

PROGRAM SCHEDULE

15TH INTERNATIONAL SYMPOSIUM ON NDT OF WOOD SEPTEMBER 10-12, 2007 DULUTH, MINNESOTA, USA

SUNDAY (September 9, 2007)

6:30-8:00 PM Registration in Radisson Lobby (1st Floor)

7:00-8:00 PM Welcome reception in the Radisson Top of the Harbor (Top Floor - Level R); complimentary hors d'oeuvres and cocktails

MONDAY (September 10, 2007)

7:30-8:00 AM Continental Breakfast (Great Hall Foyer)

8:00-8:30 AM Registration (Great Hall Foyer)

8:30-9:00 AM Opening (Great Hall)

Symposium Opening to include welcome, overview of Symposium schedule and key information.

Presentation of Symposium Nondestructive Testing of Wood Distinguished Service Awards

9:00-12:00 AM General Session (Great Hall)

Moderator – Brian Brashaw, Program Director, University of Minnesota Duluth

1. Ferenc Divos, Peter Divos, Gyorgy Divos. “Acoustic techniques – from seedling to historical wooden structures”
2. Robert Ross. “Transverse vibration techniques – from logs to structural systems”
3. Tim Rials. “NIR techniques – from solid wood to paper and composites”
4. David Mannes, Eberhard Lehmann, and Peter Niemz. “Tomographic investigation of wood – From macroscopic to microscopic scale”
5. Brian Brashaw. “Effective technology transfer of NDE research – keys to success”

12:00-1:00 PM Lunch (Viking Room)

1:00-3:30 PM Concurrent Technical Sessions (Great Hall 1 and 2)

Session 1. Standing tree decay detection and hazard analysis (Great Hall 1)

Moderator – Dr. Robert Ross, Project Leader, USDA Forest Products Laboratory

1. Frank Rinn. “Understanding results of stress-wave tomography of standing trees by comparing with drill-resistance measurements”
2. Steffen Rust, Ulrich Weihs, Thomas Günther, Carsten Rucker and Lothar Göcke. “Combining sonic and electrical impedance tomography for the nondestructive testing of trees”

3. Bruce Allison, Xiping Wang, Robert J. Ross, John Erickson, and John Forsman. “A protocol for nondestructive evaluation of red pines supporting a recreational ropes course”
4. Shanqing Liang, Xiping Wang, Jan Wiedenbeck, Zhiyong Cai, and Feng Fu. “Evaluation of acoustic tomography for tree decay detection”
5. Saeed Kazemi Najafi, Ghanbar Ebrahimi, Ali Shalbafan. “Nondestructive evaluation of beech trees using ultrasonic technique”.

Session 2. NDE Science – Transverse Vibration (Great Hall 2)

Moderator – Roy Pellerin, Emeritus Professor, Washington State University

1. Bambang Suryoatmono, Adhijoso Tjondro, Oscar R. Sandy. “Evaluation of moduli of elasticity and damping ratios of some Indonesia species using free vibration method”
2. Houjiang Zhang, Yingying Cui, Chaozhi Wang. “Determining modulus of elasticity of structural lumber with vibration methods”
3. Dominika Gornik Bucar, B. Sega (presenter), M. Merhar, M. Cepon, B. Bucar. “Strength grading of structural timber using transversal frequency response method”
4. André Bartholomeu, Raquel Goncalves. “Ultrasound and transverse vibration to determine the modulus of elasticity of wood on static bending”
5. Lihai Wang, Hudong Xu, and Songyuan Ni. “The application of modal analysis in NDT of hole-defect in lumber”

**4:00-6:00 PM Appetizer Cruise on the Lake Superior Vista Star (4:30 PM
Departure - Transportation details will be provided during
Symposium)**

TUESDAY (September 11, 2007)

7:30-8:00 AM Continental Breakfast (Great Hall Foyer)

8:00-12:00 AM Concurrent Technical Sessions (Great Hall 1 and 2)

Session 1 Cont. Standing tree decay detection and hazard analysis (Great Hall 2)

Moderator – Dr. Robert Ross, Project Leader, USDA Forest Products Laboratory

J.A. Glaeser. “The potential use of nondestructive testing in hazard tree analysis”

Session 3. Standing timber quality assessment (Great Hall 1)

Moderator – Dr. Bruce Allison, President, Allison Tree Care, Inc.

1. Xiping Wang, Robert Ross. “Acoustic evaluation of Alaskan young growth wood”
2. Andrew Lyon, John Moore. “The use of acoustic NDT tools for predicting wood properties of Sitka spruce”
3. David G. Briggs, Gonzalo Thienel, Eric C. Turnblom, Eini Lowell, Robert J. Ross, Xiping Wang, Peter Carter. “Influence of thinning on acoustic velocity of Douglas-fir trees in Western Washington and Western Oregon”

4. Lijuan Wang, Yafang Yin, and Xiaomei Jiang. “Predicting radial distribution of tree ring micro-density in Chinese poplar plantation wood by resistograph method”
5. Miklos Horvath, Ferenc Divos, Mark Szabo. “Acoustic properties of black locust tree”

Session 4. NDE Science – Acoustics/Ultrasonics I (Great Hall 2)

Moderator – Dr. Voichita Bucur, Emeritus Professor

1. Peter Niemz, O. Walter, Andreas J. Brunner. “Investigations on the mechanism of failure behavior of wood based materials using acoustic emission analysis and image processing”
2. Junli Yang, Voichita Bucur, Dung Ngo. “Acoustic detection of tension wood in eucalypt discs”
3. V. Hyvärinen. “Non-contact ultrasonic inspection of boards”
4. Guillermo Íñiguez, Miguel Esteban, Maria del Carmen Gil, Francisco Arriaga. “The influence of specimen length on ultrasound wave velocity”

Session 5. NDE for Grading and Quality Control (Great Hall 1)

Moderator – Dr. Zhiyong Cai, Materials Research Engineer, USDA Forest Products Laboratory

1. Ed Thomas, Liya Thomas, Clifford Shaffer. “Defect detection on hardwood logs using high resolution laser scan data”
2. J.-L. Sandoz, Y. Benoit. “Log quality nondestructive evaluation”
3. J.-L. Sandoz, Y. Benoit. “Timber grading using ultrasonic and density measurements: TRIOMATIC”
4. M. Haapalainen, S. Nieminen, M-P. Sarén. “On combining multisensor data to 3D log model”

Session 6. NDE Science – Acoustics/Ultrasonics II (Great Hall 2)

Moderator – Dr. Peter Niemz, Professor, Institute for Building Materials, ETH Zurich

1. Adhijoso Tjondro, Bambang Suryoatmono. “The effects of specimen dimensions on the accuracy of the determination of moduli of elasticity using ultrasonic longitudinal wave propagation method”
2. Karlinasari, Surjokusumo, Nugroho, Hadi. “Evaluation of wood beam quality of *Paraserianthes falcataria*”
3. Kwang-Mo Kim, Joo-Saeng Park, Sang-Joon Lee, Hwanmyeong Yeo, Jun-Jae Lee. “Development of portable ultrasonic CT system for detecting decay in wood”
4. Lanying Lin and Feng Fu. “Segregation of Eucalyptus lumber for finger-joint using longitudinal vibration”

12:00-1:00 PM Lunch (Great Hall 2)

1:00-2:30 PM Setup - Poster and Demonstration Table (Great Hall 2)

2:30-4:30 PM Poster Session, Equipment Exhibit and Coffee Break (Great Hall 2)

POSTERS:

1. Frank Rinn. “Comparison of high-frequency radial density and grayscale profiles of conifers”
2. Brian K. Brashaw, Xiping Wang, Robert J. Ross. “Web-based learning and technology transfer of inspection methods for historic wood structures”
3. Xiping Wang, James Wacker, Crystal Pilon, Gee Hechscher, Robert J. Ross, Brian K. Brashaw. “Condition assessment of wood structural members in WAPAMA – A historic wooden vessel”
4. Xiping Wang, Jan Wiedenbeck, Shanqing Liang, Feng Fu, Zhiyong Cai. “Acoustic tomography for decay detection in high-value back cherry trees”
5. Wenbin Li, Jiangming Kan, Renshan Sun. “Computer vision based method for automatic measurement of trunk and branch diameter of standing trees”
6. Mike Pindral, John Forsman, John Erickson, Robert J. Ross, Allen M. Brackley. “Stress wave time used as a tool for predicting decay in northern white cedar”
7. Raquel Goncalves, A.J. Trinca, Paulo Graziano. “Variation of the velocity and attenuation as a function of the pressure on the transducers”
8. J.-L. Sandoz, Y. Benoit. “NDE of overhead lines new wooden poles: LUXPOLE”
9. Karlinasari, Surjokusumo, Nugroho, Hadi, Suryoatmono. “Bending strength prediction of wood beam constructed from small specimens”
10. Ed Thomas. “Predicting Internal Yellow-Poplar Log Defect Using External Indicator Measurements”
11. Lihai Wang, Huadong Xu, Zaixing Yan, Cilin Zhou, and Xuechun Yang. “The effects of sensor quantity and spatial distribution on wood nondestructive testing”
12. Glenn Larkin and P.E. Laks. “Nondestructive evaluation as a tool to evaluate the effect of climate on wood decay”
13. Steffen Rust, Ulrich Weihs, Thomas Günther, Carsten Rücker and Lothar Göcke. “Combining sonic and electrical impedance tomography for the nondestructive testing of trees”
14. Lothar Göcke, Peter Müller, Arne Richter. “New wireless radio-hammer for sonic tomography reduces hardware effort and offers new ways for 2- and 3 dimensional sonic tomography”
15. Jonathan Schilling. “The ‘RotBot’: a Web-based Wiki designed to share Deterioration Diagnostics”
16. Thierry Descamps, Fabrice Dagrain, Laurent Van Parys. “Cutting test: Application of a testing device coming from the petroleum industry for the determination of the compressive strength of timber”.

5:00-9:00 PM Banquet at Glensheen Historic Mansion

- 5:00 Bus loading
- 5:15 Bus departure for Glensheen
- 5:30 Tour of Glensheen
- 6:00 Social
- 7:00 Dinner
- 9:00 Bus loading for Radisson
- 9:15 Departure for Radisson

WEDNESDAY (September 12, 2007)

7:30-8:00 AM Continental Breakfast (Great Hall Foyer)

8:00-12:30 PM Concurrent Technical Sessions (Great Hall 1 and 2)

Session 7. NDE Science –X-ray, NIR, and microwaves (Great Hall 1)

Moderator – Dr. Jianxiong Lu, Deputy Director, Research Institute of Wood Industry, Chinese Academy of Forestry.

1. Lin J. Hu, Sylvain Gagnon. “X-ray based scanning technique for nondestructive evaluation of finger-joint strength”
2. Zhiyong Cai. “Determining moisture gradient profile by X-ray techniques”
3. Jung-Kwon Oh, Kwang-Mo Kim, Kugbo Shim, Jung-Hwan Park, Hwanmyeong Yeo, Jun-Jae Lee. “Estimation of bending strength of structural lumber using X-ray scanning”
4. Erik Baradit A., Roberto Aedo, Cristhian Aguilera. “Knots detection in wood using microwave techniques and data processing”
5. Zehui Jiang, Zhong Yang, Benhua Fei, Haiqing Ren, Dao-chun Qin. “Discrimination of biological decay in slash pine wood by NIR coupled with soft independent modeling of class analogy (SIMCA) pattern recognition”

Session 8. Wood condition assessment I (Great Hall 2)

Moderator - Dr. Xiping Wang, Senior Research Associate, University of Minnesota Duluth and USDA Forest Products Laboratory

1. Frank Rinn. “Reliable inspection of historic timber and documentation of results”
2. James Wacker, Xiping Wang, Robert Ross, Brain Brashaw. “Condition assessment of historical wooden vessels”
3. Sang-Joon Lee, Jung-Kwon Oh, Kwang-Mo Kim, Hwanmyeong Yeo, Ki-Bok Kim, Jun-Jae Lee. “Field application of NDT for detecting deteriorations in Korean historic wooden building”
4. Nobuyoshi Yamaguchi, Shiro Nakajima, Hirohumi Sakuma. “Inspection method of wood integrity using distribution of resistances to axial withdrawals of wood-screw probes”

Session 9. Wood condition assessment II (Great Hall 2)

Moderator - James Wacker, P.E., Research General Engineer, USDA Forest Products Laboratory

1. J.-L. Sandoz, Y. Benoit. “Acousto-ultrasonic nondestructive evaluation of historical wooden structures”
2. Ignacio Bobadilla, Guillermo Íñiguez, Miguel Esteban, Francisco Arriaga. “Density estimation by screw withdrawal resistance and probing in structural sawn coniferous timber”
3. Chang-Deuk Eom, Yeon-Jung Han, Chun-Young Park, Jung-Kwon Oh, Kwang-Mo Kim, Ki-Bok Kim, Jun-Jae Lee, Hwanmyeong Yeo. “Defect analysis in timber using infrared thermography”
4. Thierry Descamps, Laurent Van Parys, Sélim Datoussaïd. “Development of a trial impact device for the determination of compressive strength of wood”

12:30-1:30 PM Lunch and Symposium Closing (Viking Room).

**1:45 PM - 7:00 PM CONDITION ASSESSMENT DEMONSTRATION to include dinner.
(This workshop is full, no more registrations will be accepted).**

- 1:45 PM: Departure from Radisson
- 2:30 PM: Workshop
- 5:00 PM: Dinner at Brighton Beach
- 7:00 PM: Return to Radisson

A condition assessment demonstration will be offered as a supplemental workshop following the close of the Symposium. A condition assessment will be completed on a historical wooden laboratory structure on the shores of Lake Superior. During this workshop, you will have an opportunity to become familiar with visual, mechanical, stress wave and resistance drilling techniques for wooden buildings and the trees on the grounds.