



8th Summer school of the LabEx CheMISyst

Behaviour of a macromolecular bioassembly in presence of aqueous electrolytes

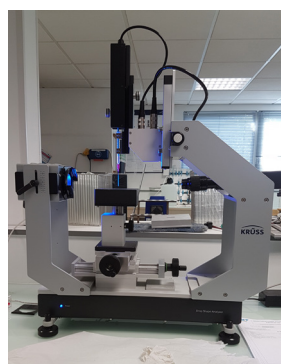
Among its many research actions and seminars, LabEx CheMISyst opens to PhDs, Post-docs and Master students its 8th summerschool that will be held in IMT Mines Alès, September, 2 - 6th, 2019. **This 8th edition will primarily rely on lab practical work and seminars given by internationally recognized researchers in the field of bio-based chemistry and materials.** The main theme will be the study of the “Behaviour of a macromolecular bioassembly in presence of aqueous electrolytes” with as a system of study, wood.

Wood samples will be handled in various aqueous electrolytes and the resulting modified bioassemblies studied through various experimental techniques: elementary analyses (X-ray fluorescence, Energy-dispersive X-ray spectroscopy), free surface energy measurements (wettability), thermal properties (calorimetry) and visco-elastic properties (Dynamic Mechanical Analysis and Atomic Force Microscopy). Participants will thus be able to discover and practice various physico-chemical and mechanical characterization technics and exchange their knowledge and experience with the teaching team. Their data and analysis will be opened for discussion in the frame of a synthesis of the results in plenary.

In addition of these practical works, 5 conferences are also scheduled during the week about wood, cellulose but also on green chemistry:

- **Jean-François Dufrêche (ICSM):** “Osmosis, Osmotic pressure and Osmolarity”
- **Bruno Clair (LMGC):** “Wood structure and uses”
- **Nathalie Gontard (IATE/INRA):** *Conference on valorization of agrosources (pending title)*
- **Sylvain Caillol (ICGM):** “A sustainable approach to biobased aromatic polymers”
- **Tatiana Budtova (CEMEF):** “Cellulose dissolution and shaping into porous materials”

The whole week will take place in the wonderful natural site of the Cevennes which has been labelled last year as one of the tens International Dark Sky Reserve in the world, a perfect place for thinking and relaxing!



Date

September, 2-6th, 2019

You must be present the all week

Venue

IMT Mines Alès, Alès (Gard 30)

This summer school is open to PhDs, Post-docs and Master students from academia interested in bio-based chemistry and materials

Registration

Online applications : pole-chimie-balard.fr

Deadline registration : 5/07/2019

Please note that the number of participants is limited and the selection will be on a first-come-first-served

Accommodations, food and beverages are covered by the LabEx CheMISyst

8th Summer school of the LabEx CheMISyst

Scientific and pedagogical committee

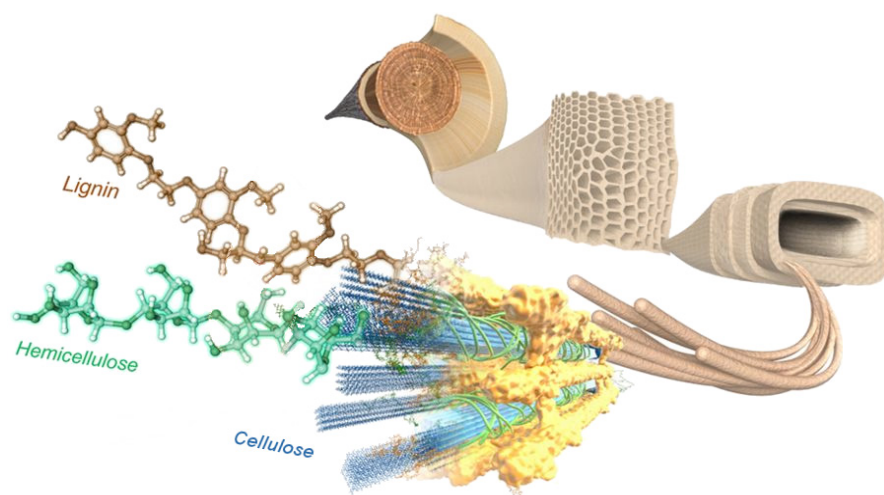
Nicolas LE MOIGNE
Claire LONGUET

Contact

Pauline CHARRIAUX
Chargée de projet
LabEx CheMISyst

labex@polechimie-balard.fr

Wood structures are fascinating, naturally occurring hierarchical bioassemblies that can perfectly adapt to different role in Nature in an ever changing environment thanks to the synergistic assembly of various biomacromolecules, mainly cellulose, hemicelluloses and lignin but also many others specific and functional biomolecules (see Figure). These complex molecular systems primarily interact through weak and long-distance interactions as van der Waals and hydrogen bonding. For decades, researchers and industries attempt to describe and understand these complex structures and their particular interactions either to elucidate their behaviour in Nature or in view of their modification, deconstruction and reassembly for the development of functional materials via chemical and functionalization treatments.



An illustration of wood cell walls and their ultrastructure
(Adapted from Nishimura, Hiroshi, et al. *Scientific reports*, 8, 2018)

More information about LabEx CheMISyst : *LabEx CheMISyst has been launched in 2011 to foster the expertise and competences of Montpellier laboratories on chemistry of molecular and interfacial systems triggered by weak interactions. The main research topics underlying all projects supported by LabEx CheMISyst are the identification of the forces occurring in molecular and supramolecular systems, the understanding of self-assembly processes and their consequences on the macroscopic properties of molecular systems and materials as well as the development of predictive models.*