

Focused Meeting: Analyses in Mechanics of Wooden Instruments

Institute for Structural Analysis, TU Dresden
Georg-Schumann-Str. 7, 01187 Dresden

PROGRAM

Tuesday May 26

Library, Room 106

09:00	Welcome	
09:15 - 10:45	Session I	Experimental Talks
	I.1 Fioravanti, Marco	<i>Hygro-thermal and mechanical studies of an historical violin</i>
	I.2 Perez, Marco	<i>An experimental approach to assessing structural modifications and damage detection in wooden musical instruments through frequency domain correlation</i>
10:45 - 11:15	Coffee	
11:15 - 13:00	I.3 Larricq, Guillaume	<i>Physical-mechanical properties of Boxwood (Buxus sempervirens L.) used in the making of woodwinds for traditional and/or early music</i>
	I.4 Young, Christina	<i>Using DIC for the Measurement of Moisture Induced Deformations in Wooden Musical Instruments</i>
13:00 - 14:30	Lunch	
14:30 - 16:00	Session II	Applied Mechanics and Numerical Talks
	II.1 Konopka, Daniel	<i>Hygro-Mechanical Structural Analysis of Historical Pianoforte</i>
	II.2 Viala, Romain	<i>Model-based effects screening of a violin including orthotropic material behaviors</i>
16:00 - 16:30	Coffee	
16:30 - 18:00	Session III	Discussion
ca. 18:30	Dinner	

PARTICIPANTS

Name	CV	Expertise
Fioravanti, Marco	Professor of Wood Science and technology at GESAAF Department, University of Florence, Italy. Degree in Forestry with PhD in wood science in 1992. Since over 20 years has carried out research activities in the field of preservation of Wooden cultural heritage with particular topics on Panel paintings, Waterlogged Archaeological wood, Musical instruments. Convener of the WG9 of CEN TC 346 Preservation of Cultural Heritage.	wood anatomy, wood mechanics, Wood ageing, Application of CT and Micro CT scanning to study and characterization of wooden cultural heritage
Gebhardt, Clemens	Research assistant and PhD student at Technische Universität Dresden, age 27. Studied civil engineering until 2013. Working with a software developer to assist the implementation of wood mechanics into an FE software. Research interest is numerical simulation of fracture behaviour of timber constructions and path-following technics.	numerical simulation of failure and fracture
Gril, Joseph	CNRS Senior scientist in the Laboratory of Mechanics and Civil Engineering (LMGC), Montpellier University, France. Aged 56. Background in mechanical engineering. Research on wood mechanics since 1983. Participated to COST actions since 1990. Collaborations in Europe, Japan, China, Morocco, Iran, etc. mostly through data analysis and modelling. Since 2012 leads a national network of wood science (GDR CNRS 3544).	Rheological modelling, structure/properties relationship in wood, tree biomechanics
Kaliske, Michael	since 2006 Professor for Structural Analysis, Technische Universität Dresden, MSc in Computational Mechanics (1989, Swansea) and Diploma in Civil Engineering (1990, Hannover), PhD in Structural Analysis (1995, Hannover), Professor for Structural Mechanics (2002, Leipzig)	numerical mechanics, material modelling, multi-physics, uncertainty quantification, wood mechanics
Konopka, Daniel	Research assistant and PhD student at Technische Universität Dresden, age 25. Studied civil engineering until 2014. Research interest: material modeling of time- and moisture-dependent mechanical behaviour of wood and numerical simulation of complex wooden structures, like pianofortes. Currently working on a project modeling and characterising the structural behaviour of wooden cultural heritage under hygro-mechanical loading.	hygro-mechanical structural analysis

WoodMusICK

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Larrick, Guillaume	Master student in LMGC, Montpellier France, age 24. Discovered wood material during an early research project at L2 level on beech mechanics. Studied wood engineering at ENSTIB, Epinal, France. Currently M2 internship with Iris Brémaud and Pierre Cabroler on properties of boxwood used in woodwind instruments such as flute or oboe.	strain measurements on wood
Perez, Marco	Post-doc Researcher and Adjunct Lecturer at Universitat Politècnica de Catalunya · BarcelonaTech (Spain). PhD Mechanical Engineer (2012) and degree in Music (2009). In 2010 he spent a doctoral research period at the University of Colorado in Boulder (USA). His research and professional interests involve continuum mechanics, experimental mechanics and numerical modeling. General research areas include: composite materials, damage identification and numerical modeling, fiber Bragg grating sensors (FBG), vibration analysis and non-destructive testing. He is currently working on the structural modifications assessment and damage identification through frequency domain correlation.	composite materials, damage identification and numerical modeling, fiber Bragg grating sensors (FBG), vibration analysis, non-destructive testing
Viala, Romain	PhD student at Université de Franche-Comté, Besançon France, aged 26. Research interest about material properties, vibrations and numerical simulations of wooden structures. Working on application on stringed instruments of numerical methods. Amateur stringed instruments maker, mostly guitars.	Numerical modeling of static and dynamical behavior of structures. Modal experiments on musical instruments. Instrument making
Young, Christina	Christina Young is a reader in easel painting conservation and conservation science at the Courtauld Institute of Art, London. Christina supervises structural conservation treatments for both canvas and panels, and is active in research in fatigue and fracture of paintings and wooden musical instruments, non-invasive monitoring techniques and methods/materials for structural conservation. Christina Young has a BSc in Physics from Imperial College (ICSTM) and an MSc in Applied Optics and gained her PhD in the "Measurement of the biaxial tensile properties of paintings on canvas" in 1996. Before joining The Courtauld she was Leverhulme Research Fellow at Tate Britain between 1997-2000. In 2010 she was a visiting Getty Scholar at the Getty Conservation Centre, Los Angeles. Since May 2013, she has been made a visiting academic at Imperial College, London.	fatigue and fracture of paintings and wooden musical instruments, non-invasive monitoring techniques and methods/materials for structural conservation