

Internship offer

Title

Definition of a discriminating elementary test for the structural adhesive bonding of wind turbine blades

Context

A wind turbine blade is a slender thin lifting structure, manufacturing in two laminated parts from glass pre-preg. Both parts et the stiffeners are joined by adhesive bonding. The manufacturing process leads to a variability of the adhesive layer thickness. In order to choose and to justify the adhesive choice, it is required to develop an experimental test representative for the actual geometry and loading conditions over the range of adhesive thicknesses.

Objective and expected work

The objective of this internship is to develop this test. The work methodology will consist in analyze the quasi-satic structural mechanical behavior, in order to identify the critical sites by using both a simplified analysis and a global Finite Elements (FE) analysis. Detailed FE models will then be developed to analyze the critical bonded sites as function of the adhesive thickness. An experimental test protocol for the elementary assessment of the mechanical behavior of bonded joints will be then deduced

Skill

The applicant should have skills in Strength of Materials and FE methods.
Student in mechanical engineering in Master of Science (1st or 2nd year)

Lab : ICA CNRS UMR 5312 / ISAE – SUPAERO (position located inToulouse)
Duration : 5/6 months from September 2019
Gratification : 554 € per month
Contact : please send your motivated application to both following persons
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