Heat transfer characteristics and optimization design of metal bionic porous structures

To advance the development of thermal protection technology for aviation engines, this project aims to integrate "additive manufacturing, bionic porous structures, and intelligent optimization algorithms" to investigate the flow and heat transfer characteristics of triply periodic minimal surface (TPMS) structures as well as their optimization design method. This project will begin by 3D printing a series of cooling channels with different TPMS topologies. Through a combination of experiments and numerical simulations, the project will elucidate the flow and heat transfer characteristics of typical TPMS structures and investigate the relationships between the geometric parameters and cooling performance. Furthermore, this project will leverage the advantages of gradient structures to develop an optimization design method aimed at maximizing cooling efficiency. The anticipated research outcomes will serve as theoretical guide and technical support for the development of efficient cooling technologies tailored to the demands of turbine blades.

Job Description: We are seeking a research assistant who is interested in aerospace, energy power, or additive manufacturing. The ideal candidate should have knowledge in heat transfer and mechanical design. The candidate will be responsible for conducting experiments and numerical simulations and try to publish academic papers. We offer competitive compensation, solid training, a broad platform, and a friendly working environment to the selected candidate.

Qualifications:
- Bachelor's or master's degree in Mechanical, Aerospace Engineering, Material Science or a related field.
- Experience with Ansys Fluent, Additive manufacturing and MATLAB is preferred.
- Having some experimental experience in the field of flow and heat transfer.