Chair for Carbon Composites
Deparment of Aerospace and Geodesy
Technical University of Munich

Modeling of 3D Printed Lattice Structure

Project Characteristics

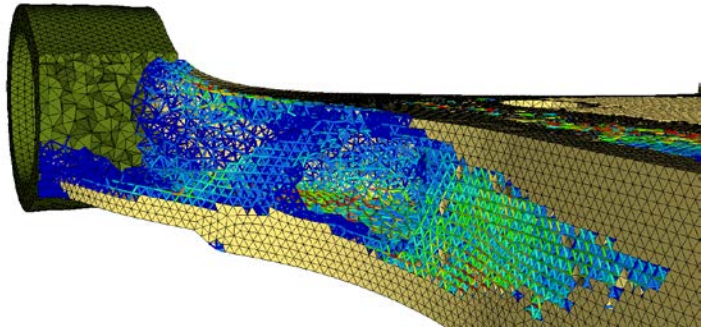
Modeling:	★★★★★
Mathematics:	★★★☆☆
Programming:	★★★☆☆
Science:	★★★☆☆

Setting:

Additive manufacturing by Fused Filament Fabrication (FFF) – also known as 3D printing – uses thermoplastic polymers to create complex structures layer by layer. The high flexibility of this process enables to manufacture innovative structures in terms of performance optimization. The project aims at the development of lattice unitcells.

Your possible Tasks:

- Development of advanced (anisotropic, non-linear) material model for 3D printed thermoplastic
- Derivation of equivalent properties of 2D and 3D periodic lattice unitcells with analytical or FEM approach
- Implementation of homogenization framework for arbitrary lattice topology
- Optimization algorithm to access the best lattice design for different objectives such as stiffness, strength or energy absorption



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