Ph.D. Position – Fall 2021/Winter 2022

Thermal Analysis Methodologies for the Conceptual Design of Future Aircraft

A funded Ph.D. position is open, to be filled asap (Fall 2021/Winter 2022) in the Aircraft Systems Lab focuses on developing new methodologies and tools for thermal analysis for the conceptual design of future aircraft.

Background
During the aircraft development process, many design decisions depend upon a good understanding of thermal aspects, such as cabin air conditioning design, thermal management of electronic equipment, equipment qualification, and reliability predictions. The assessment of thermal risk and the definition of a suitable cooling strategy during the conceptual design phase represents a way to anticipate changes in the design process. At this stage, the engineers must deal with a limited amount of information and many uncertainties about thermal aspects. However, in some aircraft equipment bay configurations, heat radiation can significantly impact systems’ thermal environment. A novel, so-called thermal risk assessment approach is currently developed in the research lab [1][2]. This Ph.D. will continue this work to expand its application to aircraft with novel propulsion systems (such as all-electric, hybrid-electric, hydrogen-powered) and unconventional aircraft configurations.

Required qualifications
- Background in aerospace engineering, heat transfer and thermodynamics
- Experience in programming (Python)
- Experience with CFD simulations would be an advantage

Excellent candidates possess initiative and autonomy, are committed to high-quality research, and are willing to develop excellent communication skills. The candidates should also enjoy working in a research lab requiring teamwork and collaboration with industry partners.

How to apply
Qualified and highly motivated candidates are invited to send their application per email to susan.liscouet-hanke@concordia.ca using the subject "Ph.D. – Thermal Analysis Conceptual design" with the following elements:
- Email with your motivation and relevant experience
- Complete and up-to-date CV
- Up-to-date transcript or overall grade in the Master’s degree
- Recent publication (or sample of writing skills)

Ph.D. program and funding information
Before applying, please review the Ph.D. program overview at Concordia University: https://www.concordia.ca/academics/graduate/mechanical-engineering-phd.html
This Ph.D. position is funded with a bursary. Excellent candidates may have the opportunity to receive additional awards and an international tuition fee waiver.
In some cases (e.g., French citizenship), the international tuition fees will be waived. Learn about study fee exemptions: https://www.concordia.ca/admissions/tuition-fees/international-fee-exemptions.html

References: