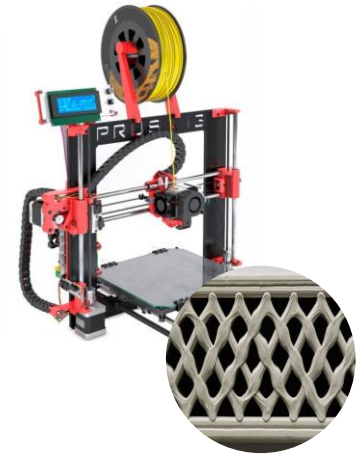
Bachelor-/Studien-/Masterarbeit

Datum: **20.02.2023**

zum Thema

Additive manufacturing of ceramic



Background:
Ceramic extrusion additive manufacturing with commercially available 3D printers is cost-effective and flexible. To produce ceramic feedstocks, ceramic powders need to be mixed with a plastic binder. The components are kneaded together and extruded using an extruder. The difficulty of the project arises from the fact that all aspects of the process chain, from powder to the finished sintered component, must be considered comprehensively. The main aspects include rheology, green strength and stiffness, solubility, debindability, sinterability, and the mechanical properties of the sintered component. To get the best mechanical properties, the printing parameters are critical.

Content:

- Production of ceramic-highly-filled filaments
- Investigation of the influence of the printing parameters on the mechanical properties of the green-parts and sintered parts
- Investigation of the solvent debinding properties

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Fachrichtungen:
Mechanical engineering, Material Science, and related fields of study

Vorkenntnisse:
Knowledge about FDM is a plus

Beginn: from March 2024