PostDoctoral position – Computational Modelling of Composite Hydrogen Tanks

Description

The proposed postdoctoral position is framed within a collaborative project involving the Université libre de Bruxelles (ULB) and the Vrije Universiteit Brussel.

The project targets the development of a composite-based solution for hydrogen pressure vessels. The development focuses on the selection of the materials for both the liner and composite overwrap, and in particular on the behavior of their interfaces. The multiple components nature of a hydrogen tank implies the presence of different interfaces, both polymer-polymer (or polymer-composite) and metal-composite. The understanding, control and optimization of these interfaces is key to improve the usage of material in the tank. To achieve this, the project research will combine extensive experimental characterization with numerical modelling.

In this frame, the postdoctoral candidate will be in charge of computational aspects, namely (i) the definition of design parameters ranges (materials, geometry) to be used, (ii) the identification of material laws for the composite constituents and their interfaces, and (iii) the modelling associated with the optimization of the metal-composite interfaces.

Skills and Qualifications

- PhD Degree in Mechanical Engineering or Materials Science
- Strong background in Nonlinear Solid Mechanics and Computational Mechanics
- Proven background in Composite Modelling
- An experience in image treatment and image-based modelling is a plus

Specific Requirements

The ideal candidate should have demonstrated record of achievements in computational mechanics. He/She will be able to interact with industrial partners, and will be autonomous in the development of modelling techniques. This includes both the use of commercial modelling softwares (ABAQUS in particular) and the development of specific tools (coding abilities).

A proven sufficient proficiency in English is required.

Benefits

- Full time salary during one year, renewable once
- Expected starting salary function of the post-PhD seniority of the applicant.
- Full social security benefits

Selection procedure

The position will remain open until a suitable candidate is recruited.

As part of their application, the candidates should send the following documents to the contact email **thierry.j.massart@ulb.be** :

- Motivation letter, including availability date for starting working on the project
- CV
- A copy of the PhD Degree
- A selection of the 3 publications most linked to the research proposal, and an explanation of this choice
- Two reference letters

Shortlisted candidates will be interviewed (remotely), where further details about the research project will be discussed.

Application deadline: As soon as possible