

10/03/2020



ESR4: PhD Student Position at Univ. do Porto within EU MSCA-ITN-ETN NewFrac

Where to apply

Application Deadline: 30/06/2020 17:00 - Europe/Brussels

Contact Details

Where to send your application.

COMPANY

Universidade do Porto

WEBSITE

<https://www.newfrac.eu/phd-positions/application-form>

Hiring/Funding Organisation/Institute

ORGANISATION/COMPANY

Universidade do Porto

COUNTRY

Portugal

DEPARTMENT

DEMec- Faculdade de Engenharia

CITY

Porto

ORGANISATION TYPE

Higher Education Institute

WEBSITE

<https://www.up.pt/>

ORGANISATION/COMPANY

LOCATION

Universidade do Porto

Portugal › Porto

RESEARCH FIELD

Engineering › Materials engineering
Engineering › Mechanical engineering

TYPE OF CONTRACT

Temporary

RESEARCHER PROFILE

First Stage Researcher (R1)

JOB STATUS

Full-time

APPLICATION DEADLINE

30/06/2020 17:00 - Europe/Brussels

HOURS PER WEEK

40

OFFER STARTING DATE

02/11/2020

EU RESEARCH FRAMEWORK PROGRAMME

H2020 / Marie Skłodowska-Curie
Actions

REFERENCE NUMBER

NEWFRAC

MARIE CURIE GRANT AGREEMENT NUMBER

861061

The Marie Skłodowska-Curie Innovative Training Network "**NEWFRAC**" (www.newfrac.eu) is a high-level training of a new generation of creative, entrepreneurial and innovative early-stage researchers (ESRs) through the development and engineering applications of a new modeling framework focused on the prediction and analysis of multi-field fracture phenomena in heterogeneous engineering systems at different scales. NEWFRAC in its mission of training students capable of solving the current problems of multi-field fracture phenomena in heterogeneous engineering systems, offers **13 PhD positions** for early stage researchers (**ESRs**) distributed in a network of 5 European countries (**France, Germany, Italy, Portugal and Spain**) and 2 countries associated (**Israel and Switzerland**), with the participation of prestigious academic and industrial institutions that will allow researchers to grow and develop their technical skills in a multisectoral environment.

Besides working on their project at their home institutions, the researchers will participate in network-wide training events like summer schools. Moreover, they will conduct secondments at other network partners combining academic and industrial experiences.

The following position and project is available at **Universidade do Porto** in **Porto, Portugal**:

ESR 4: Fracture of LFRP ultra-thin ply laminates in aeronautical applications

Objectives: *Ultra-thin ply composite laminates are the product of a novel manufacturing technology that produces laminates with higher longitudinal compressive and in situ strengths, higher resistance to delamination events and higher laminate tensile and compressive strengths. However, failure mechanisms in this novel material-type are not completely understood up to now, neither are the most appropriate analysis methods to represent these mechanisms. For instance, the choice of the constituent materials (reinforcing fibres and matrix) and ply size effects become particularly important due to ply thinness, which can be as low as 0.015 mm (i.e. 2-3 fibre diameters). On the other hand, macro-mechanical homogenization is much easier to achieve in ultra-thin ply laminates due to a finer ply dispersion; hence, their mechanical behaviour is suitably represented by a homogenized quasi-brittle material model at the coupon and sub-component levels. The aim of this project is to understand the failure mechanisms and fully exploit the load bearing capacities of ultra-thin ply laminates by means of the development of novel numerical techniques integrating FFM and PF approach of fracture in the most efficient way. These modeling strategies will be set up at different scales of analysis. Micro-mechanical analysis will provide more comprehensive understanding with regard to the potential sources of damage (matrix breakage, fibre-matrix decohesion, delamination, among others), as well as the prospective propagation paths, and allow the study of constituent and ply size effects. Additionally, macro-mechanical modeling strategies will be employed to predict the macroscopic response of ultra-thin ply coupons and structures. Special attention will be devoted to investigating geometrical effects and loading states in specimens with stress concentrations and holes, which are of relevant practical importance in the aeronautical and aerospace industries* **For more information about this position please go to <https://www.newfrac.eu/phd-positions/esr4>**

Contract signing and incorporation dates are orientative and have yet to be defined. For **more information** about the call and application process visit www.newfrac.eu

“Applications **must be e-mailed** to recursoshumanos@fe.up.pt mentioning the reference FEUP-NewFrac-ESR4-THIN in the subject, in addition to being submitted at the NewFrac website. For details on the required documents to be submitted with the application, please [click here](#).”

ADDITIONAL INFORMATION

Benefits

A full-time fixed-term contract is offered. Marie Curie ITNs provide competitive financial support to the ESR including: a competitive monthly living and mobility allowance and salary, coverage of the expenses related to the participation of the ESR in research and training activities (contribution to research-related costs, meetings, conference attendance, training actions, etc.). The recruited researchers will have a regular contract with the same rights and obligations as any other staff member of the institution.

Eligibility criteria

Applicants must at the time of recruitment: **1)** Be in the first four years (full-time equivalent) of their research careers. The four years start to count from the date when a researcher obtained the degree (e.g. Master's degree) which would formally entitle him/her to embark on a doctorate. **2)** Candidates could be of any nationality but have not resided in the host country for more than 12 months in the last 3 years **3)** Have NOT been awarded a doctoral degree.

Selection process

Applicants are evaluated by a selection committee on the basis of past academic performance (grades) and background, scientific relevance and aptitude to research, and any other additional pertinent data submitted in the application (such as scientific publications, if any). The candidates that pass the initial assessment of the applications will be invited for an interview with the selection committee, either in person at the campus, or via standard internet videoconference. Equal opportunities are ensured to all candidates throughout the evaluation process.

Web site for additional job details

<https://www.newfrac.eu/phd-positions/application-form>

REQUIREMENTS

Offer Requirements

REQUIRED EDUCATION LEVEL

Engineering: Master Degree or equivalent

REQUIRED LANGUAGES

ENGLISH: Excellent

Skills/Qualifications

- Master's degree in Mechanical/Aeronautical/Civil Engineering/ Physics/ Applied Mathematics, **earned before October 31 2020**

- Excellent undergraduated and Master's degree grades
- High level of written and spoken English
- Teamwork ability

Specific Requirements

- Solid background on Composite Materials, Continuum Mechanics, Finite element Method, Fracture Mechanics.

Map Information



Job Work Location



Personal Assistance locations

WORK LOCATION(S)

1 position(s) available at
Universidade do Porto
Portugal
Porto
Rua Dr. Roberto Frias, s/n
4200-465

EURAXESS offer ID: 503041

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