

6 months Master - engineer project In industrial Chair Cellulose Valley

« Development of bio-based polymers formulation for barrier packaging application »

Description and expertise of the organization

The "Cellulose Valley" Chair is a special ecosystem that aims to provide alternatives with new cellulosic materials for packaging applications. It is a consortium of several industrial partners. Cellulose Valley is located in the Laboratory of process engineering for biorefinery, bio-based materials and functional printing (LGP2). LGP2 is a joint research unit (UMR 5518) of the French National Center for Scientific Research (CNRS). Its activities range from wood science to multiscale biobased materials. The laboratory's distinctive feature is its multi-disciplinary approach to processes, chemistry and materials. Its close links with the paper and packaging industry lead to numerous research projects and specific tools (from laboratory to pilot scale).

Main tasks

In recent years, plastic pollution and regulatory frameworks adopted worldwide have reinforced and implemented the circular economy and bioeconomy. In this context, cellulose is an excellent candidate for new high-performance bio-based materials. Companies are increasingly interested in producing or using it in 2D or 3D shape. One of the main challenge is to have good barrier properties to gas or liquid. The proposal below concerns the development of new biobased polymer or molecule formulation. You will try to obtain in operando chemical crosslinking. Developing a demonstrator is one of the tasks to be carried out during the internship. Meetings will be scheduled with the industrial research partners, as well as occasional site visits. It will be from February 2027 to July 2027.

Candidate requirement

The candidate must be at last year engineering school or master's level, with expertise in chemistry, materials or processes. Work on cellulose or packaging barriers would be a plus. Knowledge of biobased polymer will be considered. The ability to work in a team, autonomy and motivation to face environmental issues are important selection parameters. A good level of written and spoken French and English is required.

Contact persons involved in the project

Julien BRAS, Professor and Cellulose Valley chair Holder

Applied via the google form: <https://forms.gle/awf5pBMB26LtWrzU7>

Deadline to apply : 15th november 2026 but apply asap first candidate first serve