

ANNOUNCEMENT FOR PROVISION OF THE WORKPLACE

VAC-2023-58 – Grant for the hiring of predoctoral research personnel (FPI) in the framework of the **DMK-COMPOSITE project - Degenerated-Multiscale-Kinematics (DMK) techniques** in the qualification of machine learning assisted materials.

Number of places: 1

Category: PhD Student

Workplace: Barcelona, Campus Nord UPC

Salary (gross): 17.651,68€¹

Weekly working hours: 40h/week

Contract type: PhD

Duration: 4 years

Planned start date: January 1st 2024 as maximum

Functions to be developed:

A doctoral thesis in the framework of the research project entitled DMK-COMPOSITE – Degenerated-Multiscale-Kinematics (DMK) techniques title, in the coalification for the automatical learning assisted by materials, of Ref. PID2022-140249OB-I00, which principal investigators are Prof. Juan Cante Teran and Prof. Oriol Lloberas Valls, co-lidering the Computational Design & Analysis of Engineering Metamaterials group.

¹ The salary will be adapted in accordance with the stipulated in Real Decreto 103/2019 (current salary revised annually: 17.651,68€ for the 1st and 2nd year, 18.912,52€ for the 3rd year and 23.640,65€ for the 4th year) and next actualizations.

Additional grant of 6.860€ to cover the expenses derived from stays in R&D centers.

The thesis will be conducted within the context of one of the research lines of the group, focused on the computational design of advanced materials. The work is supported by three clearly established pillars: 1) Modelling the material's behaviour using multiscale techniques, 2) Optimization of both the material and the design through the combination of various tools from topological optimization, genetic algorithms, and the latest machine learning techniques, and 3) Development of reduced-order methods, adapted to the specific problem, to significantly reduce computational costs.

Additional information about the Project available at: [CIMNE RTD Project: DMK-COMPOSITE](#)

The candidate will join the research group of Computational Design & Analysis of Engineering Metamaterials: [Computational Design & Analysis of Engineering Metamaterials](#)

This contract is financed by the announcement of Proyectos de Generación de Conocimiento 2022 del Ministerio de Ciencia e Innovación: [Proyectos de Generación de Conocimiento 2022 | Agencia Estatal de Investigación \(aei.gob.es\)](#)

Required skills:

- The candidate must have a Master's degree (or equivalent) in Aeronautical, Civil, Industrial, or Mechanical Engineering; and to be in disposition to be enrolled in a PhD programme in the moment of the contract's formalitation.

Other valued skills (not mandatory):

- Knowledge in Continuum Mechanics
- Knowledge in numerical methods/finite element method
- Experience in the development of numerical software
- Proficiency in the English language (spoken and written)

Qualification system:

The requirements and merits will be valued with a maximum grade of 100 points. This maximum score will be obtained by adding the following points:

1. Academic and/or scientific/technical career (up to 50 points).
 - Scientific/technical contributions (up to 45 points). The academic record and other curricular merits will be valued, as well as the level of suitability that these will have with respect to the tasks to be managed, based on previous academic and professional experience.
 - Mobility and internationalization (up to 5 points). The relevance and impact of their research path and/or in the industry will be valued, considering the prestige of the entity and the activities that are developed in it.

2. Candidate's willingness to develop the research activities of the job offer (up to 50 points). The suitability of the candidate to the program, project or research activities to be developed will be a plus in terms of his/her previous academic and professional experience. Therefore, the extra value that the realization of the project will represent in his/her professional career, and the extra value that it will be for the center and the team, will be considered as a plus.

Candidates must complete the "Application Form" on our website, indicating the reference of the vacancy and attaching the required documents.

The deadline for applying for the vacancy is November 2nd, 2023 at 12 noon.

The pre-selected candidates may be asked to send the documentation required in the "Requirements" and "Merits" sections, duly scanned, and may be called to go through selection tests (which may be of an eliminatory nature) and / or personal interviews. At the time of formalization of the contract, the candidate must be admitted in a PhD Program.

***It is mandatory to provide the CV in the official form of the Spanish Ministry, which can be downloaded from the following link: <https://www.cimne.com/cvdata/cntr2/spc2/dtos/mdia/People/CV-abreujat.pdf>**

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