FACULTÉ DES SCIENCES APPLIQUEES
Service d'Aéro-Thermo-Mécanique
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We are seeking well-qualified individuals to work on the numerical simulation of MILD combustion at the Aero-Thermo-Mechanics Department of Université Libre de Bruxelles.

Candidates with a Masters in Mechanical Engineering, Chemical Engineering or a related field and research experience in CFD methods are encouraged to apply. The position provides competitive remuneration and possibility of working in a widely international working environment, with possibility of interactions with leading universities in Europe and USA.

Applicants MUST fulfill the following requirements:

- The candidate should have solid basis in thermodynamics and fluid dynamics.
- The candidate should have no more than 12 months of paid scientific research experience.
- The candidate must be a national of a Member State of the European Economic Area (i.e. EU + Iceland, Norway and Liechtenstein) or Switzerland.

In addition, the following skills are desirable:

- Experience in numerical simulations and CFD.
- Experience in scientific programming (C++).

A 3-years position is readily available and must be filled before June 2015.

Additional information on the project can be found at:
http://www.ulb.ac.be/recherche/presentation/fr-arcparente.html

Candidates are encouraged to apply their CV, list of transcripts and motivation letter to Alessandro.Parente@ulb.ac.be.

Project abstract:

MILD combustion represents a very attractive solution for combustion systems as it can provide high combustion efficiency with low pollutant emissions. The increasing interest in MILD combustion is also motivated by its large fuel flexibility, representing a valuable technology for low-calorific value fuels and high-calorific industrial wastes. MILD combustion still appears worthy of investigations and attention. In particular, the fundamental mechanism of the interaction between turbulent mixing and chemical kinetics needs to be elucidated, due to the very strong coupling between chemical and mixing time-scales.

The present project aims at developing predictive simulation tools for non-conventional combustion regimes including MILD combustion, based on new-generation models able to reduce the dependence on sub- models and increase the fidelity of numerical simulations. For this purpose, high fidelity experimental data will be collected under different operating conditions and with various fuel blends. Such information will constitute the ideal basis for the development and validation of new-generation modeling approaches based on the concept of Empirical Manifolds.