CIMNE ®
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OCHOA

**International Centre for
Numerical Methods in Engineering**

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ANNOUNCEMENT FOR PROVISION
OF THE WORKPLACE

VAC-2020-43– PHD Position-MSCA-ITN- MATHEGRAM

Number of places: 1

Category: PhD Student

Workplace: Barcelona

Salary (gross): According to MSCA-ITN Work Programme 2018-2020

Weekly working hours: 40h per week

Contract type: Temporal

Duration: One year, extension will be considered in accordance to the performance of the researcher

Functions to be developed:

The candidate will be hired in the framework of the Mathegram project, funded by the H2020 programme of the European Commission, MSCA-ITN 2018.

The basic research activities will involve the modelling and simulation of engineering processes involving the flow of a viscous fluid incorporating solid particles of different sizes accounting for fluid-solid-structure interactions and thermal coupling effects. The starting point will be the finite element and particle-based numerical techniques developed at CIMNE in recent years. Applications of the research will include thermomechanical processes in granular materials processes, flow of fresh concrete and particulate flows in civil and environmental engineering and the oil and gas industry, among others.

Also, as part of the MatheGram project, the candidate will be requiring to:

•   perform original research under the supervision of an academic advisor in the physical modelling of thermomechanical processes in granular materials. Application of the new knowledge will include adapting powder coating processes to the requirements of aerospace products

•   participate in the activities of the MatheGram programme: attending training workshops, collaborating with network partners, and undertaking periodic secondments at MatheGram partner organizations

•   produce written outputs as required during their PhD studies and to contribute to engagement and dissemination activities of MatheGram.

•   present regular progress reports within the requirements laid down by ACRT and by MatheGram.

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According to WP 2018-2020 the candidates must comply the MSCA-ITN eligibility Criteria:

• Mobility rule: The researcher must not have resided or carried out his/her main activity (work, studies, etc.) in the country of his/her host organisation for more than 12 months in the 3 years immediately prior to his/her recruitment.

• Candidates shall be, at the time of recruitment, in the first four years (full time equivalent research experience) on their research careers and have not been awarded a doctoral degree

Required skills:

• Master's degree in Applied Physics, Civil Engineering, Mechanical Engineering, Materials Science, or a closely related discipline with knowledge in Finite Element and Fluid Dynamics.
• Reading, writing, speaking and listening English IELTS Academic 6.5 overall with 6.0
• Programming skills in C++

Other valued skills (not mandatory):

• Academic awards.
• Papers published in journals and congress.
• Knowledge of other programming languages.
• Knowledge of Spanish.

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:

1. **Academic degree according to the proposal:** 20%
2. **Other courses:** 15%
3. **Professional experience in topics according the proposal:** 5%
4. **Spanish knowledge as other language:** 10%
5. **Knowledge of other programming languages:** 10%
6. **Academic awards:** 10%
7. **Papers in journals and congress:** 10%
8. **Online Interview:** 20%

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 is **until fulfil position.**

The preselected candidates must send seleccio@cimne.upc.edu all the documentation required in the section "Requirements" and "Merits" duly scanned and may be called for the performance of selective tests (which may be of eliminatory nature) and / or personal interviews.

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