehyde solutions | M. Fleckenstein , V. Biziks, C. Mai, H. Militz |
| 12:18 | Ionic liquid pre-treatment to reduce the elastic spring-back and set-recovery of surface densified Scots pine | B. Neyses , D. Sandberg |
| 12:30 | Humidity optimization considerations for thermal wood modification | W. Willems |

12:45-14:15 : Lunch break

| Session 2 : Characterisation of modified wood. | | J.Sandak, A.Rozanska |
|-------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 14:15 | Exploration of hypothesis that limitation of fungal oxidant diffusion underlies decay resistance in acetylated wood | C. Hunt , S. Lacher, K. Hirth, L. Lorenz, K.Hammel, C.Houtman, E. Englund Thybring, S. Zelinka, C. Frihart, L. Lorenz, D. Yelle, C. Gleber, S. Vogt, J. Jakes |
| 14:23 | Dimensional stable and durable laminated veneer lumber (lvl) from european beech (fagus sylvatica) by impregnation with low molecular weight phenolic resin | S. Bicke , V. Biziks, H. Militz |
| 14:40 | Fixing tannin in wood: Characterization of the treated wood | L. Sommerauer, D. Bartosch, R. Waschak, A. Oberle, MF. Thevenon, G. Tondi |
| 14:53 | Assessment of chemical fingerprint of modified wood | J. Sandak , A. Sandak, O. Allegretti, I. Cuccui |
| 15:05 | Wood modification method efficiency evaluation by cyclic hydrothermal treatment | A. Morozovs , A. Keke, L. Fišere, U. Spulle |
| 15:18 | Machinability of thermally modified wood assessed with a new objective method | G. Goli , J. Sandak, A. Sandak, P. Cetera, L. Todaro |
| 15:30 | Microscopic investigation of acetylated hornbeam and densified beech | R. Rousek , F. Fodor |

15:45-16:15 : Coffee break

Session 3 : Innovative use of wood modification processes. L. Ross Gobakken, W.Grigsby

| | | |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| 16:15 | Modification of the particleboard core layer by non-wood lignocellulosic raw materials | R. Réh |
| 16:28 | The use of novel modified wood fiber for manufacturing structural wood plastic composite timber for an innovative marine application | D. J. Gardner, Y. Han, D. Mayes, J. Pynnonen, S. Ruell |
| 16:40 | Sawdust-based activated carbon for wastewater treatment from textile industry | B. Bestani, N. Benderdouche |
| 16:53 | Sustainable use of eucalyptus globulus residues for polyurethane foam production | A.P. Fernandes, J. Ferreira, I. Domingos, J. Labidi, L. Cruz- Lopes, B. Esteves |
| 17:05 | Mechanochemo modification of cellulose powders | M. Wolcott, M. Azadfar, L.Huang, J. Wang |
| 17:18 | Using pre-stressed or non-pre-stressed curved members of concentrically composited laminated timber in structures of non-controllable environment | T. Teppand |

17:30 Close of the first day

17:30-19:00: Core group meeting

19:00 Bus transfer to dinner from Campus Kuchl to Sternbräu (Griesgasse 23), in Salzburg centre

19:30 Conference dinner

Friday, September 15th, 2017

| Short term scientific mission session. | | M. Schwarzkopf |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| 9:00 | Micro-distribution of epoxidized oils in wood | G. Kose Demirel, A. Temiz, E. D. Gezer |
| 9:07 | Enhancement of coatings for wooden claddings via plasma pre-treatment and environmental impact | J. Žigon, M. Petrič, S. Dahle |
| 9:15 | Understanding of the effect of natural saltwater treatment on durability, fibers densification and chemical modification of palm wood | M. T. Elaieb, A.Namsi, K. Candelier |

| | | |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| 9:22 | The effect of wood drying and heat modification on some physical and mechanical properties of Radiata pine (results from STSM 35419) | R. Herrera , J. Labidi, R. Llano-Ponte, R. Ananias |
| 9:30 | Approach for cascading - Analysis of the application potential of different tree materials with antimicrobial properties | K. Wagner , C. Roth, G. Oosting, M. Musso, A. Petutschnigg, T. Schnabel |
| 9:37 | Analysis of fracture toughness in Mode II on modified wood | M. Redon , V. Sebera, M. Brabec, D. Decky, P. Čermák, J. Milch, J. Tippner |
| 9:45 | Environmental profiles of alternative tannin extraction scenarios | T. Ding, S. Bianchi, C. Ganne-Chédeville, P. Kilpeläinen, A. Haapala, T. Rätty |
| 9:52 | Review of biogenic carbon in carbon footprint of modified wood | L.G.F. Tellnes , C. Ganne-Chédeville, A. Dias, F. Dolezal, C. Hill, E. Zea Escamilla |
| 10:00 | Advanced understanding of the structural influences of bio-based lignocellulosic materials - Future industrial applications in high added value wood modification products | G. Schmidt , J. Gurr, O. Mertens, M. Nopens |

| Poster Session | | D. Sandberg/ L. Tellnes |
|-----------------------|------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| 10:10 | Thermo-mechanical treatment of flooring elements | I. Burawska , P. Boruszewski |
| 10:12 | Improvement of wood heat treatment via an acoustic field | E. A. Silveira , A. Pétrissans, A. Caldeira - Pires, M. V. Girão, B. Colin, P. Rousset, M. Pétrissans |
| 10:14 | Surface modification of solid wood by charring | M. Kymäläinen , S. Hautamäki, K. Lillqvist, K. Segerholm, L. Rautkari |
| 10:16 | Development of UV - colour modification of wood surface | P. Daniel , V. Kotradyová, R. Tiňo, V. Dvonka |
| 10:18 | Wood modification by alkali-activated composition coatings | D. Vaičiukynienė , R. |

| | | |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| | for fire protection | Bistrickaitè, A. Kielè |
| 10:20 | Wood modification with n-methylol compounds - effects of modification agent and process conditions | L. Emmerich, S. Bollmus, H. Militz |
| 10:22 | Prediction of mass loss dynamics during wood thermal modification under industrial conditions | B-J. Lin, E. Silveira, B. Colin, A. Pétrissans, W-H. Chen, P. Rousset, M. Pétrissans |
| 10:24 | Mechanical properties of densified and thermally modified timber | J. Wehsener, C. Brischke, L. Meyer-Veltrup, P. Haller |
| 10:26 | The ability to layered wood composites pressing time modification | A. Gumowska, G. Kowaluk, E. Robles |
| 10:28 | Investigation of periodical effect on modified woods outdoor colour change | M. Bak, R. Németh |
| 10:30 | Nanoscale mechanical properties of wood: effects of heat treatment | S. Saleh, M. Wentzel, H. Militz, C. Volkert |
| 10:32 | Color and wettability changes of heat-treated wood finished with UV-rad cured coating after artificial weathering | E. Robles, R. Herrera, J. Sandak, J. Labidi |
| 10:34 | Surface behaviour of poplar and spruce wood after immersion in extractives solution achieved from thermally treated Hungarian oak | P. Cetera, L. Todaro, T. Meints, W. Gindl-Altmatter |
| 10:36 | Studies of the gluability of the pine wood veneers after TM modification with the use of PVAC adhesives | A. Bernaczyk, T. Krystofiak, B. Lis |
| 10:38 | Impact of selected modification systems on elasto-mechanical properties of wood | S. Bollmus, C. Leitch, H. Militz |
| 10:40 | Investigation of tropical wood modification under hydro-mechanical loadings with digital image correlation and X-ray microtomography | R. Moutou Pitti, S-E. Hamdi, B. Odounga, M. C. Teguedi |
| 10:42 | Acoustic emission technique to monitor real-time wood fracture properties in room temperature | M. Diakhate, R. Moutou Pitti, N. Angellier, E. Bastidas-Arteaga, S.-E. Hamdi |
| 10:44 | Performance of 3-layer composites with densified surface layers of Nothofagus species of Southern Patagonian forests | M. Schwarzkopf, M. Burnard, G. Martínez Pastur, L. Monelos, A. Kutnar |
| 10:46 | The activity of moulds on wood surfaces modified with laser | L. Reinprecht, Z. Vidholdová |
| 10:48 | Do extractive compounds of thermally modified woods play an important role in the decay and termites resistances of these modified materials? A preliminary study. | K. Candelier, MF. Thévenon, R. Collet, P. Gérardin, S. Dumarçay |
| 10:50 | In-situ SEM / TEM fracture tests on (modified) tracheids of pine latewood | M-C. Maaß, M. Wentzel, H. Militz, C. Volkert ¹ |
| 10:52 | Traditional wood finishing substances and their influence on | A. Rozanska, |

| | | |
|-------|-------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| | surface roughness | P. Kieblesz |
| 10:54 | Biobased phenolic resins for wood protection against fire | P.L. de Hoyos Martínez , F. Charrier El-Bouhtoury, J. Labidi |
| 10:56 | The activity of bacteria on surfaces of wooden composites painted with acrylate coating with addition of silver nanoparticles | J. Iždinský , L. Reinprecht, E. Nosál', Z. Vidholdová, J. Krokošová |
| 10:58 | Hydrophobicity of ϵ -caprolactone-modified wood materials | Z. Candan , M. Yildirim, A. Satir, M. A. Ermeýdan, O. Gonultas |
| 11:00 | Structural evaluation of water based polyurethane impregnated wood and its resistance to white rot fungi | M-C. Popescu , C-M. Popescu ¹ |
| 11:02 | Natural adhesives from liquefied wood based resins and their applications | M. H. Alma , T. Salan |
| 11:04 | Bio-based foams from renewable and sustainable polyols obtained via liquefaction of wood and other lignocellulosics | T. Salan , M. H. Alma |
| 11:06 | Analysis on the quality of vegetable charcoal derived from Sapucaia's endocarp (<i>Iecythis pisonis</i>) | R.S. de Araújo , W.S. L. da Costa, T. dos Santos Farias, A. R. Souza Reis, S.H.F. da Silva, P. S. B. dos Santos |
| 11:08 | Spectroscopic characterisation of bio-based filaments for the fused deposition modeling proceeding | S. Kain , M. Musso, A. Petutschnigg |

11:10-11:50 : Coffee break

| Session 4 : Modified wood in sustainable built environment C. Hill, F. Dolezal | | |
|-------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 11:50 | Common themes in wood modification and environmental impact assessment of wood | M. Burnard , M. Posavčević, E. Kegel ³ |
| 12:03 | Carbon sequestration in the built environment - the role of harvested wood products | C. Hill |
| 12:15 | Comparative assessment of carbon uptake and release of wooden and concrete building materials | F. Dolezal , P. Boogman |
| 12:27 | Performance of thermally modified radiata pine facade, gallery and decking in a passive house in Spain after six years exposure. Research and applications in a real case. | D. Lorenzo , A. Lozano, J. Benito, M. Touza, J. Fernández-Golfín ⁵ |
| 12:40 | Architects' perception of modified wood: a parallel study in selected countries in Europe and selected regions in USA | M. Kitek Kuzman , E. Haviarov, D. Sandberg |

12:55-14:00 : Lunch

14:00- 15:00: Working group meeting (WG1, WG2, WG3, WG4)

15:00- 15:15: Reports of WG leaders and conference conclusions

15:15- 15:45: Coffee break

15:45- 17:00 Management committee meeting