



**Energy Engineering Department  
Ecole des Mines de Douai  
941 rue Charles Bourseul, BP 10838  
59508 Douai Cedex, France**

## **Post-doctoral Position in Fluid Dynamics**

**Location: Ecole des Mines de Douai, France.**

The Ecole des Mines de Douai is a French engineering school. The Energy Department is involved in research concerning heat transfer enhancement in heat exchangers.

**Context and project objectives:**

The position is open within the Energy Engineering Department of the Ecole des Mines de Douai (France). The post-doc will join the research team working on convective heat transfer enhancement by means of passive techniques, especially on the airside of heat exchangers. The aim is to improve heat exchangers efficiency, compactness and weight. Examples of targeted applications are automotive radiators, rail vehicle heat exchangers for air conditioning or other industrial systems.

Previous numerical and experimental studies in our lab have shown that the flow on the airside of plate finned-tube heat exchangers may be a complex three-dimensional structure including interacting vortices with varying scales. Furthermore, even if Reynolds numbers are moderate, turbulence may occur depending on the flow velocity, on geometrical parameters and on the vortex generators or other kind of surface protrusions that may be punched on the fin surface.

The objective of the work offered is to investigate flow field structure and convective heat transfer enhancement mechanisms. Investigations will be undertaken for various configurations by means of numerical simulations (U-RANS, LES) preferably with the open source CFD code OpenFOAM.

**Keywords:**

Turbulence, Convective heat transfer, Computational Fluid Dynamics, Vortex identification.

**Application :**

Candidates must hold a PhD in Engineering, Physics or related fields with a focus on fluid dynamics. Previous experience in numerical simulation and modelling of turbulent flows is required. Applicants are kindly asked to submit applications (including Curriculum Vitae, application letter, summary of previous research experience, most relevant publications and two references) preferably by e-mail to Dr. Serge RUSSEIL: [russeil@ensm-douai.fr](mailto:russeil@ensm-douai.fr)

**Informations:**

Duration of 12 months (beginning as soon as possible)  
Salary: about 2,095 Euros net per month.

**Contact:**

More detailed informations can be obtained from:  
Prof. Jean-Luc HARION, Tel 33 (3) 27 71 23 79, [harion@ensm-douai.fr](mailto:harion@ensm-douai.fr)  
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