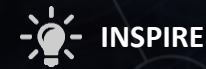
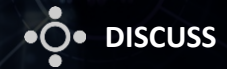




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INSPIRE



DISCUSS



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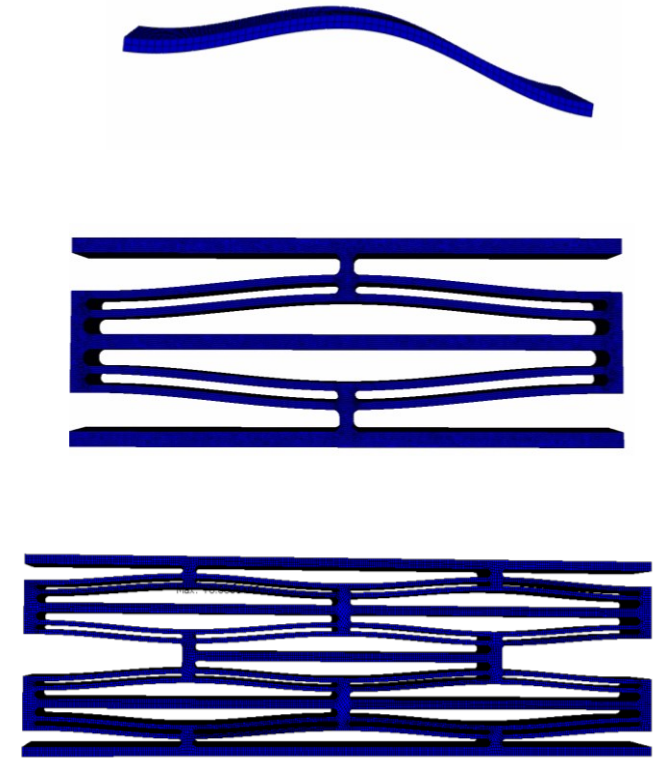
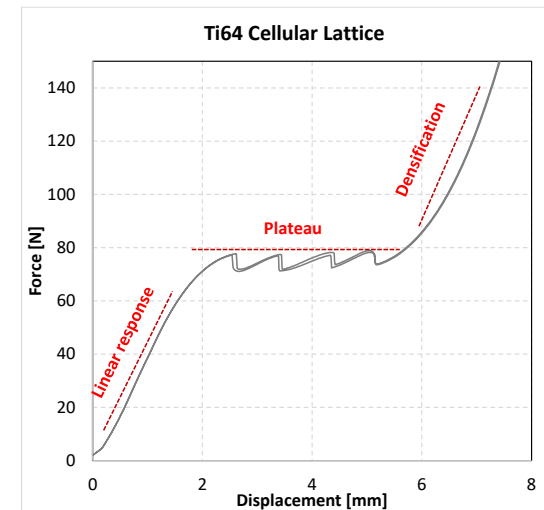
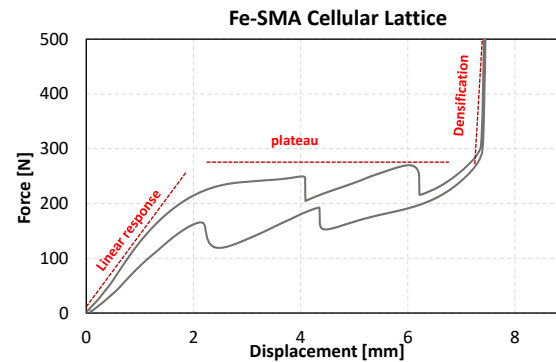
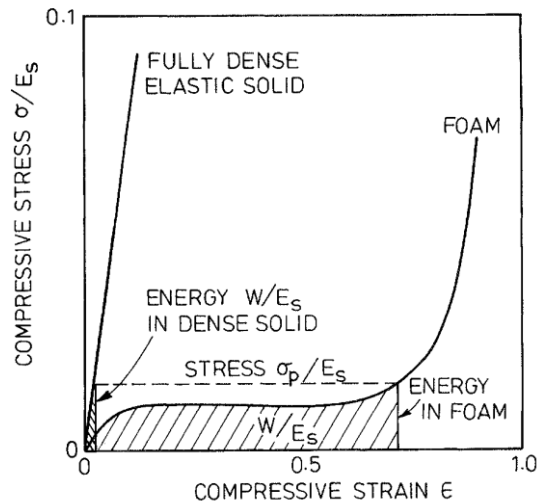
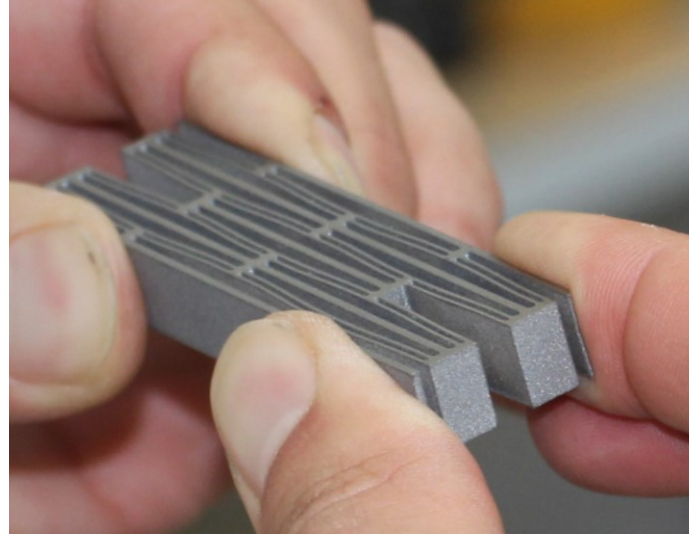
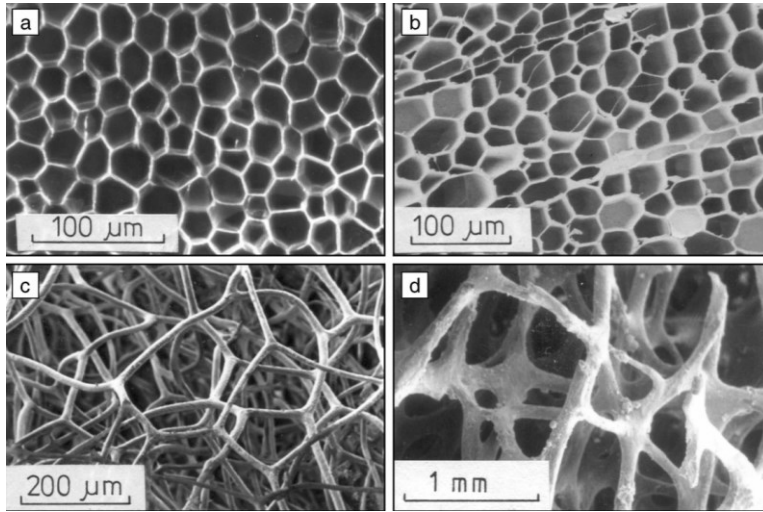
Parametric Design and Additive Manufacturing of Metallic Cellular Lattices for Recoverable Energy Absorption

Ali Jafarabadi



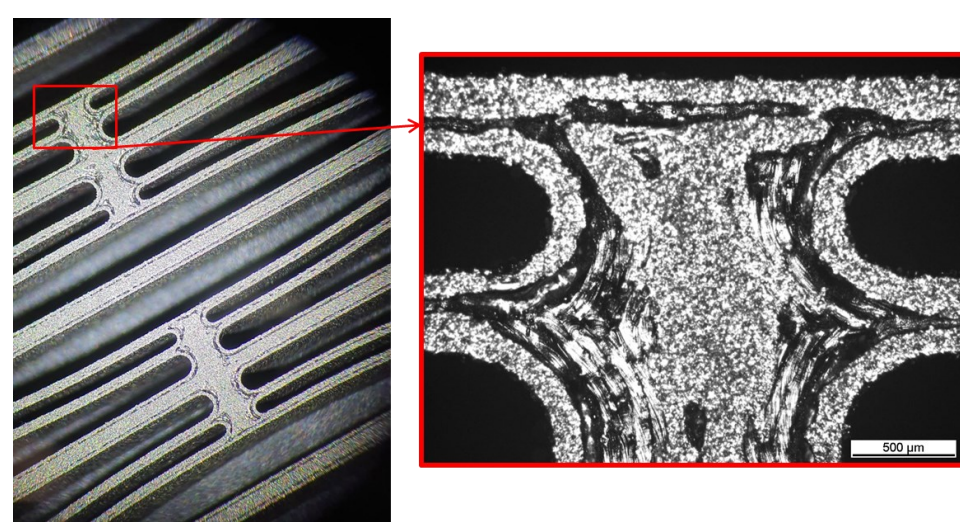
Materials Science and Technology

Negative stiffness mono-stable cellular lattices

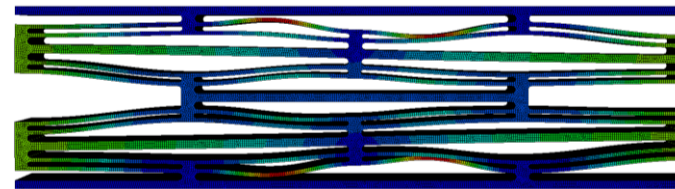


Imperfections in metallic cellular lattices

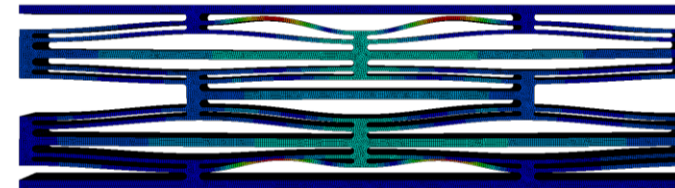
- Imperfections in the as-built structure distort the predicted response



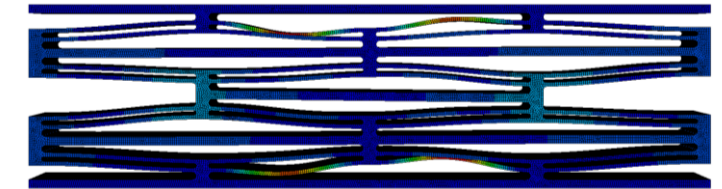
Imperfection consideration in FEA



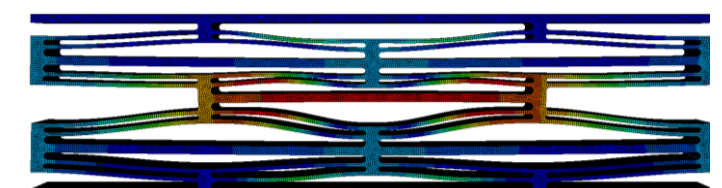
Mode-1



Mode-3

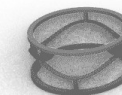
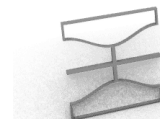
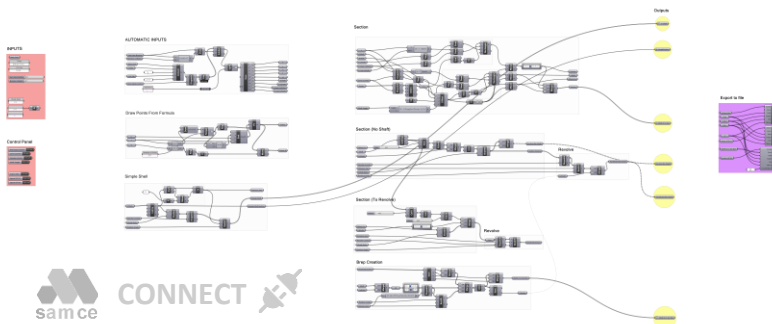


Mode-2



Mode-4

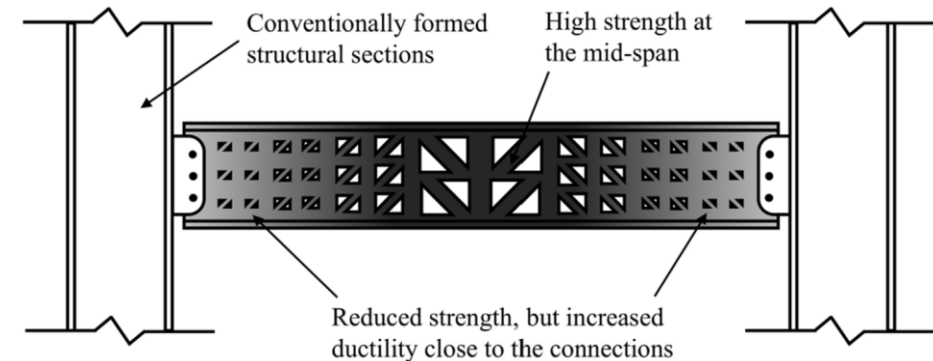
Parametric design in Grasshopper3D



GH3D code:
H. Mirghaderi
M.H. Baqershahi

Support

- Imperfection consideration in post-buckling analysis of additively manufactured structures
- Design and FEA of bi-stable cellular lattices made of SMA alloys
- Impact testing facilities
- Potential applications of energy absorbing cellular lattices



Buchanan, Craig, and Leroy Gardner. "Metal 3D printing in construction: A review of methods, research, applications, opportunities and challenges." *Engineering Structures* 180 (2019): 332-348.

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