

## Simulation and Experimental Verification of Mechanical Response of Additively Manufactured Lattice Structures

**Authors :** P. Karlsson, M. Åsberg, R. Eriksson, P. Krakhmalev, N. Strömberg

**Abstract :** Additive manufacturing of lattice structures is promising for lightweight design, but the mechanical response of the lattices structures is not fully understood. This investigation presents the results of simulation and experimental investigations of the grid and shell-based gyroid lattices. Specimens containing selected lattices were designed with an in-house software and manufactured from 316L steel with Renishaw AM400 equipment. Results of simulation and experimental investigations correlated well.

**Keywords :** additive manufacturing, computed tomography, material characterization, lattice structures, robust lightweight design

**Conference Title :** ICAME 2022 : International Conference on Additive Manufacturing Engineering

**Conference Location :** Barcelona, Spain

**Conference Dates :** February 15-16, 2022