

PHD PROJECT FROM CHAIR CELLULOSE VALLEY
MULTILAYER BIOMATERIAL PROCESSING TO PRODUCE HIGH VALUE ADDED
CELLULOSE PACKAGING SOLUTION
(INDUSTRIAL & COLLABORATIVE PROJECT – START: OCT 2022)

PhD topic

The Chair “Cellulose Valley” deals with new cellulosic materials for innovative packaging solutions to propose single use plastic alternatives. The main idea is to develop bio-based, biodegradable and recyclable packaging solutions to answer expectations of our society. This chair is a consortium of several industrial partners, with several PhDs, Post-docs and Masters.

The PhD proposal below concerns the development of rigid new cellulosic multilayer materials with specific functions to replace plastics.

The main scientific Challenges are: optimize cellulose layer adhesion, encapsulate active layer within multilayer cellulose materials, understand impact of new cellulosic (nano)particles in mechanical properties, develop barrier properties onto multilayer paper, monitor recyclability and Life cycle analysis of the high performance multilayers. A focus on the packaging applications and ensued properties will be done to propose innovative but applied solutions and to realize demonstrators.

This project will be based in LGP2 in close collaboration with the industrial partners with several meetings, collaborations and visits.

Description and expertise of the laboratory

Laboratory of Pulp & Paper Science (LGP2) is a mixed research unit (UMR 5518) with National Centre for Scientific Research (CNRS). Its activity starts from biorefinery, wood science to material processing and surface functionalization of biobased materials. The Laboratory’s particularity is its pluri-disciplinarity in process, chemistry and materials. Moreover its strong link with packaging industry induces lots of applied research projects and specific tools (from lab to pilot scale). About 90 people are working in this laboratory including 30 PhD Students & 5 post-doc.

The Chaire “Cellulose Valley” is a special eco-system inside the lab dealing with new cellulosic materials for packaging funded by the Fondation Grenoble INP.

Candidate requirement

Candidate should have an Engineer or Master level in the field of Materials science, Chemistry or Process engineering with a specific expertise in field of materials or polymer. Knowledge in biopolymer and paper science will be considered. Work on cellulose or packaging would be a plus. Good English level is needed. Team work capacity, autonomy, communication soft skills and motivation for circular and bioeconomy would be important selection parameters.

Contact persons involved in the project

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Send CV asap (first sent, first in motivation) and before 20th of May 2022