Project Title:

Fused filament fabrication of high performance polymers towards tailored mechanical performance

Supervisor: Prof. Mohini Sain

Application document: CV

Project Description:

High performance polymers are increasingly being used in aerospace and automotive application, and 3D printing offers a great potential for the fabrication of complex shape parts without tooling. Fused filament fabrication (FFF), as a 3D printing method, is a parallel design and manufacturing technology where the material, design, and process parameters play key roles in fabricated part properties and performance tailoring. This research will focus on improving the stiffness of 3D printed parts through part design and material selection for satisfying performance requirements. The printing parameters also need to be optimized to achieve the highest interlayer bonding quality and strength. Fabricated parts must ensure proper mechanical behavior for service in different compressive and tensile loadings.

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