



PhD offer

Funding CDE/ARED

From 01/10/2023



Study of the degradation of biodegradable polymers in soils and at different scales

Description:

In response to all the issues related to plastic pollution of the various compartments of the environment, in particular the soil (M. Palazot et al., Techniques de l'Ingénieur 2022), numerous initiatives or projects aimed at extending the uses of biosourced and biodegradable plastics are emerging. These polymers have generated interest within the academic community as well as among many industrials looking for environmentally friendly solutions (S. Bruzaud, Techniques de l'Ingénieur 2021).

This project aims to identify the main physical and chemical mechanisms leading to the degradation of biodegradable plastics in soils. The study of intrinsic factors (related to the polymer) and extrinsic factors (characteristics of the environment) will make it possible to understand how the chemical structure and morphology of polymers, as well as the composition and characteristics of the soil, influence degradation and fragmentation processes. Similarly, in situ degradation monitoring will make it possible to assess the characteristics (number, size, shape, etc.) and the duration of persistence of macro- and microplastics in the solid media studied.

The DEPOBIO project integrates strong scientific, environmental and societal concerns in a very critical context with regard to plastics. The study and development of new polymer materials of renewable and biodegradable origin therefore constitute a major challenge for academic research, for the chemical and plastics industries as well as for the entire agricultural sector.

Conditions financières :

Ce projet de thèse sera entrepris grâce à un financement CDE (50%) de l'Université Bretagne Sud et une allocation ARED (50%) de la région Bretagne. La thèse débutera le 1^{er} octobre 2023 et sera menée à l'**Institut de Recherche Dupuy de Lôme** (UMR CNRS 6027) à Lorient. Elle sera dirigée par Prof. Stéphane Bruzaud et co-dirigée par Dr. Mikaël Kedzierski.

Plus d'informations sur les activités du Groupe : <https://www.irdl.fr/annuaire/stephane-bruzaud/>

Profile:

Given the multidisciplinary nature of the work envisaged, the desired profile is that of a student with a bac+5 level in the field of polymers. The candidate will have to master the concepts relating to polymers such as their chemical structure, their characteristics and properties as well as aspects related to soils and their composition. A good knowledge of conventional characterization techniques (microscopy, spectroscopy, thermal analysis, etc.) is required.

Contact et renseignements :

Prof. Stéphane BRUZAUD

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Merci d'envoyer, par voie électronique, un CV complet (y compris notes de Master, classement, etc.) et une lettre de motivation à l'adresse électronique mentionnée ci-dessus.