International Centre for
Numerical Methods in Engineering

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CIMNE - Edifici C1 Campus Nord UPC
C/ Gran Capità, S/N
08034 Barcelona, Spain

ANNOUNCEMENT FOR PROVISION OF THE WORKPLACE

VAC-2022-14 - PhD Position-MSCA-ITN- SSeCoID

Number of places: 1

Category: PhD Student (PHD 1)

Workplace: Barcelona

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

Weekly working hours: 40h per week

Contract type: Predoctoral

Duration: According to funding

Functions to be developed:

- Literature review and code training.
- To develop time integration schemes for compressible flows based on artificial neural networks and combined with a finite element method in space based on the Variational Multiscale method. Design, implementation and validation.
- Development of error estimators in space and time based on the sub-grid scale concept (orthogonal subscales, dynamic subscales, nonlinear subscales) and mesh refinement. Design, implementation and validation.
- Application of the developed tools to complex compressible flows. In particular, investigation of the shock-wave boundary layer interaction.
- Collaboration with different groups at CIMNE and worldwide for the discussion of results.
- Scientific dissemination of results.

Required skills:

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**

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We are looking for a candidate with a degree in Engineering, Mathematics or Physics with the following characteristics:

- Excellent academic record.
- Good working knowledge of English.
- Good background on numerical methods, partial differential equations and continuum mechanics.
- Knowledge of object oriented codes.

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. Publication and career track: 5%
2. Previous research and academic experience in the field of the position: 5%
3. Background on numerical methods, partial differential equations and continuum mechanics: 40%
4. Programming skills: 30%
5. Language skills: 10%
6. Communication/Teaching skills: 10%

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

Deadline for registration to the offer: **Until the fulfil of position**

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.