

Ph.D. Position – University of Bordeaux FRANCE

Synthesis of photo-polymerizable and foamable prepolymers via continuous flow chemistry for the accelerated discovery of high performance foams - GreenFOAM

Position

The GreenFOAM project is part of a Priority Research Program (PEPR) from the The French National Research Agency (ANR) called [DIADEM](#) (Development of Innovative Materials Using Artificial Intelligence). The aim is to help in accelerating the discovery of more eco-responsible high-performance polymer foams for the industry. Every year, over 600,000 tonnes of foam are produced for bedding, furniture, seating, sporting goods, etc. A transition in this industry through the development of sustainable (pre)polymers (biosourced, degradable) that are not harmful to health, and obtained according to more environmentally-friendly methodologies is therefore necessary. In this context, the GreenFoam project proposed to implement a scientific approach combining rationalized, high-throughput macromolecular engineering, digital simulation and artificial intelligence to accelerate the discovery of more eco-responsible foams.

The recruited Ph.D. candidate will work within a consortium of 5 laboratories (*see below*) in collaboration with 4 other Ph.D. students. His/her specific role will be to synthesize pre-polymers than can be implemented in light-mediated additive manufacturing (3D-printing) and blown to produce foams according to eco-responsible methodologies. The syntheses will be conducted in continuous flow to accelerate the screening of the characteristics of the pre-polymers (e.g. molecular weight, functionality, etc.) and the study of their impact on the properties of the resulting foams.

The Ph.D. candidate will be located within the *Laboratoire de Chimie des Polymères Organiques* (LCPO), one of the top-tier center of polymer science in France, located on the campus of the University of Bordeaux. The research activities of the laboratory span the whole range of modern polymer science. It offers a stimulating workplace for anyone who wants to gain a top-level training in polymer chemistry.

The work will be conducted in collaboration with the *Institut de Science des Matériaux de Mulhouse (IS2M)*, the *Institut de Recherche en Informatique, Mathématiques, Automatique et Signal (IRIMAS, Mulhouse)*, the *Institut Charles Sadron (ICS, Strasbourg)* and the *Laboratoire des sciences de l'ingénieur, de l'informatique et de l'imagerie (Icube, Strasbourg)*.

Candidate's profile

We are looking for a highly motivated student holding a Master degree in organic and/or macromolecular synthesis. Teamwork abilities and good skills in English are required. An experience with flow chemistry would be a plus.

Application

Candidates are invited to apply by clicking [here](#)

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