

Professor position at Ecole Centrale de lille/LML UMR8107 CNRS Chair of excellence

Title: Theoretical, experimental and numerical approaches of wall turbulence

Context: Thanks to the building in 1993 of a boundary layer wind tunnel unique in Europe and to the set-up of the optical metrology platform of Lille (<http://www.meol.cnrs.fr/>). The ER2 team of LML (<http://lml.univ-lille1.fr/lml/equipe/er2/>) is specialized in wall turbulence and optical metrology. In the last years, an expertise in flow control was also developed in the frame of several EC projects. These different research themes lead the team to apply and participate regularly to European and French ANR projects (sometimes as coordinator). This allowed developing a dense network of international relations. The team is also managing the Turbulence International Master program operated jointly by ECLille in Lille and ENSIP and ENSMA in Poitiers (<http://imp-turbulence.ec-lille.fr/>). On a regional point of view, the team is managing the CONTRAERO project on flow control, in the frame of CISIT (International Campus for Security and Intermodality in Transport). This project is gathering LML, TEMPO, ONERA and IEMN. It is acting around a regional platform of wind tunnels for flow control. In this frame, the characteristics of the LML wind tunnel will be upgraded in 2014. All these elements have led CNRS and Ecole Centrale de Lille to offer a 5 years chair of excellence on this position to attract high level candidates.

Research profile:

Theory and experiments in turbulent flows. The candidate should have a deep knowledge of turbulence and a good experience of standard experimental techniques such as Hot Wire Anemometry, Laser Doppler Velocimetry, Particle Image Velocimetry... He/She will have applied them to the physical analysis of turbulent flows based on theoretical approaches. He/She will also have a good knowledge of the modern numerical approaches of turbulence (DNS, LES, RANS). The candidate will manage the team operating around the wind tunnel, a team which develops a joint experimental/numerical approach of turbulence and flow control. He/She will attach himself(herself) to the development of the quality of research, the fame of the International Master program and the national and international scientific relation, with the objective to maintain the team at the best international level for its experimental, numerical and theoretical work. He/She will have to develop new routes of research and to find the associated funding.

Teaching profile:

Teaching will cover basic knowledge in Fluid Mechanics in 1st and 2nd year of Ecole Centrale (French Engineering school) and advanced fluid mechanics, turbulence and experimental techniques in 3rd year, University master in Mechanical Engineering and International Master program in Turbulence. He/She will manage a pedagogic team of 3 assistant professors and take in charge the International Turbulence Master program.

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