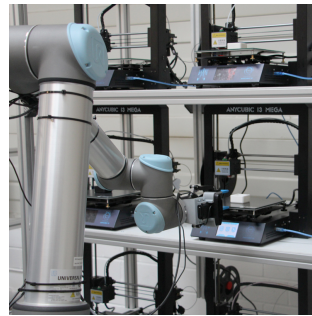


Master thesis

Effect of Printing Parameters on Fibers in FGF 3D-Printed Parts

Fiber-reinforced granulates enable the production of lightweight and high-strength components using Fused Granulate Fabrication (FGF). While the relationships between processing conditions and fiber structure have been extensively investigated in injection molding, only limited knowledge is currently available for the FGF process. The aim of this thesis is to systematically investigate the influence of material and printing parameters on fiber orientation, fiber distribution, and the resulting mechanical and structural properties of FGF-manufactured components.



Your tasks

- Literature review on fiber-reinforced thermoplastics in injection molding and FGF 3D printing
- Development and execution of a statistical Design of Experiments (DoE)
- Production and processing of short fiber-reinforced compounds for FGF printing
- Conducting CT analyses and mechanical testing (e.g., tensile tests, Charpy impact tests)
- Analysis of fiber orientation and fiber distribution using FiberShape
- Evaluation of the relationships between printing parameters, fiber structure, and mechanical properties
- Derivation of process windows for the targeted control of fiber structure

Your profile

You are enrolled in one of the following degree programs:

- Mechanical Engineering
- Production Engineering and Logistics
- Mechatronics
- Sustainable Engineering
- Materials Science and Engineering
- or a comparable field of study

You have a strong interest in additive manufacturing, polymer engineering, and experimental research. Initial experience in 3D printing, materials characterization, Design of Experiments (DoE), or data analysis is advantageous but not required. A structured and independent working style, as well as good communication skills in both German and English, are expected.

We offer

- Independent and self-directed work
- Flexible working hours
- Well-equipped workstations
- Opportunity to contribute to cutting-edge research in additive manufacturing
- Access to state-of-the-art testing and measurement equipment (3D metrology and materials testing)
- Hands-on experimental work and practical research experience
- Possibility of long-term collaboration

Bitte sende deine aussagekräftige Bewerbung in einer einzigen PDF-Datei an jobs@iph-hannover.de.

Die Bewerbung muss Anschreiben, Lebenslauf sowie Prüfungsleistungen des Studiums / Zeugnisse enthalten.

Contact



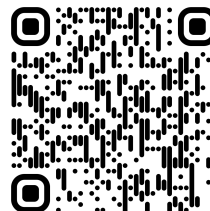
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