

JOB VACANCY ANNOUNCEMENT

VAC-2024-65 – PhD position in design of advanced materials and structures

Number of places: 1

Category: PhD Student

Workplace: Barcelona

Salary (gross): 17.823,93 € for the first two years and 19.097,06 € for the third year

Weekly working hours: 40 hours weekly

Contract type: PhD

Duration: 3 years

Functions to be developed:

The functions assigned to the candidate will be:

- Complete a PhD in the Computational Mechanics (Structural analysis) program or Applied Mathematics. The candidate is expected to complete the PhD thesis in a maximum of three years.
- Collaborate with various research groups within CIMNE and worldwide.
- To publish a minimum of three papers in JCR journals during the PhD period.

The details of the job are as follows:

- Shape and Topology Derivative Analysis: Derive and validate shape and topological derivatives for advanced materials like hyper elastic or composite materials.
- Optimization Algorithm Development: Implement and test an optimization algorithm using level-set and deflation methods to handle complex topology optimization problems.
- Finite Element Discretization: Develop and stabilize finite element schemes for nearly incompressible hyper elastic materials or composite materials.
- Design and Prototype Validation: Design compliant mechanisms and metamaterials, validating prototypes via 3D printing.

El contrato es parte de la actuación PCI2024-155060-2, financiado por MICIU/AEI /10.13039/501100011033 y cofinanciado por la Unión Europea.



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Required skills:

1. The position is aimed at students (Spanish nationals, EU and non EU citizens) who have completed one of the following options:
 - o The studies that lead to an official Spanish, or European Higher Education Area, 1st cycle university degree (BSc) in Structural, Civil or Mechanical Engineering and that have 180 credits (ECTS) of an official university degree.
 - o A degree from a non-European Higher Education Area university that gives access to PHD studies in Structural, Civil, Mechanical Engineering or Applied mathematics.
2. To be eligible for the scholarship grant the applicants have to be formally enrolled to a doctoral program or meet the conditions to be enrolled to a doctoral program at the moment of the recruiting.
3. Excellent academic record.
4. Advanced knowledge of Computational Mechanics or Applied mathematics (master level).
5. High working knowledge of English (Minimum B2).
6. Programming skills: Fortran, Object Oriented, Matlab
7. Windows and Linux OS
8. Familiar with numerical methods, material characterization and optimization

Other valued skills (not mandatory):

- Previous research or academic experience in the field of the position
- Previous experience in Computational mechanics and Optimization.

Qualification system:

The requisites and merits will be evaluated with a maximum note of 100 points. Such maximal note will be obtained summing up the following points:

- **Academic qualifications:** 45%
- **Training and development:** 5%
- **Professional experience:** 10%
- **Knowledge of the Catalan language:** 0%
- **Knowledge of the English language:** 10%
- **Selective tests and interview:** 30%

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

The deadline for registration to the offer ends on November 20th, 2024 at 12 noon.

The preselected candidates may be requested to send the documentation required in the "Requirements" and "Merits" sections, duly scanned, and may be called to go through selection tests (which might be of eliminatory nature) and / or personal interviews.

Commitment to inclusivity:

At CIMNE, we champion workplace equity, diversity, and inclusion. We're committed to fostering a culture where everyone can thrive, leveraging diverse talents and backgrounds. We welcome all applicants regardless of color, religion, gender, origin, abilities, gender identity, sexual orientation, pregnancy or any other characteristic. Join us in building a community that values, celebrates, and respects every individual.

HR Excellence in Research:

CIMNE welcomes and supports the principles of European Commission's *European Charter for Researchers* and the *Code of Conduct for the Recruitment of Researchers*, embracing a transparent, attractive, and open labour market in research. The centre's Human Resources Strategy for Researchers (HRS4R) includes an action plan with actionable short and long-term actions to support a high-quality working environment for all. Further information can be found [here](#).