Welcome to the International Conference SHATIS'11

Dear conference participants,

Structural Health Assessment (SHA) includes all the procedures that support the determination of the safety and serviceability levels of existing timber structures. SHA can be promoted at the construction stage by incorporation of monitoring systems, i.e. built-in expert systems, or at a later stage when the viability of a structure is questioned, e.g. due to visible deterioration or change of use, and needs to be appraised.

SHA activities, from monitoring to visual inspections and structural analysis, is a multidisciplinary approach, embracing wood mechanics, wood degradation, in situ assessment techniques and joints behaviour, besides the knowledge of other materials that often appear combined with wood, e.g. steel and masonry. Only a correct assessment can lead to the process of making appropriate decisions/recommendations about conservation, replacement or strengthening works needed in order to maintain an adequate safety/serviceability level.

This first SHATIS conference aims at bringing together researchers and professionals involved in this field, constituting a forum for exchanging experiences and discussing subjects related to the appraisal and conservation of timber structures, therefore consolidating assessment procedures, promoting new or more reliable appraisal strategies, and presenting successful intervention techniques.

On behalf of the members of the Organizing Committee I welcome you to this International Conference, where we hope that scientific and technological developments can be shared and future research clusters promoted, hence supporting a better coordination of the efforts that are necessary to maintain existing timber structures and keep timber a competitive structural material for the future.

Lisbon, June 2011

José Saporiti Machado
Chairman of the Organizing Committee

Organizing Committee

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José Carlos Rodrigues	Tropical Research Institute
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Teresa Fonseca	National Laboratory for Civil Engineering
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Sven Thelandersson	Lund University
Thomas Tannert	University of British Columbia
Tomi Toratti	VTT Technical Research Centre of Finland

Thursday morning — June 16

Registration — 08:00 - 09:00

Opening session — Auditorium | 09:00 - 09:15

Carlos Pina, President of LNEC
José Saporiti, Chairman of the Organizing Committee

Keynote lecture — Auditorium | 09:15 - 10:15

Chairperson: Geert de Schutter

Risk management and maintenance strategies for timber structures
Jochen Köhler

Session 1 – Learning from case studies I — Auditorium | 10:15 - 11:00

Chairperson: Keith Crews

Development of an in situ repair strategy for the timber roof of the Breeding Barn at Shelburne Farms
Douglas Porter, Ronald W. Anthony

Some examples of the assessment of Slovenian historical timber structures
Jelena Srpčič, Tomaž Pazlar

A timber propping for Villa Tarabya - A timber liberty architecture in Istanbul
Gennaro Tampone, Pier Paolo Derinaldis

Session 2 – Conservation I — Auditorium | 11:30 - 13:00

Chairperson: Joris Van Acker

Protection of timber constructions by using electro osmotic pulsing technology (PLEOT)
Andreas Treu, Erik Larnøy, Lina Nunes, Sónia Duarte, Hasse Halvorsen

Common sense: monitoring of vulnerable wooden constructions
Ola Storsletten

Experiences in design, construction and maintenance of timber shell roofs in Estonia
Karl Õiger, Georg Kodi

Historical knowledge in the preservation of heritage timber structures
Chiara Tardini, Maria Adelaide Parisi

An experimental approach to the treatment and consolidation of degraded timber elements from a XIX century building
Dulce Henriques, Lina Nunes, Jorge de Brito

Renovating mill buildings of the northeastern US
Jeffrey D. Langlois

Session 3 – Assessment by non-destructive methods — Room 2 | 11:30 - 13:00

Chairperson: Ronald W. Anthony

Evaluation of historical wooden structures using nondestructive methods
Ferenc Divos, Ferenc Sismándy Kiss , Peter Takats

Acoustic tomography of timber elements
Mariapaola Riggio, Maurizio Piazza

Use of vibration techniques to determine the rotational stiffness of timber joints
Paul Crovella, George Kyanka

Mechanical characterization of old chestnut beams
Jorge M. Branco, Tiago Peixoto, Paulo B. Lourenço, Pedro Medeiros

Inspection of timber bridges with ultrasonic echo technique
Andreas Hasenstab, Katja Frühwald

Damage severity assessment of timber bridges using frequency response functions and artificial neural networks
Ulrike Dackermann, Jianchun Li, Bijan Samali , Fook Choon Choi, Keith Crews

Thursday afternoon — June 16

Session 4 – Learning from case studies II — Auditorium | 14:15 - 15:45

Chairperson: José Amorim Faria

Learning from a case study: the great timber roof structures of the Cathedral of Vercelli
Clara Bertolini Cestari, Gianoreste Biglione, Luciana Cestari, Germana Corradino, Alan Crivellaro, Daniele De Luca, Tanja Marzi, Pia Panosch, Riccardo Pasquino

Damaging improvements
David Yeomans

Wood assessment and historical research on timber testing at Fort Adams, Newport, Rhode Island, U.S.A.
Kimberly D. Dugan, Derek Trelstad, Ronald W. Anthony

Lessons learned from evaluation and repair of vintage timber-frame church trusses
Philip L. Westover

Wood structure biodeterioration - A case study on a century church in Piracaia, Brazil
Maria Beatriz Monteiro, Takashi Yojo, Gonzalo Carballeira Lopez, Maria José Miranda

New uses in historic buildings. Case study: a 19th century building in Valencia
Liliana Palaia Pérez

Session 5 – Connections and strengthening — Room 2 | 14:15 - 15:45

Chairperson: Helena Cruz

A study on traditional Chinese wood joint differences as a supplement of wood structure code
Zhi Yue

Influence of moisture and thermal cycles in bonding of FRP laminates on timber elements
Fabiola Nardon, Maria Rosa Valluzzi, Renzo Bertoncello, Enrico Garbin

Modelling the mechanical stresses in adhesive joints of wood bondings considering the mechanical and moisture behaviour of the adherend
Stefan Hering, Peter Niemz

Use of GFRP laminates for strengthening or rehabilitation of timber beams
João Negrão, Ana Balseiro, José Amorim Faria

Construction of the new exhibition center of the Malaysian Timber Industry Board in Johor Bahru
Dave Smedley, Adlin Roseley, Martin Ansell

Connections with timber pins: the influence of dowel bearing strength
Carla Ceraldi, Maria Lippiello, Ennio Russo Ermolli

Session 6 – Assessment by testing and modeling I — Auditorium | 16:30 - 18:00

Chairperson: Maurizio Piazza

Assessment of the structural properties of timber members in situ – a probabilistic approach
José Saporiti Machado, Paulo B. Lourenço, Pedro Palma

Variability of modulus of elasticity in glued laminated timber beams
Petr Kuklík, Lenka Melzerová

Analysis of ancient timber structures performance capacity
Felicita Ramundo, Mario Rosario Migliore, Gerardo Spina

Assessment of glulam structures using shear core samples
Thomas Tannert, Andreas Müller, Till Vallée

Pilot investigation of dynamic characteristics of a repaired timber beam
Jianchun Li, Keith Crews, Bijan Samali , Fook Choon Choi

Withdrawal resistances by screw-based probes for in-situ assessment of wood
Nobuyoshi Yamaguchi

Session 7 – Learning from case studies III — Room 2 | 16:30 - 18:00

Chairperson: Alfredo Dias

The effects of earthquake and fire on urban development and formation of traditional timber building features throughout the history of Istanbul: sample buildings located in the districts of the historical peninsula
Hülya Dişkaya, Oğuz Ceylan

Transylvanian historic roof structures database
Bálint Gy. Szabó, Imola Kirizsán

The survey of the chapel of Three Saints in Karelia: instrumental analysis and structural assessment
Matteo Pasquini, Sandro Parrinello

Assessment and intervention on the timber structure of a XVII century building in Lisbon; an example of seismic retrofitting
Tiago Ilharco, Alexandre A. Costa, Valter Lopes, Aníbal Costa, João M. Guedes

Structural performance of timber pillared mosques under extreme actions: special case of earthquakes
Hilal Tuğba Örmecioğlu, Aslı Er Akan, Cengiz Özmen

Intervention on Transylvanian Baroque roof structures
Dorottya Makay, Boróka Sándor, Boglárka Bordás, Zsuzsa Békési

Thursday evening — June 16

Conference dinner

Details in the 'Social programme' – page 12.

Session 8 – Assessment and conservation — Auditorium | 09:00 - 09:45

Chairperson: Lina Nunes

Visual grading of large cross section structural timber of Pinus sylvestris L. according to UNE 56544:2007 standard
María-José Montero, Raquel Mateo, Guillermo Íñiguez-González, Francisco Arriaga-Martitegui, Eva Hermoso, Miguel Esteban

Predicting delamination influence on the mechanical performance of straight glued laminated timber beams
Florindo Gaspar, Helena Cruz, Augusto Gomes

Wood corrosion caused by inorganic compounds used as preservatives and fire-retardants
Irena Kučerová, Miroslava Novotná, Kateřina Dvořáková, Alena Michalcová, Linda Mišková, Klára Drábková

Keynote lecture — Auditorium | 10:00 - 11:00

Chairperson: Paulo B. Lourenço

State-of-the-art in the assessment of timber
Bohumil Kasal

Session 9 – Learning from case studies IV — Auditorium | 11:30 - 13:00

Chairperson: Petr Kuklík

Analysis of construction system and damage assessment of traditional Turkish house - Case study of timber framed Kula houses
Mine Tanaç Zeren, Özgül Yilmaz Karaman

Structural diagnosis on ancient timber structures: the example of the Diplomatic Room at the Royal Palace in Naples
Nicola Macchioni, Mauro Bernabei, Michele Brunetti, Claudio Pollini, Donato Calicchio, Alan Crivellaro

Wood's performance in paradise: a case study of Doris Duke's Shangri La
Janelle L. Leafblad, Matthew B. Bronski, Matthew S. Worster

Diagnosis and rehabilitation of Loreto's Church roof
João Appleton, Pedro Ribeiro, Rita Gonçalves

Seismic response of traditional timber elements and roof structures: learning from the L'Aquila earthquake
Maria Adelaide Parisi, Maurizio Piazza, Claudio Chesi

The fundamental node of a traditional truss - Influence of morphology on efficiency
Gennaro Tampone, Pier Paolo Derinaldis, Elisabetta Ferretti

Session 10 – Monitoring — Room 2 | 11:30 - 13:00

Chairperson: Thomas Tannert

Monitoring of a CFRP-timber bowstring-arch bridge using novel sensing systems
Robert Widmann, Rolf Brönnimann, Urs Meier

Investigation and monitoring of historic roof structures during conservation
Imola Kirizsán, Bálint Gy. Szabó

Dynamic monitoring of a large span wood roof
Maíra Ledesma, Jorge Rodrigues

Health monitoring of a cable-stayed timber footbridge
Niclas Björngrim, Anders Gustafsson, Anna Pousette, Olle Hagman

Monitoring and testing of a timber-concrete bridge
Alfredo Dias, Luís Jorge, Miguel Ferreira, Hélder Martins

Monitoring modern timber structures and connections
Hugh Morris, Margaret Worth, Piotr Omenzetter

Friday afternoon — June 17

Session 11 – Codes, guidelines and assessment — Auditorium | 14:15 - 15:45

Chairperson: João Negrão

Assessment of timber floor diaphragms in historic unreinforced masonry buildings
Aaron Wilson, Pierre Quenneville, Jason Ingham

The reassessment of existing load bearing structures – implementation into the Swiss standard
Jochen Köhler, René Steiger

The Italian standard UNI 11119:2004 for the in-situ diagnosis of timber structures: pros and cons after 5 years of practical application and proposals for emendations
Massimo Mannucci, Michele Brunetti, Nicola Macchioni

Structural conditions and seismic vulnerability of timber roofs
Maria Adelaide Parisi, Claudio Chesi, Chiara Tardini

Modeling biodegradation of timber – Dose-response models for above-ground decay and its climate-dependent variability
Christian Brischke, Eva Frühwald Hansson

Reliability based robustness of timber structures through NDT data updating
Hélder S. Sousa, John Dalsgaard Sørensen, Poul Henning Kirkegaard, Paulo B. Lourenço, Jorge M. Branco

Session 12 – Learning from case studies V — Room 2 | 14:15 - 15:45

Chairperson: Gennaro Tampone

Assessment of historic timber structures in Brazil
Carlito Calil Júnior

Anamnesis and aetiology of wooden components of Teatro Sociale in Bergamo (L.Pollak 1809)
Francesco Augelli

Strengthening of the traditional wooden structural system in the historic “Çalıkuşu House”, Kuşadası, Turkey
Başak İpekoğlu, Funda Yaka Çetin, Kerem Şerifaki

Knowledge of the different roofing systems typologies in a public complex of XX century: geometric survey and material investigation
Francesco Augelli, Anna Anzani, Lorenzo Cantini, Paola Condoleo, Antonia Gobbo, Roberta Mastropirro

Analysis of technical state of timber structural elements in Wrocław's 19th and 20th century historical buildings
Piotr Berkowski, Grzegorz Dmochowski, Maciej Yan Minch, Jerzy Szołomicki

Investigation of the role of fire retardant treatment in the failure of wooden trusses
Ronald W. Anthony, Michael J. Drerup

Session 13 – Assessment by testing and modeling II Auditorium | 16:15 - 17:45

Chairperson: Vitor Cóias

Historic roof trusses and their preservation – A qualitative approach to structural analysis
Ylva Sandin

Determination of embedment depth of timber poles and piles using wavelet transform
Jianchun Li, Keith Crews, Bijan Samali, Mahbube Subhani, Amir Zad

Pushover analysis of traditional masonry buildings: influence of refurbished timber-floors stiffness
Ivan Giongo, Maurizio Piazza, Roberto Tomasi

In-plane shear behaviour of traditional timber walls
Graça Vasconcelos, Elisa Poletti, Maria Eunice Salavessa, Abílio A.M. Jesus, Paulo B. Lourenço, Preecha Pilaon

Robustness analysis of traditional timber trusses
Tiago Vilarinho, Luís A.C. Neves, Jorge M. Branco

Recognition of local defects in timber constructions to optimize repair work
Otto Kroggel, Andreas Hasenstab, Jan Lutz, Harald Garrecht

Session 14 – Conservation II Room 2 | 16:15 - 17:30

Chairperson: Karl Õiger

The impact of properties of Croatian common wood species in their selection and use in the ancient roof constructions
Radovan Despot, Marin Hasan

Inspection and diagnosis of a wooden floor structure of the Monastery of Santa Maria de Pombeiro
Sérgio M. Martins, Rui Ferreira, Artur Feio

Detection of fungal damage of wood in early stages using drilling cores and drilling resistance compared to non-destructive testing methods
Katja Frühwald, Andreas Hasenstab, Kurt Osterloh

Survey and rehabilitation of an historical timber vault
Mario Alberto Chiorino, Luigia Binda, Carlo Casalegno, Ivano Favaro, Roberto Rossetti, Cristina Tedeschi, Claudia Tiraboschi

Restoration of Gothic wooden ceilings
Fernando Vegas, Camilla Mileto

Closing session Auditorium | 17:45

Paulo B. Lourenço, Chairman of the Scientific Committee
José Saporiti, Chairman of the Organizing Committee

Posters sessions

Thursday, June 16, 15:45 - 16:30
Friday, June 17, 11:00 - 11:30

West Black Sea traditional timber structure; The example of Safranbolu Gökçüoğlu mansion
M. Zafer Akdemir, Dilek Ekşi Akbulut

Learning from the restoration site: the biodiversity of historic wooden structures
Francesco Augelli

Evaluating of the principles in the regulations for construction of timber structures in Türkiye
Erkan Avlar, Ezgi Korkmaz

Expertise and needs in assessing wooden structures through a study case of renovation and change of use in a traditional building from the Cevennes area (France)
François Brillard

Preserving the original system of the timber roof structure on an example of the Handanija Mosque in Prusac
Amir Čaušević, Mevludin Zečević, Nerman Rustempašić

Historical theatres and preservation of the ligneous stage machine. New trends in Italy
Giovanna Ceniccola

Constructive idiosyncrasy in traditional wooden-beam floors in the civil architecture of Valencia, Spain
Maria Diodato

Nondestructive methods for in-service glulam beam evaluation
Ferenc Divos, Árpád Tóth, Peter Takats

Improvements in design of timber structures joined with metal dowel-type fasteners
José González Fueyo, M. Domínguez, J. L. Henares, J. A. Cabezas

Semi-destructive tool for 'in-situ' measurement of mechanical resistance of wood
Michal Kloiber, Jan Tippner, Miloš F. Drdácký

Study of the long time behavior of glulam structures
Georg Kodi

On-site x-ray assessment of density in timber structures
Thomas Kruglowa, Robert Kliger, Ylva Sandin

Investigation of structural timber joints used in two heritage buildings located in Gorgan: Case studies in North of Iran
Mehrab Madhoushi

Strengthening of timber structures on the example of roof truss girders in public building
Maciej Yan Minch, Jerzy Szołomicki, Grzegorz Dmochowski, Piotr Berkowski

Documentation of wooden architecture in Kizhi Island
Sandro Parrinello

Mosques with wooden construction – South of East Azerbaijan Province, functions and methods of conserving
Fereshteh Pashaei Kamali, Behroz Omrani

The conservation and renovation of the timber constructions in the Palace Museum
Zhao Peng, Guo Hong, Cao Xiaoli

Correlation between destructive and four NDT techniques tests on historic timber elements

Vlatka Rajčić, Camilla Colla

Close Range Photogrammetry and NDT imaging techniques for the characterization of timber structural elements

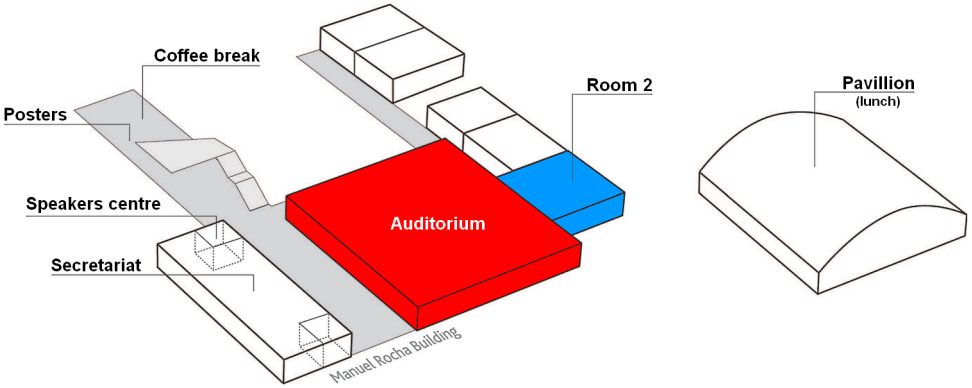
Mariapaola Riggio, Federico Prandi, Raffaele De Amicis , Maurizio Piazza

Historical timber-framed buildings: characterization and acquaintance

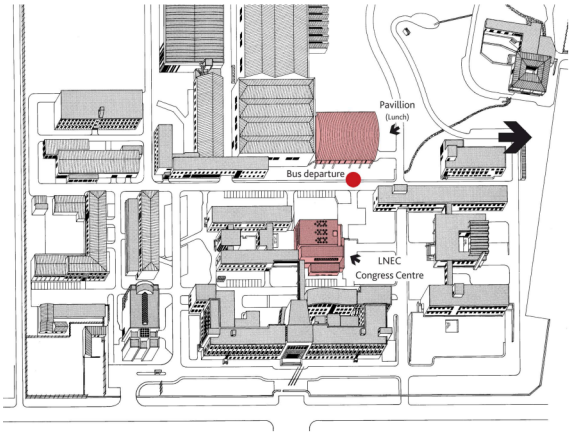
Maria Eunice Salavessa

Earthquake protection of historical buildings using base isolation technology - A case study on wooden structure in Northern Iran

Ako Vaisi



LNEC Congress Center



Map of LNEC

Social programme June 16

The conference dinner will be held during a sightseeing cruise in river Tagus, on June 16th.
Boarding will take place at 19:30, departure at 20:00 and arrival at 23:00.

Transportation by bus from LNEC campus to the boarding location in *Cais LVT na Doca de Alcântara* will be available. The departure time from LNEC will be around 19:00 – check the information displayed near the Secretariat's desk, in front of the Auditorium.

Ask for your dinner invitation at the Secretariat's desk.

More information on the dinner cruise in the website http://www.lvt.pt/en/ (*Lisboa Vista do Tejo)*.

Boarding location – *Cais LVT na Doca de Alcântara*

Notes