

Company Description

We invite highly motivated and creative applicants for a Joint PhD position within a collaborative project between Basque Center for Macromolecular Design and Engineering, POLYMAT Fundazioa (www.polymat.eu) and the Institute of Mulhouse Materials Science at the University of Haute-Alsace (IS2M, Mulhouse, France, www.is2m.uha.fr). The PhD will be prepared in these two universities (2 '18 months) on biomimetic waterborne polymer coating combining multilayered structure and surface texturation, two features found in snakeskin epidermis. Starting date: Nov 2020

Information

 **Deadline:** 2020-09-15
 **Category:** Academia
 **Province:** Gipuzkoa

 **Country:** Basque Country
 **City:** San Sebastian

Company

Polymat

POLYMAT
 Basque Center for
 Macromolecular Design and Engineering

Main functions, requisites & benefits

Main functions

To mimic nature and transfer its operating concepts into man-made synthetic products is old as humanity itself. Placed in a research context, the goal is to harness the ingenious principles and mechanisms found in nature and develop smart bioinspired materials and manufacturing methods. Over the last few decades, bioinspired research has penetrated the field of polymers. However, biomimetic polymer materials have found applications mostly in biomedical science and engineering. Considering the broad range of applications offered by polymer in modern life, the lack of biomimetic approach into polymer coatings, a polymer product of high industrial importance, is surprising. In this PhD project, we propose the synthesis of a new snakeskin epidermis-like biomimetic waterborne polymer coating combining multilayered structure and surface texturation. Multicomponent coatings with separate layers can create sophisticated multifunctional coating: hard/soft, linear/cross-linked or hydrophilic/hydrophobic. Nano- and micro-textures created at the coating surface are relevant to create unique properties including low gloss or high mechanical resistance.

Requisites

Candidates can be of any nationality, but are required to undertake transnational mobility because of joint PhD. Applications from candidates who already possess a doctoral degree will not be considered. Candidates should ideally possess a Master's degree in chemistry, polymer chemistry, material science or a closely related discipline. Potential candidates should be able to demonstrate motivation and a strong eagerness to learn. Individuals must possess excellent written, oral communication in English and organizational skills. In addition, they should demonstrate the ability both to work independently and as part of a team. Previous related research experience will be a distinct advantage. Scientific curiosity with an open attitude to work interdisciplinary in the framework of international collaborations is also essential.

Benefits

A highly valuable double expertise in the two predominant zero-VOC polymerisations: photopolymer science and polymerization in dispersed systems Interdisciplinary supervision. The PhD student will be supervised by two academics with different expertise. In case of this double PhD, the institutions will confer two different doctoral titles. POLYMAT has obtained the 'HR Excellence in Research award'. The award reflects our commitment to continuously improve our human resource policies in line with the European Charter for Researchers, the Code of Conduct for the Recruitment of Researchers and our commitment to achieve fair and transparent recruitment and appraisal procedures. **FUNDING:** Basic net amount is different in both universities, and the incumbent will have two separate working contracts. In France, a net monthly salary of 1450 euros is offered for 18 months, while in Spain the net monthly salary is 1168,41 euros for 18 months.