

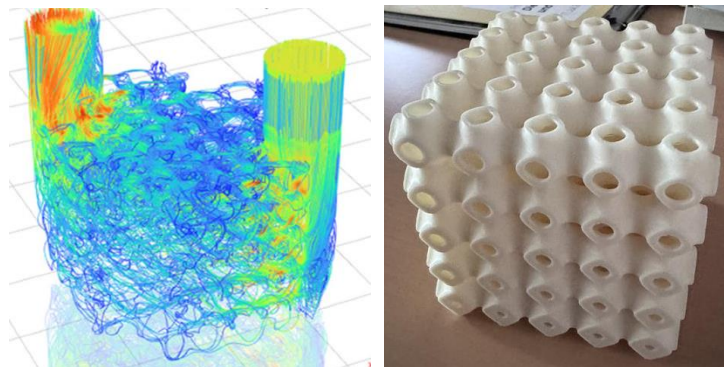
Topic:

Airflow resistivity testing of 3D printed Triply Periodic Minimal Surfaces (TPMS)

Topic Description:

Hybrid Electric Propulsion (HEP) is becoming an emerging field in the aerospace industry on account of its contribution towards reducing transport emissions. HEP system architectures are sophisticated and encompasses several thermal components. Heat Exchangers are an important component of HEP architecture and contribute significantly towards temperature moderation. Heat exchangers in HEP system architectures have relatively sophisticated heat transferring components to allow for higher heat transfer and facilitate better cooling.

The sophisticated heat transferring components of heat exchangers being investigated in this current topic are particular class of Periodic Open Cellular Structures (POCS) known as Triply Periodic Minimal Surfaces (TPMS). TPMS are multifunctional structures in that they can be used for heat transfer as well as for structural purposes. Measuring the airflow resistivity and subsequently pressure drop of the TPMS structures provides us with crucial information whilst incorporating them into heat exchanger designs. The main tasks of this topic include, designing (via CAD tools) and 3D printing of test samples; designing of the experimental apparatus; airflow resistivity and pressure drop testing; theoretical simulation of the corresponding tests; post-processing of the obtained test data results.



How your profile should look like

- Mechanical or aerospace engineering background or comparable
- Experience in CAD modeling, e.g. SolidWorks, NX
- Experience in CFD analysis and basic knowledge of fluid mechanics and thermodynamics
- Good English Proficiency
- Ability to work in a team and also independently

What can you expect

- Getting support from institutes working on HEP related topics
- Potential journal publication resulting from the experimental results in addition to a successful thesis completion

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

For more info, you are welcome to contact Akilan Mathi, T: 0355 69 2682

Publish Date: 04.09.2024

Start time: As soon as possible