

## Europass curriculum vitae



### Personal information

Surname / names

**Sandak Jakub Michal**

Address

Via Lovernatico 94, 38010 Sporminore (TN), ITALY

Telephone

+390461655556

Mobile: +393355807124

Fax

+390461650045

E-mail

sandak@ivalsa.cnr.it

Nationality

Polish

Date of birth

March 15, 1974

Gender

Male

### Work experience

Dates

2014 – data

Occupation or position held

Project SLOPE WP4 leader

Name and address of employer

Italian Trees and Timber Research Institute IVALSACNR, San Michele, Italy

Dates

2010 – 2014

Occupation or position held

Project SWORFISH coordinator

Name and address of employer

Italian Trees and Timber Research Institute IVALSACNR, San Michele, Italy

Dates

2007 – data

Occupation or position held

Researcher

Name and address of employer

Italian Trees and Timber Research Institute IVALSACNR, San Michele, Italy

Dates

2008 – 2008

Occupation or position held

Visiting scientist

Name and address of employer

FPIinnovations/Forintek, Vancouver, Canada

Dates

2007 – 2007

Occupation or position held

Research assistant

Name and address of employer

Dept. Materials Engineering, Faculty of Engineering, University of Trento, Italy

Dates

2004 – 2007

Occupation or position held

Post-Doc fellow

Name and address of employer

Italian Trees and Timber Research Institute IVALSACNR, San Michele, Italy

Dates

2002 – 2004

Occupation or position held

English teaching collaborator

Name and address of employer

Tsuda primary school, Matsue, Japan

Dates 2002 – 2003  
Occupation or position held reporter  
Name and address of employer MABLE cable TV, Matsue, Japan

Dates 2001 – 2002  
Occupation or position held research collaborator  
Name and address of employer Kohoku Veneer Co., LTD, Yonago, Japan

Dates 1997 – 1998  
Occupation or position held research assistant  
Name and address of employer Agricultural University of Poznan, Poland

### Education and training

Dates 2001 - 2004  
Title of qualification awarded Doctor of Philosophy  
Name and type of organisation providing education and training United Graduated School of Agricultural Sciences, Tottori, Shimane and Yamaguchi Universities, Japan

Dates 1998 – 2001  
Title of qualification awarded Master of Natural Resources Process Engineering  
Name and type of organisation providing education and training Shimane University, Japan

Dates 1994 – 1998  
Title of qualification awarded Accomplished four of five years of the Master Course in Wood Technology  
Name and type of organisation providing education and training Agricultural University of Poznan, Poland

Dates 1989 – 1994  
Title of qualification awarded Technician of wood technology, speciality furniture making  
Name and type of organisation providing education and training Technical College in Starogard Gdanski, Poland

Dates 2007 – 2007  
Title of qualification awarded Short Term Scientific Mission of COST E35  
Name and type of organisation providing education and training BOKU University, Vienna, Austria

### Personal skills and competences

Mother tongue Polish

Other languages

English

Japanese

Italian

Russian

Understanding		Speaking		Writing
Listening	Reading	Spoken interaction	Spoken production	
fluent	fluent	fluent	fluent	fluent
fluent	elementary	intermediate	intermediate	elementary
intermediate	intermediate	intermediate	intermediate	intermediate
fluent	fluent	intermediate	intermediate	intermediate

Social skills and competences

President of SUIISA (Shimane University International Students and Researchers Association); 2000 – 2001

Organisational skills and competences	organizer of a Student's Scientific Club at Agricultural University of Poznan, Poland; 1995 – 1998 scientific coordinator of several research projects group leader
Technical skills and competences	Multi-sensor evaluation of wood properties Expert systems dedicated for wood machining process control and monitoring Vision systems in the wood industry Characterization of the wood surface Physics of the wood cutting Wood mechanics and fracture Spectroscopy and chemometry, hyperspectral imaging Numerical modelling of wood at different scales
Computer skills and competences	Programming skills: LabView, Matlab, Visual Basic, Unscrambler
Artistic skills and competences	member of the brass band in Mezzocorona; 2006 – date play trumpet and classical guitar, accomplished four year dedicated course; 1985 – date
Professional membership	Member of International Wood Machining Seminar International Advisory Committee; since 2015 Italian Society of Near Infrared Spectroscopy; since 2012 COST E35, WG member COST E40, WG leader COST FP0904, MC member COST FP1006 SC member, WG vice-leader COST FP1101 WG member COST FP1303 MC member
Bibliographic databases	ORCID: 0000-0001-9190-677X Research ID: L-1865-2013

### Research projects

2004-2007 Post doc project "3D evaluation of the wood surface smoothness" financed by Autonomous Province of Trento. 160k€, Scientific responsible

2008-2009 Project LUDI: with collaboration with wood industry Consorzio Ludi, CORMO Società Cooperativa, Co-executor

2008-2009 project SOFIE 2: "Research for sustainable construction, manufacturing and wood characteristics of Trentino region", funded by Autonomous Province of Trento. Main contractor of sub-project B2: "Novel wooden connectors".

2009-2010 Project "Biqueen: Biomasses Quality for efficient energy production: Wooden biomasses origin, solid and volatile pollutants, efficient combustion for energy production". Project funded by Fondazione Cassa di Risparmio di Trento e Rovereto Main contractor of sub-project: "Wood biomass provenance", Co-executor

2009-2011 Project ISPM-15NIR: "Verification of wood heat treatment according to ISPM-15 by FT-NIR" founded by Consorzio Servizi Legno-Sughero. 50k€, Project co-leader

2010-2014 SWORFISH: Superb Wood Surface Finishing. Team project 2009 incoming (CALL 2) Trentino—PCOFUND-GA-2008-226070 co-financed by Autonomous Province of Trento. 425k€, Scientific responsible

2011-2012 BISYPLAN – The Bioenergy System Planners Handbook. Co-executor of part related to ligno-cellulosic biomass. Project INTERREG IVC Regional Initiative "BIO-EN-AREA" founded by European Union. 35k€, Scientific responsible

2014-data collaboration within SLOPE: Integrated processing and control systems for sustainable forest Production in mountain areas. FP7-NMP-2013-SME-7, 5.2M€, Responsible for Working Package 4

### Teaching experiences

2002 – 2004 English teaching collaborator, Tsuda primary school, Matsue, Japan

2004 – 2014 occasional focused courses on trees and wood technology at primary and secondary schools

2007 – 2014 occasional supervision of Short Term Scientific Missions within COST Actions FP0806, FP1006,

2007 – 2014 courses related to wood technology on Training Schools within COST Actions E35 and E40

2010 – 2015 courses related to applications of near infrared spectroscopy in wood science and technology

16-17 June 2011 Processing of thermally treated wood. Presented on Workshop L'essiccazione del legno, Il legno termicamente modificato, San Michele all Adige, Italy

20-24 June 2011 Characterization of wood structures by selected NDT. Course for Doctoral School in Engineering of Civil and Mechanical Structural Systems, University of Trento, Italy

19-20 March 2011 BISIPLAN Una guida per la corretta applicazione della bioenergia. DOMO 2011 - Edilizia, Risparmio energetico, nuove tecnologie, Trento, Italy

## Awards

Rector of Agricultural University award for the outstanding students AU of Poznan, Poland, 1996 and 1997

1st place on 39 FK SVOC Technical University of Zvolen, Slovakia, 1998

2nd place on 20 International Conference of Students and Young Researchers, Technical University of Zielona Gora, Poland, 1998

Best poster award (2<sup>nd</sup> place), Anna Sandak, Jakub Sandak, Martino Negri (2012) Studies on chemical composition of spruce wood in relation to its geographical origin by selected non-destructive methods. IUFRO All Division 5 Conference, Lisbon, Portugal, 8-13 July 2012

Best poster award (3<sup>rd</sup> place), Anna Sandak, Jakub Sandak, Ottaviano Allegretti, Silvia Ferrari, Dusan Pauliny (2013) Assessment of thermal behavior of wood with FT-NIR. 16th International Conference on Near Infrared Spectroscopy (ICNIRS 2013) La Grande-Motte, France, 2 - 7 June 2013

## List of publications

Scientific peer-reviewed journals:

1. Sandak Jakub, Tanaka Chiaki (2003) On-line adaptive control of band-saw feed speed using a fuzzy-neural system, Forest Products Journal ISSN: 00157473, 53(6):36-43
2. Sandak Jakub, Tanaka Chiaki (2003) Evaluation of surface smoothness by Laser Displacement Sensor. Part 1; Effect of wood species, Journal of Wood Science ISSN: 1435-0211, 49(4):305-311
3. Sandak Jakub, Tanaka Chiaki, Ohtani Tadashi (2004) Evaluation of Surface Smoothness by a Laser Displacement Sensor II: Comparison of Lateral Effect Photodiode and Multielement Array, Journal of Wood Science ISSN: 1435-0211, 50(1):22-27
4. Sandak Jakub, Moriyama, Ohtani Tadashi, Tanaka Chiaki (2004) The Possibility of Automatic Defect Detection of Plywoods Using Scanning and Image Processing Techniques, Memories of Faculty of Science and Engineering, Shimane University, ISSN: 1342-7121, Series A, vol. 38, December 2004,
5. Sandak Jakub, Tanaka Chiaki (2005) Evaluation of Surface Smoothness Using a Light-Sectioning Shadow Scanner, Journal of Wood Science, ISSN: 1435-0211, 51(3):270-273
6. Porankiewicz Boleslaw, Sandak Jakub, Tanaka Chiaki (2005) Factors Influencing Steel Tool Wear When Milling Wood, Wood Science and Technology, ISSN: 0043-7719, 39:225-234
7. Orłowski Kazimierz, Sandak Jakub (2005) Dimensional accuracy and roughness of lamellas when sawing frozen wood. Annals of Warsaw Agricultural University: Forestry and Wood Technology ISSN: 1898-5912, 57: 114-118
8. Porankiewicz Boleslaw, Iskra Piotr, Sandak Jakub, Tanaka Chiaki, Jozwiak Karol (2006) High-speed steel tool wear during wood cutting in the presence of high-temperature corrosion and mineral contamination Wood Science and Technology ISSN: 0043-7719, 40(8):673-682
9. Tanaka Chiaki, Okai Reynolds, Iwasaki Yoshihiro, Sandak Jakub, Ohtani Tadashi, Hu Chuanshuang, Iskra Piotr, Xuequn Lao (2006) Development of a new technology for bandsawing using a tip-inserted saw. Part I. Consideration of cutting tool hardness, tool wear, and accuracy of kerf width, Forest Products Journal ISSN: 00157473, 56(2):51-57
10. Sandak Jakub, Orłowski Kazimierz, Negri Martino, Tanaka Chiaki (2006) Thickness Monitoring of Thin Lamellae by Optical Measurement Method, Forest Products Journal ISSN: 0015747356, (3):36-40
11. Orłowski Kazimierz, Sandak Jakub, Dzurenda Ladislav (2006) The effect of the wood temperature upon the specific cutting resistance during machining with narrow-kerf saws, Annals of Warsaw Agricultural University – SGGW, Forestry and Wood Technology, ISSN: 1898-5912, 59, 151-155
12. Orłowski Kazimierz, Sandak Jakub Tanaka Chiaki (2007) The critical rotational speed of circular saw: simple measurement method and its practical implementations. Journal of Wood Science ISSN: 1435-0211, 53(5):388-393
13. Orłowski Kazimierz, Sandak Jakub Tanaka Chiaki (2007) The critical rotational speed of circular saw: simple measurement method and its practical implementations. Journal of Wood Science ISSN: 1435-0211, 53(5):388-393
14. Kowaluk Grzegorz, Sandak Jakub (2007) Large Dimensioned Timber Problems in COST Action E40 (in Polish), Drewno – Wood, ISSN: 1644-3985, 50(177):165-169
15. Sinn Gerhard, Sandak Jakub, Ramanantoandro Tahiana (2009) Properties of wood surfaces - characterization and measurement. A Review, Holzforschung, ISSN: 0018-3830 63:196–203
16. Vasic Svetlana, Ceccotti Ario, Smith Ian, Sandak Jakub (2009) Deformation Rates Effects in Softwoods: Crack Dynamics with Lattice Fracture Modelling, Engineering Fracture Mechanics ISSN: 0013-7944, 76:1231–1246

17. Orlowski Kazimierz, Sandak Jakub, Negri Martino, Dzurenda Ladislav (2009) Sawing frozen wood with narrow kerf saws: Energy and quality effects, *Forest Products Journal* ISSN: 00157473, 59(3):79–83
18. Ludwiczak-Niewiadomska Lidia, Sandak Jakub, Negri Martino (2009) Strain measurements in OSB using digital image analysis, *Annals of Warsaw Agricultural University – SGGW, Forestry and Wood Technology*, ISSN: 1898-5912, 68
19. Negri Martino, Sandak Jakub, Kowaluk Grzegorz, Palubicki Bartosz (2009) Form and mass changes of composite panels under variable environment humidity, *Drewno-Wood* ISSN: 1644-3985, 52(182):7-15
20. Sandak Anna, Sandak Jakub, Zborowska Magdalena, Pradzynski Wlodzimierz (2010) Near infrared spectroscopy as a tool for archaeological wood characterization. *Journal of Archaeological Science* ISSN: 0305-4403, 37:2093-2101
21. Sandak Jakub, Sandak Anna, Boschetti Andrea, Dimauro Mariano Negri Martino (2010) Proton transfer reaction mass spectrometry approach to monitor monoterpene emission from Aleppo pine (*Pinus halepensis*) woods growing in different locations, *Folia Forestalia Polonica Series B*, ISSN: 0071-6685, 41:3-11
22. Barszcz Anna, Sandak Anna, Sandak Jakub (2010) Size and location of knots in timber from mountain spruce stands in the Dolomites. *Folia Forestalia Polonica Series A – Forestry* ISSN: 0071-6677, 52(1):13-19
23. Barszcz Anna, Sandak Anna, Sandak Jakub (2010) Knottiness of spruce stems from the Dolomites as the basis for distinguishing quality zones in roundwood. *Folia Forestalia Polonica Series A – Forestry* ISSN: 0071-6677, 52(2):89-97
24. Sandak Anna, Sandak Jakub, Negri Martino (2011) Relationship between near-infrared (NIR) spectra and the geographical provenance of timber, *Wood Science and Technology*, ISSN: 0043-7719, 45(1):35–48.
25. Sandak Anna, Modzelewska Izabela, Sandak Jakub (2011) FT-NIR analysis of waste paper with addition of cereal bran biodegraded by Ascomycetes fungi. *Journal of Near Infrared Spectroscopy*, ISSN: 0967-0335, Volume 19(5):369–379
26. Sandak Jakub, Sandak Anna (2011) FT-NIR assessment of biomass composition of shrub willow clones (*Salix* sp.) for optimal bio-conversion process. *Journal of Near Infrared Spectroscopy*, ISSN: 0967-0335, Volume 19(5):309–318
27. Modzelewska Izabela, Sandak Anna, Sandak Jakub, Jaszczur Anna (2011) FT-NIR spectrophotometric analysis of paper made of cellulose sulfate bleached deciduous pulp, with starch and resinous glue additives, subjected to mycological biodegradation. *Acta Scientiarum Polonorum - Silvarum Colendarum Ratio et Industria Lignaria* ISSN: 1644-0722, 10(1):29-36
28. Riggio Mariapaola, Sandak Anna, Sandak Jakub (2012) In-situ assessment of structural timber using selected wave-based NDT methods. 8th International Conference SAHC 2012 (Structural Analysis of Historical Constructions), *Wiadomosci konserwatorskie*, ISBN 978-83-7125-219-8, Wroclaw, Poland, 15-17 October
29. Aknouche Hamid, Goli Giacomo, Marchal Remy, Sandak Jakub, Zerizer Abdellatif, Butaud Jean-Claude (2012) Measuring cutting effort and the surface quality obtained by routing across different wood grain angles: a comparison between Douglas pine and Aleppo pine, *Bois et Forest des tropiques*, ISSN: 0006-579X, 313:85-93
30. Sandak Anna, Ferrari Silvia, Sandak Jakub, Allegretti Ottaviano, Terziev Nasko, Riggio Mariapaola (2013) Monitoring of wood decay by near infrared spectroscopy. *Advanced Material Research. Advanced Materials Research* ISSN: 1022-6680, 778:802-809
31. Sandak Jakub, Sandak Anna, Pauliny Dusan, Krasnoshlyk Victoria, Hagman Olle (2013) Near infrared spectroscopy as a tool for estimation of mechanical stresses in wood. *Advanced Materials Research* ISSN: 1022-6680, 778:448-453
32. Sandak Jakub, Sandak Anna, Riggio Mariapaola, Santoni Ilaria, Pauliny Dusan (2013) The SWORFISH project approach for modelling wood in ancient and prospect timber structures. *Advanced Materials Research* ISSN: 1022-6680, 778:418-423
33. Sandak Jakub, Sandak Anna, Pauliny Dusan, Riggio Mariapaola, Bonfà Sandro, Meglioli Simone (2013) A multi sensor approach for prediction of weathering effects on exposed timber structures. *Advanced Materials Research* ISSN: 1022-6680, 778:794-801
34. Riggio Mariapaola, Pauliny Dusan, Sandak Jakub, Sandak Anna (2013) Novel nail-like wood connectors. *Advanced Materials Research* ISSN: 1022-6680, 778:647-654
35. Sandak Anna, Riggio Mariapaola, Sandak Jakub (2013) Non destructive characterization of wooden members using near infrared spectroscopy. *Advanced Materials Research* ISSN: 1022-6680, 778:328-334
36. Anders Boguslaw, Rozanska Anna, Jankowska Agnieszka, Sandak Jakub (2013) Influence of Fungi on the State of Preservation and on the Usage Prospects of Antique Wooden Floor from Manor Houses in South-Eastern Poland, *Advanced Materials Research* ISSN: 1022-6680, 778: 810-817
37. Chuchala Daniel, Orlowski Kazimierz, Sandak Anna, Sandak Jakub (2013) The differential impact of a density of Polish pine wood on cutting forces with its origin region taken into consideration. *Ann. WULS-SGGW, Forestry and Wood Technology*, ISSN: 1898-5912, 82:122-126, presented on XXVII International Scientific Conference XXVII, Wood – Material of the XXI-st Century, Rogów, November 19-20, Poland
38. Sandak Anna, Sandak Jakub, Waliszewska Boguslawa, Zborowska Magdalena, Grzelak Mieczyslaw (2013) Selected properties of alternative lignocelluloses materials characterized with FT-NIR. *Ann. WULS-SGGW, Forestry and Wood Technology*, ISSN: 1898-5912, 84:142-147, presented on International Scientific Conference XXVII, Wood – Material of the XXI-st Century, Rogów, November 19-20, Poland
39. Sandak Anna, Sandak Jakub, Babinski Leszek, Pauliny Dusan, Riggio Mariapaola (2014) Spectral analysis of changes to pine and oak wood natural polymers after short-term waterlogging. *Polymer Degradation and Stability*, ISSN: 0141-3910, 99:68-79.
40. Girardi Fabrizio, Cappelletto Elisa, Sandak Jakub, Tessadri Barbara, Bochicchio Giovanna, Palanti Sabrina, Feci Elisabetta, Di Maggio Rosa (2014) Hybrid organic-inorganic materials as coatings for protecting wood. *Progress in Organic Coatings*, ISSN: 0300-9440, 77(2):449-457
41. Riggio Mariapaola, Sandak Jakub, Sandak Anna, Pauliny Dusan, Babinski Leszek, 2014, Analysis and prediction of selected mechanical/dynamic properties of wood after short and long-term waterlogging. *Construction and Building Materials* 68, 444-454
42. Chuchala Daniel, Orlowski Kazimierz, Sandak Anna, Sandak Jakub, Pauliny Dusan, Barański Jacek (2014) The Effect of Wood Provenance and Density on Cutting Forces While Sawing Scots Pine (*Pinus sylvestris* L.). *BioResources* 9 (3), 5349-5361
43. Palubicki Bartosz, Szulc Michal, Sandak Jakub, Sinn Gerhard, Orlowski Kazimierz (2014) A Method and Device for 3D Recognition of Cutting Edge Micro Geometry, *Drvna Industrija* 65(1):11-19, DOI: 10.5552/drind.2014.1255

44. Sandak Anna, Rozanska Anna, Sandak Jakub, Mariapaola Riggio (2015) Near infrared spectroscopic studies on coatings of 19th century wooden parquets from manor houses in South-Eastern Poland. *Journal of Cultural Heritage* (DOI: 10.1016/j.culher.2014.09.009).
45. Sandak Anna, Jaszczur Anna, Sandak Jakub, Modzelewska Izabela (2015) Near infrared assessment of biodegradability and mechanical properties of paper made of cellulose sulphate bleached coniferous pulp with addition of cationic starch and resinous adhesive. *International Biodeterioration & Biodegradation* 97: 31-39 (DOI: 10.1016/j.ibiod.2014.09.019).
46. Sandak Jakub, Sandak Anna, Cantini Claudio, Autino Antonella (2015) Differences in wood properties of *Picea abies* L. Karst. in relation to site of provenance and population genetics. *Holzforshung* (DOI: 10.1515/hf-2014-0061).
47. Santoni Ilaria, Callone Emanuela, Sandak Anna, Sandak Jakub, Dirè Sandra (2015) Solid state NMR and IR characterization of wood polymer structure in relation to tree provenance. *Carbohydrate Polymers* 117: 710-721 (DOI: 10.1016/j.carbpol.2014.10.057).
48. Sandak Anna, Sandak Jakub, Allegretti Ottaviano (2015) Quality control of vacuum thermally modified wood with near infrared spectroscopy. *Vacuum* 114:44-48 (DOI:10.1016/j.vacuum.2014.12.027)
49. Sandak Jakub, Riggio Mariapaola, Sandak Anna, Santoni Ilaria (2015) What is superb wood surface? Defining user preferences and service life expectations. *Forest Products Journal* 65(3-4): S68-S73
50. Sandak Jakub, Sandak Anna, Riggio Mariapaola (2015) Characterization and monitoring of surface weathering on exposed timber structures with multi-sensor approach. *International Journal of Architectural Heritage* (DOI: 10.1080/15583058.2015.1041190)
51. Anna Sandak, Jakub Sandak, Mariapaola Riggio (2015) Estimation of physical and mechanical properties of timber members in service by means of infrared spectroscopy. *Construction and Building Materials* (doi:10.1016/j.conbuildmat.2015.06.063)
52. Jakub Sandak, Anna Sandak, Mariapaola Riggio (2015) Multivariate analysis of multi-sensor data for assessment of timber structures: principles and applications. *Construction and Building Materials* (doi:10.1016/j.conbuildmat.2015.06.062)
53. Mariapaola Riggio, Jakub Sandak, Steffen Franke (2015) Application of imaging techniques for detection of defects, damage and decay in timber structures on-site. *Construction and Building Materials* (in press) doi:10.1016/j.conbuildmat.2015.06.065
54. Kazimierz Orłowski, Jakub Sandak, Tomasz Ochrymiuk, Marcin Lackowski, Anna Sandak, (2015) The effect of current signal filtering method on the value of cutting power while sawing wood. *Ann. WULS-SGGW, Forestry and Wood Technology* 91: 144-148
55. Jakub Sandak, Nicola Ruggeri, Mariapaola Riggio, Marco Fellin, Anna Sandak, Andrea Polastri, Ario Cecotti (2015) An Italian historic timber framed wall: damage progression through DIC analysis. *Journal of Heritage Conservation, (Wiadomości Konserwatorskie)* ISSN 0860-2395, Proceedings of Shatis 2015 3rd International Conference on Structural Health Assessment of Timber Structures, 1:367-373.
56. Jakub Sandak, Kazimierz Orłowski Tomasz Ochrymiuk, Anna Sandak, Mariapaola Riggio (2015) An alternative way of determining mechanical properties of wood by means of cutting forces. *Journal of Heritage Conservation, (Wiadomości Konserwatorskie)* ISSN 0860-2395, Proceedings of Shatis 2015 3rd International Conference on Structural Health Assessment of Timber Structures, 1:543-551.
57. Anna Sandak, Jakub Sandak, Mariapaola Riggio, Leszek Babinski, Magdalena Zborowska (2015) Modeling of waterlogged wood with multisensor approach. *Journal of Heritage Conservation, (Wiadomości Konserwatorskie)* ISSN 0860-2395, Proceedings of Shatis 2015 3rd International Conference on Structural Health Assessment of Timber Structures, 1: 552-559.
58. Anna Sandak, Jakub Sandak, Mariapaola Riggio (2016) Assessment of wood structural members degradation by means of infrared spectroscopy: an overview. *Structural Control and Health Monitoring* 23(3):396–408 (DOI: 10.1002/stc.1777)
59. Mariapaola Riggio, Jakub Sandak, Anna Sandak (2016) Densified wooden nails for new timber assemblies and restoration works: a pilot research. *Construction and Building Materials* 102(2):1084-1092 doi:10.1016/j.conbuildmat.2015.06.045

#### Book/book chapters:

1. Teishinger Alfred, Kastner Elisabeth, Sandak Jakub, 2008, Innovative utilization and products of large dimensioned timber including the whole forest-wood-chain, in *State of the art of the COST Action E40*, BOKU University, Vienna, Austria, chapter 3.3:44-55
2. Picchi Gianni, Casini Lapo, Sandak Jakub, Sandak Anna, 2012, chapter 01-01: Introduction to ligno-cellulosic biomass, *The Bioenergy System Planners Handbook - BISYPLAN web-based handbook*, 2012, (web-page), <http://bisyplan.bioenarea.eu/>
3. Sandak Jakub, Casini Lapo, Picchi Gianni, Sandak Anna, 2012, chapter 02-01: Ligno-cellulose – Resources, *The Bioenergy System Planners Handbook - BISYPLAN web-based handbook*, 2012, (web-page), <http://bisyplan.bioenarea.eu/>
4. Picchi Gianni, Sandak Jakub, Sandak Anna, Spinelli Raffaele, 2012, chapter 03-01: Introduction to supply of ligno-cellulosic fuels, *The Bioenergy System Planners Handbook - BISYPLAN web-based handbook*, 2012, (web-page), <http://bisyplan.bioenarea.eu/>
5. Sandak Jakub, Sandak Anna, 2013, Un metodo per la verifica della sterilizzazione termica del legno secondo lo standard ISPM-15 (A method for verification of the heat sterilization according to ISPM-15) in *Approfondimenti sull'applicazione del trattamento termico (HT) secondo l'ISPM15 in Italia*. Lampi di stampa, ISBN 978-88-488-1395-2.
6. Ohuchi Takeshi, Okada Riakako, Sandak Jakub, Su Weng-Ching, Tanaka Chiak, Tsutsumoto Takahiro, Dong Yuku, Nagatomi Kazuyuki, Heimann Steffen, Banshoya Kaoru, Porankiewicz Boleslaw, 2015, *Illustrated Encyclopedia of Woodworking Hand Tools 図説世界の木工具事典* (in Japanese), Kaiseisha-press, ISBN 978-4-86099-230-9 C3552

#### Patents granted:

1. Sandak Jakub, Sandak Anna, Allegretti Ottaviano, Ferrari Silvia, Cerullo Sebastiano (2011) Metodo e dispositivo per verifica del trattamento termico del legno. Patent TO2013Z000346

#### Patents under evaluation:

1. Kazimierz Orłowski, Jakub Sandak, Anna Sandak, Mariapaola Riggio, The method for determining physical parameters of components made of orthotropic materials, especially wood. Submitted for patent deposition 03.04.2013

#### Conference proceedings:

1. Sandak Jakub, Glaner Piotr (1998) Zastosowanie Silników Krokowych w Automatyce Procesów Obróbki Skrawaniem w Przemysle Drzewnym (in Polish), Proceedings of the 20 International Conference of Students and Young Researchers, Technical University of Zielona Gora, IV Mechanika: pp. 225-228.
2. Glaner Piotr, Sandak Jakub (1998) Application of Stepper Motors in Automation of Tooling Processes in Woodworking Industry, 39 FK SVOC, Zvolen.
3. Sandak Jakub, Tanaka Chiaki, Ohtani Tadashi, Usuki Hiroshi (2000) Studies on Laser Based Profilometer System for Evaluating Surface Roughness, Abstracts of the 50th Annual Meeting of the Japan Wood Research Society, Kyoto, pp.163.
4. Sandak Jakub, Tanaka Chiaki, Expert Systems in Band-Sawing (2001) Proceedings of the 15th International Wood Machining Seminar, Los Angeles, pp. 281-292
5. Sandak Jakub, Tanaka Chiaki, Ohtani Tadashi, Usuki Hiroshi (2001) Studies on Laser Based Profilometer System for Evaluating Surface Roughness, Abstracts of the 51st Annual Meeting of the Japan Wood Research Society, Tokyo, pp.146
6. Sandak Jakub, Tanaka Chiaki (2002) Evaluation of Wood Surface Smoothness by Laser Displacement Sensor, Proceedings of the conference on wood machining, Zvolen, Slovakia, pp.219-224
7. Sandak Jakub, Tanaka Chiaki, Ohtani Tadashi, Usuki Hiroshi (2002) Expert Systems in the Band-sawing, Abstracts of the 52nd Annual Meeting of the Japan Wood Research Society, Gifu, pp.146
8. Sandak Jakub, Tanaka Chiaki (2003) Evaluation of Wood Surface Smoothness by Laser Displacement Sensor, Proceedings of the IUFRO All Division 5 Conference, Rotorua, New Zealand, pp.157
9. Sandak Jakub, Tanaka Chiaki, Nanfeng Zhu (2003) Expert Systems in Circular-Sawing, Proceedings of the 16th International Wood Machining Seminar, Matsue, Vol.1 pp.332-341
10. Sandak Jakub, Tanaka Chiaki (2003) Sensor Selection for Evaluation of Wood Surface Smoothness, Proceedings of the 16th International Wood Machining Seminar, Matsue, Vol.2 pp.679-688
11. Porankiewicz Boleslaw, Sandak Jakub, Tanaka Chiaki (2003) The HSS Tool Wear When Milling Wood, Proceedings of the 16th International Wood Machining Seminar, Matsue, Vol.2 pp.494-502
12. Orłowski Kazimierz, Sandak Jakub, Tanaka Chiaki (2003) Conception of On-line Lamella's Thickness Monitoring System for Re-sawing Process on Sash-gang Saws, Proceedings of the 16th International Wood Machining Seminar, Matsue, Vol.2 pp.645-654
13. Sandak Jakub, Tanaka Chiaki (2003) Sensor Selection for Evaluation of Wood Surface Smoothness, Proceedings of the 10th International Conference on Scanning Technology and Process Optimization, Seattle, pp.103-114
14. Iwasaki Yoshihiro, Sandak Jakub, Okai Reynolds, Tanaka Chiaki, Ohtani Tadashi, Xuequn Lao (2003) Tip-Inserted Band Saws, Proceedings of the 8th International Conference on Sawing Technology, Seattle, pp.71-82
15. Sandak Jakub, Negri Martino, Tanaka Chiaki (2004) Sensors for Evaluation of Wood Surface Smoothness, proceedings of the 2nd International Symposium on Wood Machining, Vienna, Austria
16. Sandak Jakub, Orłowski Kazimierz (2005) Chip Geometry While Sawing Frozen Wood, Proceedings of the COST E35 – Workshop on Processing of Frozen Wood, June 16-17, 2005, Lappeenranta, Finland, pp.6
17. Orłowski Kazimierz, Sandak Jakub (2005) Analysis of Specific Cutting Resistance while Cutting Frozen Pine Blocks with Narrow-Kerf Stellite Tipped Saws on Frame Sawing Machines, Proceedings of the COST E35 – Workshop on Processing of Frozen Wood, June 16-17, 2005, Lappeenranta, Finland, pp.5
18. Negri Martino, Sandak Jakub, Gaeti Nadia, Tessadri Barbara (2005) Surface Characterization Toward Wood Finishing: 3D roughness, Wettability and Other Measurements, IUFRO World Conference, Brisbane, Australia
19. Sandak Jakub, Negri Martino (2005) Wood Surface Roughness – What Is It?, Proceedings of the 17th International Wood Machining Seminar, Rosenheim, Vol.1 pp.242-250
20. Porankiewicz Boleslaw, Iskra Pior, Sandak Jakub, Tanaka Chiaki, Jozwiak Karol (2005) High Speed Steel Tool Wear After Wood Cutting in Presence of High Temperature Corrosion and Mineral Contamination, Proceedings of the 17th International Wood Machining Seminar, Rosenheim, Vol.1 pp.561-570
21. Sandak Jakub, Negri Martino (2005) Wood Surface Roughness – What Is It?, Proceedings of the COST E35 – Workshop, September 29-30, 2005, Rosenheim, Germany
22. Orłowski Kazimierz, Sandak Jakub (2005) Measurement of the Critical Rotational Speed of Circular Saw, Proceedings of the COST E35 – Workshop, September 29-30, 2005, Rosenheim, Germany
23. Negri Martino, Pollini Claudio, Tessadri Barbara, Gaeti Nadia, Sandak Jakub (2005) Measuring the quality of large timber: an integrated approach, Proceedings for the COST E40 conference, Biel, Switzerland, December 5-6
24. Sandak Jakub (2006) Wood machining process control and monitoring: potentials and limitations, Proceeding of the 1st Jubilee Scientific Conference Manufacturing Engineering in Time of Information Society, Gdansk, 1-2 June 2006, p. 353-360
25. Orłowski Kazimierz, Wasielewski Roman, Sandak Jakub (2006) On some accuracy limiting factors in wood sawing, Proceeding of the 1st Jubilee Scientific Conference Manufacturing Engineering in Time of Information Society, Gdansk, 1-2 June 2006, p. 267-272
26. Sandak Jakub, Orłowski Kazimierz, Martino Negri (2006) Divination from Chips: Monitoring of the Sawing Process with Chip Geometry Analyzes, Proceedings of the conference on wood machining Trieskove a Beztrieskove Obrabanie Dreva, Stary Smokovec, Slovakia, 12-14.10.2006, pp. 253-258
27. Sandak Jakub (2007) Optical triangulation in wood surface roughness measurement, Proceedings of the 18th International Wood Machining Seminar, Vancouver, Vol.1 pp.275-284
28. Orłowski Kazimierz, Sandak Jakub, Dzurenda Ladislav, Negri Martino (2007) Sawing of frozen wood with narrow-kerf saws, Proceedings of the 18th International Wood Machining Seminar, Vancouver, Vol.2 pp.13-24

29. Sandak Jakub, Orłowski Kazimierz, Negri Martino (2007) Monitoring of circular saw vibration with machine vision system, Proceedings of the 18th International Wood Machining Seminar, Vancouver, Vol.2 pp.33-42
30. Sandak Jakub, Orłowski Kazimierz, Negri Martino (2007) More wood, less chips: an effect of the circular saw's rim speed on the kerf width, Proceedings of Third International Symposium on Wood Machining, Lausanne, pp.43-46
31. Sandak Jakub, Gerhard Sinn (2007) Evaluation of the fracture area by 3D scanning, Proceedings of Third International Symposium on Wood Machining, Lausanne, pp.76-76
32. Sandak Jakub, Negri Martino, Sandak Anna (2007) Characterization of the hardwood surface, International Scientific Conference on Hardwood Processing, September 24-25-26, 2007 Quebec City, Canada
33. Kowaluk Grzegorz, Sandak Jakub (2007) Problemy z przetarciem olbrzymow (in polish), Gazeta Przemysłu Drzewnego 08/2007
34. Sandak Jakub (2008) Measuring Wood Surface Roughness Without Contact, Proceedings of the conference on wood machining Trieskove a Beztrieskove Obrabanie Dreva, Sturovo, Slovakia, 11-13.09.2008, pp. 201-206
35. Kowaluk Grzegorz, Sandak Jakub, Palubicki Bartosz (2008) Wettability of chosen alternative lignocellulose raw materials for particleboards production, Proc. of International Panel Product Symposium, 23.-26.09.2008, Dipoli, Finland
36. Kowaluk Grzegorz, Sandak Jakub, Palubicki Bartosz (2008) Usefulness of the visual method to characterise the geometry of the fibrous chips. Proc. of COST Action E49 Conference Lightweight composites – production, properties and usage, 23.-25.06.2008, Bled, Slovenia
37. Sandak Anna, Negri Martino, Sandak Jakub, Delmarco Oscar, Boschetti Andrea (2008) How to distinguish Aleppo pine wood from different Mediterranean provenances? 1er Colloque Euromaghrebien sur les Bois Mediterraneens, Boumerdes, Algieria 30.03-2.04 2008
38. Aknouche Hamid, Sandak Jakub, Goli Gacomo, Negri Martino (2008) Comparison of the surface final quality when routing with different materials measured using non-contact laser sensors on Aleppo Pine (*Pinus halepensis* Mill.) wheels, 1er Colloque Euromaghrebien sur les Bois Mediterraneens, Boumerdes, Algieria 30.03-2.04 2008
39. Sandak Anna, Sandak Jakub, Prądyński Włodzimierz, Zborowska Magdalena, Negri Martino (2008) Wood surface characterization with Near Infrared Spectroscopy, Proceedings for "Postęp w badaniach surowców lignocelulozowych i produktów ich konwersji", Poznań, Poland, 16-17.10.2008,
40. Sandak Jakub, Sandak Anna, Boschetti Andrea, Negri Martino (2008) Measuring monoterpenes with proton transfer reaction mass spectroscopy – proceedings for "Postęp w badaniach surowców lignocelulozowych i produktów ich konwersji", Poznań, Poland, 16-17.10 2008
41. Sandak Anna, Sandak Jakub, Negri Martino (2009) Variations of the NIR spectra in relation to the growing conditions of Spruce (*Picea abies* L. Karst.) trees in northern Italy, Conference „Forestry, Wildlife and Wood Sciences for Society Development“, Prague, Czech Republic, ISBN 987-80-213-2019-2:489-495, 16-18 April 2009
42. Sandak Jakub (2009) Scanners in the modern wood industry: potentials and limits, Conference „Forestry, Wildlife and Wood Sciences for Society Development“, Prague, Czech Republic, ISBN 987-80-213-2019-2:489-495, 16-18 April 2009
43. Sandak Anna, Prądyński Włodzimierz, Sandak Jakub, Waliszewska Bogumiła, Zborowska Magdalena, Palubicki Bartosz, Negri Martino (2009) Assessment of the willow clones (*Salix* sp.) with Near Infrared Spectroscopy. 2nd International Scientific Conference on Hardwood Processing, ISCHP Paris, France 28-29 September 2009
44. Sandak Anna, Sandak Jakub, Zborowska Magdalena, Prądyński Włodzimierz, Negri Martino (2009) Characterization of archeological oak (*Quercus* sp.) with mid and near infrared spectroscopy. International Conference: Wooden Cultural Heritage: Evaluation of Deterioration and Management of Change, Hamburg, Germany, 7-10 October 2009
45. Zborowska Magdalena, Sandak Anna, Sandak Jakub, Borysiak Sławomir, Prądyński Włodzimierz (2009) Characterization of archaeological wood degradation with selected nondestructive methods. International Conference: Wooden Cultural Heritage: Evaluation of Deterioration and Management of Change, Hamburg, Germany, 7-10 October 2009
46. Sandak Jakub, Sandak Anna (2009) Effect of wood machining on the wood surface properties: color, roughness, gloss, wetability and chemical composition. Proceedings for 19th IWMS Nanjing, China, 21-23 October 2009, ISBN: 978-7-5023-6224-9, pp.137-146
47. Sandak Jakub, Wojcik Marek (2009) Something our eyes can not see: thermal imaging of wood machining process, Proceedings for 19th IWMS Nanjing, China, 21-23 October 2009, ISBN: 978-7-5023-6224-9 pp.340-349
48. Sandak Jakub (2009) Experimental platform for advanced wood machining research, Proceedings for 19th IWMS Nanjing, China, 21-23 October 2009, ISBN: 978-7-5023-6224-9 pp.333-339
49. Orłowski Kazimierz, Wasielewski Roman, Sandak Jakub (2009) Circular saw vibrations or dynamic behaviour of the spindle, Proceedings for 19th IWMS Nanjing, China, 21-23 October 2009, ISBN: 978-7-5023-6224-9, pp.21-31
50. Sandak Anna, Sandak Jakub, Negri Martino (2010) Wood origin discrimination by Near Infrared Spectroscopy, Proceedings of 14th International Conference on Near Infrared Spectroscopy, ISBN: 978-1-906715-03-8, 171-175.
51. Sandak Jakub, Sandak Anna, Zborowska Magdalena, Spek-Dzwigala Agnieszka (2010) Archaeological waterlogged oak wood characterization with NIR, Proceedings of 14th International Conference on Near Infrared Spectroscopy, ISBN: 978-1-906715-03-8, 681-685.
52. Wasielewski Roman, Orłowski Kazimierz, Sandak Jakub (2010) Dynamics of the total system of the circular sawing machine, Proceedings of the conference on wood machining Trieskove a Beztrieskove Obrabanie Dreva, Sturovo, Slovakia, 09-11.09.2010, pp. 207-212
53. Sandak Jakub, Sandak Anna, Negri Martino (2010) Mechanical testing of wood assisted by infrared spectroscopy and thermal imaging. 11th World Conference on Timber Engineering Riva del Garda, ISBN: 978-162276175-3, Italy 20-24 June 2010.
54. Sandak Anna, Sandak Jakub, Negri Martino (2010) Application of FT-NIR for determination of wood provenance. IV Conference NIR on the GO 2010, Padova, Italy 27-28 May, 2010
55. Sandak Anna, Sandak Jakub, Negri Martino (2010) Potential of mid and near infrared spectroscopy for geographical origin recognition of forest based biomasses. III International Symposium on Energy from Biomass and Waste, Venice, Italy, ISBN: 978-88-6265-008-3, 8 - 11 November, 2010



56. Negri Martino, Baggio Paolo, Boschetti Andrea, Scotoni Marco, Palubicki Bartosz, Lazzari Gianni, Sandak Jakub, Sandak Anna, Fellin Marco, Pieratti Elisa, Antolini Daniele, Ognibeni Jari (2010) BIQUEEN – Biomasses Quality for efficient energy production: Wooden biomasses origin, solid and volatile pollutants, efficient combustion for energy production. III International Symposium on Energy from Biomass and Waste, Venice, Italy, ISBN: 978-88-6265-008-3, 8 - 11 November, 2010
57. Modzelewska Izabela, Sandak Anna, Sandak Jakub, Jaszczur Anna (2010) FT-NIR spectrophotometric analysis of paper manufactured from board-leaved bleached Kraft pulp with addition of starch and resin glue, Proceedings of the Conference on Advances in Investigation of Lignocellulosic Raw Materials and Products of their Conversion, p. 24
58. Fragnelli Giuseppe, Cremonini Corrado, Ferrari Silvia, Sandak Jakub, Sandak Anna, Allegretti Ottaviano, Paradiso Davide, Fellin Marco, Cucui Ignazia (2010) Analysis of heat treatment system and temperature control in Italy. Presented on 8th International Forest Quarantine Research Group Meeting, Oeiras, Portugal, September 27.09-1.10 2010
59. Sandak Jakub, Sandak Anna, Allegretti Ottaviano, Ferrari Silvia, Cuccui Ignazia, Fellin Marco (2011) Effect of wood treatment in low temperatures on the near infrared spectra. Proceedings for COST FP0904 Biel (Bienne), ISBN: 978-3-9523787-0-0, Switzerland, 16-18 February 2011, pp.37-38
60. Riggio Mariapaola, Sandak Jakub, Sandak Anna, Piazza Maurizio (2011) Coupling local semi-destructive techniques and non destructive imaging for the characterization of traditional timber structures: a case study. Presented on 5th International Congress "Science and Technology for the Safeguard of Cultural Heritage in the Mediterranean Basin", ISBN: 97-88-905639-8-0, Istanbul, Turkey, 22-25 November 2011.
61. Sandak Jakub (2011) Modeling wood surface geometry after wood machining, Proceedings for 20th IWMS June 7-10, 2011, ISBN: 978-91-7439-264-7, Skellefteå, Sweden, pp.173-180
62. Sandak Jakub, Palubicki Bartosz, Kowaluk Grzegorz (2011) Measurement of the cutting tool edge recession with optical methods, Proceedings for 20th IWMS June 7-10, 2011. ISBN: 978-91-7439-264-7, Skellefteå, Sweden, pp.97-106
63. Sandak Jakub, Sandak Anna (2011) Estimation of mechanical stresses with Mid Infrared Spectroscopy. Presented on COST Action FP0802 Workshop „Hierarchical structure and mechanical characterization of wood, Helsinki, Finland 24-25 August 2011, pp.17-18
64. Sandak Jakub, Sandak Anna, Allegretti Ottaviano, Ferrari Silvia, Fragnelli Giuseppe, Cerullo Sebastiano (2011) Novel method for verification of wood thermal treatment procedure according to ISPM-15. Proceedings of International Forest Quarantine Research Group 9th meeting, Canberra, Australia 26-30 September 2011.
65. Sandak Anna, Modzelewska Izabela, Sandak Jakub (2012) NIR monitoring of recycled paper biodegradation. Proceedings of 15th International Conference on Near Infrared Spectroscopy (NIR 2011) Cape Town, South Africa, ISBN: 978-1-920017-56-9
66. Sandak Jakub, Sandak Anna, Negri Martino (2012) NIR evaluation of coated wooden surfaces exposed to natural weathering. Proceedings of 15th International Conference on Near Infrared Spectroscopy (NIR 2011) Cape Town, South Africa, ISBN: 978-1-920017-56-9
67. Sandak Anna, Modzelewska Izabela, Sandak Jakub, Jaszczur Anna (2012) Evaluation of paper biodegradation rate with selected spectroscopic techniques. Workshop: "Hybrid organic and inorganic materials for wood and paper surface modification: Chemistry and Analysis Techniques", Trento, Italy, 2 April
68. Girardi Fabrizio, Sandak Jakub, Muller Klaus, di Maggio Rosa (2012) Zr and Si based hybrids inorganic/organic coatings on wood and paper as flame retardant. Workshop: "Hybrid organic and inorganic materials for wood and paper surface modification: Chemistry and Analysis Techniques", Trento, Italy, 2 April
69. Sandak Jakub, Sandak Anna, Pauliny Dusan (2012) SWORFISH: Superb Wood Surface Finishing. Workshop: "Hybrid organic and inorganic materials for wood and paper surface modification: Chemistry and Analysis Techniques", Trento, Italy, 2 April
70. Sandak Jakub, Sandak Anna, Allegretti Ottaviano, Ferrari Silvia, Cuccui Ignazia, Fellin Marco, Fragnelli Giuseppe, Cerullo Sebastiano (2012) Is it possible to detect thermal treatment of wood in low temperatures? COST action FP0904, Current and Future Trends of Thermo-Hydro-Mechanical Modification of Wood Opportunities for new markets, Nancy, France, 26-28 March.
71. Sandak Jakub, Sandak Anna, Pauliny Dusan, Bonfa Sandro, Meglioli Simone (2012) Multi sensor approach for monitoring of the changes to wood surface exposed to natural and artificial weathering. COST Action FP1006, 1st Workshop – Basics for Chemistry of Wood Surface Modification, ISBN: 978-3-200-02623-0 Kuchl/Salzburg, Austria, 25–27 April.
72. Sandak Anna, Modzelewska Izabela, Sandak Jakub, Jaszczur Anna (2012) Spectroscopic techniques for evaluation of paper biodegradation rate. IUFRO All Division 5 Conference, Lisbon, Portugal, 8-13 July.
73. Sandak Anna, Sandak Jakub, Negri Martino, Tessadri Barbara (2012) Relationship between main properties of spruce (*Picea abies*) resonance wood and its near infrared spectra. IUFRO All Division 5 Conference, Lisbon, Portugal, 8-13 July.
74. Sandak Anna, Sandak Jakub, Negri Martino (2012) Studies on chemical composition of spruce wood in relation to its geographical origin by selected non-destructive methods. IUFRO All Division 5 Conference, Lisbon, Portugal, 8-13 July.
75. Sandak Jakub (2012) SWORFISH: Superb Wood Surface Finishing. IUFRO All Division 5 Conference, Lisbon, Portugal, 8-13 July.
76. Negri Martino, Baggio Paolo, Boschetti Andrea, Scotoni Mario, Palubicki Bartosz, Lazzari Gianni, Sandak Jakub, Sandak Anna, Fellin Marco, Pieratti Elisa, Antolini Daniele, Ognibeni Jari (2012) Biomass Quality for Efficient Energy Production – BIQUEEN Project. IUFRO All Division 5 Conference, Lisbon, Portugal, 8-13 July.
77. Zethraeus Björn, Andrijevska Janita, Bell Michael, Casini Lapo, Grammelis Panagiotis, Hoyne Seamus, Karampinis Manolis, Kask Livia, Kask Ülo, Patel Shamim, Picchi Gianni, Sandak Anna, Sandak Jakub (2012) BISIPLAN: The Bioenergy System Planners Handbook. IUFRO All Division 5 Conference, Lisbon, Portugal, 8-13 July
78. Sandak Anna, Sandak Jakub, Allegretti Ottaviano, Ferrari Silvia, Cuccui Ignazia, Pauliny Dusan (2012) Evaluation of thermally treated soft and hardwoods with FT-NIR. Sixth European Conference on Wood Modification, ISBN: 978-961-6144-34-6, Ljubljana, Slovenia, 16 - 18 September.

79. Ferrari Silvia, Allegretti Ottaviano, Cuccui Ignazia, Sandak Jakub, Sandak Anna (2012) Thermo-vacuum process for wood thermal modification: results for some European softwood and hardwood species treated at different conditions. Sixth European Conference on Wood Modification, ISBN: 978-961-6144-34-6, Ljubljana, Slovenia, 16 - 18 September.
80. Karampinis Emmanouil, Zethraeus Björn, Andrijevska Janita, Kask Ülo, Kask Livia, Hoyne Seamus, Bell Michael, Grammelis Panagiotis, Kakaras Emmanuel, Casini Lapo, Picchi Gianni, Sandak Anna, Sandak Jakub (2012) BISOPLAN: The Bioenergy System Planners Handbook 20th European Biomass Conference ISBN 978-88-89407-54-7. Milan, Italy, 18-22 June.
81. Sandak Jakub, Sandak Anna (2012) FT-NIR as a tool for selection of biomass for optimal bio-conversion process. Proceedings of NIR Italia 2012, ISBN 9788890406454. Padova 27-28 September
82. Straže Aleš, Gorišek Željko, Pervan Stjepan, Sandak Anna, Sandak Jakub (2013) Characterization of chemical and physical properties of thermo-modified wood by FT-NIR spectroscopy. COST Action 0904 Evaluation, processing and predicting of THM treated wood behaviour by experimental and numerical methods, ISBN: 978-973-702-990-4 Iasi, Romania April 09-11, 2013
83. Sandak Jakub, Sandak Anna, Pauliny Dusan, Riggio Mariapaola, Santoni Ilaria (2013) About some chemical changes to wood due to densification. COST Action 0904 Evaluation, processing and predicting of THM treated wood behaviour by experimental and numerical methods, ISBN: 978-973-702-990-4 Iasi, Romania April 09-11, 2013
84. Sandak Jakub, Sandak Anna, Pauliny Dusan, Riggio Mariapaola, Santoni Ilaria, Bonfa Sandro, Meglioli Simone (2013) Multivariate analysis of the coated wood surfaces for service life prediction COST Action 1106 Process and Service life modelling, Ghent, Belgium April 17 – 19, 2013
85. Sandak Anna, Sandak Jakub (2013) Utilization of FT-NIR for proper biomass conversion. Proceedings of 16th International Conference on Near Infrared Spectroscopy (ICNIRS 2013) La Grande-Motte, France, 2 - 7 June 2013
86. Sandak Anna, Sandak Jakub, Allegretti Ottaviano, Ferrari Silvia, Pauliny Dusan (2013) Assessment of thermal behaviour of wood with FT-NIR. Proceedings of 16th International Conference on Near Infrared Spectroscopy (ICNIRS 2013) La Grande-Motte, France, 2 - 7 June 2013
87. Sandak Jakub, Sandak Anna, Pauliny Dusan, Krasnoslyk Victoria, Hagman Olle (2013) Estimation of mechanical stresses of wood with FT-NIR. Proceedings of 16th International Conference on Near Infrared Spectroscopy (ICNIRS 2013) La Grande-Motte, France, 2 - 7 June 2013
88. Sandak Jakub, Sandak Anna, Pauliny Dusan, Bonfa Sandro, Meglioli Simone, Mariapaola Riggio, Ilaria Santoni (2013) FT-NIR evaluation of chemical changes to wood surfaces exposed to natural and artificial weathering. Proceedings of 16th International Conference on Near Infrared Spectroscopy (ICNIRS 2013) La Grande-Motte, France, 2 - 7 June 2013
89. Sandak Jakub, Pauliny Dusan, Sandak Anna, Riggio Mariapaola, Santoni Ilaria (2013) Modelling Effect of Wood Anatomy on the Surface Roughness after Wood Machining. ISBN: 978-4-9903467-9-9, Proceedings of 21th IWMS Tsukuba, Japan, 4-7 August 2013
90. Chuchala Daniel, Orłowski Kazimierz, Pauliny Dusan, Sandak Anna, Sandak Jakub (2013) Is It Right To Predict Cutting Forces On The Basis Of Wood Density? Proceedings of 21th IWMS ISBN: 978-4-9903467-9-9, Tsukuba, Japan, 4-7 August 2013
91. Callone Emanuela, Santoni Ilaria, Sandak Anna, Sandak Jakub, Dirè Sandra (2013) Combination of 13C variable contact time solid state NMR and Principal Components Analysis for geographical traceability of wood. Proceedings of 35th FGMR Discussion Meeting and Joint Conference of the German, Italian and Slovenian Magnetic Resonance Societies, Frauenwörth, Germany, 9-12 September 2013.
92. Santoni Ilaria, Sandak Jakub, Sandak Anna, Pauliny Dusan, Callone Emanuela, Dirè Sandra (2013) Solid state NMR evaluation of chemical changes on three hardwood species due to densification. ISCHP 2013 - International Scientific Conference on Hardwood Processing, ISBN: 9788890166099, Florence, Italy, 7-9 October
93. Straže Aleš, Gorišek Željko, Pervan Stjepan, Sandak Anna, Sandak Jakub (2013) Sorption properties of some thermal treated hardwoods analyzed by thermodynamics, surface fractality and FT-NIR spectroscopy. Joint focus workshop of COST Action FP1006 & FP0904 Characterization of modified wood in relation to wood bonding and coating performance, ISBN: 978-961-6144-37-7, Rogla, SLOVENIA 16 - 18 October, 2013
94. Sandak Jakub, Sandak Anna, Riggio Mariapaola, Santoni Ilaria (2013) Superb wood surface finishing – SWORFISH project approach. Joint focus workshop of COST Action FP1006 & FP0904 Characterization of modified wood in relation to wood bonding and coating performance, ISBN: 978-961-6144-37-7, Rogla, SLOVENIA 16 - 18 October, 2013
95. Riggio Mariapaola, Sandak Jakub, Sandak Anna, Santoni Ilaria, Babinski Leszek (2013) Degradation of wooden surfaces in historical buildings: integrated sensing and modeling techniques for monitoring and conservation. Proceedings of Build Heritage 2013. ISBN: 978-88-908961-0-1. Milan, Italy, 18-20 November 2013.
96. Allegretti Ottaviano, Sandak Anna, Sandak Jakub, Straže Ales, Cuccui Ignazia (2014) NIR assessment of chemical pattern of wood after thermal modification, Proceedings of workshop NIR & WOOD–SOUNDS GOOD!, pp.51-52, ISBN 9788890406478
97. Antikainen Toni, Rohumaa Anti, Sandak Jakub, Sandak Anna, Straže Ales (2014) Estimating wooden veneer moisture content using infrared technology, Proceedings of workshop NIR & WOOD–SOUNDS GOOD!, pp.49-50, ISBN 9788890406478
98. Zborowska Magdalena, Waliszewska Boguslawa, Sandak Anna, Sandak Jakub (2014) Utilization of NIR for proper biomass conversion, Proceedings of workshop NIR & WOOD–SOUNDS GOOD!, pp.21-22, ISBN 9788890406478
99. Riggio Mariapaola, Sandak Anna, Sandak Jakub (2014) Non destructive characterization of wooden members using NIR, , NIR & WOOD–SOUNDS GOOD! Workshop, pp.37-38, ISBN 9788890406478
100. Sandak Jakub, Sandak Anna, Riggio Mariapaola, Hagman Olle, Krasnoslyk Victoria (2014) Estimation of mechanical stresses with NIR, Proceedings of workshop NIR & WOOD–SOUNDS GOOD!, pp.39-40, ISBN 9788890406478
101. Sandak Jakub (2014) SWORFISH project, Proceedings of workshop NIR & WOOD–SOUNDS GOOD!, pp.61-62, ISBN 9788890406478
102. Sandak Anna, Sandak Jakub, Negri Martino, Palubicki Bartosz (2014) Relationship between NIR spectra and the geographical provenance of timber, Proceedings of workshop NIR & WOOD–SOUNDS GOOD!, pp.24-25, ISBN 9788890406478
103. Riggio Mariapaola, Sandak Jakub, Sandak Anna (2014) Diagnostic and monitoring of historical wooden structures. Proceedings of workshop Conoscere e ricostruire edifici in legno. 17-18 October, Bleggio Superiore (TN), Italy

104. Sandak Jakub, Riggio Mariapaola, Sandak Anna, Santoni Ilaria (2014) What is superb wood surface? Defining user preferences and service life expectations. Proceedings of the 3rd International Conference on Processing Technologies for the Forest and Bio-based Products Industries, 24-26 September, Kuchl, Austria
105. Sandak Jakub, Riggio Mariapaola, Pauliny Dusan, Sandak Anna (2014) Densified wood as a resource for novel nail-like connectors. Proceedings of Final Cost Action FP0904 Conference "Recent Advances in the Field of TH and THM Wood Treatment" ISBN 978-91-7439-937-0
106. Sandak Anna, Sandak Jakub, Riggio Mariapaola (2014) Can NIR spectroscopy be helpful while assessing timber structure? Proceedings of NIR Italia 2014, ISBN: 9788890406485
107. Cocchi Marina, Li Vigni Mario, Marini Federico, Bevilacqua Marta, Sandak Anna, Sandak Jakub (2014) Valutazione di trattamenti del legno a bassa temperatura mediante analisi ANOVA simultanea delle componenti (ASCA) dei dati spettroscopici NIR. Proceedings of NIR Italia 2014, ISBN: 9788890406485
108. Sandak Jakub, Riggio Mariapaola, Sandak Anna, Santoni Ilaria (2014) What is superb wood surface? A trial for define user preferences and service life expectations – SWORFISH approach. COST FP1303 1st meeting, 27-28/01/2014, Paris
109. Sandak Jakub, Anna Sandak, Mariapaola Riggio, Gianni Picchi, James Burger (2014) Measuring wood with hyperspectral imaging. IASIM 14 conference, ISBN: 978-88-904064-9-2
110. Sandak Jakub, Anna Sandak, Salim Hizioglu, Szymon Bosak (2015) Surface Characterization of Particleboard Panels Manufactured from Eastern Redcedar Using Multi-Sensor Approach. Proceedings of International Panel Products Symposium.
111. Sandak Anna, Sandak Jakub, Cuccui Ignazia, Allegretti Ottaviano, Zanuttini Roberto, Negro Francesco, Cremonini Corrado, Rosso Laura, Castro Gaetano (2015) Thermal modification of poplar veneers in vacuum conditions. Proceedings of European Conference on Wood Modification.
112. Burud Ingunn, Sandak Anna, Sandak Jakub, Flo Andreas, Thiis Thomas, Ross Gobakken Lone (2015) Weather degradation of thin wood samples measured with NIR hypersepctral imaging in transmission mode. Proceedings of 17<sup>th</sup> International Conference on Near Infrared Spectroscopy (ICNIRS 2015)
113. Sandak Anna, Sandak Jakub, Burud Ingunn, Ross Gobakken Lone (2015) NIR studies on short term weathering of wood. Proceedings of 17<sup>th</sup> International Conference on Near Infrared Spectroscopy (ICNIRS 2015)
114. Sandak Anna, Sandak Jakub, Böhm Katharina (2015) NIR as a toll for determination of log/biomass quality index in mountain forests – SLOPE project approach. Proceedings of 17<sup>th</sup> International Conference on Near Infrared Spectroscopy (ICNIRS 2015)
115. Sandak Anna, Sandak Jakub, Burud Ingunn, Csiha Csilla, Noël Marion (2015) Degradation kinetics of the short term weathered thin wood samples. Final COST FP1006 meeting "Advances in modified and functional bio-based surfaces" at the Aristotle University of Thessaloniki, Thessaloniki, Greece, 7-9 April 2015
116. Sandak Jakub, Sandak Anna, Burud Ingunn, Csiha Csilla et al. (2015) What new can the COST FP1006 Round Robin test provide to our knowledge on wood weathering? Final COST FP1006 meeting "Advances in modified and functional bio-based surfaces" at the Aristotle University of Thessaloniki, Thessaloniki, Greece, 7-9 April 2015
117. Thiis Thomas K., Burud Ingunn, Ross Gobakken Lone, Kraniotis Dimitrios, Sandak Anna, Sandak Jakub (2015) Simple surface climate models for modelling weathering effects on wooden surfaces. Accepted for final COST FP1006 meeting "Advances in modified and functional bio-based surfaces" at the Aristotle University of Thessaloniki, Thessaloniki, Greece, 7-9 April 2015
118. Burud Ingunn, Flø Andreas, Ross Gobakken Lone, Thiis Thomas, Sandak Anna, Sandak Jakub (2015) Hyperspectral imaging of wood, Workshop on Hyperspectral Imaging, Tulln, Austria, 20.03.2015
119. Sandak Jakub, Sandak Anna, Modzelewska Izabela, Jaszczur Anna (2015) It is possible to asses the degradation stage of bio-based materials with an "objective" approach? Cost action FP1303 meeting: Performance Testing and Testing Methodologies of Non-wood Biobased Materials, Tallinn, Estonia 4-5 March 2015
120. Jakub Sandak, Anna Sandak, Mariapaola Riggio (2015) Bio-based building materials: aesthetical service life and customer's environmental conciseness. 1st Conference of COST Action FP1407 Life Cycle Assessment, EPDs and modified wood. 25-26 August, Koper, Slovenia
121. Kazimierz Orłowski, Tomasz Ochrymiuk, Jakub Sandak, Anna Sandak, Mariapaola Riggio (2015) Sawing process as a new alternative way of determining some wood properties. Proceedings of 22 IWMS, Quebec, Canada, 14-17 June, ISBN: 978-0-9947964-0-0, 46-56pp.
122. Jakub Sandak (2015) SLOPE project approach to estimate log quality by measuring cutting forces. Proceedings of 22 IWMS, Quebec, Canada, 14-17 June, ISBN: 978-0-9947964-0-0, 135-146pp.
123. Marina Cocchi, Anna Sandak, Jakub Sandak, Federico Marini (2015) Different approaches to the analysis of designed NIR fingerprinting data. XXV Congresso Nazionale della Divisione di Chimica Analitica della Società Chimica Italiana, Trieste, 13 - 17 Settembre 2015. ISBN: 978-88-907670-2-9, pp 129.
124. Anna Sandak, Jakub Sandak, Ignazia Cuccui, Ottaviano Allegretti, Roberto Zanuttini, Francesco Negro, Corrado Cremonini, Laura Rosso, Gaetano Castro (2015) Thermal modification of poplar veneers in vacuum conditions. Proceedings of European Conference on Wood Modification, Helsinki, Finland 26-27 October.
125. Anna Sandak, Jakub Sandak, Marion Noël, Solène Barbotin (2016) Morphological changes of wood after short term natural weathering evaluated with SEM. COST Action FP1303 workshop: Designing with bio-based building materials – Challenges and opportunities. 24th – 25th February 2016, Madrid, Spain
126. Anna Sandak, Jakub Sandak, Bruno Simões, Federico Prandi, Raffaele Dei Amicis (2016) BIO4ever project concept to promote the bio-based materials in modern construction sector. COST Action FP1303 workshop: Designing with bio-based building materials – Challenges and opportunities. 24th – 25th February 2016, Madrid, Spain
127. Anna Sandak, Jakub Sandak (2016) BIO4ever project approach for modeling of bio-based building materials weathering. Accepted for World Conference on Timber Engineering (WCTE 2016) August 22-25 in Vienna, Austria.

128. Ingunn Burud, Knut Arne Smeland, Thomas Thiis, Lone Ross Gobakken, Anna Sandak, Jakub Sandak, Kristian Liland (2016) Modeling weather degradation of wooden facades using NIR hyperspectral imaging on thin wood samples. Accepted for World Conference on Timber Engineering (WCTE 2016) August 22-25 in Vienna, Austria.

**Master Thesis:**

Sandak Jakub (2001) Studies on Laser Based Profilometer System for Evaluation Surface Roughness, Master Thesis, Shimane University

**PhD thesis:**

Sandak Jakub (2004) Sensors for Evaluation of Wood Surface Smoothness, Doctoral Dissertation, United Graduate School of Agricultural Sciences Tottori, Shimane and Yamaguchi Universities, Japan

**Scientific reports:**

Sandak Jakub (2008) State-of-the-art of crack detection in lumber, scientific report for Forintek Canada Corp., Vancouver, Canada, pp.60