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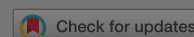Volume 13, 2016 - Issue 1: 3D Printing

Special Section: 3D Printing

Design and fabrication of periodic lattice-based cellular structures

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Seung-Kyum Choi

❝ Cite this article | ↗ https://doi.org/10.1080/16864360.2015.1059194

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ABSTRACT

A methodology, which consists of design, optimization and evaluation of periodic lattice-based cellular structures fabricated by additive manufacturing, is presented. A user-friendly design framework for lattice cellular structures is developed by using a size optimization algorithm. A 3D modeling process for the lattice-based cellular structures is introduced for non-linear finite element analysis and production. The approach [...] unit cells. First, bas[...]. Then, for the sele[...]eam and size o[...]roach for both [...]e structure is built and [...]nance. Physical [...]aterial

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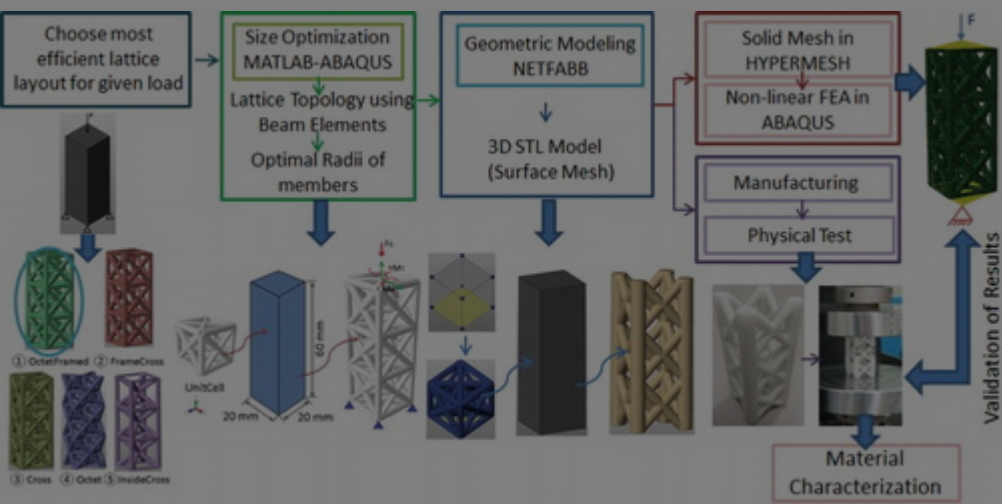
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properties for the 3D printed parts are determined for the finite element study using reverse engineering of actual measured data.

GRAPHICAL ABSTRACT

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