Activities

Workshop: Each year a workshop is planned for bringing together scientists within and beyond the framework of the Action for discussing and presenting the state-of-the-art of wood micro-characterization and for communicating current ideas and strategies for its exploration in the field of wood micromechanics.

Working Group Meeting: Working Group Meetings are scheduled twice a year (one of them after the workshop). They aim at in-depth discussion on the scientific program of the Action.

Training School: Training schools on specific topics related to the Action are planned annually. They gear to provide Early Stage Researchers and Ph.D. students with fundamental knowledge on the key topics treated in the Action.

Short Term Scientific Mission (STSM): Researchers (especially Early Stage Researchers) participating in the COST Action are encouraged to apply for a STSM for going to an institution or laboratory in another COST-country to foster collaboration, to learn new techniques, or to take measurements using instruments and/or methods not available in their own institution/laboratory.

STSMs should last at a minimum one week (5 working days) and at a maximum three months. Applications have to be made through the online registration tool at the official COST webpage (www.cost.esf.org/stsm).

The application form together with a Full CV and a detailed work plan has to be sent both to the future host institution and the Chair of the Action. Before applying for a STSM an agreement of the host institution has to be obtained.

Management Committee Meeting & Steering Committee Meeting: In addition, MC & SC Meetings take place at least annually for guaranteeing a smooth organisation of the Action.

Action Chair
Karin HOFSTETTER
Vienna University of Technology, Austria

Action Vice-Chair
Lennart SALMÉN
Innventia (formerly STFi-Packforsk), Sweden

Working Group Leaders
Lisbeth THYGESEN
WG1 Leader
University of Copenhagen, Denmark

Michaela EDER
WG2 Leader
MPI of Colloids and Interfaces, Germany

Kristofer GAMSTEDT
WG3 Leader
KTH - Royal Institute of Technology, Sweden

Rapporteur
Martin GREIMEL
Austrian Federal Ministry of Agriculture, Forestry, Environment & Water Management

Science Officer
Melae LANGBEIN
COST Office, Belgium

About COST
COST – European Cooperation in the field of Scientific and Technical Research – is one of the longest-running European instruments supporting cooperation among scientists and researchers across Europe. COST is also the first and widest European intergovernmental network for coordination of nationally funded research activities.

More information on COST can be found at the COST website (http://www.cost.esf.org).
**Objectives of Action**

The main objective of the COST Action FP0802 “Experimental and computational micro-characterization techniques in wood mechanics” is to increase the understanding of the wood microstructure and micromechanics by exploring and evaluating emerging techniques in the fields of physics, chemistry, materials, and computer science in order to provide a strong basis for the development of innovative wood-based products in the future and for enhancing the use of the natural resource wood.

**WG1: Wood microstructure**

**Topics:** molecular structure of cell wall (incl. bonds), molecular origin of time and moisture dependence of mechanical behavior  
**Methods:** microscopic and spectroscopic methods, X-ray techniques; wood modification and mechanical treatment  
**Aims:** deepened understanding of microstructural (molecular) origin of mechanical behavior, explanatory models

**WG2: (Hygro-)mechanical behavior of wood**

**Topics:** (micro)structure function relationships, hygro-thermo-mechanical properties of cell wall and its components, in-situ tests  
**Methods:** micro-tensile testing, DMA, nano-indentation, SAM, NMR, DVS  
**Aims:** hygro-thermo-mechanical properties of wood across several length scales under different environmental conditions

**WG3: Computational modeling**

**Topics:** multiscale approaches, hygro-thermo-mechanical couplings, inverse parameter identification, virtual testing  
**Methods:** finite element simulations, homogenization techniques, composite micromechanics, molecular dynamics  
**Aims:** predictive integrated computer models for hygro-thermo-mechanical behavior

**Scientific program**

The Action aims at exploring the possibilities that new experimental and computational micro-characterization methods can provide for the wood micromechanics sector, the assessment and evaluation of the promising methods, and their application for improving the current knowledge of the wood microstructure and wood micromechanics. Benchmark examples, which are not yet available in this sector, will be formulated. This will prepare the field for future research and also for possible emerging new requirements of the forest products industry. Such requirements will evolve from the expected enhanced use of wood as raw material for new bio-degradable nanocomposites in the near future. The ambition to tailor the nano- and microstructure of such composites to the intended use results in the need for efficient methods to assess the wood ultrastructure and its influence on the mechanical behavior of the composite materials. According to the scientific areas treated within the COST Action, three Working Groups are formed:

**How to join the Action**

If you are working in a COST country having not yet accepted the Action’s Memorandum of Understanding:  
Contact the COST National Coordinator (listed at http://www.cost.esf.org/about_cost/who/) who can launch your country’s participation procedure and inform the Chair of the Action of your interest.

If you are working in a COST country having already accepted the Action’s Memorandum of Understanding:  
If not 2 representatives of your country have yet been nominated contact your COST National Coordinator who can officially nominate you as a representative of your country to the Management Committee and inform the Chair of the Action of your interest.

Otherwise contact the Action Chair for possible nomination to a Working Group.

More information (also for non-COST countries) at http://www.cost.esf.org/participate/join_action.