CIMNE
EXCELENCIA SEVERO OCHOA
International Centre for Numerical Methods in Engineering

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JOB VACANCY ANNOUNCEMENT

VAC-2023-62 – Research engineer in unfitted finite elements for MHD flows

Number of places: 1

Category: RENG 6

Workplace: Barcelona

Salary (gross): According to the CIMNE salary scale.

Weekly working hours: 40h

Functions to be developed:

The position is funded by the project AMBBOS, Advanced computational Mathematics for Breeding Blanket Optimal deSign, a 3-year Spanish project focused on the development of numerical methods for the optimal design of breading blankets (BB) in fusion reactors, a key component of fusion reactors.

The selected candidate will be responsible for the development of unfitted finite elements algorithms that permit to deal with complex geometries, as required by the application. In particular, the design, analysis and implementation of new methods for the automatic generation of background meshes that accurately capture physical phenomena generated near surfaces is expected.

The developed methods are expected to be applied to the numerical simulation incompressible and compressible flows possibly with magnetohydrodynamic coupling. The main outcome of this research line is the accurate prediction of boundary layer flows in complex geometries and relevant quantities of interest derived from them (drag, pressure loss, etc.).

Required skills:

- Programming experience in scientific computing.
- Experience in the development of finite element software.
- Writing and communication skills (oriented towards the production of project reports).

Other valued skills (not mandatory):

- Advanced programming skills, e.g. distributed parallel programming, object-oriented and/or functional programming.

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- Experience in unfitted finite elements and geometry representation and approximation.

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:

- Publication and career track: 10%
- Previous research and academic experience in the field of the position: 10%
- Programming skills: 10%
- Language/communication skills: 10%
- Interview: 60%

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 October 24th, 2023 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.

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