



ESBBC

PROGRAMME

1ST
EUROPEAN
SUMMER
SCHOOL ON
BIO-BASED
COMPOSITES

FROM PLANT & WOOD FIBRES TO ADVANCED COMPOSITES



ONLINE EVENT
6, 7, 8 OF JULY 2021

<https://events.femto-st.fr/ESBBC>

8:50 – 9:00 Welcome & introduction – Vincent Placet

9:00 – 9:20 Towards a more sustainable world – From film to hemp farming – Steve Barron - Chairperson: Darshil Shah

9:20 – 11:45 SESSION 1: Interactive Workshop on bio-based materials design, perception and emotional aspects - Chairperson: Fabrizio Scarpa

9:20 – 9:45 Presentation – Lecture/interview: Influence of processing on the physical and emotional properties of plant fibre-reinforced composites - Jörg Müssig, Tim Huber, Darshil Shah

9:45 – 11:15 Workshop: Perception of the quality and environmental friendliness of bio-based composites - Jörg Müssig, Tim Huber, Darshil Shah

11:15 – 11:30 Coffee break

11:30 – 11:45 Flash presentations

- Analyzing Material Perception Of Biocomposites To Enhance Desirability And Distinguishability - Manu Thundathil
- Natural Fibres as a Sustainable Reinforcement Constituent in Aligned Discontinuous Polymer Composites produced by the HiPerDiF Method - Ali Kandemir
- Laser transmission welding of short flax fiber reinforced thermoplastic composites - Rowshni Jabeen

11:45 – 12:30 Presentation of European projects - Chairperson: Chloé Joly

11:45 – 11:55 SSUCHY - Vincent Placet

11:55 – 12:05 FLOWER - Alain Bourmaud

12:05 – 12:15 NETFIB - Michel Chalot

12:15 – 12:25 FibreNet - Pasi Kallio

12:25 – 12:30 Q&A

12:30 – 13:30 Lunch break

13:30 – 17:30 SESSION 2: Plant and wood fibres - Chairperson: Aart Van Vuure

13:30 – 14:00 Keynote lecture: Overview of plant fibres for bio-based composite reinforcement; main specificities and key properties - Alain Bourmaud, Vincent Placet

14:00 – 14:15 Q&A, Quiz

14:15 – 14:45 Keynote lecture: Wood fibres - from their biological origin to their properties - Michaela Eder, Olivier Arnould

14:45 – 15:00 Q&A, Quiz

15:00 – 15:30 Coffee break

15:30 – 16:15 Mechanical testing of individual wood fibres: video/live demonstration - Pasi Kallio & FIBRObotics

16:15 – 16:45 Keynote lecture: Towards better knowledge of fiber cell wall : from biochemistry to the properties of plant walls, main lines and variables - Arnaud Day, Johnny Beaugrand

16:45 – 17:00 Q&A, Quiz

17:00 – 17:30 Flash presentations

- Combined experimental and numerical approaches to grasp the mechanical behaviour of flax fibres and bundles - Emmanuelle Richely
- Flax between art and engineering: focus on factors that influence the mechanical properties of technical fibres - Alessia Melelli
- Elementary flax fibers tensile tests: from quasi-static behavior to strain-rate dependent model - Martin Lefebvre
- Investigation of the mechanics of interface between individual plant fibers using micro-mechatronics - Jason Govilas
- Full-field 3D Strain Mapping of Flax Fibre Composites by Means of 4D X-CT Digital Volume Correlation - Alexandros Prapavesis
- Novel numerical anatomy-based modelling of bamboo microstructure - Layth S. Al-Rukaibawi

9:00 – 11:45 SESSION 3: Advanced functionalities of bio-based composite materials and structures - Chairperson: Pierre Ouagne

9:00 – 9:30 Keynote lecture: Hygrothermal ageing and durability of bio-based composites and structures - Aart Van Vuure, Peter Davies

9:30 – 9:45 Q&A, Quizz

9:45 – 10:15 Flash presentations

- Experimental simulation of the outdoor humidity in Western Europe and its effect on the properties of flax fibre reinforced composites - Gilles Koolen
- Study of hygroscopic stresses with flax/mapp biocomposites: evolutions through hygroscopic cycles - Victor Popineau
- Creep behavior of bio-based sandwich structures under varying environment - Benjamin Sala
- Reliability of water immersion test in predicting the properties of flax - Maria Morissa Lu
- composites exposed to outdoor conditions
- Are biodegradable polymers suitable as matrix for biodegradable flax composites - Delphin Pantaloni

10:15 – 10:45 Coffee break

10:45 – 11:15 Keynote lecture: Multifunctional bio-based and recycled composite materials and structures - Fabrizio Scarpa, Tulio Panzera

11:15 – 11:30 Q&A, Quizz

11:30 – 11:45 Flash presentations

- Interfacial Toughening of Flax Fibre Reinforced Composites for Better Impact Resistance - Farzin Javanshour
- A novel natural-fibre CNT-reinforced sandwich panel for vibroacoustic applications - Rita Palumbo

11:45 - 12:25 SESSION 4: BIO-BASED BUILDING-BLOCKS, POLYMERS, ADHESIVES AND COATINGS - Chairperson: Laurent Plasseraud

11:45 -12:25: Flash presentations

- Reductive catalytic fractionation of hemp hurd (low-valued residues) from textile fiber production - Suthawan Muangmeesri
- Synthesis of multifunctional phenolic composites with the valorization of forestry residues - Pedro Luiz de Hoyos-Martinez
- Bio-based wood adhesives from Moroccan barks of Acacia Mollissima: Traditional extraction, Innovative Optimization, and Specific Characterizations - Naima Rhazi
- Development of innovative eco-materials based on plant and agrosourced polymers - Haris Brevet
- Influence of natural fibres on curing kinetic of biobased resins - Jean-Baptiste Jouenne
- From biobased synthons to more environmentally friendly biobased epoxy prepregs - Quentin Ruiz
- Development of a hybrid Lignin/TEOS coating for the protection of 2024 aluminium alloys used in the aerospace industry - Gabriel Cardoso Gonçalves

12:25 – 13:30 Lunch break

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13:30 – 17:20 SESSION 5: Bio-based composites and materials applications - Chairperson:
Vincent Placet

13:30 – 14:00 Keynote lecture: Bio-based materials in construction and architecture - Darshil Shah, Ana Gatóo

14:00 – 14:15 Q&A, Quizz

14:15 – 15:45 Keynote lecture: Bio-based composites in wind energy - Bo Madsen

14:45 – 15:00 Q&A, Quizz

15:00 – 15:30 Coffee break

15:30 – 16:00 Industrial applications #1: Developing Biobased Composite Products - Mark Lepelaar, NPSP

16:00 – 16:15 Q&A

16:15 – 16:45 Industrial applications #2 : Natural fiber composites for lightweight mobility - Marion Frey,
BCOMP

16:45 – 17:00 Q&A

17:00 – 17:20 Flash presentations

- SeaBioComp - Development and demonstrators of durable biobased composites for a marine environment - Elke Demeyer
- Use of Arundo Donax (giant cane) by-products in high-performance building components - Giada Giuffrida
- Natural fiber-reinforced geopolymers exposed to accelerated aging tests - Ana Carolina Constância Trindade

JULY 7

9:00 – 10:30 SESSION 6: Workshop on scientific journal writing – Darshil Shah, Alain Bourmaud

10:30 – 11:00 Coffee break

11:00 – 12:25 SESSION 7: Plant cultivation, harvesting and processing - Chairperson: Johnny Beaugrand

11:00 – 11:30 Fibre extraction and valorisation of the different constituents of European plants - Pierre Ouagne, Philippe Evon

11:30 – 11:45 Q&A, Quiz

11:45 – 12:25 Flash presentations

- Hemp fibre mechanical and morphological properties from different carded rovings for composite applications - Marie Grégoire
- Early-flowering hemp fibres for high-value textile or structural composites - Lola Pinsard
- Refining of Vegetal Fibres Through Emulsion Treatment - Mahadev Bar
- Impact of physical treatments on fibers individualization and mechanical properties of a flax/pla non-woven composite - Maxime Gautreau
- Physical and Morphologic Properties of Enset Fiber and effect of surface treatment - Mengstu Asherbe Arefe
- Mechanical characterization of a PHA bio-composites based on natural Alfa fibers - Ismahen Zaafour
- Wood-based biomaterials development: why volatile organic compounds can be relevant indicators - Elise Bertheau

12:25 – 13:45 Lunch break

13:45 – 15:15 SESSION 8: Circular Bioeconomy - Chairperson: Jörg Müssig

13:45 – 14:15 Keynote lecture: End of life of bio-based materials - Karel van Acker

14:15 – 14:30 Q&A, Quiz

14:30 – 15:00 Keynote lecture: Renewable Carbon Concept and Initiative – what does this mean for bio-based composites? - Michael Carus

15:00 – 15:15 Q&A, Quiz

15:15 – 15:45 Coffee break

15:45 – 16:00 Best student presentation Prizes

16:00 – 17:00 Discussions, closing remarks





Dr. Olivier ARNOULD
Associate Professor,
University of Montpellier,
France



Mr. Steve BARRON
Film director and producer,
writer, music video director,
United Kingdom



Dr. Johnny BEUGRAND
Research Director,
INRAE,
Nantes, France



Dr. Alain BURMAUD
Research Engineer,
University of South Brittany,
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Mr. Michael CARUS
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Dr. Peter DAVIES
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