

INTERNSHIP OFFER AT THE LMGP

Adhesive proteins and surfaces

- **Description**

- *Context:*

Some glues produced by animals, such as some crustaceans and arthropods, are exclusively composed of proteins. These proteins are able to form self-assemblies onto the material surfaces leading to the adhesion process. The composition and function of these adhesive proteins are sources of inspiration for the development of new biomimetic and biocompatible adhesive products.

- *Internship subject:*

The mechanisms leading to the adhesive properties of these proteins in relation to the materials remain to be elucidated. Indeed, the nature or the topography of the surface in contact with the protein seem to influence the self-assembly process.

In our team, we produce and purify recombinant proteins inspired by these natural adhesives. As part of an ANR project (BioAd 2022-2026), we aim at understanding the influence of material surfaces on the behavior of these purified proteins. For this purpose, new surfaces based on metal oxides are designed in the Funsurf team of the Materials and Physical Engineering Laboratory (LMGP).

The intern, recruited within the LMGP, will have in charge, with a PhD student, of the study of the self-assembly and the conformation of the recombinant proteins in contact with these new surfaces.

She/He will use techniques of biochemistry (protein purification), fluorescence spectroscopy and imaging (confocal microscopy, AFM).

- **Location**

The internship will take place in the IMBM team of the Materials and Physical Engineering Laboratory (LMGP, <https://lmgp.grenoble-inp.fr/en/research/interfaces-between-materials-and-biological-matter-imbm>). The LMGP offers a multidisciplinary environment and three research teams. The laboratory has acquired an international reputation in the fields of the growth and functionalization of crystalline materials, nanomaterials, structured materials in thin layers and the interaction of proteins with materials. In the laboratory, the IMBM team is interested in the interactions of proteins with interfaces, in particular their adsorption/desorption and self-assembly through their interactions with interfaces. Located at the heart of an exceptional scientific environment, the LMGP offers the candidate a rewarding place to work. This project is in collaboration with the ERRMECe laboratory (Equipe de Recherche sur les Relations Matrice Extracellulaire-cellules) at CY Cergy Paris Université, which studies the relationships established between cells and their various biotic and abiotic environments.

- **Profile and requested skills**

We look for a student with a strong knowledge in biochemistry, and/or in biomaterial science. The student should be able to work in a team, have good writing skills (report, presentation...) and good knowledge of at least one of the languages used in the lab: French, English.

- **Funding**

Allowance of \approx 550 €/month.

Funding of the project : Agence Nationale pour la Recherche – ANR BioAd 2021.

Starting date: January or February 2024 for 6 months.

- **Contacts** : send C.V. and cover letter to :

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