



AUBURN UNIVERSITY

College of Forestry, Wildlife and Environment

Mini research symposium

“Global Perspectives: Advancing Towards a Sustainable Future with Cellulose-based Innovations”

CFWE Room 1101 – 8:30a - noon

March 25, 2024

Time	Speaker	Title
8:30am – 9:00am	Wim Thielemans, KU Leuven University, Belgium	Surface Interactions and Assembly of Cellulose Nanomaterials
9:00am – 9:30am	Fabiola Vilaseca Morera, University of Girona, Spain	Cellulose nanofibers' sensors for on-skin electrophysiology
9:30am – 10:00am	Tekla Tammelin, VTT Technical Research Centre of Finland	FinnCERES Flagship: Emerging fields for biobased and sustainable materials
10:00am–10:30am	Break – Networking	
10:30am-11:00am	Erlantz Lizundia, University of the Basque Country, Bilbao	Life cycle assessment for sustainable bioproduct development, the case of Chitin
11:00am-11:30am	Khakalo Alexey, VTT Technical Research Centre of Finland	Cellulose-based films for advanced applications
11:30am – 12:00pm	Moon J. Robert, USDA Forest Service, Forest Products Laboratory, USA	Removing Barriers to Cellulose Nanomaterials Utilization
12:00p	Meeting Adjourned	

For more information contact Dr. Maria Soledad Peresin soledad.peresin@auburn.edu

GLOBAL PERSPECTIVES: ADVANCING TOWARDS A SUSTAINABLE FUTURE WITH CELLULOSE-BASED INNOVATIONS

MINI-RESEARCH SYMPOSIUM

HOSTED BY THE SUSTAINABLE BIO-BASED MATERIALS LAB
AUBURN UNIVERSITY COLLEGE OF FORESTRY WILDLIFE AND ENVIRONMENT
MARCH 25TH 2024 . 8:30 - NOON



MEET THE SPEAKERS



AUBURN UNIVERSITY
College of Forestry, Wildlife and Environment

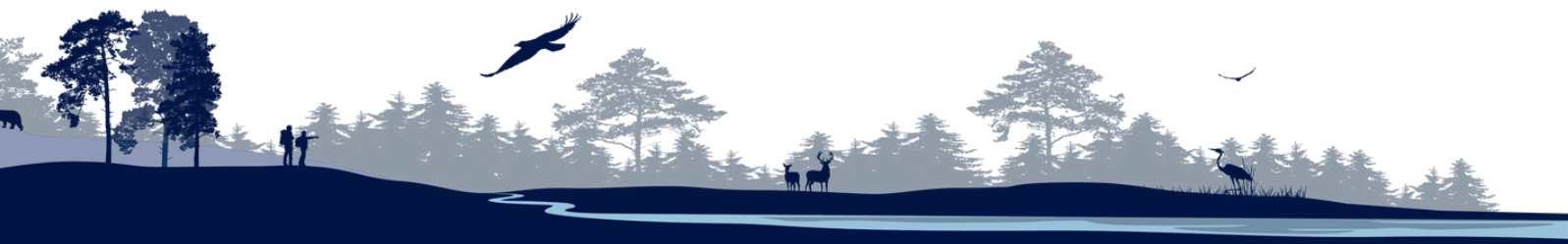
WIM THIELEMANS, KU LEUVEN UNIVERSITY, BELGIUM



Dr. Thielemans received his chemical engineering degree in 1999 from KU Leuven (Belgium) and his PhD in Chemical Engineering in 2004 from the University of Delaware (Newark, DE, USA). He then spent 2 years as a Marie Curie research fellow at the National Polytechnic Institute of Grenoble (France). In 2006 he moved to the University of Nottingham (Nottingham, UK) to set up his own research group where he was jointly appointed by the School of Chemistry and the Department of Chemical and Environmental Engineering. In 2013, he moved back to KU Leuven under the Odysseus program and is now a Full Professor at the Department of Chemical Engineering where he heads the Sustainable Materials Lab. In 2024, Wim also became an International Chair at the Université de Lille (France) and currently (co-)supervises 2 postdoctoral researchers and 21 PhD students. In his research, Wim has been leading work on the surface modification, self-assembly, and advanced materials manufacturing of cellulose, starch and chitin nanoparticles. Wim is a Fellow of the Royal Society of Chemistry, is the current Chair of the ACS Cellulose and Renewable Materials division and an International Chair at the Université de Lille and is managing editor of the journal Industrial Crops and Products (Elsevier). He has over 185 publications, 3 patents, and an h-index of 49. In 2007, he won the Silver Award for his research at the UK House of Commons Set for Britain event, and he was co-recipient of the US EPA Presidential Green Chemistry Challenge Award in 2013.

FABIOLA VILASECA MORERA, UNIVERSITY OF GIRONA, SPAIN

Dr. Vilaseca Morera holds a Ph.D. in organic chemistry by Universitat de Barcelona (Spain), she is a professor at the Department of Chemical Engineering, Agricultural and Food Technology at the University of Girona (Spain) and leader of the research group on Advanced Biomaterials and Nanotechnology. In academia I have worked at Queen Mary University of London (UK), at KTH-Royal Institute of Technology and at Chalmers University of Technology (Sweden). At the industry, I have also worked for some years at the R&D Department for a Pulp and Paper company (CELESA) and for a PMMA company (Gerundense de Plásticos SA). My research expertise comes from about 20 years working mainly on cellulose fibers and cellulose-based composite materials, where I have collaborated in national and international research projects for the packaging, automotive or construction sectors. For the past 8 years, I have worked on functional nanocellulose-based materials, as components for flexible electronics, batteries and sensors. As a result, I have published more than 120 JCR articles, participated in about 190 Conferences, and written about 25 book chapters. My scientific strategy for the coming future is in line with the new 2030 EU targets in the energy & green deal and in the climate & energy framework. Cellulose and nanocelluloses derivatives represent one forthcoming solution in the search for a sustainable society. All in all, materials engineering with tailored performance, electric and electronic properties, interfaces, and nanostructures are key words of my forthcoming research purposes.





GLOBAL PERSPECTIVES: ADVANCING TOWARDS A SUSTAINABLE FUTURE WITH CELLULOSE-BASED INNOVATIONS



TEKLA TAMMELIN, VTT TECHNICAL RESEARCH CENTRE OF FINLAND



Dr. Tammelin is a Research Professor in Biobased Materials Engineering. Docent in Bioproduct Technology at Aalto University and the Vice director and VTT Scientific PI of Academy of Finland funded Flagship joint competence center for the Materials Bioeconomy between Aalto University and VTT (www.finnceres.fi). Her research strategy exploits the inherent features of cell wall systems and its components, and the material concepts draw the inspiration from plant-based material assemblies and functions. Immobilisation templates for energy/chemicals producing living cells; Responsive nanoenhanced membrane materials. Gas/vapour barrier and gas capturing materials; Printed electronics and nanopatterned optical structures. Scientific aim is to bridge the gap between molecular and macroscopic behavior of complex plant-derived materials and further provide new aspects on strategies to construct competitive and viable biobased structures and applications.

ERLANTZ LIZUNDIA, UNIVERSITY OF THE BASQUE COUNTRY, SPAIN

Erlantz Lizundia is Associate Professor at the Faculty of Engineering in Bilbao, University of the Basque Country (UPV/EHU). He received his PhD in Advanced Materials Engineering in 2011 at the UPV/EHU. Erlantz joined the University of British Columbia (Canada) and ETH Zurich (Switzerland) in 2016 and 2018 as a visiting scientist. His work aims to develop environmentally sustainable materials and technologies based on renewable and biodegradable materials such as cellulose, chitin or lignin, using green chemistry, biomimetic, bioeconomy, and circular economy approaches. Erlantz also works on the eco-design of batteries and their recycling, polymer upcycling, or biopolymer valorization through life cycle assessment (LCA).



ALEXEY KHAKALO, VTT TECHNICAL RESEARCH CENTRE OF FINLAND



Dr. Alexey Khakalo, D.Sc. (Tech.) is a Senior Scientist in the Cellulose coatings and films team at VTT Technical Research Centre of Finland with strong competence in functional cellulosic materials development. An author of 36 peer-reviewed papers and recipient of Heinzl-Mondi-Sappi (2018), Andritz Oy (2019), Niilo Rytty (2019) and C.J. Jansson (2018) awards for the development of thermoformable cellulose-based structures for novel 3D-shaped packaging materials. Currently working in academic projects aiming at development of novel lignocellulosic solutions for various high value end-use applications.

ROBERT J. MOON J., USDA FOREST SERVICE, FOREST PRODUCTS LABORATORY, USA

Dr. Robert J. Moon is a Materials Research Engineer at the USDA Forest Service - Forest Products Laboratory (FPL) and is an Adjunct Professor in both the School of Materials Engineering (at Purdue University), and in the School of Materials Science and Engineering (at Georgia Institute of Technology). He received a B.S. in Metallurgy from the University of Wisconsin (1994), a M.S. (1996) and PhD (2000) in Materials Engineering from Purdue University. Dr. Moon began his career at FPL in 2005 and has worked with cellulose nanomaterials (CNMs) since 2007 in developing processing-structure-property relationships for various aspects of CNM research, which includes characterization and measurement, modeling, and nanocomposite development. He has been the technical lead for P3Nano since 2020, and in 2023 he became a TAPPI Fellow.

