

# Enabling Polymer Additive Tooling for Prototyping Thermoforming Applications



## Motivation and Relevance

- Thermoforming tools made of metal are costly and in most cases oversized for prototyping applications
- Information gained from using the series manufacturing process instead of AM is important for the development

## Approach

- Replacing metal thermoforming tools for Prototyping by using polymer tools
- Manufacturing of different polymer thermoforming tool with Fused Filament Fabrication (PLA)
- Testing of these tools in the thermoforming process

## Results

- Fundamental validation of the feasibility of polymer thermoforming-tool for prototyping
- High temperatures and pressures during the process causes smoothing of the surface and eliminates the staircase effect

Material reduction



Shortened product development



Economic small series



## Research Area

- Production
- Thermoforming
- Prototyping
- Sustainability

## Partners



## Picture



## Contact



Kai Yu, M.Sc.

[k.yu@wzl.rwth-aachen.de](mailto:k.yu@wzl.rwth-aachen.de)

[www.wzl.rwth-aachen.de](http://www.wzl.rwth-aachen.de)