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Unser Zeichen:
BA 3

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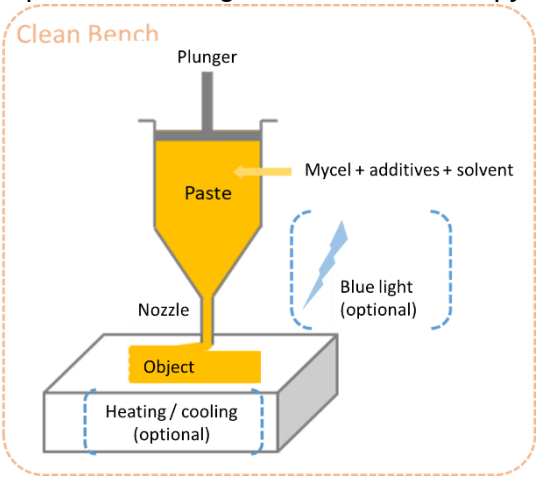
Master's Thesis / Bachelor's Thesis / Forschungslabor

Additive Manufacturing customized 3D objects using living fungal mycelium materials

(interdisciplinary cooperation project)

The aim of the bachelor's or master's thesis or Forschungslabor is the processing of bio-based customized light-weight parts with additive manufacturing. As natural resources mycelium-based composites will be adapted for extrusion-based 3D printing. Binders and additives with suitable viscosity behavior for extrudable pasts will be chosen from natural resources and their industrial waste products in addition. Thus, aiming 100% bio-based customized objects with biocompatible and biodegradable characteristics. The thesis includes i) the development of suitable paste compositions, ii) additive manufacturing of customized parts including the optimization of printing parameters e.g. layer height, extrusion speed or pressure as well as the iii) extensive characterization of the pasts and additive manufactured parts e.g. by using viscosimeter, µ-CT, scanning electron microscopy, nitrogen sorption, FTIR, thermal analysis and mechanical testing.



The thesis is a joint project between the department of advanced ceramic materials (Prof. A. Gurlo, TU Berlin) and Applied and Molecular Microbiology (Prof. V. Meyer, TU Berlin) and the research activities will take place at both institutions in interdisciplinary cooperation of two students.

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