

3D printing task

Topic: „Influence of the elementary cell design on the mechanics of 3D printed cantilever“

Goal:

The goal is to design, print and confirm the selected mechanical properties of the 3D printed cantilevers which filling is formed by a matrix of the elementary cells possessing the specific design. The results might be used for the vibrating components for energy harvesters such as cantilevers, membranes etc.

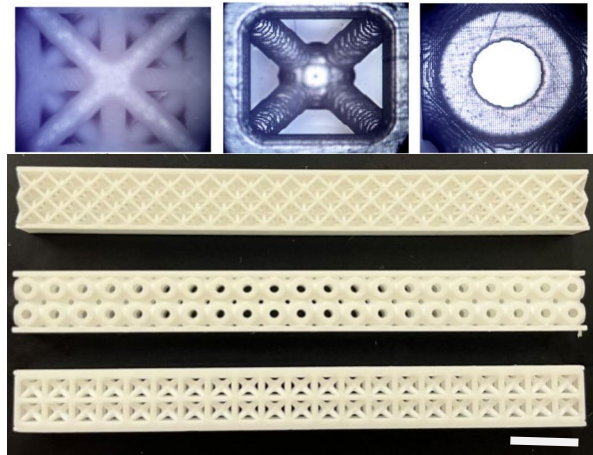


Figure 1. Photographies: example of elementary cell for filling (up) and 3D-printed structure with exemplary cell matrix (down). The scale bar equals to 3 mm.

The following sub tasks will be due:

- Defining the design based on the catalogue of elementary cells design
- Creating a 3D model using CAD software (Autodesk Inventor, Autodesk Fusion, Blender, SolidWorks, ...)
- Selecting appropriate 3D printing methods and materials
- Printing and inspection of the master model
- Measurement and data analysis

What will you learn and what skills you might gain?

3D printing – stereolithography or filament fused deposition, mechanical aspects and evaluation of microstructures, process optimization through physical inspection and data analysis,

Responsible

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