Job Offer for

4 – Open positions in Numerical Simulation for turbomachinery industry

The Universidad Politécnica de Madrid (UPM) is the oldest and largest Spanish technical University, with more than 4.000 faculty members, around 48.000 undergraduate students and 6.000 postgraduates in 21 Schools of study. UPM Schools cover most engineering disciplines, including Aeronautics. **The School of Aeronautics ETSIAE-UPM** is one the best schools of engineering in Spain and the oldest providing an aeronautical degree. ETSIAE-UPM was ranked 41st in the world in Shanghai's ranking for aeronautical engineering in 2017.

The Center of Computational Simulation at ETSIAE-UPM (*http://numath.dmae.upm.es*) offers a young dynamic environment, where currently 10 PhD students and 20 academics perform research in fluids and numerical methods for aerospace technology.

Short description

Aiming to establish a group of CFD experts at UPM supporting industrial R&D in numerical simulation, a series of work activities have been defined between the company ITP (Industria de Turbopropulsores) and the UPM-Numath group (Numerical Mathematics) of the UPM (Polytechnic University of Madrid).

The main objective of the work is to improve the numerical simulation capabilities currently existing in ITP in order to make them more competitive and able to model more quickly and accurately physical phenomena present in increasingly complex turbo-machines.

Four different work packages have been defined:

- WP1: Non-periodic passage boundary conditions in high-order LES code.
- WP2: Development of far-field noise prediction code from existing CFD solutions.
- WP3: Development of a Computational Aeroacoustics Solver (AAC) in the time domain.
- WP4: Implementation of multiphase LBM solver.

We are looking for a hardworking and skilled researcher to work on an exciting project in the field of Numerical simulation. You will join an established group working at the forefront of numerical simulations for Computational Fluid Dynamics problems.

The project requires a **deep knowledge of numerical simulation, language programming and software development for the solution of the Navier-Stokes equations**. Key objectives are the development of algorithms for numerical efficiency, algorithms for data management and the efficiency implementation of those algorithms in the most advanced HPC platforms (Mare Nostrum).

Who and what are we looking for from you?

Technical skills and experience:
- Mater in Mechanical or computing engineering, applied mathematics, physics, or equivalent.
- Excellent computational skills and language programming expertise.
- Deep knowledge of numerical methods. Experience in high-order schemes, spectral element and discontinuous Galerkin methods is recommended.

Language skills:
- Fluent in English.

You should be initiative-taking and dynamic, have excellent communication and analytical skills, be a stress-resistant problem solver, independent researcher and be a team player able to meet the highest quality standards.

What do we offer?

The position includes a competitive 3-year contract. We also offer to work in a stimulating, young and multicultural environment, and to be part of a dynamic and growing research team at ETSIAE.

How to apply?

Please send your resume and two reference names to **eusebio.valero@upm.es**