

ISCHP 2019

7th - International Scientific Conference on Hardwood Processing

PROCEEDINGS



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Biobased Structures and Materials
Delft University of Technology
Delft, The Netherlands

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PREFACE

The 7th International Scientific Conference on Hardwood Processing (ISCHP) is hosted by Delft University of Technology in the Netherlands. After Canada (2007 and 2015), France (2009), USA (2011), Italy (2013) and Finland (2017). The scientific collaborators in the ISCHP family take in turn the responsibility of the conference organization, increasing the visibility of the conference by extending the family with new members every time.

The 12-year old history of ISCHP shows that interest in hardwoods and related natural resources is growing rapidly around the world. Topics covered by ISCHP conferences deal with species properties and quality, primary and secondary processing of hardwoods as well as hardwood applications. ISCHP 2019 will host representatives from countries from Europe, Africa, North- and South-America and Asia.

The Biobased Structures and Materials group of the TU Delft took the opportunity to invite the ISCHP family to Delft for the 2019 Conference. Building with wood has a long tradition in the Netherlands, whether traditional windmills, houses, boat building, bridges or hydraulic works. The centuries old Dutch international trade history of wood, has made the country a particular case for a variety of wood applications. Moreover, just as we are inspired by the many cultures and countries involved in wood trade and use, we hope that this conference will stimulate and inspire the participants from around the world to explore the potentials for hardwoods even more. The conference deals also with bamboo, a material that resembles wood behavior in many aspects.

More than 40 scientific contributions, including four keynote and two company R&D presentations are presented at the conference. The company presentations will give an industrial point of view on research and development as well as academic cooperation that lead up to the successful introduction of products on the 'wood' market.

Papers written on the presentations have undergone a scientific peer-review process. They are available for readers in an electronic format in the Conference Proceedings. A selected number of papers will be published in a special issue of the European Journal of Wood and Wood Products, a SpringerNature publication.

We would like to express our sincere thanks to all ISCHP 2019 participants, as a conference thrives by their willingness to present their scientific work and actively participate in this conference, giving merit to previous ISCHP conferences while paving the way for the future.

The members of the scientific committee are gratefully acknowledged for their support, feedback and review activities. We truly appreciate all the time and effort of the TU Delft staff members who contributed to ISCHP 2019, both with respect to the organization, the proceedings and the excursion. Without them, ISCHP 2019 would not have been possible.

Jan-Willem van de Kuilen & Wolfgang Gard
Conference chairs

SCIENTIFIC COLLABORATION



FINANCIAL SUPPORT



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Alfredo Dias, University of Coimbra, Portugal
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Keynote Presentations

Eric de Munck

Hardwoods: Trade, Regulation and Promotion

Netherlands Timber Trade Federation, Almere, the Netherlands

Peter Zanen

Structures with tropical hardwoods

Wijma Kampen BV, Kampen, the Netherlands

Alfredo Dias

Hardwood research and development in Portugal

University of Coimbra, Portugal

Li Haitao

Research and application on bamboo building materials

Nanjing Forestry University, Nanjing, China

Company R&D presentations:

Arjan van der Vegte

MOSO Bamboo, Zwaag, the Netherlands

Pieter Rozema

Brookhuis Applied Data Intelligence BV, Enschede, the Netherlands

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Session I

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