Proceedings

Processing Technologies for the Forest and Biobased Products Industries

PTF BPI 2014 at the Salzburg University of Applied Sciences
Kuchl/Austria

Hosts & Organizer

Fachhochschule Salzburg University of Applied Sciences

cost Action FP1006

Scientific Partners

FOREST PRODUCTS SOCIETY

IUFRO

BOKU

THE UNIVERSITY of TENNESSEE KNOXVILLE

UNIVERSITATEA Transilvania BRASOV

Event Sponsors

EGGER

schattdecor

HAMBERGER

holz technikum kuchl

MARKTGEMEINDE KUCHL

FOREWORD

The aim of the 3rd Conference on Processing Technologies for the Forest and Biobased Products Industries (PTF BPI) is to facilitate interaction between scientists, researchers and experts from companies, who gathered in Kuchl from 24th to 26th of September 2014 to share their new studies and the results of scientific activities.
This edition of the conference is hosted and organized by the Salzburg University of Applied Sciences at Campus Kuchl and scientifically supported by Cost Action „Bringing new functions to wood through surface modification" (FP1006), Forest Products Society (FPS), International Union of Forest Research Organizations (IUFRO), University of Tennessee in Knoxville (UT), University of Natural Resources and Life Sciences, Campus Tulln (BOKU), and Transilvania University of Brasov (UTBv).
The conference builds upon the previous successful editions held in St. Simons Island, Georgia, USA (PTF BPI 2012) and Kuchl/Salzburg, Austria (PTF BPI 2010). The following topics are covered in 11 parallel, 3 plenary sessions and one meeting with the experts of the industry:

- *Raw Materials for the Wood Industry*
- *Bio-refinery and Energy from Wood*
- *Modern Wood Constructions*
- *Wood Drying Technologies*
- *Wood Modification Processes*
- *Wood-based Composites*
- *Finishing Technologies*
- *Emissions of Wood Products*
- *Service Life and User expectations*

This conference proceedings contains 97 works written by 319 authors from 30 different countries, whereby each paper was subject to an identical full review procedure. The proceedings was compiled under the supervision of Prof DI(FH) Dr. Alexander Petutschnigg, FH-Prof Univ.-Prof. Dr.-eng. Dr. Marius C. Barbu and Eng. Eugenia Tudor. This intensive review process, carried out for a total of 156 papers in a period of four months, could not have been accomplished without the assistance of the members of the Scientific Committee and the reviewers listed below.
For the 3rd Edition, PTF BPI introduced a new concept of special keynote sessions held by specialists from industry, who will present the latest technologies and know-how to participants. Experts from top quality and successful companies are ready to impart their state-of-the-art knowledge during their keynotes planned every conference day.
The high quality of the papers represents the knowledge and experience of scientists and experts from universities, research institutes and companies from the field of forest products, wood-based composites, wood chemistry and renewable energies from wood. This book will provide scientific groups the world over with an excellent reference and should help to open up new avenues for research and provide scientists, researchers and industry experts with original ideas to help them improve their activity and research.
The conference organizers have put together excellent scientific and social programs that encompass both the latest research in the fields mentioned above and provide an opportunity to renew old friendships and make new acquaintances.
The editors and reviewers deserve special thanks for their outstanding efforts in preparing the manuscripts for publication. The reviewing process was not only critical, the suggestions the improvement or development of some sections in the papers led to the high quality of the final manuscripts.
Finally, we would like to thank all presenters for their willingness to share their latest research and ideas. Without all this effort, this conference would not have been possible.

Special thanks to:

M.Sc. DI DI(FH) Anton Astner (University of Tennessee, Center for Renewable Carbon) - Bio-refinery and Energy from Wood
Prof. Dr.-eng. Dr. Marius-Catalin Barbu (Salzburg University of Applied Sciences, Forest Products Technology and Timber Construction) – Wood-based composites
Dr. Pannipa Chaowana (Walailak University, School of Engineering and Resources, Thailand) - Raw Materials for the Wood Industry
DI Thomas Forte (Salzburg University of Applied Sciences, Forest Products Technology and Timber Construction) - Modern Wood Constructions
M.Sc.DI(FH) Hermann Huber (Salzburg University of Applied Sciences, Forest Products Technology and Timber Construction) - Wood Drying Technologies
Dr. Sergej Medved (University of Ljubljana, Biotechnical Faculty, Department of Wood Science and Technology) – Wood-based Composites
Prof. Dr. Holger Militz (Georg-August Göttingen University) - Wood Modification Processes
Chem. Electra Papadopoulou (Chimar Hellas) - Finishing Technologies
DI(FH) Dr. Thomas Schnabel (Salzburg University of Applied Sciences, Forest Products Technology and Timber Construction) - Wood Modification Processes
Prof. Dr. Milan Šernek (University of Ljubljana, Biotechnical Faculty, Department of Wood Science and Technology) – Wood-based Composites (Adhesives)
Dr. Jakub Sandak (Trees and Timber Institute CNR-IVALSA) - Service Life and User Expectations
Ingrid Seidl (Salzburg University of Applied Sciences, Campus Kuchl)
DI Dr. Martin Weigl (Holzforschung Austria) - Emissions of Wood Products
DI(FH) Dr. Stefanie Wieland (Chair of COST FP1006 "Bringing new functions to wood through surface modification")

TABLE OF CONTENTS

Session: Service Life and User Expectations (Chair: J. Sandank)

Posters