



INTERNSHIP 5 TO 6 MONTHS YEAR 2021

Supervisors :

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Location: ISAE SUPAERO - Toulouse

Year: 2021

Duration: 5 to 6 months

Gratification: 3,90 €/hour ⇒ 600 €/month (22 days, 7 hours/day)

Title:

Study of an electromechanical ice protection system for a TBM vertical stabilizer

ISAE-SUPAERO:

The Institut Supérieur de l'Aéronautique et de l'Espace (ISAE) is a large public institution of scientific, cultural and professional missions with an expertise in the field of aerospace engineering. Its mission is to provide higher Programs in order to train engineers highly qualified in the aerospace sectors and related fields; dispensing specialized teaching, improvement and updating of knowledge; conducting scientific research and technological development work; providing doctoral programs.

Internship topic:

The intern will work in the Department of Design and Operation of Aeronautical and Space Vehicles (DCAS), which develops methods and tools for the design aerospace vehicles. The DCAS works in collaboration with ICA / INSA on electromechanical deicing systems. The challenge is to design electromechanical deicing systems that reduce consumption by a factor of 10 compared to current systems. The importance of the challenge can be measured by the consumption of these systems which are the second largest consumer of non-propellant power (after air conditioning systems) for single-aisle airliners. The specificity of the systems studied at ISAE-SUPAERO and at ICA is to use resonant actuators which excite modes of the structure in order to generate micro-vibrations and stresses leading to the cohesive failure of the ice or to the adhesive rupture of the ice / substrate interface. DCAS is recruiting an intern to study the effectiveness of resonant electromechanical systems in protecting a TBM vertical stabilizer against icing.

Tasks:

- study the resonance modes of a TBM vertical stabilizer (study by finite element and experimental analysis);
- size the electromechanical deicing for part of the TBM vertical stabilizer;
- experimentally validate the sizing on a small-scale demonstrator that can be tested in an icing wind tunnel;
- size the electromechanical deicing for part of the TBM drift and its power supply for the entire vertical stabilizer.

The intern will have to produce an internship report including all the results.

Intern profile

Desired skills:

- Master Student in mechanics (vibration analysis, CAD software) or mechatronics
- Knowledge of electronics
- Interest in the field of Aeronautics and space
- Autonomy, creativity

Send your application (CV + Cover letter) to valerie.budinger@isae.fr