

Data set title: Supplementary material to publication with title: Development of a tree-support software module for PBF-LB/M

DOI of data set: <https://doi.org/10.15480/336.5207>

Handle of data set: <http://hdl.handle.net/11420/15472>

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Context: The goal of this work was to develop a tool that allows users with little experience to manufacture components with efficient support structures using PBF-LB/M. Tree shaped structures were used and created via algorithmic, biological growth using botanical methods. TO was used to optimize the support structures. The generated trees were then compared to two commercially available supports using FEA to simulate the whole PBF-LB/M process including a stress relief heat treatment and the removal of the part from build plate and supports.

The data is supplementary material to the publication with the title " Development of a tree-support software module for PBF-LB/M " of the conference Laser in Manufacturing (LiM) 2023, 26 - 29 July 2023, Munich/Germany.

Contents of data set:

- Top-down_tree_generation_benchmark_Part1.mp4: Video of the top-down tree support generation on benchmark part 1.

- Tables_Calculations_LiM23.xlsx: Extended dataset of Displacements, Weights and failed elements of benchmark parts 1, 3 and 5 with BEST-, NetFabb- and Blocksupport in all stages of the PBF-LB/M process
- Part1_BEST.png: Screenshot of benchmark part 1 and BEST support
- Part1_BS.png: Screenshot of benchmark part 1 and Block support
- Part1_NFS.png: Screenshot of benchmark part 1 and NetFabb support
- Part3_BEST.png: Screenshot of benchmark part 3 and BEST support
- Part3_BS.png: Screenshot of benchmark part 3 and Block support
- Part3_NFS.png: Screenshot of benchmark part 3 and NetFabb support
- Part5_BEST.png: Screenshot of benchmark part 5 and BEST support
- Part5_BS.png: Screenshot of benchmark part 5 and Block support
- Part5_NFS.png: Screenshot of benchmark part 5 and NetFabb support
- ReadMe.pdf: This readme file

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