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THÜNEN



BRALECOMP

1st Brazilian-German Workshop on Composite Products from Alternative Lignocellulosic Resources

Pirassununga-SP, Brazil

March 5 – March 9, 2018

SPONSORED BY THE



Federal Ministry
of Education
and Research



DLR
Deutsches Zentrum
für Luft- und Raumfahrt
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SCOPE

The Brazilian bio-economy depends on high-quality products from lignocellulosic raw materials (wood, bamboo, palm, sugar cane). The production of engineered high-value products and high-performance composites in Brazil is emerging but needs a strong push.

One well-known example is the industrial bamboo sector in Brazil. Only a few manufacturers process bamboo to toothpicks, chopsticks, curtains, pulp and charcoal. Most of these products are of low value and exports are relatively rare. University of Hamburg, Fraunhofer WKI as well as the University of São Paulo showed that bamboo is suitable for industrial panel materials such as fibre boards (MDF), particleboard (PB) oriented strand boards (OSB) and long-strand bamboo composites (also known as scrimber) as well as fibre-matrix composites. Technical, economic and ecological feasibility are proven but not yet applied to a broad extent.

The obstacles to a successful implementation and the great opportunities of such raw materials requires investigation and action. BRALECOMP, the “1st Brazilian-German Workshop on Composite Products from Alternative Lignocellulosic Resources” shall promote a vertically and horizontally integrated R&D network. We are willing to form long-term consortium of industrial, academic and public partners from Brazil and Germany and seek motivated contributors, creative participants and experienced partners.

As a result, we are seeking a bilateral research consortium of research institutes and industrial partners. The development, characterization and application of a scrimber composite material based on alternative lignocellulose and biogenic binders will be the focus of this collaboration. The combination of South American semi-finished products from agricultural sources and European processing technology shall lead to a prototype production plant. As a result of the workshop, we want to answer the following questions:

1. What are the technological, economic and ecological potentials of Brazilian alternative lignocellulosic raw materials?
2. What hurdles and desiderata have delayed the development and realization so far?
3. In what form can the participating partner institutions and industrial partners cooperate in an institutional framework?

PARTNERS

The universities in Sao Paulo (USP) and Hamburg (UHH) look back on historically grown relation in many areas but not in wood science, material science and forestry. The initial impulse to join forces for a cooperation committee developed between young researchers from the Department of Materials Science and Engineering at University São Paulo in Pirassununga, the Thünen

Institute for Wood Research, the Wilhelm-Klauditz-Institut (WKI) and the Center for Wood Science at University Hamburg (UHH) in 2016.

A high number of external stakeholders and consortium partners require excellent coordination skills from one hand. The R&D facilitation agency, growME! GbR, based in Hamburg, Germany, supports the initiative by handling communication, administration and organizational issues. Publication of results will be part of their responsibility as well.

TARGET GROUP

The academic target group for this workshop are researchers in the Master or PhD phase and early post-doc researchers from material science, forestry, engineering, business administration and economic. Any contribution which may contribute to one of the sessions is warmly welcome. Furthermore, we explicitly look for participants from industry, associations and public decision makers.

BOARD

Holmer Savastano Junior, PhD (Brazil)

University of São Paulo – Research Nucleus on Materials for Biosystems

Goran Schmidt, MSc (Germany)

University Hamburg/Federal Thünen Institute

Christian Gauss, MSc (Brazil)

University of São Paulo – Research Nucleus on Materials for Biosystems

Luisa Pischtschan, BA (Germany)

Fraunhofer Society e.V., Center for International Management and Knowledge Economy

Juliana Cortez Barbosa, PhD (Brazil)

State University of São Paulo – Department of Timber Engineering

Anh Nguyen, BSc (Germany)

growME! GbR – Project society promoting renewable products and social businesses

ACADEMIC ADVISORS

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Andreas Krause, Prof. Dr. (Germany)

University Hamburg – Center for Wood Sciences

Johannes Welling, Dr. (Germany)

Thünen Institute for Wood Research

PROGRAM SCHEDULE

Monday, March 5

8:00 – 9:00 a.m.	Registration
9:00 – 9:30 a.m.	Welcome, Introduction
9:30 – 10:30 a.m.	Session 1 – Part A (Speech/Seminar) Key note speech 1
10:30 – 10:45 a.m.	Coffee break
10:45 – 12:30 a.m.	Session 1 – Part A (Speech/Seminar) Key note speech 2 / Discussion
12:30 – 2:00 p.m.	Lunch
2:00 – 3:30 p.m.	Session 1 – Part B (Posters and oral presentations)
3:30 – 3:45 p.m.	Coffee break
3:45 – 5:00 p.m.	Panel discussion
5:00 – 5:30 p.m.	Session 1 – Conclusion

Tuesday, March 6

8:30 – 10:15 a.m.	Session 2 – Part A (Speech/Seminar) Key note speech 1 Key note speech 2 / Discussion
10:15 – 10:30 a.m.	Coffee break
10:30 – 12:00 p.m.	Session 2 – Part B (Posters and oral presentations)
12:00 – 12:30 p.m.	Panel discussion
12:30 – 2:00 p.m.	Lunch
2:00 – 2:30 p.m.	Session 2 – Conclusion
2:30 – 3:30 p.m.	Session 3 – Part A (Speech/Seminar) Key note speech 1
3:30 – 3:45 p.m.	Coffee break
3:45 – 5:00 p.m.	Session 3 – Part A (Speech/Seminar) Key note speech 2 / Discussion

Wednesday, March 7

9:00 – 10:30 a.m.	Session 3 – Part B (Posters and oral presentations)
10:30 – 10:45 a.m.	Coffee break
10:45 – 11:15 a.m.	Session 3 – Conclusion
11:15 – 12:15 p.m.	Session 4 – Part A (Speech/Seminar) Key note speech 1
12:15 – 2:15 p.m.	Lunch
2:15 – 3:30 p.m.	Session 4 – Part A (Speech/Seminar) Key note speech 2 / Discussion
3:30 – 5:00 p.m.	Session 4 – Part B Four oral presentations (15 min each)
5:00 – 5:30 p.m.	Session 4 – Conclusion
5:30 p.m.	Closing remarks and farewell coffee

End of the public part

Start of the project committee part

Thursday, March 08

8:30 – 12:30 a.m.	Excursion 1
12:30 – 2:30 p.m.	Lunch
2:30 – 5:00 p.m.	Wrap-up session

Friday, March 09

8:30 – 12:30 a.m.	Excursion 2
12:30 – 2:30 a.m.	Lunch
2:30 – 4:30 p.m.	Follow-up session
4:30 p.m.	Departure of participants
4:30 – 5:30 p.m.	Internal steering committee meeting

SESSIONS & SPEAKERS

SESSION 1 | The state of the art in high-value lignocellulosic composites in Germany and Brazil

- Key note speech 1: Dr. Dirk Berthold (Fraunhofer) Dr. Holmer Savastano Junior (USP)
- Key note speech 2: *Industry representative (2x)*
- Presentations (4x) Students, PhDs, Post-docs
- Panel discussion: Which strategies and developments have led to research, industry involvement and established industrial scale production?

SESSION 2 | Identifying hurdles and desiderata for bamboo and palm based products in Brazil – Markets, Stakeholders, Availability

- Key note speech 1: Dr. Antonio L. Beraldo (Unicamp); Dr. Marco A. R. Pereira (Unesp)
- Key note speech 2: Dr. Juliana Cortez Barbosa (Unesp)
- Presentations (4x) Students, PhDs, Experts
- Panel discussion: How can research projects, industry and public service overcome the challenges and improve the conditions for such products?

SESSION 3 | Products, processes, characterization and applications for bamboo and palm-based composites

- Key note speech 1: Dr. Bhavna Sharma (U. Bath), Dr. Johannes Welling (Thünen)
- Key note speech 2: Dr. Jorge A. Montoya Arango (UTP)
- Presentations (4x) Students, PhDs, Experts
- Panel discussion: Where must future research go to? Technology? Standardization? Performance? Costs? Market? Raw material accessibility? Which are our priority sectors?

SESSION 4 | Biogenic and conventional binders and matrices in bamboo/lignocellulosic based composites

- Key note speech 1: TBA (Thünen), TBA (Fraunhofer)
- Key note speech 2: Dr. Juliana Cortez Barbosa (Unesp)
- Presentations (4x) Students, PhDs, Experts
- Panel discussion: Which traditional and novel binders and matrices will help to overcome current challenges? Is there a future for phenolic resin? Thermoplastic polymers? Inorganic binders? Geopolymer? Polyurethane?

EXCURSION 1

The use of bio-based binders in composites to promote the Brazilian bio-economy is essential. A field visit at the local company "Imperveg" in Aguaí (tbc) will introduce the production, application and quality assurance of bio-polyurethane resins. Castor oil-based PUR is a potential biogenic binder for structural composites.

WRAP-UP SESSION

A representative for each session will summarize the conclusions and present the main outcomes in a short talk. Afterwards, remaining open questions are discussed, and relevant research requirements are determined. The networking afternoon shall end in a social evening. An overview on possible funds, grants and strategy programs in which a future will be presented.

EXCURSION 2

The Laboratory of Wood and Wood structures (LAMEM) of the University of São Paulo, in the city of São Carlos, is one of the oldest institutions in Brazil researching, developing and studying the use of wood and other lignocellulosic materials in civil engineering. A future collaboration with LAMEM is expected and hence, a visit to this department will show its infrastructure, capabilities and expertise. After the visit in São Carlos, an excursion is planned to the Bamboo Agribusiness Research and Development Unit, in the city of Tatui, São Paulo, which is managed by APROBAMBU (Brazilian Association of the Bamboo Producers) and has the biggest bamboo collection in Brazil. The potential of several bamboo species to produce composites will be verified.

FOLLOW-UP SESSION | COOPERATION STRATEGIES, FUTURE ACTIVITIES

Future project partners define main research questions, work packages and mid-term future activities. The outcomes from the past days shall serve as a starting point. A steering committee will be named, and industry involvement will explicitly be defined and fixed in a common letter of intent.

CONTRIBUTION | PUBLIC PART

We kindly invite you to present your ideas and research results within our public sessions. Your contribution should be sent as a single document pdf containing CV and a short abstract (max. 150 words) stating the title, all co-authors, institutions, addresses and three keywords. The work must be sent latest by December 14, 2017 to the e-mail address: bralecomp@growme.de The successful candidates will be announced latest on January 15, 2018.

Please indicate whether you are favouring to present an oral or poster presentation. All accepted and presented contributions will be published in citable proceedings with official ISBN and DOI.

REGISTRATION

Registration is free for all speakers and contributors. For regular participants and students, a registration fee of R\$ 200 and R\$ 100 is charged, respectively. Regular participants can receive a certificate up to 2 credit points (ECTS) for attending the whole event. For registration, please send us an e-mail to bralecomp@growme.de with the subject “Participate – Poster/Oral/Regular”, including your full name, affiliation and expertise.

VENUE & TRANSPORT

The workshop will take place in Pirassununga - São Paulo, Brazil, at the University of São Paulo, in the amphitheatre of the central building. Pirassununga is a privileged city, located 210 km from São Paulo, 100 km from Campinas and equal distance from Ribeirão Preto, in an area of very easy access. Fernando Costa Campus is a beautiful rural/experimental campus with more than 2200 hectares of land with an excellent infrastructure for events and visitors.

Address: Duque de Caxias Norte, 225 Campus Fernando Costa - USP

Location map: [googlemaps link](#)

Travel by car: From São Paulo: Take Bandeirantes highway in the direction of Campinas (aprox. 100 km) and then take Anhanguera highway in the direction of Limeira/Ribeirão Preto up to Pirassununga (aprox. 120 km).

Travel by bus: From the Cumbica (Guarulhos) Airport: Take a bus to Tietê bus station (<http://www.airportbusservice.com.br>) and then you will find a bus from São Paulo to Pirassununga every 2 hours (<http://www.danubioazul.com.br/>). From the bus station in Pirassununga you can take a taxi or a city bus to the University of São Paulo.

ACCOMMODATION

Accommodation is available at the University of São Paulo campus (limited vacancy) in shared bedrooms. For further information, please contact Mr. Christian Gauss: gausschr@usp.br

Several Hotels are available nearby the campus: Hotel Premium Pirassununga, Habitat Hotel Pirassununga, Hotel Messina.

CULTURAL EVENT – BAMBOO BICYCLES

For those who are interested in handicraft and bamboo culture, we are offering a complementary event on March 10-11 (Saturday, Sunday). Our international bamboo bicycle experts will introduce materials and techniques. Additionally, we will offer you a technical hands-on course how to build bamboo-based bicycle frames out of natural fibre composite materials and bamboo.



Further information will be announced soon on www.growme.de/bralecomp