



CompWood 2019

JUNE 17–19, 2019 | VÄXJÖ | SWEDEN

International Conference on

Computational Methods in Wood Mechanics – from Material Properties to Timber Structures

Book of Abstracts



Preface / Foreword

Dear participants of CompWood 2019,

It is our great pleasure to cordially welcome you at Linnaeus University, on the occasion of the second version of the ECCOMAS Thematic Conference on Computational Methods in Wood Mechanics - from Material Properties to Timber Structures (CompWood 2019).

Växjö – the greenest city in Europe, is both a vision and ambition for the municipality, and building with wood is one major contribution to its sustainability goal. It is an exceptional and highly stimulating environment for all stakeholders in the process of building with wood. The region holds everything that is required for this ambition of a Wooden City, namely the raw material in local forests, forest owners and sawmills, the municipality with a strategic environmental work and a commitment to modern wooden constructions, in combination with strong local business partners developing new products and building systems up to contractors and developers dedicated to sustainable building. Linnaeus University has the central role of generating and disseminating fundamental and applied knowledge related to wood building technology together with the above-mentioned stakeholders in a holistic perspective. This is why we think that Linnaeus University is a predestined place for the second version of the ECCOMAS Thematic conference CompWood.

Building with wood and creating a sustainable built environment through competitive, resource and economically efficient wood-based products and building systems must be based on a strong scientific knowledgebase in order to succeed with this challenge in a long-term perspective. Increased understanding of the unique microstructure of the material, their components and their interaction, gained through the last decades can be exploited in new engineered wood-based products and building systems. Computational methods for the simulation of the mechanical behavior of wood play a key role, not only for an enhanced understanding and predictability, but also for the derivation of engineering design methods for a reliable and safe design of durable wooden structures. Wood is much more than a carbon dioxide storing material, it shows exceptional mechanical properties, not yet fully exploited in engineering applications. Moreover, the increasing competition for this raw material will require innovative methods to ensure efficient utilization of this natural resource.

The objective of the CompWood 2019 ECCOMAS thematic conference is to facilitate the progress in wood mechanics by bringing together scientists focusing on the micro- up to the structural scale. We want to contribute a platform for the dissemination of new methods and technologies. The goal is to present and discuss results of recent research activities, to exchange knowledge, and to discuss new paths for novel future research in order to extend our knowledge base. Computational methods, often in combination with experimental investigations, substantially contribute to explore the anisotropic, hygroscopic, and time dependent properties of wood and to exploit them in engineered wood-based products and structural applications, not limited to the built environment. This is why we aim to bridge length scales; and we are glad that we could attract a strong interest with more than 90 expected presentations, including numerical, experimental, theoretical as well as applied contributions. Five distinguished keynote lecturers will span over the above described conference topics and we are thankful to them for accepting the invitation.

The conference is jointly organized by Linnaeus University and TU Wien. We would like to acknowledge the support of ECCOMAS for providing the possibility to organize the CompWood conference under their auspices. Many thanks also go to the Scientific Advisory Committee for helping advertising the conference.

Finally, we would like to thank you for your contribution to the success of this conference. We hope you find the presentations and the discussions interesting and stimulating, that you have a wonderful time in Växjö and that you will leave the wooden city with a lot of great impressions and new ideas for your research. Enjoy your stay and welcome to Linnaeus University!

Thomas K. Bader
Josef Füssl
Anders Olsson

Chairmen of the 2nd CompWood ECCOMAS thematic conference CompWood