Project Title:

# Physical and mechanical characterization of 3D printed light-weight parts with high performance polymers

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Application document: CV

*Project Description:*

Flexibility in design for manufacturing complex geometric parts without tooling costs is one of the main advantages of fused deposition modeling (FDM) 3D printing process, which makes it possible to fabricate parts with tailored properties. Due to the layered structure of such printed parts, interlayer regions might have relatively low strength, limiting their mechanical performance in structural application. Besides, foaming will also affect the mechanical properties and layer bonding quality which will be focused in this project. In this research work, the physical properties of 3D printed foam components will be investigated as well as their mechanical performance to find the correlation with printing process and design parameters. It is aimed to study the foamed part weight reduction, foam morphology, interlayer adhesion, thermal insulation, flexural strength, and modulus.

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