

Topic:

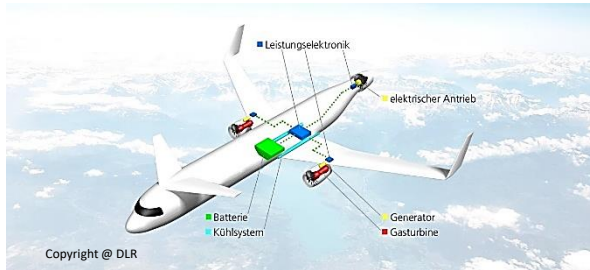
Aerodynamic Design of an Optimum Intake for Heat Exchanger in Hybrid-Electric Propulsion Aircraft



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Project description

To achieve climate neutrality, the European Green Deal sets out the need to reduce transport emissions by 90% by 2050, compared to 1990-levels. Hybrid Electric Propulsion (HEP) architectures are one of the most promising solutions to make aviation greener and carbon neutral. The HEP concepts use highly efficient electric motors to generate thrust using sustainable aviation fuels in fuel cells or gas turbines. However, there are many remaining challenges to be solved before the implementation of this technology and bring it into service.



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One of the challenges in the practical implementation of HEP in aircrafts is the lack of efficient thermal management systems, which are an indispensable part of HEP for safe operations. Heat exchangers play a great role in thermal management system dissipating the heat produced by the HEP components. This project aims at finding a suitable location for the heat exchanger and design an optimum intake, which can provide sufficient cooling air according to the system requirements. Different intake concepts e.g. variable intake and s-duct, will be investigated aerodynamically to provide design recommendations for HEP applications. The project includes a comprehensive literature review, preparing a requirement list based on the HEP and the thermal management system architectures, preliminary design and analysis of the heat exchanger intake including detailed CFD simulation.

How your profile should look like

- Mechanical or aerospace engineering background or comparable
- Experience in CFD analysis
- Experience in CAD modeling, e.g. SolidWorks, NX
- Good English proficiency
- Ability to work in a team and also independently

What you can expect

- Getting support from institutes working on the HEP related topics
- Getting support to prepare and present the research results at the Turbo Expo 2024 conference in London
- Working closely with an international team

Interested? Please send your cover letter, CV and transcript to dikshant.sharma@b-tu.de

For more info, you are welcome to contact Dikshant Sharma, T: 0355 69 3406

