

One year Post-Doc position
in the
ANR Dyneol
Turbulence DYNamics around wind and marine turbine blades – DYNEOL11

Subject:

The project ANR Dyneol is part of a research project on onshore or offshore wind turbines. Today, little is known about the dynamic response of a wind turbine as a function of the upstream flow to which it is subjected. In addition, with the emergence of wind farms, there is a strong wind turbine to wind turbine interaction. This interaction can cause performance drops or premature fatigue of a generator that will be subjected to an intermittent field. In this context, the aim is to quantify the dynamics of a turbulent flow on a wind turbine blade profile or a full wind turbine as a function of the upstream flow which is a turbulent boundary layer.

The Post Doctoral Fellow will have expertise in experimental measurements of turbulent flows in the unique LMFL boundary layer wind tunnel. The goal is to measure the Turbulent flow both around a wind turbine blade and a vertical Darrieus-type wind turbine. The focus will be put on the fluid structure interaction when the natural turbulence of the boundary layer interact with the blade. The measurement will be done mainly by means of PIV or Stereoscopic PIV. These experiment will be done in collaboration with Coria of Rouen and Pprime of Poitiers in the frame of the ANR DYNEOL.

Laboratory: (<http://lmfl.cnrs.fr/>)

Laboratoire de Mécanique des Fluides de Lille – Kampé de Fériet (LMFL) is a joint laboratory between: ONERA, CNRS, Centrale Lille, University of Lille, Ecole Nationale Supérieure d'Arts et Métiers (ENSAM), where 35 faculties and engineers work in the fields of turbulence, aerodynamics and flight physics. The team hosting the Post-Doc is involved in fundamental study of turbulence, and optical measurement techniques.

Fellowship:

The gross salary is approximately 2900 € per month (depending of experiences) and the employer is Centrale Lille. The 12 months fellowship will ideally start around September 2020.

Candidate:

The Post Doctoral Fellow will have expertise in experimental measurements of turbulent flows such as PIV and advanced post-processing of turbulent flow data or in experimental study of the fluid-structure interaction.

Contacts:

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