

Action FP1004 “Enhance mechanical properties of timber, engineered wood products and timber structures”

STSM Scientific Report

In the name of the host institution, Polytechnic University of Madrid, the undersigned Jose L. Fernandez-Cabo, and related to the STSM (Sort term scientific mission) of Dr. José Xavier, within the COST FP1004 action, **I would like to confirm the total successful execution of this STSM, developed between 24th-30th June 2012.**

The STSM linked with a ongoing common work between all the involved researches in relation with the characterization of clear wood using a simple specimen and by means of optical measurements techniques.

The general idea, for a first step in our collaboration, is to work for expanding the published work: A. Majano-Majano, J. L. Fernandez-Cabo, S. Hoheisel and M. Klein. 2011. “A Test Method for Characterizing Clear Wood Using a Single Specimen”. *Experimental Mechanics*. DOI 10.1007/s11340-011-9560-6.

A first common work, approved as oral presentation, will be presented in the 6th EUROPEAN CONGRESS ON COMPUTATIONAL METHODS IN APPLIED SCIENCES AND ENGINEERING (ECCOMAS 2012) 2012 Congress, to be held in Vienna, Austria, September 10th-14th, 2012; with title: “Characterization of clear wood by a single specimen: evaluation of first results and further improvements”.

A second common work, already approved, will be presented in the 15th International Conference on Experimental Mechanics, ICEM15, to be held in Porto, 22-27 July 2012, with title “Identifiability of stiffness components of clear wood from a single off-axes compression test”.

I summarize the work done as follows:

1. Review of the content of the two mentioned papers
2. An explorative experimental campaign was conducted in the lab. Different tests were done in order to improve the set up of the proposed test, one of the most crucial topics.
3. Computational topics related with the boundary problems were also commented
4. Two ways for advancing in the optimization of the set up were sketched.
5. CITAB transferred know-how to UPM in the use of scripts in ARAMIS-3D and its connection with MATLAB.
6. There was two technical visits in order to improve the accuracy of the measurements, one at ETS de Minas, from UPM, and other one to INTA (Institute for Aeronautical Techniques), a leading research centre in Spain and relevant in Europe.

Last but no least, the work is at sure an important step for founding a lasting collaboration between both institutions and teams.

I would like sincerely to thank to this COST action the funding of this STSM.

Jose L. Fernandez-Cabo, UPM

